Chapter 2

Background

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CHAPTER 2

Background

Liquefied natural gas (LNG) prices in Asia had been considerably higher than those in the Atlantic market especially between 2011 and 2014 (Figure 2.1). The price gap, or Asian premium of LNG, could not be explained alone by transportation cost between Atlantic and Asian markets. The huge premium was a serious problem for LNG-importing countries in Asia.

The relaxation of supply–demand balance and the collapse of oil prices led to lower LNG price and decreased the Asian premium of the LNG. However, there remain four unresolved challenges:

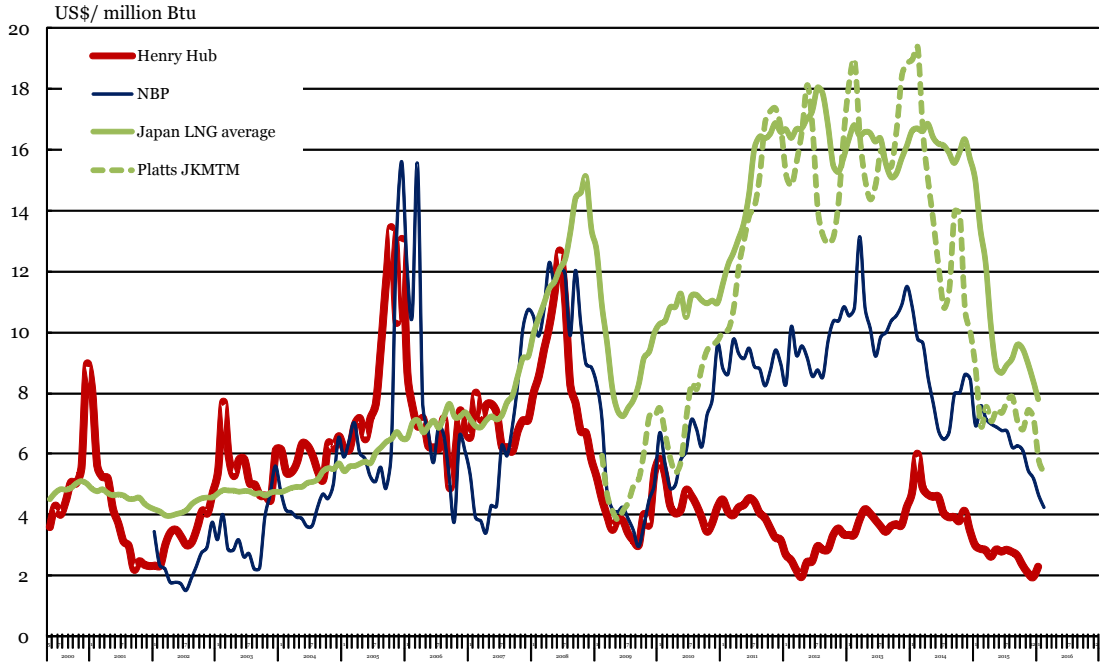
(i) Calling for flexibility in the LNG trade in Asia

(ii) Seeking appropriate price formation

(iii) Ensuring gas security

(iv) Securing investments to ensure future LNG supply

Figure 2.1. Transition of Gas Price



Btu = British thermal unit, LNG = liquefied natural gas, NBP = national balancing point, US$ = United States dollar.

Source: Energy Information Administration, USA; Trade Statistics, Japan; Platts, Energy Intelligence.

2.1 Calling for flexibility in the LNG trade in Asia

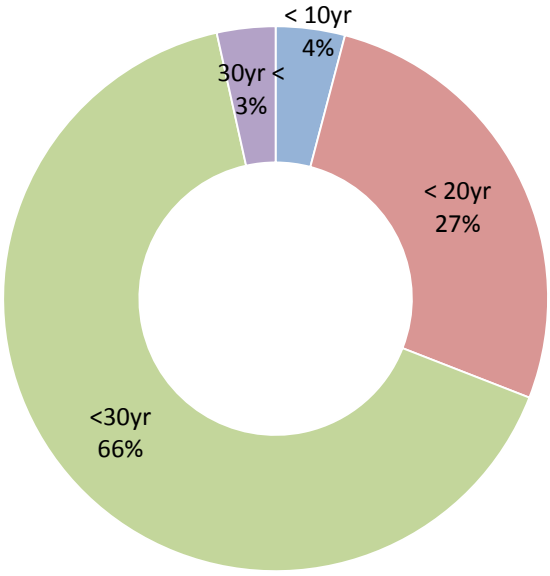
LNG transactions in Asia are usually characterised by large volume, long term, and rigid contractual terms. These characteristics have been brought about by high gas transport, liquefaction and storage cost of natural gas, as well as high investment risk associated with upstream developments and illiquid LNG market in Asia. Therefore, traditional LNG contracts for Asia feature certain terms to reduce upstream investment risks and secure operation in a quasi-vertically integrated manner.

