Bohol Reflection

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On 9 August 2017, the 1st East Asia Energy Forum (EAEF) was held with the sponsorship of the Economic Research Institute for ASEAN and the East Asia (ERIA), Energy Research Institute Network (ERIN) and the Department of Energy, Philippines. The Forum with the theme of "how to supply and use fossil fuel" marked a great success with insightful presentations and active discussion and has highlighted a couple of key policy challenges and opportunities.

Fossil Fuel: Still Dominant in EAS Energy Mix in 2040

According to the ERIA's Energy Outlook and Energy Saving Potential in East Asia 2016, fossil fuel (oil, coal and natural gas) demand in the EAS region will grow by 79% between 2013 and 2040, accounting for 84% of the Total Primary Energy Supply (TPES) in 2040 under the Business As Usual (BAU) Scenario. This demand growth, driven mainly by the objectives of ensuring energy security, fuel supply stability and affordability, is far higher compared to the global average.

This means the East Asia Summit (EAS) region accounts for the bulk of incremental global fossil fuel demand. Even under the Advanced Policy Scenario (APS) assuming more aggressive energy efficiency and higher penetration of non-fossil fuels, the fossil fuel demand will grow by 39%, still accounting for 76% of the TPES. Notwithstanding ongoing efforts in the EAS region to promote energy efficiency and renewable energy sources, it is obvious that fossil fuels will play crucial role in energy mix in the EAS region.

Oil: Growing Demand but Insufficient Emergency Preparedness

Oil will still be a base energy source in the future as convenient fuel in terms of wide usage, easy transport and procurement. In particular, oil demand in the EAS region is

expected to grow by 93% between 2013 and 2040 under the BAU Scenario of the ERIA Energy Outlook, which is far higher growth compared with the global average.

Since regional production would not be able to keep pace with the rapidly growing regional demand, towards 2040, the EAS region is expected to continue its dependence on imported oil, mainly from the Middle East through such choke points as the Strait of Hormuz and the Strait of Malacca. Accordingly, even taking into account the prospect of shale oil imports from the US, the EAS region will be particularly vulnerable to supply disruptions caused by various events such as natural disaster, accidents, regional conflict, terrorist attacks and piracy.

In safeguarding against supply disruptions, it is obvious that the EAS region needs to further enhance its emergency preparedness through development of oil stockpiling, preparation of measures for demand restraint and fuel switching in each country, and establishment of regional cooperative arrangement for coping with emergency. These measures can leverage on the current opportunity provided by affordable oil prices and the prospect of more abundant global supply. Furthermore, such emergency preparedness measures can be complemented by initiatives to promote energy efficiency, develop alternative fuels, and diversify supply sources.

While the International Energy Agency (IEA) member countries have more than 90 days' oil stock and are ready to activate emergency response measures including demand restraint and joint oil stockdraw in the event of supply disruption, emergency preparedness in the Non-OECD Asian countries is still under development and has not kept pace with their rapidly growing oil demand. While ASEAN has the ASEAN Petroleum Security Agreement (APSA), the ASEAN region cannot be shielded from the impact of supply disruption in other parts of the EAS region.

There are various ongoing initaitives related to emergency preparedness in Asia such as Oil Stockpiling Roadmap (OSRM) under the ASEAN+3 as well as the Oil and Gas Security Initiative (OGSI) under the APEC Energy Working Group (EWG). However, the former does not cover two big players, namely India, of which oil demand growth will be much faster than the EAS average, and the US, which has a growing export potential to Asia. Meanwhile, the latter does not cover India, Cambodia, Lao PDR, and Myammar.

Taking into account EAS' membership coverage, its share of the global oil demand, and the presence of both producers and consumers, the EAS is the most appropriate forum for addressing emergency preparedness in the region. While the EAS Energy Cooperation Task Force (ECTF) is currently focusing its efforts on three workstreams, namely, 1) energy efficiency and conservation, 2) biofuel for transport and other purposes, and 3) renewable and alternative power generation, emergency preparedness is not addressed. The Cebu Declaration (2007), on which the ECTF was established, clearly reaffirmed the "collective commitment to ensuring energy security for our region" and its intention to explore "possible modes of strategic fuel stockpiling such as individual programmes, multi-country and/or regional voluntary and commercial arrangements". Given further increasing dependence on oil imports from the Middle East and the growing vulnerability to supply disruptions, it is high time that the ECTF could address oil emergency preparedness, including taking stock of the progress in the on-going initiatives in the APEC and ASEAN+3 and avoiding duplicative efforts.

Natural Gas: Need of Flexible Market and Competitive Price

The global gas demand will mark the highest growth among fossil fuels due to its advantage of lower CO2 emissions and other harmful by-products as well as its competitive prices. As the world move towards the aspiration of the Paris Agreement, the crucial role of natural gas would be further highlighted. The bulk of the incremental growth is projected to come from the EAS region driven by China and India where gas demand, mainly in the form of LNG, will grow by 168% under the BAU Scenario.

The Asia Pacific region is expected to see 34% increase in LNG production capacity in 2022. Asia is also expected to account for 70% of the global LNG import in 2035. On-going ERIA research on policy options for promoting natural gas utilization in the EAS suggests that, with various policy supports, natural gas demand in ASEAN and India could potentially expand by 2.3-2.5 times by 2030.

