

## SUMMARY

# Accelerating Energy Efficiency in Asia



A study shows that industry and buildings are the biggest commercial energy consumers in Asia. Photo credit: ADB. *The Asian Development Bank examines prospects to ramp up efforts for greater utilization of demand-side energy efficiency in Asia and the Pacific.*

## Overview

The value of energy efficiency is grounded upon its ability to aid energy systems in meeting end-user needs without requiring an expansion of system capacity. Unlike approaches that simply expand energy supply, such as building new power plants, energy efficiency prioritizes actions that first reduce the need for energy. Such reductions may occur by decreasing energy losses in the supply chain, an approach known as supply-side energy efficiency, for improved performance in the production and delivery of electricity and heat. Another approach is to consume less energy for the same level of service, a strategy known as demand-side energy efficiency. Also known as end-use energy efficiency, this approach relies on improved efficiencies at the point of final energy consumption, for example, when operating buildings, tools, products, and machinery.

Among the range of technology options that exist to provide energy service, energy efficiency approaches are the most cost-competitive. As a resource by which to meet national or regional goals for development and economic growth, demand-side energy efficiency is growing in importance for many developing member countries of the Asian Development Bank (ADB). Its appeal comes from its ability to

reduce the cost of energy service and to respond to a number of wider social and environmental concerns. These include the environmental risks that surround ongoing reliance on conventional fossil fuels, such as the threat of climate change, and the need to develop energy resources that bolster national energy security and system reliability.

This article was adapted from the report, *Same Energy, More Power: Accelerating Energy Efficiency in Asia*, which explores opportunities for ADB to scaling up investments in energy efficiency. The report identifies global and regional trends that are driving Asia's energy demand and the resulting policy and regulatory environment for energy efficiency.

## Economics of Energy Efficiency

Robust deployment of energy efficiency interventions can relieve national pressure on fossil fuel reserves and help reduce the need for energy imports, thereby conserving domestic expenditures for alternative investments in education, health care, and other amenities. Greater emphasis on end-use energy efficiency can defer the need for expansions of power plants and transmission and distribution infrastructure while reducing pollution impacts and contributions to climate change. As advanced smart grid networks emerge, energy efficiency will play a key role in balancing the system's equilibrium, allowing the integration of smart meters, distributed generation, intermittent renewable resources, and electric vehicles and charging technology.

With projections for global economic growth and the emerging role of developing countries as centers of industrial activity, the need for greater efficiency in energy use is increasing worldwide. By 2035, the share of developing Asia, specifically in primary global energy consumption, is expected to increase from 34% in 2010 to as much as 56% according to some projections (ADB 2013, citing IEA 2012 and Lee, Park, and Saunders 2014). This trend reflects Asia's increasing role as a center of manufacturing and its status in claiming over half of all global megacities. Meanwhile, Asia's dependence on energy imports is growing. Most countries in the region, two decades from now, will produce 50% or less of the energy they require. Energy imports and specifically imported oil will continue to be critical in the region (ADB 2013).

# Initiatives in Asia

Against regional trends for growth, and in recognition of energy efficiency's benefits, large emerging economies, such as the People's Republic of China (PRC) and India, have launched initiatives resulting in significant energy efficiency improvements in the industry sector. More generally, countries throughout Asia have established commitments or targets to expand energy efficiency's role in meeting national energy needs. Efforts in Asia to advance implementation further benefit from the provision of external aid assistance from a number of regional and international players. More broadly, clean energy investment—overall—has been increasing in the region. During the last decade, investment in clean energy in Asia expanded by almost fifteenfold (USAID 2011, UNEP/BNEF 2010). If end-use energy efficiency is to claim its rightful share among energy sector investments around the world and in Asia specifically, then greater efforts are necessary to marshal policy, markets, and stakeholder collaboration in support of such outcomes. Over the coming decade, national energy efficiency targets and policies in Asia and the Pacific will play a major role in advancing regional investment in energy efficiency technologies and solutions.

## Focus on Industry and Buildings

In late 2011, ADB's Independent Evaluation Department (IED) published a review of ADB's clean energy investments, focusing on 2003–2010. The report found that industry and buildings are responsible for more than 70% of total commercial energy consumption in Asia. They are further responsible for a remarkable 85% of electricity use in the region. However, in contrast with these percentages, ADB support to manage energy consumption in the two sectors has represented just 4% of its overall clean energy portfolio (ADB 2011). In light of these findings, the IED report made recommendations for strengthening ADB's efforts in demand-side energy efficiency, including a suggestion for an increased focus on investments in industry and buildings. Additional research undertaken more recently by ADB has also revealed imperatives to redress a lack of host country capacity and demand for end-use energy efficiency projects, and to mainstream energy efficiency into ADB's operations.

This report builds on the 2011 IED evaluation and more recent research, to assess the capacity of ADB in end-use energy efficiency and the challenges it faces in scaling up its energy efficiency investments. The report further considers options by which to support a more systematic approach to catalyzing investments in Asia and the Pacific, as summarized below. In examining ways to expand its energy efficiency portfolio, ADB may draw upon a mix of tools and mechanisms employed at different scales around the world. Many of these approaches, listed below, are characterized by ambitious targets or mandates with goals for participation across sectors and stakeholders: (i) energy efficiency policy and regulation, (ii) energy efficiency standards and building codes, (iii) utility demand-side energy efficiency market activities, (iv) innovative financing mechanisms, (v) development of national and/or local institutional capacity, (vi) energy efficiency information systems, and (vii) awareness of energy efficiency means and benefits.

# Key Areas of Intervention

The lessons learned to date from the implementation of these approaches across countries and thematic areas point to key considerations for ADB in evaluating specific energy efficiency interventions for Asia. More systematized program support and investment can leverage existing resources to generate broader and deeper impacts while generating momentum for further energy efficiency market development. Areas, where ADB may engage such activities to significant effect in Asia, include (i) regional and country-specific thematic energy efficiency programs, (ii) investments in utility-sponsored performance-based energy efficiency resource programs, and (iii) investments in raising energy efficiency standards.

Throughout Asia and the world, a critical emerging need exists for energy solutions that simultaneously conserve economic and environmental resources while bolstering the performance of existing energy infrastructure. Energy efficiency initiatives are already delivering this value, and now require a more ambitious vision to drive their widespread deployment as a focal point of national and regional energy development. The options explored in this report support such a vision so that Asia's rapid economic growth coincides with ever-increasing gains in the sustainability of its energy systems. Through efforts that blend lessons from existing global best practice, with attention to current policy and market conditions in Asia, ADB stands ready to accelerate the pace of demand-side energy efficiency in meeting needs within its developing member countries.

## Resources

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Asian Development Bank (ADB)

The Asian Development Bank is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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