First, products typically have been sold under long-term contracts that often span more than 20 years (Figure 2.2). This is still largely the same today especially for new LNG projects, while some existing LNG projects offer shorter contracts (Figure 2.3).

Second, terms of LNG contracts include the so-called 'take-or-pay' clause where a buyer is required to pay for the cargoes even if it cannot take them for whatever reasons, although 5 percent to 10 percent upward or downward quantity allowance is typically embedded in the contract.

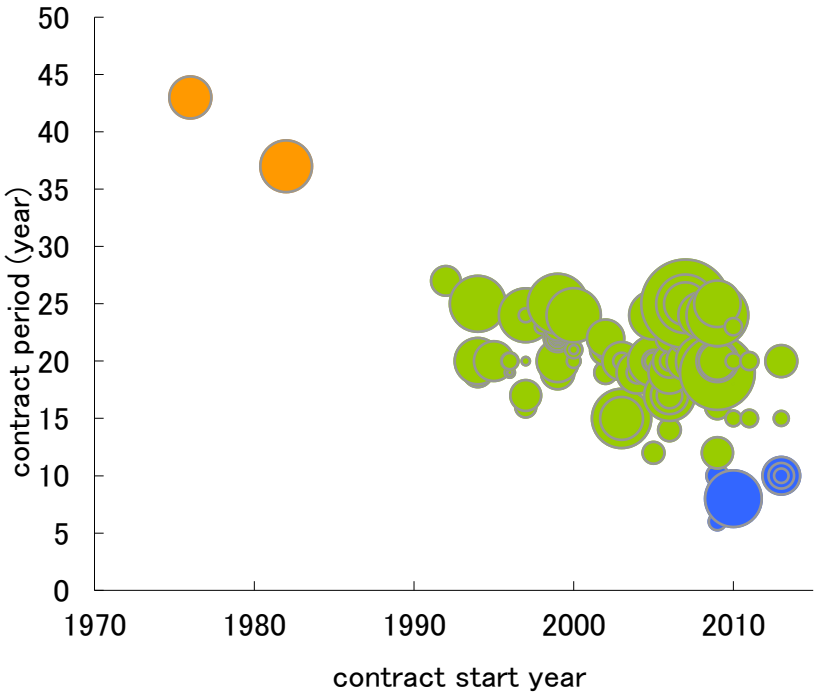
Third, in most LNG contracts for Asia, products are shipped only to specific geographical point(s) or country under 'destination clause'. This clause was originally intended to lower investment risk by reinforcing security of supply for buyers and of demand for sellers. With destination clause, even in the case of free-on-board (FOB) contract, a buyer is not allowed to resell a cargo to another buyer without the seller's consent. In Europe, the destination clause was made illegal to be incompatible with the Rome Treaty by the European Commission, and almost all destination clauses were removed in FOB contracts.

Figure 2.2. Liquefied Natural Gas Contract Volume by Contract Period (Existing contracts as of end of 2012)



Source: Various company websites and news articles.

Figure 2.3. Liquefied Natural Gas Contract Period by Contract Year
(Existing contracts as of end of 2012)



Note: Size of circle represents contract volume.
Source: Various company websites and news articles.

While some contracts have offered relatively flexible terms in recent years, inflexibility still remains in many LNG contracts in Asia. Importers need flexibility in gas trade not only to accommodate demand fluctuation but also, in the case of Japan, to prepare for unpredictable future domestic gas demand as a result of power and gas market liberalisations. Flexibility is also important for establishing gas-on-gas (market) pricing because this pricing is possible only through flexible trading activities and subsequent growth of liquidity in the LNG market.

