

**HARVESTING SUNLIGHT:
SOLAR THERMAL INDUSTRY IN CHINA**

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Executive Summary

1. The Chinese government is now accelerating its pace of boosting a low-carbon economy: a ten-year program was made public to increase the proportion of non-fossil energies in primary energy consumption from 9.9 percent in 2009 to 15 percent by 2020.
2. To meet the target, billions of *renminbi* will be invested to promote the application and R&D of clean energies. Solar energy, particularly solar thermal energy, is expected to play a significant role in the green campaign.
3. China is the largest market for solar thermal applications and the largest producer of solar heat collectors in the world, accounting for 66.3% of the global total capacity. It is also the global leader in emission reductions by solar thermal applications.
4. Solar water heating production and applications have seen a steady expansion, with the share in water heating market increasing from 15.2% in 2001 to 57.2% in 2009. It is estimated that the penetration rate nationwide will rise from below 10% at present to 20-30% by 2015.
5. Building integrated solar water heating and solar space heating, ventilation, and air-conditioning system is now a new trend in solar thermal applications. Other solar thermal technologies in industrial and agricultural production are major areas in future development.
6. The Chinese government made heavy funding in R&D between 1981 and 1995. Since 1998, development of the market has been largely based on market competition. The years after 2005 saw a new round of government involvement in supporting pilot projects of building integrated solar systems.

7. In terms of manufacturing solar collectors and solar water heaters, China leads in the development of core technology. Solar thermal industry is one of the few industries with production based mainly on China's independent R&D.
8. In 2009, there were more than 3000 manufacturers of solar collectors and solar water heaters, employing over 2.5 million people. At the same time, the sales of solar collectors have been expanding at a steady pace domestically and globally.
9. Despite rapid growth, China's unique production structure poses a big challenge for its future development. In comparing China's technology and the world's prevailing technology, China may need to rethink on its single-minded development of evacuated tube collectors. Increasing scientific and technological input or opting for a balanced production structure is a possible solution.
10. In addition, the government should take the lead in addressing a variety of challenges currently facing the industry: a lack of effective coordination in the process of building integration, unregulated small businesses and low quality products, as well as safety risks resulting from unprofessional installations.