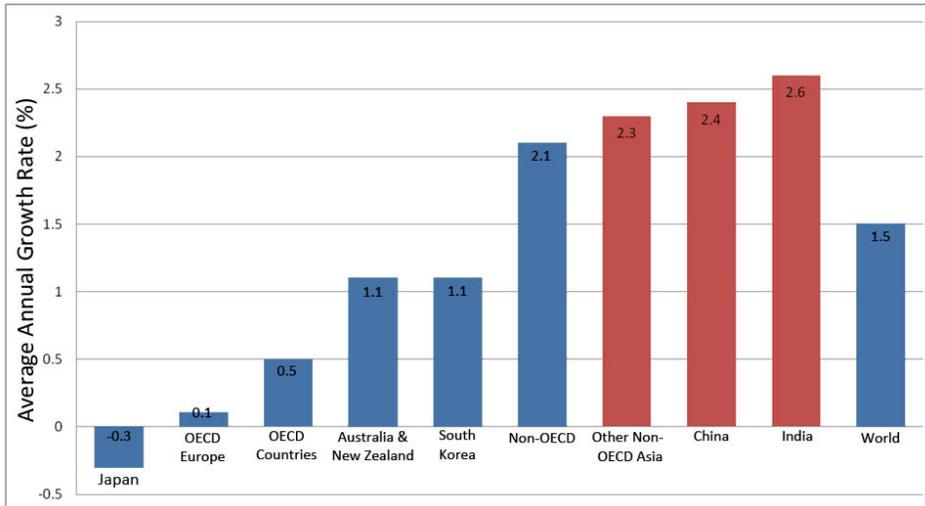


Success Stories in Industrial Energy Efficiency

Projected Industrial Energy Growth from 2008-2035 (%)



The industrial sector is responsible for a third of global primary energy consumption and 40 percent of global energy-related CO₂ emissions. Global energy demand in this sector is expected to increase by about 30 percent from 2010 to 2040, mainly due to economic activity in developing countries.

Industrial energy demand in non-OECD Asia accounted for 43 percent (978 million tons of oil equivalent, or Mtoe) of the total industrial energy demand (2,279

Mtoe) worldwide in 2009. Excluding China, non-OECD Asia demand was 13 percent of the world total (296 Mtoe). Under a current policy scenario, by 2030, non-OECD Asia industrial energy demand (excluding China) will more than double, amounting to 614 Mtoe, or 17.5 percent of global industrial energy demand. China alone is expected to account for 34 percent of global industrial energy demand in 2030.

In Asia, China dominates the industrial energy landscape, with significant energy demand coming from the iron and steel, nonmetallic minerals, and chemical sectors. In contrast, energy demand in India comes from a combination of light manufacturing and services, as well as heavier industries such as iron and steel production. Outside of China and India, the chemical sector in Asia (primarily Malaysia, Taiwan, Singapore and Indonesia) makes up 20 percent of the total energy demand. In Southeast Asia (primarily Indonesia, Thailand, Vietnam and Laos), a growing manufacturing sector is increasing demand for cement, steel, brick/ceramic, glass, pulp and paper, plastics, chemicals, food processing, and textiles.

Sweden: Energy Efficient Industry

With industry accounting for about one-third of energy use in Sweden, the nation's industrial base is highly vulnerable to taxes on energy consumption. In 2004, following the implementation of a EUR 0.5/MWh minimum energy tax for industrial electricity use, the government created the Programme for Energy Efficiency (PFE) in energy-intensive industries to alleviate the compliance burden. The voluntary program allows participating firms to be exempt from the minimum energy tax

Policy tools to increase industrial energy efficiency:

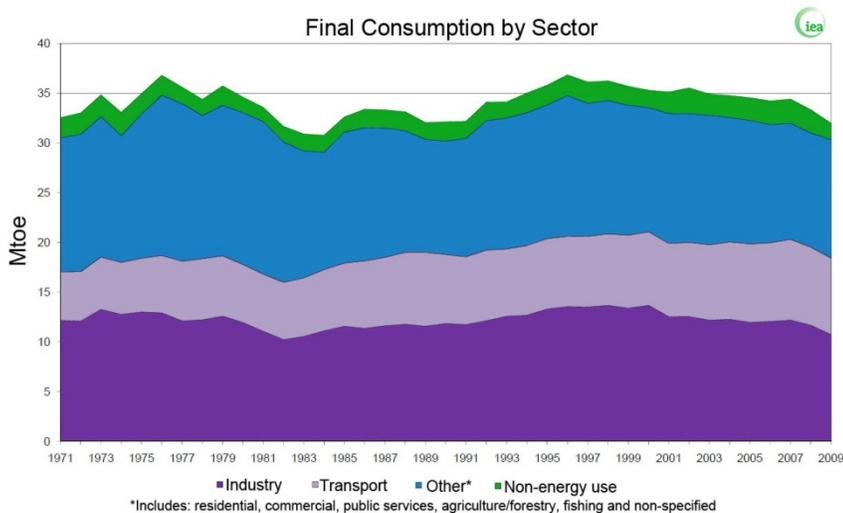
Government Mandates: Government requirements could include energy efficiency or GHG reduction targets as well as mandatory requirements for energy audits (enabling benchmarking) or energy management systems. Government could also mandate industrial equipment or system performance standards.

