

IMPACT SHEET • SWITCH-ASIA PROJECT  
**CHINA HEAT PUMP WATER HEATER  
CHALLENGE PROGRAMME**

# Promoting residential heat pump water heaters (HPWH) in China



**The project is engaging 2 000 distributors to reduce 1 million tonnes of greenhouse gas emissions by increasing HPWH market share to 6.5%**



## The Challenge

In China, the broad uptake of heat pump water heater (HPWH) technologies faces many challenges. Firstly, the upfront cost of an HPWH is higher than that of an electric water heater, and similar or a slightly higher than a solar water heater. Secondly, consumer awareness in China is still very low. Consumers also have no means to compare between different types of water heater. Thirdly, the level of HPWH technology used in China is significantly lower than in Europe, leading to lower reliability, lower efficiency, less-than-ideal refrigerants used and a limited product range.

## Objective

The project aims at reducing environmental impacts from the utilisation and production of water heaters in China translating into a reduction of 1 million tonnes of CO<sub>2</sub> emissions per year, by increasing the market share of household heat pump water heaters from less than 2% to 6.5% in Southern China.

The specific objectives include:

- To train 2 000 HPWH distributors and retailers;
- To train 480 HPWH installers;
- To raise awareness among consumer associations and consumer groups;
- To train 300 HPWH manufacturers;
- To develop a single energy efficiency standard and label for water heaters.

### TARGET GROUPS

- 300 small- and medium-sized HPWH producers
- Distributors, retailers and installers
- Residential consumers in 8 selected pilot cities: Kunming, Hefei, Wuhan, Changsha, Nanchang, Nanning, Chongqing, Chengdu
- Local governments in 8 cities
- Energy efficiency standards and labelling institutions in China

## Activities / Strategy



### Capacity Building of Intermediaries and Manufacturers

Through training workshops, the project builds the capacity of sales intermediaries (distributors, big electrical appliance selling stores, do-it-yourself stores) that influence residential consumer's final choice and of HPWH installers to ensure a proper installation. The capacity of HPWH manufacturers will be strengthened to enhance the quality and performance of their products. This project activity also strengthens the China Heat Pump Alliance (CHPA), expands its membership, and establishes a link with the European Heat Pump Alliance (EHPA).



### Raising Consumers' Awareness

The project develops marketing strategy and campaign to reach residential consumers, using various communication channels such as newspapers, topic-oriented media (magazines, reviews), and the internet (CHPA website). The website will also contain promotional information and a section where consumers can compare all types of water heaters. The project also trains consumer organisations about the benefits of HPWH. Subsequently, an ex-post survey will be carried out to measure the actual improvement of consumers' awareness.



### Developing Eco-Design Guidelines

In cooperation with the South China University of Technology, the project develops practical recommendations on how to integrate eco-design into the HPWH manufacturing. Best practices will be identified and compiled as a basis for eco-design guidelines and training materials. The guidelines will be distributed during training workshops to 300 HPWH manufacturers (75% of all SMEs in the industry). As project associates, 8 local energy conservation organisations will further distribute the guidelines to their members.



### Promoting Eco-Labels and Standards

The project combines voluntary (labelling) and mandatory (standards) approaches in order to induce a positive market transformation in favor of HPWH. It consults with local stakeholders (energy conservation organisation, national-level policy makers, China National Institute of Standardisation / CNIS, and Standardisation Administration of China / SAC). Subsequently, the development of a single EE standards for water heaters and of a labelling scheme will build upon European experience through a study tour to Europe for Chinese policy and standard makers.

## Scaling-up Strategy



### Increasing HPWH Market Share

Through capacity building and awareness-raising programmes, the project creates favourable conditions for HPWH manufacturer to increase their market share from less than 2% to 6.5% in Southern China. The categorisation of HPWH as renewable energy in at least one of the pilot cities will pave the way for similar categorisation at national level. This in turn will provide a direct financial resource for the deployment of HPWH in the city and subsequently across China.



### Enabling Policy Environment for HPWH

Official recognition of HPWH as renewable energy technology (like in Europe) by one of the pilot cities within the implementation period of the project will be instituted, and subsequently at national level by China's government authorities. Therefore, the technology can benefit from government subsidies, and the deployment of HPWH will be further facilitated.