With a view to maximizing natural gas penetration in the energy mix, in addition to ensuring efficiency and cost-effectiveness of LNG production in the region, regional efforts for raising the competitiveness of LNG prices is essential. Liberalization of natural gas markets, for example, through a shared and third party operated infrastructure will encourage new players to enter the market. A rising number of

gas-receiving terminals around the region will also open up opportunities for a more flexible LNG market. This would allow gas price to be more market-driven and competitive and create more gas interconnectivity. At the same time, this will provide security of supply for consumers, as they are no longer dependent on a single source for their gas supply.

The establishment of gas hub in Asia as a focal point of active LNG spot trading could help stabilize markets by enhancing supply flexibility making gas more competitive in the region. Asian LNG hub has to have its own benchmark price representing the Asian LNG market, reflect the physical LNG market balance and have various types of market participants. Experiences in the American and European hubs and their lessons for creating Asian hub should be carefully examined while noting that there are similarities and differences with the EAS region and there is not a simple cut-and-paste solution. At the end of the day, LNG market in the EAS region should be designed as "win-win" for all players, assuring for both the producer and consumer ends of the chain.

Innovative use of natural gas should also be promoted. In addition to its low-carbon content, natural gas could be served as a fuel to generate zero-carbon energy sources, such as the production of hydrogen gas for fuel cells. As announced by Minister Yasmin, Brunei is currently developing the world's first Hydrogen Supply Chain Demonstration Project to supply hydrogen towards Tokyo Olympics in 2020, which will present an innovative model for natural gas as a fuel for zero-carbon energy sources.

Coal: Need to Overcome Negative Image

Coal demand in the EAS region will grow by 56% between 2013 and 2040 under the BAU Scenario of the EAS Energy Outlook, far surpassing the global average. While its share in the TPES in the EAS region is projected to decline from 52% in 2013 to 45% in 2040, this figure is almost twice higher than the global average.

Coal is expected to play a crucial role in the EAS power generation mix given its abundant availability as well as its contribution to security of supply including energy access, reliability, and affordability. On the other hand, environment circles are advocating that coal use should be discouraged and phased out as soon as possible due to its higher CO2 emissions. This demonstrates the widening discrepancy between energy reality and climate change advocacy.

Developing economies need cost-efficient and reliable energy to meet their economic potential while addressing climate change challenges. It should be borne in mind that one in seven people in Asia still lack access to basic electricity. Each country has different economies, geographies, and social needs and therefore there is no "one-size-fits-all" approach for an ideal energy mix. In this regard, it is pragmatic and sensible to take a "technology neutral" approach considering both conventional and non-conventional sources, not constrained by rigid or arbitrary targets on energy mix.

At the same time, it is encouraging that renewable energy costs are falling. The intermittent nature of certain renewable technologies will be eventually overcome by advancing battery and storage and smart-grid technologies, which will allow renewable energy sources to become more feasible, affordable, and reliable. In other words, conventional energy sources, including coal, should have a role to play between now and then.

What matters is to explore how to use coal in an environmentally sustainable manner to act as a bridge to a carbon-free energy future, rather than simply ruling out coal altogether. Technologies play the key role. For example, there exists many old and inefficient coal power plants in the EAS region. Moreover, many new and additional coal-fired power plants will be constructed and come into operation between now and 2040. IEA estimates that 1.5 Gt of CO2 could be cut annually by deploying clean coal technologies (CCT) such as ultra-super critical (USC) thermal technology in refurbishing existing old and inefficient coal plants and in introducing new and additional plants.

The challenge lies in the higher upfront cost of CCT compared with conventional technologies. Attractive financial/loan schemes needs to be developed domestically and internationally for incentivizing deployment of CCT. However, there is an emerging debate in international financial fora driven by environmental circles aiming at constraining financial flow to whatever coal thermal technologies including CCT. It is inappropriate for such arguments to solely focus on the climate change policy objective, without due regard to the equally important policy objectives of energy security, energy access, and affordability. It is also counterproductive in terms of climate mitigation since the lack of finance for high-efficient but more expensive CCT would simply result in deployment of cheaper and less efficient technologies and more CO2 emissions.

Another challenge for coal is the public acceptance in local communities. In many EAS countries, coal-fired power plants tend to face local opposition even though they employ CCT. This trend is partly driven by local residents' negative experience of pollution from old plants and partly inspired by generally negative media coverage led by environmental groups.

In the EAS countries opting for the use of coal, there needs to be well-crafted Information, Education and Communication (IEC) campaign to spread correct information about the role of coal in the national energy mix in terms of security of supply, energy access, and affordability as well as the environmental and economic performance of CCT. It is also essential to engage local communities regularly and be responsive to their concerns. Best practices for raising public awareness should be shared among the interested EAS countries. More fundamentally, energy policy makers of the EAS countries retaining coal option should send their holistic and pragmatic perspectives about the role of coal in their countries' energy mix to the international community including environmental and financial circles.

In order to retain coal as an arrow in the quiver, the development and commercial deployment of more advanced CCT and ultimately carbon capture and storage (CCS) technology are crucial. Given fossil fuels will continue to play a far more crucial role in the EAS region compared to other regions, there should be pursuit of international collaboration for development and demonstration of CCS technologies among interested EAS countries.

Crucial Role of Governments

The forum discussions reaffirmed the crucial role of governments in strengthening the policy environment that can enable the cleaner use of fossil fuels. This includes through crafting appropriate fiscal and non-fiscal incentives as well as fostering healthy environments for investment and innovation that can support the twin goals of affordability and sustainability.