Financial Support: Lending programs, including provisions of loans offered at below market rates, can help overcome barriers related to access to capital. Other options include energy performance contracts through ESCOs, guarantee funds, and third party financing.

Rationalizing Energy Prices: By moving toward market pricing of electricity or other energy sources, governments can encourage energy savings.

Information and Awareness Programs: Education programs, including training and information dissemination, can ensure that plant operators can identify and evaluate energy savings opportunities.

for five years, provided they undertake a set of actions to improve their energy management systems and implement energy efficiency measures. To ensure effective program implementation, the government provides information and guidance, and integrates all participants in a network to share best practices.

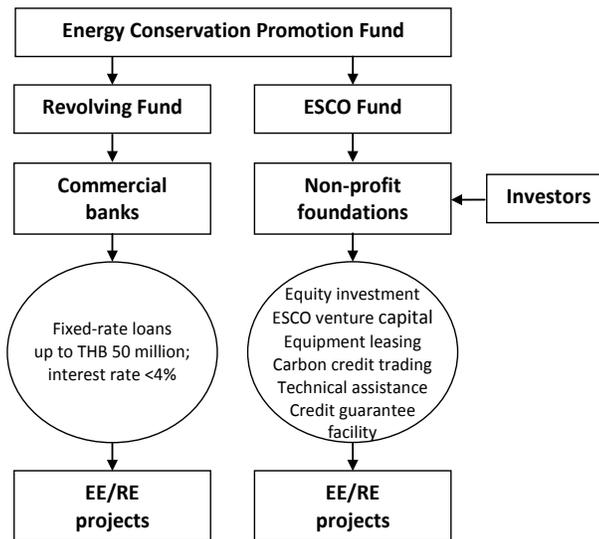


By the end of 2006, 117 companies with over 240 separate production sites had joined the program, representing 55 percent of industrial electricity demand and 20 percent of all electricity consumed in Sweden. Participating firms made investments totaling SEK 708 million (USD \$102.4 million) in more than 1,200 electricity efficiency measures, and carried out over 350 other measures to increase energy performance. The companies in the PFE have reported average electricity savings of approximately 1 TWh/year, which would result in reducing 0.5-1 million tons CO₂

emissions per year. In addition to savings from reduced electricity consumption by 3 to 4 percent per year, the enterprises also saved EUR 15 million/year (USD \$18.7 million/year) due to the tax exemption over the five-year period. In 2009, a second five-year program period was launched with no significant modifications, and most of the initial participants extended their agreements.

Thailand: Funds for Energy Efficiency and Renewable Energy

Between 1990 and 2010, Thailand’s energy demand grew by an average of 4.4 percent each year, resulting in increased CO₂ emissions from fuel combustion of nearly 185 percent through 2009. Understanding the implications of this trend, the Thai government enacted a small levy on the sale of certain fossil fuels and diverted the revenue into two special funds that support renewable energy and energy efficiency measures: the Revolving Fund and the ESCO Fund. The Revolving Fund provides zero percent interest loans to local commercial banks, enabling the banks to provide low-interest loans to developers of energy efficiency projects and ESCO companies. The ESCO Fund provides capital and technical assistance for clean energy, renewable energy, energy efficiency and building retrofit projects, with the primary targets being small and medium enterprises, including energy-intensive industrial sectors.



By 2013, the two funds are projected to leverage USD \$243 million in government contributions to support over 300 energy efficiency and renewable energy projects with total investments of nearly USD \$700 million. Together, the funds enable potential energy savings of over 340 ktoe per year and financial savings totaling almost USD \$200 million. Both funds have helped to raise the profile of, and reduce finance barriers to, energy efficiency and renewable energy projects. They will continue to operate as finance delivery mechanisms under the government’s new 10-Year Renewable Energy and Alternative Energy Development Plan (2012-2021) with a target to increase the share of renewable energy from 8.98 percent in 2011 to 25 percent in 2021. The funds are also vital components of the nation’s 20-Year Energy Efficiency Development Plan (EEDP) to reduce energy intensity by 25 percent in 2030 relative to 2005.

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