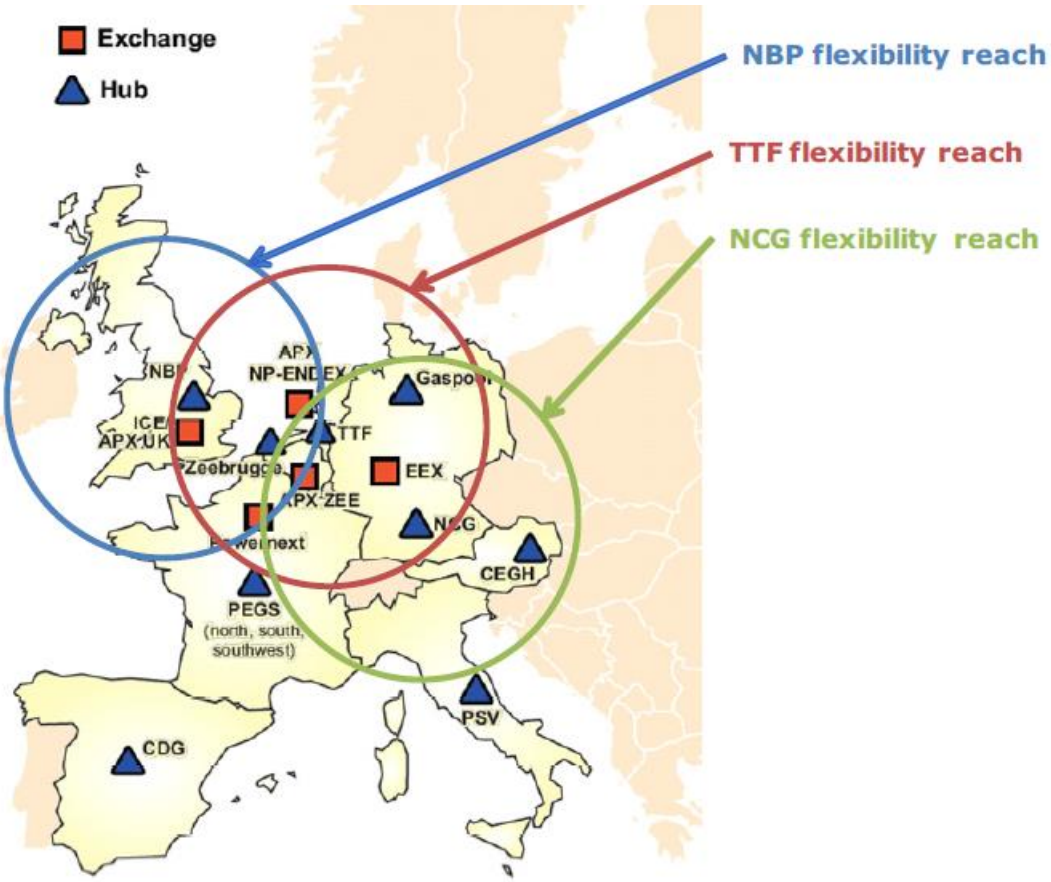
2.2 Seeking appropriate price formation

It is well known that the LNG in Asia has traditionally been priced in relation to crude oil price – typically Japan's average crude import price or Japan customs-cleared crude. Such oil indexation is an issue not only for price formation but also for flexibility because, due to the structure of price formulas, oil indexation prices cannot follow market fundamentals in a timely manner.

The oil indexation originated from Europe where majority of imported gas was priced by formula so that natural gas could compete with alternative fuel (mainly fuel oil and gas oil) in the market of importing countries. However, gas-on-gas pricing has been increasing in Europe because wholesale markets or hubs have become liquid enough to replace oil-

indexed prices that could not follow the fundamentals of the LNG market especially in 2009 and 2010 (Figure 2.4).

