Chapter 2

Natural Gas Outlook in the East Asia Summit Region

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CHAPTER 2

Natural Gas Outlook in the East Asia Summit Region

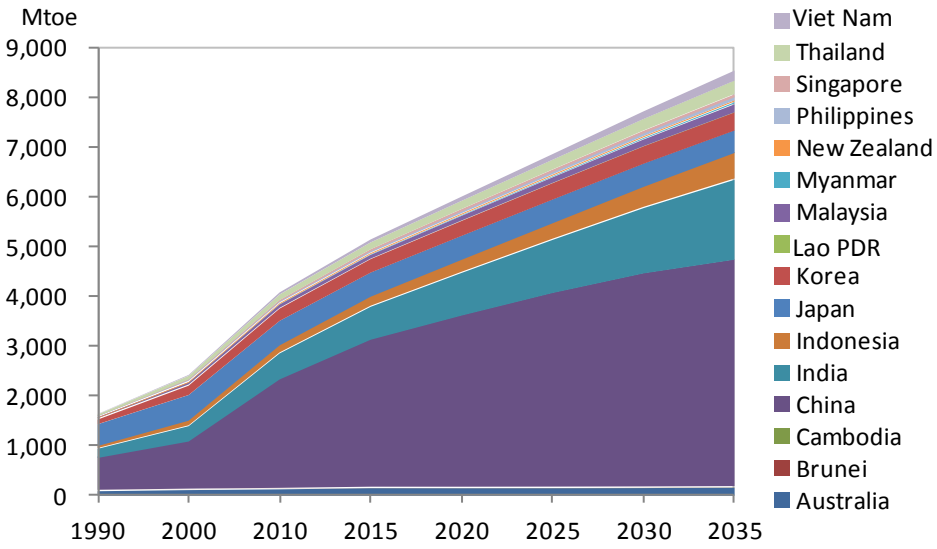
This chapter will look into the perspectives of natural gas demand, supply, and international trades within and outside the EAS region. First, ERIA's energy demand outlook in the EAS region will be presented. Second, the supply perspective in the region based on an IEEJ scenario will be explained. Finally, taking into account the supply/demand perspectives, a possible picture of international trades within the region and with external regions will be presented.

2.1. Demand

With the robust economic growth and population expansion, the EAS region will consume a substantially increased volume of energy in the future. According to the outlook by ERIA,[2] the primary energy demand in the region will increase at 3 percent per annum—from 4,079 million tonnes of oil equivalent (Mtoe) in 2010 to 8,536 Mtoe in 2035. Although ERIA does not conduct worldwide forecast, there is consensus that the Asia-Pacific region, of which EAS countries cover the majority of its energy demand, will drive the world energy demand. China, and to a lesser extent India, will be the driving forces of the demand growth. These two countries alone are expected to consume as much as 73 percent of the total energy supply in the EAS region.

[2] Economic Research Institute for ASEAN and East Asia (ERIA) (2013), 'Analysis on Energy Saving Potential in East Asia'. June. http://www.eria.org/RPR-FY2012-19.pdf

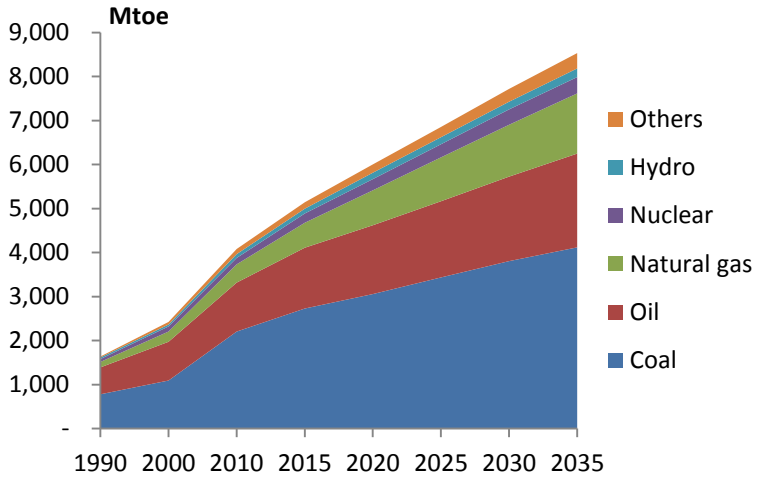
Figure 2.1: Primary Energy Supply Outlook by Country in the EAS Region



Source: Economic Research Institute for ASEAN and East Asia (ERIA).

As far as energy mix is concerned, coal will remain the main fuel for the region, reflecting heavy reliance on coal, especially in China and India. Oil will take the second largest share of the total energy demand in the region, underpinned mainly by rapid motorisation. Natural gas demand will grow fastest amongst the fossil fuels to reach 1,368 Mtoe (1,432 billion cubic metre [bcm]) in 2035, accounting for 16 percent of the total energy in the region.