### Long-term Sustainability

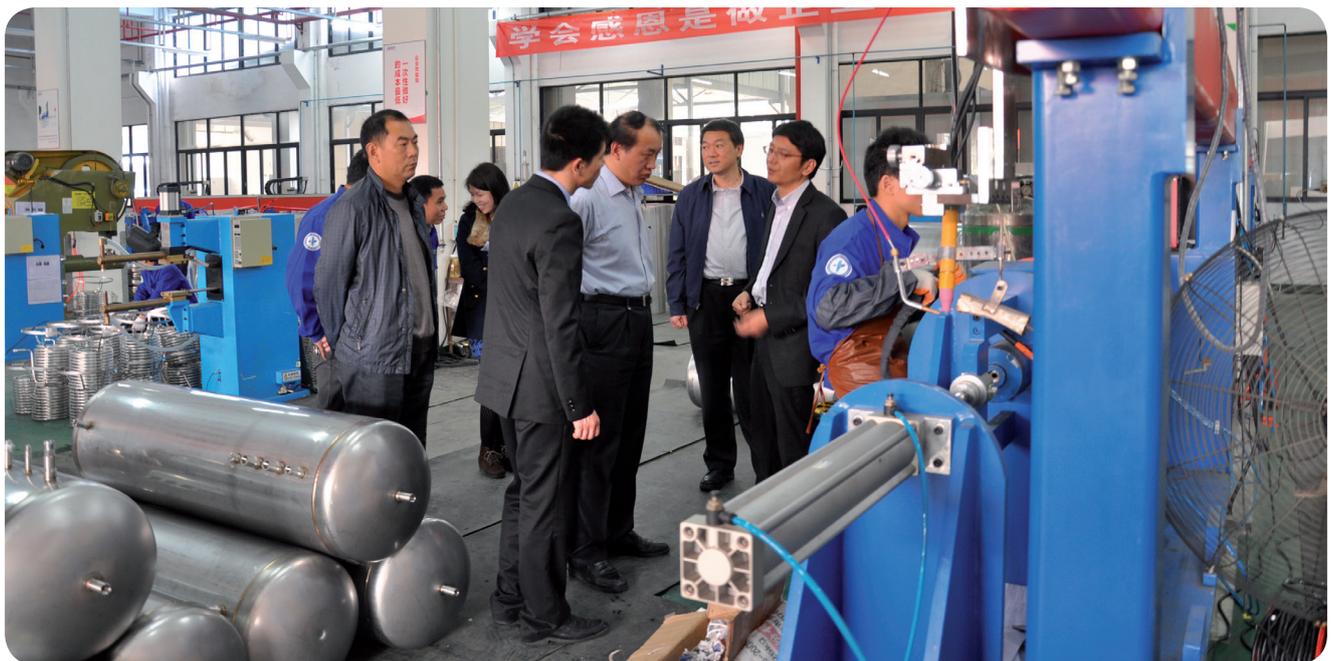
Maintaining the CHPA will offer opportunities for activities, such as consumer information, media coverage, events, and the like to be continued at no extra cost. To ensure CHPA's financial sustainability several options will be explored such as registration fee for seminar participation, possibility for manufacturers to advertise at seminars, and CHPA membership fees. CHPA will offer a range of services to HPWH manufacturers as well.



*Currently, Chinese people own 130 million units or sets of water heaters, 40 million of which are electric water heaters consuming electricity about 67 billion KWh per year. HPWH represents less than 2% of the total market in terms of units sold, leaving room for further market development. By replacing electric water heaters with HPWHs, the potential to further reduce energy consumption and the resulting CO2 emissions is very great.*



*Mr. Chen Neng  
China Energy Conservation  
Association*



*Project visit to HPWH manufacturer*

## Results

**Established the China Heat Pump Alliance**  
CHPA currently has about 100 members, including HPWH manufacturers, distributors, media companies, academic institutions, and representatives of the central government. The Alliance organises regular meetings and encourages collaboration among members. In addition, an agreement for formal cooperation with the European Heat Pump Alliance will be developed and signed to facilitate knowledge transfer between European and Chinese alliances.