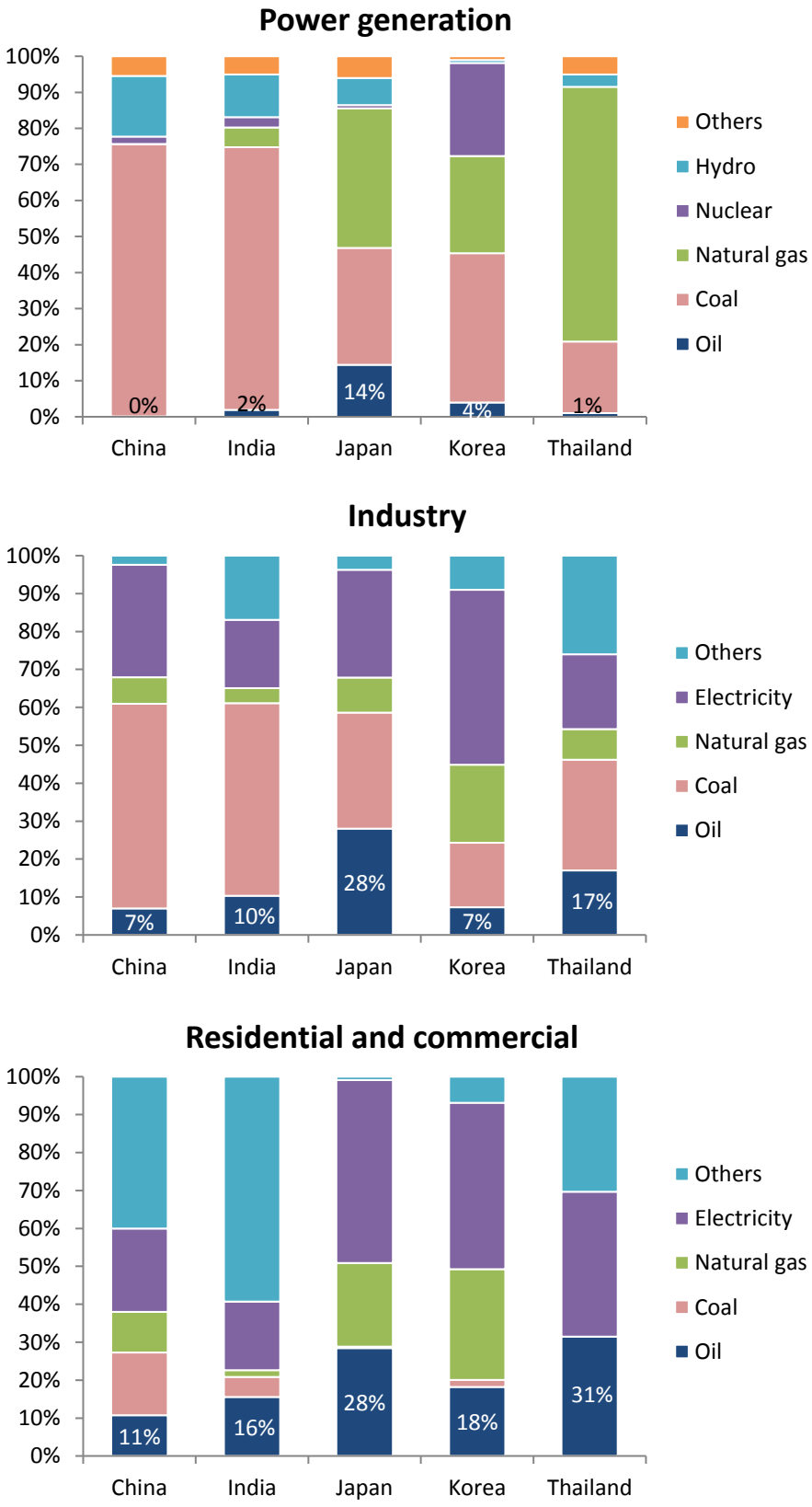
Figure 2.4 Gas Hubs in Europe



NBP = national balancing point, NCG = NetConnect Germany, TTF = title transfer facility.
Source: International Energy Agency, Developing a Natural Gas Trading Hub in Asia, 2013.

In a high oil price era, some importers and observers in traditional Asian LNG importing countries start to question the relevance of oil indexation as price formation process because natural gas has already replaced oil to a significant extent and, thus, little competition between natural gas and oil especially for power generation. As far as China and India are concerned, the dominant fuels are coal for power generation and industry sectors, and biomass and electricity for household and commercial sectors. Therefore, in those countries, competition between oil and natural gas is limited. In other words, one can question whether oil indexation as natural gas pricing for Asian importers is still appropriate (Figure 2.5).

