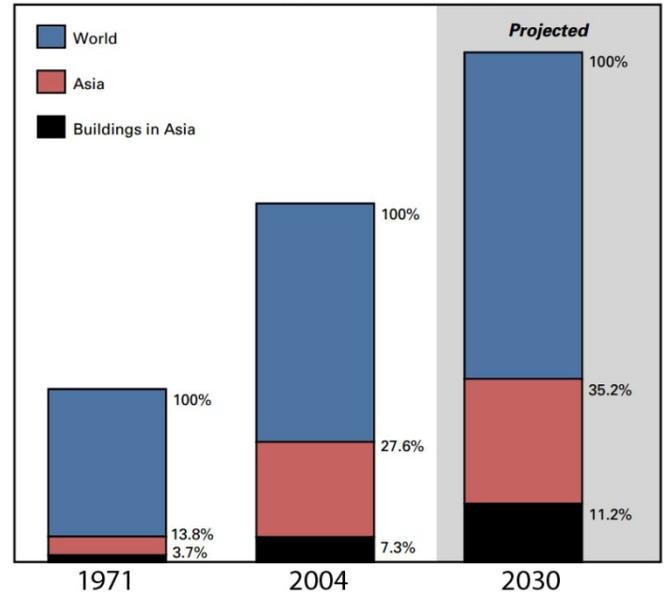


Success Stories in Building Energy Efficiency

With buildings accounting for nearly 40 percent of global energy consumption, the building sector should play a key role in effective climate policy. Efficiency measures in new and existing buildings provide an enormous opportunity for countries to reduce their energy intensities while simultaneously driving improvements in public health, labor productivity, and job creation. According to the International Energy Agency, energy efficiency measures have the potential to deliver two-thirds of the energy-related CO₂ emissions reductions needed to achieve climate protection.

Limiting growth in energy demand through energy efficiency in buildings contributes to sustainable development. New construction growth for residential and commercial buildings in Southeast Asia is around 5 percent annually, compared to 2 percent in Annex I countries. In fact, over the next decade, more than half of the world's new construction is projected to take place in Asia.

Total Final Energy Consumption



Proposed projections under business-as-usual scenario.

Data Source: Asia/World Energy Outlook 2006,
The Institute of Energy Economics, JAPAN (IEEJ)

Policy tools to reduce greenhouse gas emissions in the building sector:

Building efficiency codes and standards: One of the most cost-effective options, regulations can be used to set minimum requirements for energy efficiency in buildings, appliances, equipment and lighting.

Energy efficiency improvement targets: Voluntary or mandatory targets can be set for cities, counties and other political divisions to compel greater action on the energy efficiency front.

Policies to increase awareness, information, and market transparency: Competitions, audits, rating and certification programs, energy performance disclosure and public awareness campaigns improve the public's ability to make informed decisions, and can help policymakers track energy performance.

Financial incentives: In order to mitigate costs and risk to investors, governments can provide support in the form of grants, tax incentives, direct or guaranteed loans, revolving loan funds, tax-lien financing, and policies to enable energy performance contracting.

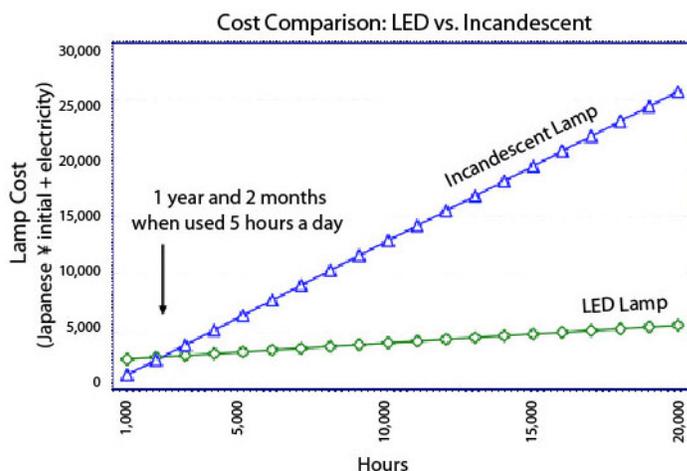
Utility programs: Mandates can be created to compel utilities to invest in energy efficiency measures for their customer-base. Additional investments in measures such as on-bill financing and advanced metering should reflect the social cost of electricity production, which is not accounted for with pure economics.