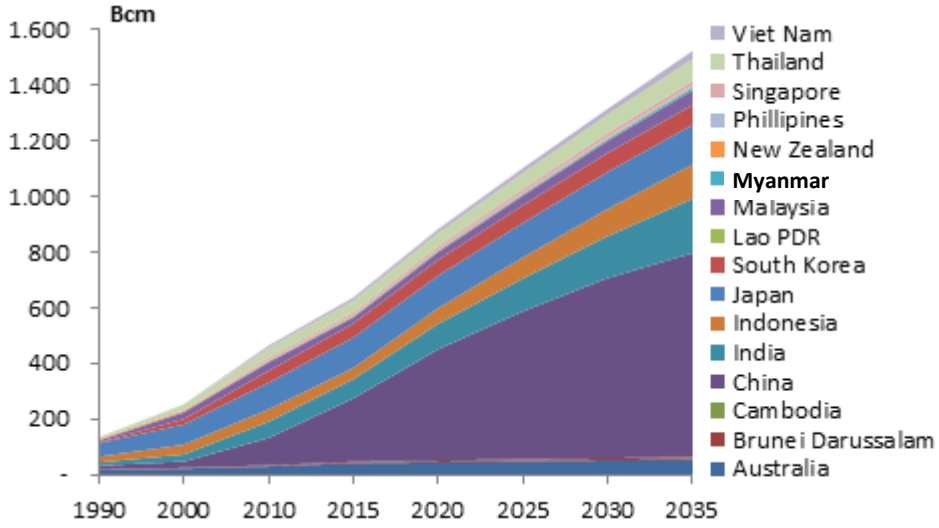
Figure 2.2: Primary Energy Supply Outlook by Fuel in the EAS Region (BAU)



Note: Mtoe = million tonnes of oil equivalent.
Source: Economic Research Institute for ASEAN and East Asia (ERIA).

Like the case of primary energy supply, China and India will drive the natural gas demand in the EAS region. These two countries are expected to account for 48 percent for China and 13 percent for India of the total demand in 2035 in the region, followed by Japan, Indonesia, and South Korea.

Figure 2.3: Natural Gas Demand Outlook by Country in the EAS Region (BAU)

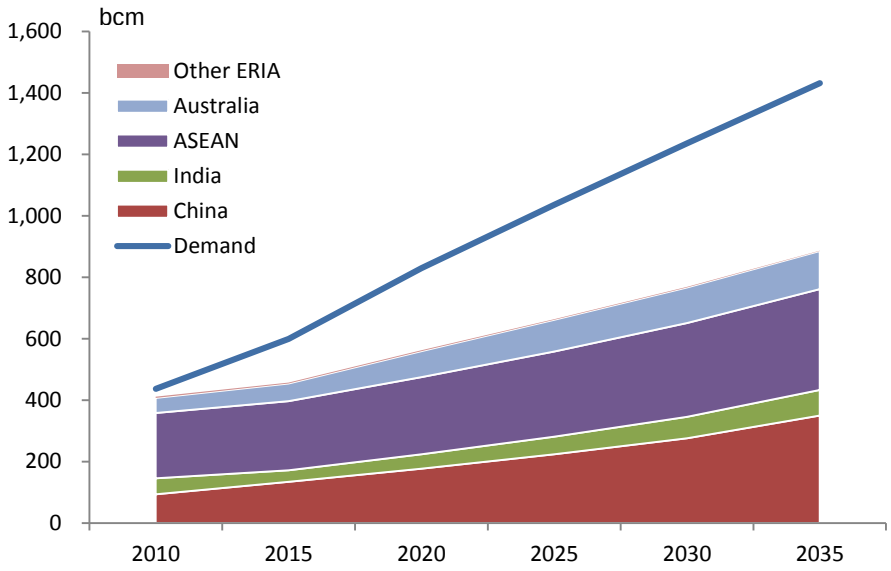


Note : bcm = billion cubic metre. 1Mtoe=1.11Bcm
Source: Economic Research Institute for ASEAN and East Asia (ERIA).

2.2. Supply

The EAS region has a rich resource of natural gas, conventional or unconventional. Production in the region will increase steadily, especially in China and Australia. Other countries, especially Indonesia and Malaysia, are also expected to produce more natural gas during the projected period. Nevertheless, regional production will highly unlikely be able to keep up with the demand growth. As a result, the dependency on non-EAS region will rise from 25 bcm in 2010 to 546 bcm in 2035, making the import dependency rate to reach 38 percent in the same year.

Figure 2.4: Natural Gas Supply Outlook in the EAS Region



Note: bcm = billion cubic metre.
Sources: Economic Research Institute for ASEAN and East Asia (ERIA) and The Institute of Energy Economics, Japan (IEEJ)

2.3. International Trades

The EAS region already imports a substantial amount of natural gas from non-EAS region, mainly Middle East, and to a lesser extent, Central Asia and Russia. Import dependency will rise significantly in the future. The above analysis suggests that the EAS region might need to source 546 bcm of natural gas from outside the region in 2035. Considering the demand and supply projections, this section will present the possible scenario in terms of international trades in the EAS region.

2.3.1. Pipeline Gas

Currently, only China imports pipeline gas from non-EAS countries.[3] The country started to import pipeline gas from Turkmenistan in 2010 and from the Republic of the Union of Myanmar in 2013. Additionally, the country reached an agreement to import 38 bcm before 2020 and potentially, another 30 bcm of pipeline gas from Russia. In the long run, the country could import more than 130 bcm–150 bcm of pipeline gas mainly from the former Soviet Union in 2035.

