EXECUTIVE SUMMARY

This report examines the possibility of improving investment efficiency of power infrastructures through enhancing interconnection of power grids in the region, mainly focused on South East Asia.

MAIN ARGUMENT

In general, power infrastructure development is made under the premise of self-sufficiency within each country. While there remain much resources to fuel power stations in some countries, other countries are facing difficulties in their own power development. Power grid interconnections are a possible option to overcome these challenges. Regional planning of power infrastructure development is anticipated to provide benefits of total investment cost reductions, improve electricity supply stability and move towards decarbonisation.

The study first developed simulation models that enable the analysis of least-cost mix of power generation and grid interconnection. A second part of the study estimated the cost of possible interconnection lines which is derived from the above mentioned simulation analysis. By comparing these two outcomes, namely, benefit and cost of enhanced grid interconnection, the report has selected priority projects that seem to provide greater benefit for the region and at the same time are perceived to be economically viable.

KEY FINDINGS

- Possible interconnection line, its estimated cost and net economic benefits, which imply feasibility and priority of the proposed new transmission capacities, are estimated.
- A positive net economic benefit indicates economic feasibility of the project and thus should be prioritised. Among the listed projects, the Viet Nam - Lao - Thailand – Malaysia – Singapore interconnection route could be the most beneficial, and the Cambodia - Thailand linkage could be the

second beneficial interconnection.

Case		Possible cumulative cost benefit range [mil.USD]	Estimated cost of trasmission line [mil USD]	
A	THA-KHM	4,560 -- 5,470	162 -- 1,009	second priority
B	THA-LAO	19,282 -- 20,604	728 -- 1,957	first priority
C	THA-MYA	(4,607) -- (2,766)	2,244 -- 3,956	need careful assess.
D	MYA-THA-MYS-SGP	(1,118) -- 3,064	2,384 -- 6,272	need careful assess.
E	VNM-LAO-THA	21,604 -- 23,715	922 -- 2,885	first priority
F	MYS-IDN	3,968 -- 4,087	1,790 -- 1,901	second priority
G	LAO-THA-MYS-SGP	23,217-- 26,557	868 -- 4,273	first priority

IDN: Indonesia, KHM: Cambodia, LAO: Laos, MYA: Myanmar, MYS: Malaysia,
SGP: Singapore, THA: Thailand, VNM: Viet Nam
* Numbers in brackets are negative.

POLICY IMPLICATIONS

- If grid interconnections within the region are to be enhanced, investment efficiency for power infrastructure could be improved. Interconnections also bring other benefits such as electricity supply stability and reduction of greenhouse gas emissions.
- The following are some key challenges that need to be resolved for the advancement of grid interconnection:
  - Each power grid is unique and governed by its own policies and codes. There needs to be a comprehensive guideline encompassing all the member countries. At the moment, there has yet to be sufficient bilateral or multilateral discussion and coordination in order to promote construction.
  - The investment environment is not always attractive to private companies and foreign capital. Accordingly, there has not been a sufficient provision of capital.