**Built Capacities of Intermediaries and Manufacturers**  
Certificates of attendance are provided to the participants of training workshops, who will be able to include this in their CV, thus raising their personal and company's profiles. Participants also received marketing materials and tools that further help them convince consumers as well as carrying out proper installation of HPWH. HPWH manufacturers received trainings to enhance the quality and performance of their products. Eco-design guidelines will be produced and disseminated, and training workshops organised.

**Consumer Awareness Increased**  
Activities specifically aimed at increasing residential consumers' demand for HPWH and communicating its benefits have been developed. These will provide a way to measure the improvement of consumer awareness during the project.

**Energy Efficiency (EE) Standard and Label Adopted**  
The development of EE standard for water heaters as well as a labelling scheme will build upon European experience, in particular expertise from the European Heat Pump Alliance. In the future, HPWH shall be recognised by Chinese authorities as a renewable energy, thus enjoying government subsidies and support.



*We have used the HPWH for a year and it has really saved us much electricity costs. In the summer, most days it consumes just 1 KWh for the whole family to bath. When we still used the electric water heater, it could reach 4 KWh or even more. In winter, although the HPWH will consume around 2 KWh, it's still more efficient than the electric water heater. So, I think there must be large amounts of energy to be saved if more people were to use HPWHs.*

*Mr. Li Xiaodong,  
a consumer from Wuhan,  
Hubei province*



Awarding certificates to the training participants

# Impact in Numbers

<p><b>Economic Impact</b></p> 	<ul style="list-style-type: none"> <li>In 2013 the HPWH industry in China saw an increase in product sales by 26.3%, partly due to this project.</li> <li>Overall, the Chinese HPWH industry has shown sustained growth, attracted significant investment in new companies and created new jobs.</li> </ul>
<p><b>Environmental Impact</b></p> 	<ul style="list-style-type: none"> <li>Reduction of electricity from 3.2 KWh per day to 1.2 KWh per day.</li> <li>Reduced the use of standard coal by 0.2 tonne per HPWH over the product's lifetime, assuming that the HPWH replaces an electric water heater.</li> </ul>
<p><b>Climate Benefits</b></p> 	<ul style="list-style-type: none"> <li>Reduced energy use by 730 KWh per HPWH per year, and CO2 emission by 0.73 tonnes per HPWH per year.</li> <li>Additional reduction of CO2 emission due to project activities was estimated about 146 000 tonnes in 2013.</li> </ul>
<p><b>Target group Engagement</b></p> 	<ul style="list-style-type: none"> <li>Engaged 70 producers and 450 retailers in 2013 alone.</li> <li>Involved more than 30 stakeholders, including the Sichuan Energy Conservation Center, Anhui Energy Conservation Center, and Guangxi Energy Conservation Center.</li> <li>Types of involvement included the annual forum of the China Heat Pump Alliance, capacity building of sales intermediaries for residential consumers, marketing strategy and campaigns and market baseline surveys.</li> </ul>

<p><b>Policy Development</b></p> 	<ul style="list-style-type: none"> <li>Recommendations were submitted to China's National Energy Bureau to classify HPWH as a renewable energy technology in order to qualify for government subsidies.</li> <li>The project will develop HPWH national energy efficiency standard and engage with policymakers for adoption of the standards and labelling scheme.</li> <li>The project contributes to development of design standards for energy efficiency in public buildings.</li> </ul>
<p><b>Europe-Asia Cooperation</b></p> 	<ul style="list-style-type: none"> <li>Initiated an official partnership with the European Heat Pump Association to share experience and best practice.</li> <li>Co-organised the International Heat Pump Industry Forum-China in Wuxi in 2013 involving more than 300 participants.</li> </ul>





**Legend**

- Eligible countries for the SWITCH-Asia Programme
- Non-eligible Asian countries for the SWITCH-Asia Programme

**Project implementation area**

- City
- Region
- Country

*The boundaries shown on this map do not imply on the part of the European Union any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.*

**OBJECTIVES**

The project aims at reducing environmental impacts from the use and production of water heaters in China, translating into an annual reduction of 1 million tonnes of CO<sub>2</sub> emissions. This will be achieved by increasing the market share of household heat pump water heaters from less than 2% to 6.5% in Southern China.

**DURATION**



**PROJECT TOTAL BUDGET**

EUR 2 069 861 (EU contribution: 80%)

**PROJECT CONTACT**

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