[3] Statistically, Australia imported 7 bcm from Timor-Leste in 2013. The import is all from Timor-Leste–Australia Joint Petroleum Development Area, not the pure jurisdiction of Timor-Leste. Thus, for convenience, this section does not consider this trade as import from a non-EAS country.

Figure 2.5: International Pipeline Concept in Northeast Asia

Source: Northeast Asian Gas & Pipeline Forum.

With its vast demand potential, India is another country that could import significant amounts of pipeline gas from non-EAS region. The country has been in talks with Iran (Peace Pipeline project) and, more recently, with Turkmenistan (Turkmenistan–Afghanistan–Pakistan–India: TAPI project). As far as the Peace Pipeline project is concerned, the Iran–Pakistan section could be built, but it is uncertain whether the pipeline will reach India as originally planned. The TAPI project seems more promising for India although no import contract has been signed yet. The Gas Authority of India estimates that 14 million standard cubic metre per day (MMscmd) (5 bcm per annum) will be consumed in Afghanistan, and 38 MMscmd (13 bcm per annum) in Pakistan, while 38 MMscmd will reach India.

Figure 2.6: Pipeline Routes of IPI and TAPI Projects

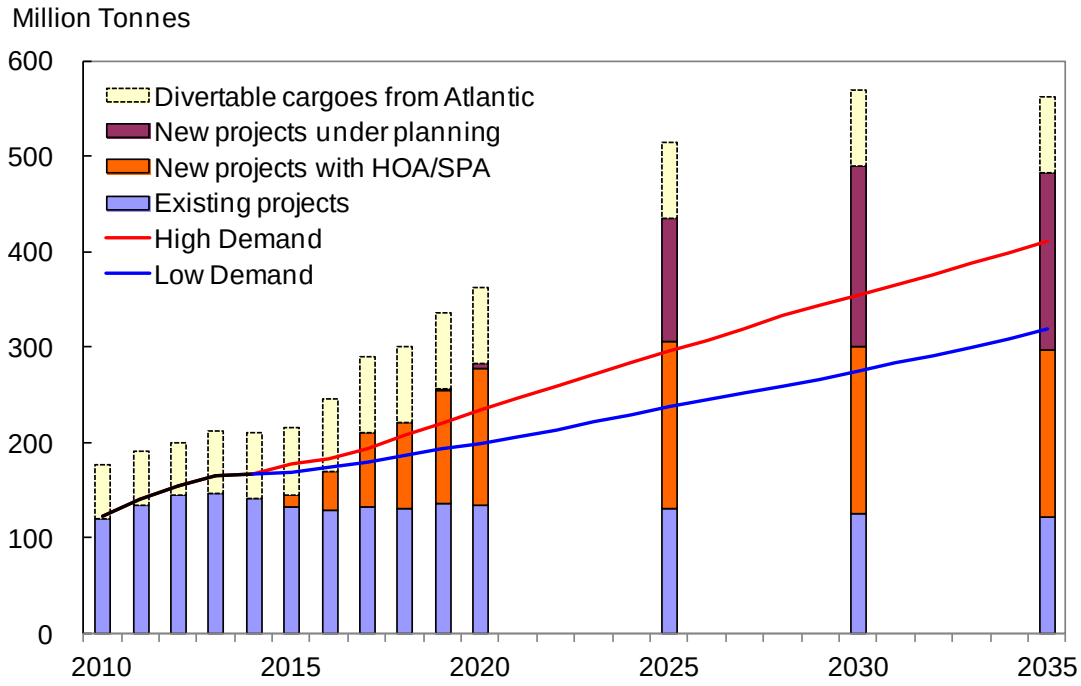
Note: IPI = Iran–Pakistan–India, TAPI = Turkmenistan–Afghanistan–Pakistan–India.
Source: *Wall Street Journal.*

2.3.2. Liquefied Natural Gas

While there is substantial potential for pipeline gas imports, it is expected that the majority of non-EAS supply will be in the form of liquefied natural gas (LNG). According to IEEJ, LNG demand in the EAS region will increase from 122 million tonnes (MT) (166 bcm) in 2010 to 318–411 MT (432–559 bcm) in 2035.

Although the demand will grow rapidly, there is ample supply potential for the EAS region. Australia will add about 60 MT by 2020. The US is expected to produce even more LNG by around 2020, while India, Japan, South Korea, and Indonesia have already committed to lift 33 MT per annum. Canada could emerge as another significant LNG exporter for the EAS region with a potential capacity of around 30 MT per annum by 2025. There are other potential substantial sources, such Russia and East Africa. Nevertheless, it is important to secure adequate and timely investment to realise those potential projects—to achieve security in natural gas supply in the EAS region.

Figure 2.7: Liquefied Natural Gas Outlook in the EAS Region



Note: HOA = Head Of Agreement, SPA = Sales and Purchase Agreement.
Source: The Institute of Energy Economics, Japan (IEEJ).