

IEPRe Policy Brief

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OPPORTUNITIES AND CHALLENGES IN GLOBAL ENERGY TRANSITION

KEY FINDINGS

- 1 Advanced technology:** The challenges of energy security, environmental protection and economic efficiency has brought about the use of advanced energy technology for energy production. The utilization of such technologies in Malaysia is expected to lead to a substantial decrease in fossil fuel-based energy demand and CO₂ emissions. However, high inflow of intermittent renewable energy, for example, will require additional investment in the energy infrastructure to ensure system reliability.
- 2 Clear and appropriate policy:** To promote energy transition and market reform, policy makers in Malaysia should offer clear and appropriate policy deployment based on effective coordination and collaboration among stakeholders. The right framework should be established to ensure high-level transparency, accountability, good governance and level playing field for new entrants.
- 3 Competitive market:** Malaysia needs to pursue the development of sufficiently competitive energy market. For the energy market to be competitive, there must be mechanism to avoid or limit market power and manipulation; multiple and diversified players; liquid trading; transparent, reliable market design and regulation. A competitive energy market could result in transparent price signals based on supply-demand balances, promote market efficiency via the effects of competitive price which leads to industrial streaming and rationalization.
- 4 Gas market liberalization:** Dramatic increase in natural gas demand will affect the market balance and increase natural gas price in a competitive market. Malaysia as a top player in the global LNG market needs careful consideration to adopt any policy in case of gas sector liberalization. Hence, Malaysia needs to examine gas market reform in a careful manner. Besides, TPA and introduction of competition in gas market should be promoted towards national interest.
- 5 Renewables energy:** To achieve 20% share of the renewable energy to the total power generation capacity by 2025, Malaysia needs large inflow of renewable energy which will lead to supply-demand adjustment through grid connectivity and negative impact in the economy of fossil fuel power generation and incumbent utilities. Moreover there will be implications of policy-supported renewable energy pushed supply curve in the whole electricity market.

EXECUTIVE SUMMARY

The global energy industry is currently facing serious challenges as a result of volatile crude oil price, increased CO₂ emission, as well as, growing power demands. These myriad of challenges have led to a concerted global effort to address the environmental and energy security issues. Malaysia as a major player in the global energy sector needs a massive transformation in the energy sector to ensure energy security, affordability and reliability. Malaysia is in the middle of accelerating its energy market transition- and market reform towards transparent and competitive energy market, empowered by continuous progress in advanced energy-related technology.

Towards achieving a successful energy market transformation, the third "International Forum on Global Energy Landscape 2019" (IFGE2019) was held to gather policy insights from international and Malaysian energy leaders and experts. The forum discussed the opportunities and challenges in the global energy transition with Malaysian perspective. Keynote speakers from different countries shared their expert opinions on energy market transition and reform. Moreover, three plenary sessions were conducted featuring discussions on long term outlook for global energy market and the role of renewable energy, as well as the key challenges in the process of liberalizing electricity and gas markets. In addition, the impact of energy transition on power utilities was also discussed. A number of good practices and lesson learned were extracted and to offer some policy implications for Malaysia.

The forum highlighted several key issues regarding global energy transition and the different roles, opportunities and challenges of all energy sources, including renewable energy and gas, for improving energy security and mitigating climate change. Several recommendations to the Malaysia government in ensuring a competitive and successful liberalized energy market include; i) Establish clear and appropriate policy to promote the entrants of multiple and diversified players into the market, market efficiency and liquid trading, ii) Put in place mechanism to avoid or limit market power and manipulation therefore ensuring a level playing field for market players, iii) Evaluate current priorities and allocate sufficient investment in "zero-emission" power generation to decarbonize the energy sector.

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HIGHLIGHTS

Keynote Address- Opportunities and Challenges in Global Energy Transition

The key note address described the historical and future of the global energy market. The global energy landscape has transformed from being coal-dominated under industrialization in the 19th century to oil-dominated in the 20th century. In the 1970s, a series of crisis rocked the oil sector which aroused the quest for oil substitution policy and diversification from oil-dominated energy utilization. Presently, a global energy transition is underway to address environmental and energy security problems. These efforts centered on the development and deployment of advanced technologies such as renewable energy/nuclear power and zero-emission vehicles as well as the possibilities to develop new unconventional energy sources. Meanwhile, recent studies have shown that there is a dramatic growth of energy demand in Asia whereby 63% of the increment is coming from China, India and ASEAN. In tandem with the increasing energy demand, Asia is confronted with the challenges of energy security, environmental protection and economic efficiency. History of energy market showed the need to regulate the energy market due to the economy of scale, externalities and its importance not to be left for the market mechanism alone. However, the deregulation of the energy market would facilitate the functioning of the market mechanisms and promotion of competitive market, which could lead to cost minimization and rationalization. Nevertheless, competitive market does not necessarily guarantee the investment in “zero-emission” power generation and required capacity for power market stability. Besides that, several factors affecting gas/LNG demand in Asia were also highlighted which include economic growth, the need to protect the environment, lower energy price, future of nuclear power, competition against renewable energy and coal, competition with LPG, the impact of power/gas market reform, and pipeline versus LNG issue.

