



CASE
STUDY

Case Study



Clean Energy

Shanghai, China - An innovative green pricing mechanisms-the Shanghai Green Electricity Scheme

In 2006 the World Bank supported the creation of an Energy Conservation Center in the city of Shanghai and looked at the possibility of developing a green electricity scheme there. The scheme was named Jade Electricity by the Shanghai municipal government and allowed consumers to purchase, on a voluntary basis, part or all of their electricity from renewable energy sources. Participating customers paid a premium on their electric bills to cover the incremental cost of the additional renewable energy thus contributing to making the city's electricity portfolio more sustainable and to reducing local air pollution. The program initially supported only wind and photovoltaic energy as renewable-based sources. The pricing mechanism adopted for Jade Electricity is that of the existing tariff plus a changing premium that is calculated on an annual basis. The price of Jade Electricity is subject to approval by Shanghai Municipal Government pricing authorities.

“Better city, better life” is the Shanghai municipality slogan in a campaign to promote its image as an environmentally conscientious and responsible city. One of the ways this busy hub decided to show its commitment to a less polluted city life is by becoming the first developing country city in the world to offer “Green Electricity.” Green electricity is a product that consumers pay on a voluntary basis, usually at a premium, if part or all of this electricity is produced from renewable resources such as wind and solar. This way, Green Electricity consumers help overcome the incremental cost of renewable electricity generation and promote implementation of renewable electricity projects. Genesis of the Project In 2001, the China Renewable Energy Scaleup Project (CRESP) team proposed to introduce such a green electricity concept in China to complement work on the introduction of a legal obligation to produce, distribute or consume a certain amount of renewable electricity. In 2003, this led the Shanghai Economic Commission to request World Bank support in designing and introducing a practical green electricity scheme for the city of Shanghai.

ASTAE and ESMAP joined forces to provide the requested support, and ASTAE decided to develop this project as one of its "Flagship" activities. The Shanghai Green Electricity Scheme was developed over 2004, formally launched in 2005, and was formally called and branded "Jade Electricity". How the Scheme Will Deliver The program will initially support wind and PV electricity only. Green electricity will be available to households, industries and commercial customers, although initially the focus will be on large non-household consumers. The approach adopted by Shanghai was to start small and to let the scheme develop and grow with increasing demand and increasing availability of renewable electricity. This means that the scheme will remain small for some time but may become very substantial over time.

To qualify as a Green Electricity user, customers must buy by yearly blocks of green electricity delivery. The size and number of blocks is set to depend on each consumer's total electricity consumption. For example households must buy blocks of 12 kWh per year with a minimum of 10 blocks; larger customers must buy blocks of 6 MWh with a number of blocks depending on their relative sizes. The incremental cost of green electricity has initially been set at 0.53 Yuan/kWh (about 6.5 US cents/kWh in 2005). To date, 14 industries and institutions signed contracts for a duration of 1-3 years amounting to a total of 6.54 GWh of "Jade Electricity" per year. While the premium to be paid may seem considerable in value, renewable electricity represents only a small part of total electricity consumption; hence the impact on the customer electricity bill remains limited. Shanghai annual electricity consumption will soon surpass 100 TWh per year to be compared with the current green electricity consumption of 6.54 GWh per year (less than 0.01%). This nonetheless covers for the whole electricity generated by the existing 3.4 MW Feng Xian windfarm and its 10 kWp grid connected PV system, which until 2005, were the only renewable electricity resources available to the Shanghai Municipality. In 2005 the World Bank financed the Chong Ming and Nan Hui windfarms, with a total capacity of 21 MW, which recently became operational and will generate power to be added to the green electricity purchasable. This will bring the total available generation to 53.4 GWh per year."

Shanghai Green Electricity Scheme



Source: <http://www.china.org.cn/english/2004/Mar/91077.htm>

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Credentials

Authors: Paul Suding, and Florian Steinberg. Edited by: Florian Steinberg