Due to a lack of market-based and political incentives, implementation of energy efficiency measures in Asia has been slow. Further, the range of different players involved in the sector impedes efforts to implement a coordinated energy-efficiency effort, and various energy subsidies have hindered the cost-effectiveness of energy efficiency measures and the incentive to conserve. To overcome these barriers, governments will need to work closely with business leaders and other stakeholders to implement appropriate strategies for improved efficiency this sector.

Japan: Eco-Point Program

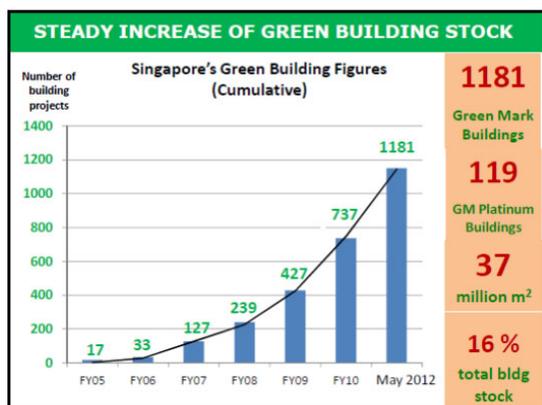
The “Eco-Point” program was introduced in Japan in April 2009, initially to encourage consumers to purchase energy-efficient air conditioners, refrigerators, and TV sets. Purchasers of these products received Eco-Points worth 5 to 10 percent of the product’s value. Each Eco-Point was worth ¥1, which could then be exchanged for a variety of items sponsored by the government, such as gift certificates, prepaid cards, and environmentally-friendly products. In December 2009, LED lamps were added to the program and consumers were encouraged to exchange the Eco-Points they received after buying efficient appliances for LED bulbs. Through March 2011, consumers were eligible to exchange Eco-Points for LED lamps at twice the value of the Eco-Points.

The policy succeeded in attracting consumers to LED lamps, with at least 450,000 applications submitted through 2011 to receive LED lamps, worth a total of ¥3.8 billion (USD \$47 million) in exchange for Eco-Points. Additionally, by June 2010 consumer sales of LED lamps surged to 19 percent of total light-bulb sales by volume. Overall, the program was effective at addressing three major barriers to LED lighting. First, the program reduced initial costs for consumers, which tend to be a major factor in purchasing decisions. Second, the program established standards as to which LED products were eligible for exchange, thereby ensuring safety and quality. Finally, the Eco-Point program played a key role in disseminating the technology and demonstrating its energy savings potential to consumers, leading to improved sales and decreased costs through economies of scale and supplier competition.



Singapore: Green Buildings

With limited access to renewable energy sources, energy efficiency is a core part of Singapore’s clean energy strategy, which features a national target of greening at least 80 percent of its buildings by 2030. The central pillar of Singapore’s building efficiency strategy is the Green Mark Scheme, a rating system to evaluate the environmental impact and performance of buildings based on internationally-recognized best practices. Buildings are assessed based on five categories: energy efficiency, water efficiency, environmental protection, indoor environmental quality and other innovative features that contribute to building performance. Based on the assessment, a building may earn one of four levels of certification: GM Certified, Gold, Gold Plus and Platinum. The scheme covers new and existing buildings (residential and non-residential), as well as public parks, office interiors and infrastructure.



As of 2008, all new buildings and all existing buildings undergoing major retrofitting have been required to meet at least the minimum Green Mark standard. Furthermore, all public buildings are required to meet either the Green Mark Platinum or Green Mark Gold Plus rating by 2020, depending on the building type. To promote private sector participation in the scheme, the government has set aside about \$130 million (USD \$102 million) of cash incentives in addition to \$59 million (USD \$46 million) for Green Building research and development. The results have been encouraging, with Green Mark buildings totaling 16 percent of Singapore’s total building stock as of May 2012. A recent study by the National University of Singapore found that participants can not only expect average savings in

operating expenses of 10 percent, but commercial buildings can also potentially see an increase in capital value of about 2 percent. In addition, Green Mark buildings offer reduced environmental impact and improved building quality for healthy and productive homes and workplaces.

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