

The Emerging Chinese Market for Building Energy Efficiency¹

The buildings sector accounted for approximately 31% of energy consumption in China in 2009, and it is estimated that China's building energy consumption will continue to increase by more than 40% by 2035²³⁴). To curb building energy demand and accommodate the national goal of 40-45% reduction in carbon intensity by 2020 relative to 2005 levels, the Chinese government has enacted a wide range of policies to reduce energy consumption and emissions in buildings. These policies not only make the provincial and local governments focus on building energy efficiency, but also create a huge market for energy efficient products and services.

China developed its first building energy code in 1986 and currently has a set of energy codes covering urban residential and commercial buildings in four climate zones. In May 2013, the energy code for rural buildings went into effect. Over time, building energy codes have significantly increased the demand for energy efficient building products and materials, and in the near future, codes are still going to be the most important driver of the building energy efficiency market. The codes are mandatory for all new buildings and major renovations in urban areas, so they can impact construction of a very large number of buildings. In this way, the codes have been a driving force behind the expansion of China's markets for insulation, efficient windows and other green building materials. Beyond building energy codes, China also has several other important building energy policies, including the green building rating system (Three-Star Rating System), financial incentives tied to efficiency, appliance standards, a phasing out of incandescent bulbs and promotion of efficient lighting, as well as policies to encourage retrofits in existing buildings, particularly residential buildings in northern China and government buildings.

The markets for energy efficient building products have seen significant growth, because of the strength of the construction sector as well as the specific policies that require and promote efficient building components. At the same time, as requirements have become more stringent, competition has become fierce and quality has at times suffered, which in turn has created additional challenges. The government is now trying to balance the need for time for the market to adjust production capacity with the need for high-quality and safe products. It creates an excellent opportunity for manufacturers, in particular, international companies, that produce products today that meet these requirements.

Existing buildings also present vast market opportunities related to retrofits. First, China now has a guideline for retrofitting residential buildings in the north. Based on the target set by the central

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² Eom, J., Clarke, L., Kim, S. H., Kyle, P., and Patel, P. 2012. China's building energy demand: Long-term implications from a detailed assessment. *Energy*, 46(1), 405-419.

³ IEA. 2011. *World Energy Outlook 2011*. Paris, France: International Energy Agency.

⁴ Yu, S., Eom, J., Zhou, Y., Evans, M., and Clarke, L. 2012. *A Long-term, Integrated Impact Assessment of Alternative Building Energy Code Scenarios in China*. The 2012 ACEEE Summer Study on Energy Efficiency in Buildings.

government, local governments must have targets regarding the number of buildings they must retrofit each year, and they must help finance the changes. The requirements focus on insulation, windows and heat distribution. Second, the Chinese government recently decided to significantly increase retrofits in government and state-owned buildings including through energy service contracts, which creates opportunities for energy service companies. Third, there is also a small but growing trend to apply energy service contracts to large commercial and residential buildings. While most of these contracts today focus on short-term, high impact and single technologies, like lighting, there is growing market and government pressure to deepen and expand these retrofits, and the contracts that implement them.

Unprecedented energy codes and policies are driving demand for a range of building energy efficiency products in China. The U.S. Department of Energy (DOE) will offer a free webinar, ***The Emerging Chinese Market for Building Energy Efficiency***, to shed light on some of the significant opportunities and challenges for companies that are exploring this market. DOE's Pacific Northwest National Laboratory will review China's market (building stock, key actors, policies, incentives) and trends, describe joint U.S. – China initiatives, reveal China's qualified product lists that are used to check building materials and equipment for regulatory compliance and incentives and recommend key resources. Senior experts from U.S. companies will then share their experiences with deploying high performance technologies and concepts throughout the country.

The webinar will be conducted at 11am –12:20pm EDT (8am – 9:20am PDT) on October 29th. **To register, please notify wenjing.shi@pnnl.gov that you wish to participate no later than October 3.** Once your registration is confirmed, a hyperlink will be provided.