

Chapter **1**

Introduction

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Chapter 1

Introduction

1.1 Background

On 22 September 2016, delegates to the East Asia Summit (EAS) Energy Ministers Meeting agreed to support the research on natural gas. Part of their Joint Ministerial Statement states:

To advance the EAS collaboration on natural gas, the Ministers welcomed Japan's proposal to facilitate collaboration and discussion among EAS countries with the support of the ASEAN Council on Petroleum, the ASEAN Centre for Energy, and the Economic Research Institute for ASEAN and East Asia (ERIA), on ways in which governments can spur the development of natural gas markets that are open, transparent, competitive and resilient, and promote new technologies for the storage and efficient use of this clean energy resource. The Ministers noted that Japan would endeavour to formulate pro-market policy options to ensure that gas markets operate efficiently for possible consideration of the next EAS Energy Cooperation Task Force meeting.

Thus, Japan and ERIA commenced the research project, whose results were to be presented to the EAS Energy Cooperation Task Force meeting in July 2017.

1.2 Objective

This study investigates the future natural gas demand in ASEAN countries and India as well as the necessary investment needed to meet the demand. It shall provide a picture on the market size of natural gas in EAS countries, identify the challenges faced in expanding the natural gas market and propose policy options to address identified issues.

1.3 Methodologies

- (A) Identify sub-sectors that can shift to natural gas as source of energy (such as transport sector and select industry subsectors, residential users).
- (B) Gather data on the natural gas demand potential in countries.
- (C) Clarify challenges and issues in natural gas utilization.
- (D) Propose policies on the adoption of natural gas as source of energy and on investments in related infrastructure in the region.

1.4 Research Scheme

The following chart shows the scheme for this research. Following its consultation with EAS countries, the ASEAN Council on Petroleum, and the ASEAN Centre for Energy, the ERIA drew up the research outline and commissioned the help of research institutions in carrying out the study.

Figure 1.1. Research Scheme of the Study



ASCOPE = ASEAN Council on Petroleum; ACE = ASEAN Centre for Energy; ERIA = Economic Research Institute for ASEAN and East Asia; EAS = East Asian Summit.

1.5 Multiple Advantage of Natural Gas

Natural gas has various advantages from the environmental, energy security, and economic viewpoints:

(A) Power Generation Sector

(a) Environmental benefits

Gas-fired power plants (GPP) will be the more attractive option, given the increasingly stricter environmental regulations.

On air pollution issues:

- Natural gas is the least emitter of air pollutants (sulphur oxides, nitrogen oxides, particulate matter) among fossil fuels, thus helping improve residents' quality of life.
- Gas-fired power plants have better public acceptance than do coal—and oil-fired plants.

On global warming issues:

- Natural gas is the least CO₂ emitter among fossil fuels.

- If carbon pricing is introduced in the future, the economic advantage of GPP will increase.

(b) Operational benefit

A gas-fired power plant is capable of quick start-up and power adjustment; hence, it is optimal as a backup to variable renewable energy supply, which is expected to increasingly flow into power grids in the future.

(c) Supply security benefit

Many new natural gas liquefaction projects are planned in countries such as Australia and Mozambique. In addition, thanks to the growing number of unconventional natural gas suppliers from the United States, one can expect sufficient natural gas supply.

(B) Other Sectors

(a) Security benefit

The region deals daily with energy security risks such as decreasing crude oil self-sufficiency and continued dependence on the Middle East. Its industrial and transport sectors are highly dependent on oil, and substituting to natural gas is one way to reduce such energy security risks.

On the supply side, ASEAN countries Brunei Darussalam, Indonesia, and Malaysia are gas producing and liquefied natural gas (LNG) exporting countries. In addition, it is possible to import from those countries with less energy security risks, such as Australia and the United States.

(b) Economic benefit

Given the trend towards tighter environmental regulations, natural gas is expected to be more advantageous than oil and coal in terms of environmental costs.