Figure 2.5 Share of Oil in Energy Use in Major Countries



Source: International Energy Agency, Energy Balance, 2015.

Many Asian LNG buyers have been seeking alternative pricing in recent years. United States (US) LNG prices will be based on Henry Hub price, liquefaction, and transportation costs. Some of the new contracts feature hybrid pricing of Henry Hub, national balancing point or spot LNG price, and oil indexation. With the continued pricing diversification, it is clear that the Asia LNG price should reflect Asian market fundamentals with accuracy and timeliness.

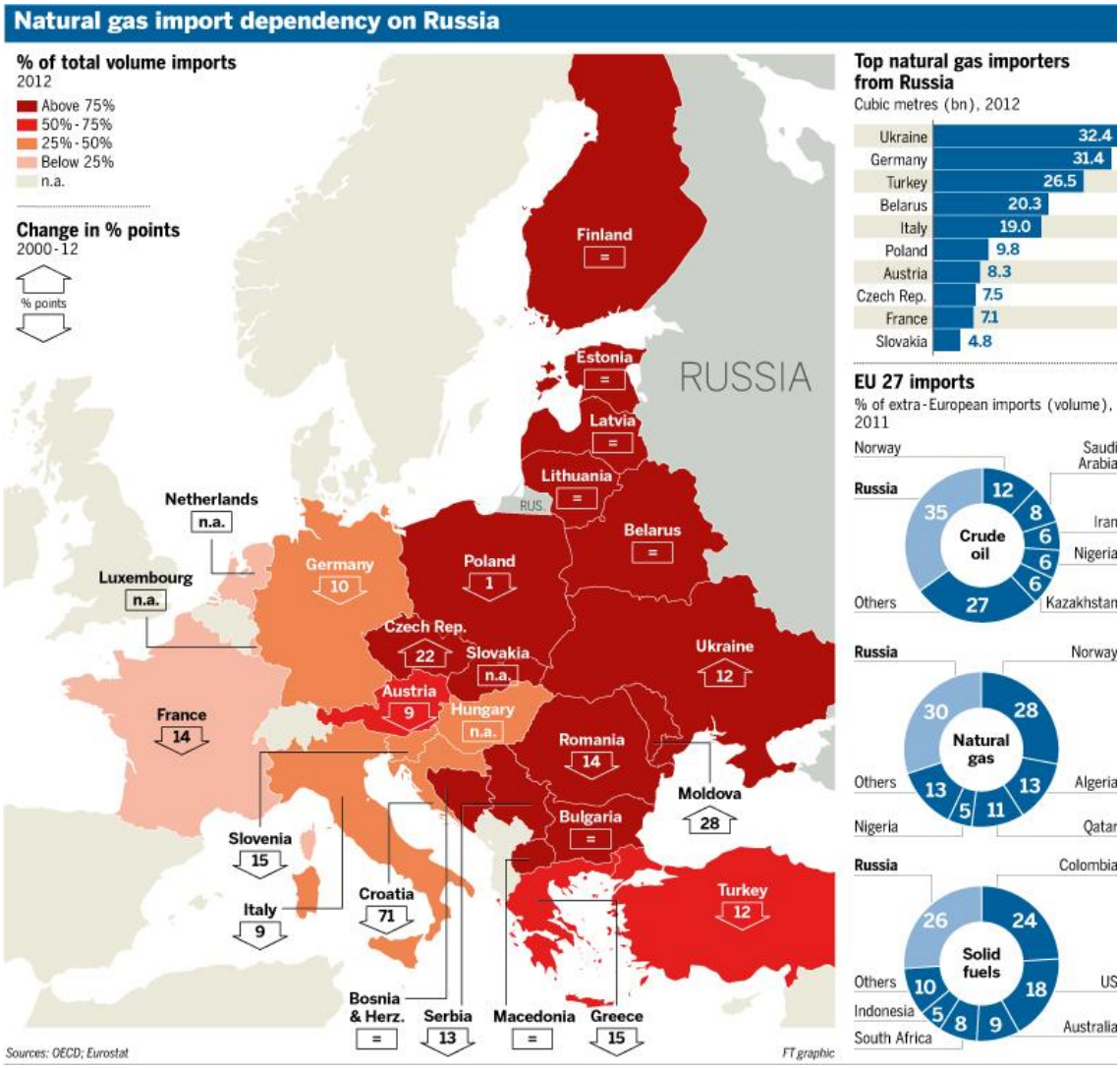
3. Ensuring gas security

Gas security issue has been spotlighted in Europe particularly since mid-2000s. Gas supply disruptions, especially in a winter heating season, undermined the security of supply in some European countries. In response to this situation, the European Union intensified its gas supply security discussions and implemented some policies, which include diversifying supply sources and enhancing flexibility of gas supply on a global basis (Figure 2.6).

The discussion has become widely recognised and has been shared among many countries even outside of Europe, as demonstrated by a declaration of the 2014 Brussels G7 Summit that supports the relaxation of destination clauses for promoting gas security. Based on common perception, a flexible, transparent, and competitive energy market, including gas or LNG market, is one of the core principles to build energy security. In addition, the European Commission has developed a new concept of 'Energy Union', which includes gas or LNG supply security as one of its pillars.

