

Chapter 6

Conclusion

This chapter should be cited as

Otaka, Y. and P. Han (2015), 'Conclusion', in *Study on the Strategic Usage of Coal in the EAS Region: A Technical Potential Map and Update of the First-Year Study*. ERIA Research Project Report 2014-36, Jakarta: ERIA, pp.49-50. Available at: http://www.eria.org/RPR_FY2014_No.36_Chapter_6.pdf

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In this study, the importance of coal and the benefits from clean coal technology (CCT) are discussed. In addition, a practical technological potential map is considered and formulated. In summary:

(1) Coal is least dependent on imports from outside the EAS region.

Among fossil fuels, coal is least dependent on import from outside the EAS region, specifically the Middle East. About 31 percent of natural gas imports and 68 percent of oil import is from the Middle East.

(2) Coal has always been more affordable than natural gas and oil in terms of heating value.

Historically, coal has always been around 1.5–3.5 times less expensive than natural gas. Furthermore, coal prices are less volatile than natural gas or oil prices.

(3) Strategic use of low-rank coal creates opportunities to access half of coal reserves in Asia.

About half of Asia's coal reserves are low-rank coals. These reserves are largely undeveloped but have high potential that would increase coal supply in Asia.

(4) Expansion of shale gas production has an impact on the Asian coal market.

Coals from other regions such as South Africa, US, and Colombia can potentially contribute to coal supply in Asian markets through the expansion of shale gas development, which can further enhance supply from existing coal sources such as Australia and Indonesia.

(5) Investment opportunities and job creation in coal-fired power plants and coal mines are possible.

An estimated 898 GW generated from a coal-fired power plant and worth a staggering US\$1.692 trillion, and 1,943 MT coal per year worth around US\$300 billion in development cost will provide ample investment opportunity. Furthermore, the operation of power stations and coal mines provide jobs to 246,000 and 75,000 workers, respectively. Additionally, jobs in construction jobs and in other sectors not quantified in this study can be created.

(6) EAS countries shall consider using more low-rank coals through high efficiency CCT.

Power plants fired by low-rank coals have lower thermal efficiency due to low coal quality; however, CCT achieves high thermal efficiency and reduced CO₂ emission compared with conventional power plant. Ultra super critical (USC) is cost-competitive but loses cost-competitiveness when the internal rate of return (IRR) is increased. Therefore, financial support such as low-interest loans should be provided to promote USC.

(7) A practical technological potential map for CCT dissemination in EAS region is developed.

A concrete structure for the technological potential map for the advancement of CCT is developed so that it can be quickly introduced to each EAS country.