

# Chapter **1**

## Background

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**This chapter should be cited as**

ERIA (2019), 'Background and Objective', in Shimogori, K. and I. Kutani (eds.), *Social Benefit of Clean Coal Technology*. ERIA Research Project Report FY2018 no.13, Jakarta: ERIA, pp.1.

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## Background

The number of coal-fired power plants is expected to increase in Association of Southeast Asian Nations (ASEAN) members because the energy is produced from abundant, relatively cheap resources and offers security and economic benefit. Coal-fired power generation provides stable and affordable electricity supply but also emits carbon dioxide (CO<sub>2</sub>) and pollutes the air. Air pollution caused by sulphur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM) is a policy priority in many ASEAN countries and one of the biggest reasons for the strong opposition against coal-fired power plants. Applying clean coal technology to reduce coal-fired power's environmental load is indispensable to make coal use sustainable. Although an air quality control system (AQCS) is commercially available, not all power plants in ASEAN countries use it. Reducing air pollution from coal-fired power plants would help the public understand how important an AQCS is and improve the investment environment for it. AQCS requires additional investment but the benefits are numerous, including good air quality and continuous development of a low-cost power generation fleet.

This study is structured based on two studies. The FY 2016 study (ERIA, 2017) summarised existing air pollutant emission standards and their implementation mechanism in ASEAN countries. The FY 2017 study (ERIA, 2018) reviewed commercially available clean coal technologies and whether they were installed or not, and estimated the cost of AQCS installation and its impact on electricity prices. This study quantifies the cost and benefit of more-stringent air emission standards. To be precise, it will estimate the social (health) benefit of good air quality and compare it with the typical cost of investing in AQCS. The analysis shows the rewards of additional investment in AQCS.