The series of discussions have enhanced awareness of LNG consumers in Asia on the importance of LNG supply security and trade flexibility. While each importing country in Asia faces different energy challenges, rising import dependency is urging importing countries to pursue flexible LNG supplies to ensure gas security.

Figure 2.6 Natural Gas Import Dependency on Russia in Europe

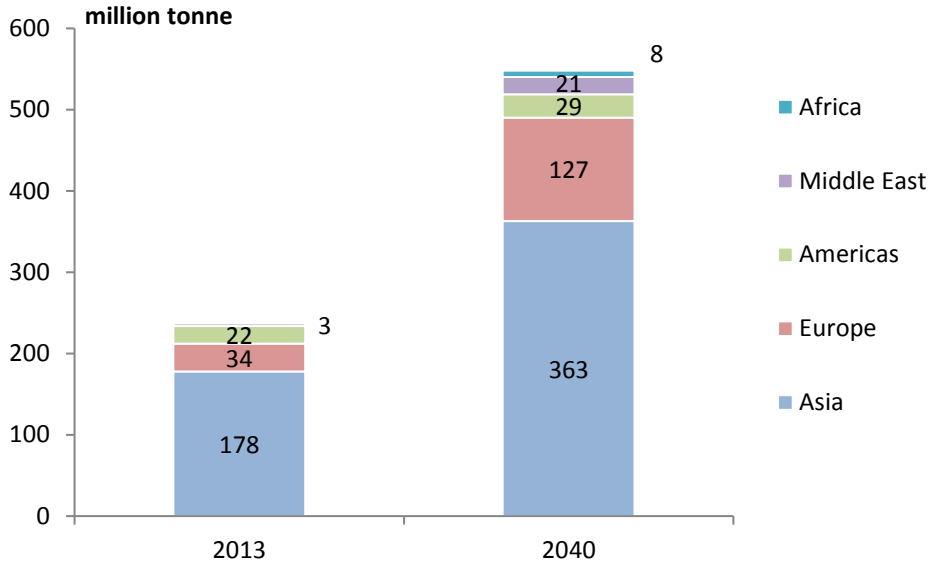


EU = European Union,
US = United States.
Source: Financial Times, 27 Apr 2014.

4. Securing investments to ensure future liquefied natural gas supply

The Asian LNG demand is expected to double and reach 363 million tonnes per annum in 2040, according to IEEJ (Figure 2.7). As such, continuous investment, which will commercialise supply potentials especially in Australia, North America, Russia, and Africa is expected to ensure security of LNG supply in Asia in the future. However, it is becoming critical to secure adequate and timely investments under the low gas price circumstance.

Figure 2.7. Liquefied Natural Gas Demand Outlook



Source: International Energy Economics, Asia/World Energy Outlook, Oct 2015.

Long-term contracts have been playing a major role to commercialise new LNG projects. Flexible market does not necessarily exclude long-term contracts. On the contrary, it is important to recognise the utility of long-term contracts especially for new, remote, green-field, and large-scale projects. However, future long-term contracts should feature gas-on-gas (market) pricing by such means as implying hub price element into a price formula.