Plenary I- Long term Outlook for Global Energy Market and the Role of Renewable Energy

The session discussed the outlook for long term global energy trend to highlight various scenarios for future global energy transition. The global energy landscape has experienced transition from being coal-dominated under industrialisation in the 19th century to oil-dominated in the 20th century. However, the oil sector has been rocked with series of crises which aroused the quest for oil substitution policy and diversification from oil-dominated energy utilisation. Because energy consumption and economic growth go hand in hand, countries must provide sufficient capacity for their electricity systems. Besides, global challenges such as energy security, energy efficiency, and environmental protection has led to the anticipation for advanced and innovative technologies to meet the growing energy demand especially in Asia. One plausible means of resolving these challenges is through the use of advanced technologies for energy production. Using advanced technologies for energy production will lead to a remarkable decrease in fossils-fuel consumption and reduction in energy-related CO₂ emissions. Secure, efficient, and renewable energy, all three, are central to the energy's future. The right policy mix and policy instruments could promote the long-term objectives of developing the country's innovation and institutional capacity, which will foster a competitive and sustainable energy sector.

HIGHLIGHTS

Plenary II - Challenges of Power Market Transition and Liberalisation

This session addressed the challenges of power market liberalisation. Several reasons have been identified in the existing power market which demands its transition and liberalisation. One of the reasons is inadequate competition in the existing power market which has limited outcomes in market competency and efficiency. In addition, rapid technological change and IT revolution also call for energy market decentralisation. Other challenges are the “missing money” problems due to lowered price in a competitive wholesale market, even negative price in some cases in the power sector and insufficient capacity, exacerbated by mandating zero marginal operating cost renewable plants. The liberalisation of power sector needs appropriate policy to make sure it is successful. For the energy market to be competitive, there must be multiple, diversified players and liquid trading. Moreover, there must be a mechanism to avoid or limit “market power” and manipulation, as well as enabling a transparent and reliable market design and regulation. A competitive energy market would result in more transparent price signals based on electricity supply-demand balances, greater market efficiency via the effects of competitive price, as well as industry streaming and rationalization.

Plenary III - The Role of Gas in Global Energy Transition and Its Challenges in Sustainable Energy Future

This session highlighted the role and contribution of gas in the global energy transition. Gas is the second largest source of energy after coal for global electricity generation. Malaysia plays a significant role in the international gas market as the fourth largest LNG exporter. Therefore, Malaysia has a strong position in the global energy market with a promising outlook due to the increase in global LNG demand. Alongside the electricity supply industry, the gas supply sector is also undergoing a transition. Malaysia is currently aiming to create a competitive gas market through restructuring, privatization and creating a platform for the entry of new market players. Pathway for gas decarbonisation includes biogas or biomethane production, bio-SNG via gasification, CO₂ free hydrogen from “power to gas” as well as from methane reforming with carbon capture and storage (CCS). The sustainable utilization of natural gas or LNG may face challenges in the long run especially OECD Europe. Various value chain actors in sustainable gas utilization have different business models. But, decentralisation and liberalisation could become another challenges to achieve decarbonisation and increased affordability of gas towards sustainable energy future. Affordability of gas and LNG import would be the key issue for the future gas demand. Therefore, there is a need to maintain a sustainable gas price and supply of LNG.

POLICY RECOMMENDATIONS

1. Establish clear and appropriate policy to promote the entrants of multiple and diversified players into the market, market efficiency and liquid trading.
2. Evaluate current situation and priorities of the country in order to ensure energy security, affordability and reliability. Legislation and regulation of liberalised energy market must consider all stakeholders to ensure a level playing field, fair and truly competitive market for every market player.
3. The liberalization of the energy market in Malaysia is expected to play a role to promote a well functioning-market. But simultaneous achievement of competitive market and more investment in “zero-emission” power generation is a real challenge, which requires us the introduction of a new mechanism to address the energy mix challenges.
4. The tariff for renewable energy should reflect the structure of cost, especially with regard to the fixed and variable cost. The government should use neutral market mechanisms that do not favour any particular technology for clean energy production.
5. Put in place a strategy or mechanism to ensure competitive price of gas in line with the international market which will promote market efficiency.

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