

Foreword

The Philippines uses natural gas produced in the Malampaya gas field for power generation. However, supplies from this field will be depleted by 2022 and the gas sales and purchase agreement will end in 2024. Unless a new gas field is developed, the Philippines will become more dependence on imports of gas for power generation. Coal is the main fuel imported for power generation, but it will be overtaken by liquefied natural gas (LNG). Coal has low generation costs but it is a major emitter of carbon dioxide. In the small and mid-sized islands, power is mainly generated from diesel fuels, but diesel has higher power generation costs and higher carbon dioxide emissions than natural gas.

A shift to LNG in the Philippines would entail high infrastructure costs. However, advances in technology have reduced this hurdle. In particular, floating storage and regasification units lower the cost of using LNG for medium-scale power generation by making domestic navigation from the LNG import terminal (the 'primary terminal') to terminals near natural gas power plants ('subsidiary terminals') more efficient.

In this study, assuming the electricity demand of each province and LNG consumption for power generation in 2040 as the target year, we analysed the optimal LNG transport solutions in term of their cost using static (optimisation) and dynamic simulation models. Because LNG transport by ship is interrupted by natural disasters such as typhoons, the dynamic simulation includes typhoon strike scenarios.

I hope this report will serve a useful reference to assist policymakers in the Philippines in preparing appropriate power development plans for natural gas power plants in the country.

Shigeru Kimura

Leader of the Study Group, ERIA