

Chapter 3

Cooperative Operation of Hydropower and Thermal Power in ACMECS Countries

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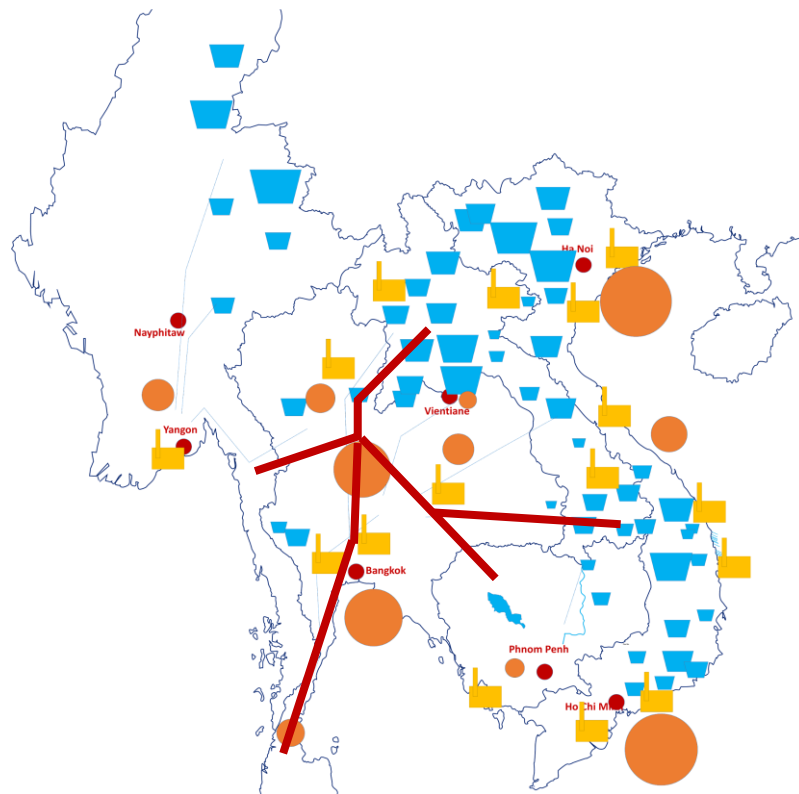
Study Team (2021), 'Cooperative Operation of Hydropower and Thermal Power in ACMECS Countries', in Kimura, Shigeru and K. Ueda (eds.), *Feasibility Study on the Transmission Highway in ACMECS*. ERIA Research Project Report FY2021 No. 17, Jakarta: ERIA, pp.59-60.

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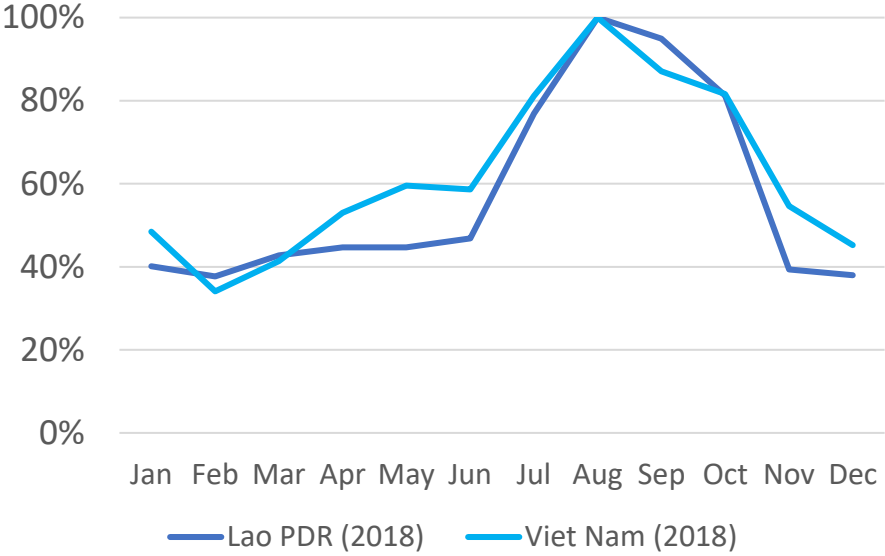
Hydropower plants in the Indochina Peninsula are concentrated in northern Myanmar, the Lao PDR, and Viet Nam. In the Indochina Peninsula, the amount of available electric power energy of hydropower plants during the dry season drops to about 40% of the rainy season. Thus, although reservoir-based hydropower plants are many, the number of plants that can adjust their power output over the year is limited. As a result, the difference in the amount of electric power generated between the rainy and dry seasons is large. The following graph shows monthly trends in electric power energy that hydropower plants in the Lao PDR and Viet Nam can generate.

Figure 3-1 Distribution of Hydropower and Thermal Power Plants and Demand in the Indochina Peninsula



Source: Authors.

Figure 3-2 Monthly Changes in the Amount of Energy that Hydropower Plants in the Lao PDR and Viet Nam Can Generate (2018)



Source: Authors.

On the other hand, there is not much difference between the wet and dry seasons in the electric power demand in the Indochina Peninsula. The total energy generated by hydropower and thermal power plants does not differ significantly between the wet and dry seasons. Therefore, it is necessary to increase the energy generated by hydropower plants and reduce the energy generated by thermal power plants during the rainy season. During the dry season, the amount of energy generated by thermal power plants should be increased. For this reason, ACMECS countries need the coordinated operation of hydropower and thermal power plants using wide-area interconnections.

The locations of hydropower plants in ACMECS countries will be concentrated in the Lao PDR, northern Myanmar, and Viet Nam. The construction of 500 kV interconnections in Thailand will enable the hydropower transmission from the Lao PDR to Cambodia, southern Myanmar, Thailand, and Malaysia, thus contributing to the efficient power generation in the Indochina Peninsula. In this study, we examined the cost of the new 500 kV interconnections connecting the Lao PDR, Myanmar, Thailand, and Viet Nam and the savings in thermal power generation in Myanmar, Thailand, and Viet Nam.