

GLOBAL ENERGY TODAY: THE ASIAN NEXUS

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Farhan Perdana, "Caged Ideas" (2014)

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TOWARD BUILDING ENERGY EFFICIENCY AND CONSERVATION IN SOUTHEAST ASIA: INDONESIA'S "LOW HANGING FRUIT" FOR ENERGY SAVING

In many countries, buildings account for more than one-third of total energy use and contribute nearly 10 percent of global carbon emissions. Delivering more energy-efficient buildings is crucial in tackling climate change and for national energy security. Moreover, energy-efficient buildings have benefits for their occupants' health and well-being. Efforts to save energy involve improving energy efficiency and conservation that can lead to reduced cost. While energy efficiency means using less energy to provide the same service without giving up the building occupants' comfort, energy conservation requires occupants to change behaviors to lower the energy demand.

Countries in Southeast Asia are among the fastest-growing construction markets in the world. Accompanied by a regional economy that will be more

than triple in size and a population estimated to reach 760 million by 2040, Southeast Asia's energy demand will increase from 2015 levels by up to 80 percent. This major growth forecast by the International Energy Agency is largely due to rising living standards that require more electricity for lighting, cooling and appliances. The energy demand is also driven by rapid urbanization and a push for more electricity access in rural areas. While energy efficiency is improving across Southeast Asia, there remains untapped potential for further efficiency gains.

Indonesia is Southeast Asia's largest energy market. It currently accounts for 36 percent of the region's total energy consumption, with the nation's building sector comprising roughly a fifth of that. While 20 percent may

seem like a relatively low segment of Indonesia's energy consumption, experts emphasize that energy use in buildings has increased rapidly over the last 20 years and is considered "low-hanging fruit" for gains in energy savings. Given current levels of inefficiency in Indonesia's building stock, it is estimated that up to 40 percent of such savings can be achieved.

Energy efficiency and conservation is one of Indonesia's national strategic priorities, given the increasing energy demand for development. Strategies are aimed at overcoming both technical and nontechnical barriers. Recent technological advances, such as innovations in building insulation, energy-saving lighting fixtures and high-efficiency appliances (such as water heaters and refrigerators), have improved energy-efficiency performance remarkably. There is even potential of further gains through improving the way building components are controlled. An example is the use of sensors that adjust the lighting level based on ambient light and occupancy.

Nontechnical barriers include issues related to financial, regulatory and knowledge gaps. For example, there is an urgent need for allocating dedicated funds

for energy efficiency and creating financing incentives to encourage higher implementation of energy-efficiency projects.

Adopting effective policies offers the biggest contribution toward the realization of energy-efficient buildings. For example, setting minimum energy performance standards (MEPS) — limiting the maximum amount of energy that can be used by building appliances — has proven globally to be one of the most cost-effective ways to make buildings more energy efficient.

However, only half of the countries in Southeast Asia have introduced MEPS and even fewer have made it mandatory. Jakarta and some other big cities in Indonesia have set energy-efficiency requirements through local standards. Yet challenges remain in how to disseminate comprehensive policies at the national level for consistent and widespread implementation at the local level.

While market demand is picking up, Energy Efficiency Lab Jakarta has identified gaps in workforce capacity, such as lack of professional education and skills about energy efficiency, as well as knowledge sharing between research and industry sectors. Professionals, academic institutions and public sectors need to push for basic knowledge about energy efficiency through certification programs, curricula, trainings and other initiatives. Knowledge gaps also include a lack of building occupants' understanding that their behavior (such as turning off lights and unplugging electrical appliances when not in use) can significantly contribute to energy savings.

With accelerating urbanization, building stock will grow significantly in Indonesia. Better energy efficiency and conservation strategies are needed when constructing new buildings as well as in maintaining existing buildings. Educating people about energy efficiency in buildings is as crucial as installing high-efficiency technology and establishing stringent regulations.