(※)This is a English translation of the HPTCJ's News Release in Japanese.

News Release

June 10th 2013

Heat Pump & Thermal Storage Technology Center of Japan

Estimated results of primary energy reduction potential by wider use of heat pumps

Heat Pump & Thermal Storage Technology Center of Japan (Chuo-ku, TOKYO Chairman:Hiroshi Komiyama) promotes wider use of heat pump and thermal storage system; which is recognized as renewable utilized equipment in EU ; also has received much attention in peak demand cutting and business continuity planning (BCP) in Japan. We are delighted to announce the estimated results of primary energy reduction potential by wider use of heat pumps.

※1 Heat pump is a technology using "Heat" from the nature such as air, which is used for space cooling, space heating and hot water supply. By replacing traditional combustion system it will contribute to the prevention of global warming.

○ Primary energy reduction potential by wider use of heat pumps

By replacing equipment such as boilers, which handle the bulk of heat demand※2 in the private and industrial sectors, with heat pumps an approximate 27 million kl (▲ About 40%) annual primary energy reduction effect (crude oil equivalent) can be realized. This primary energy reduction effect (crude oil equivalent) is equivalent to about 2.6 trillion※3 yen which account for about 11% of Japan's annual fossil fuel imports.

※2 Residential space heating, Residential hot water supply, Commercial hot water supply, Industrial heating(Extract temperature range within which heat pumps can be applied. Account for about 49% of industrial boiler energy consumption.)

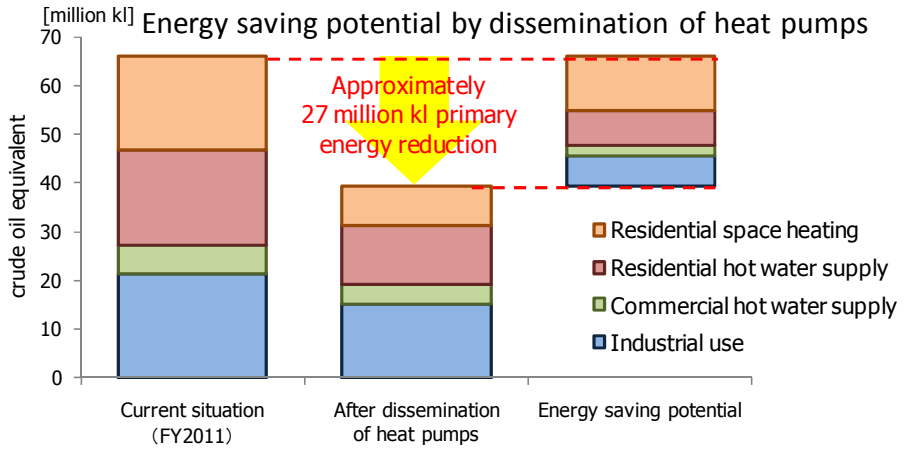
※3 Current fossil fuel cost: 4.3 trillion yen. Fossil fuel cost after dissemination of heat pumps: 1.7 trillion yen. (Electricity usage is calculated by average fuel cost of fossil fuel power stations.)

Energy saving potential by dissemination of heat pumps

(10^3kl)

	Current status (FY2011)	After dissemination of heat pumps	Reduction amount
Residential space heating	19,260	8,070	▲ 11,190
Residential hot water supply	19,420	12,250	▲ 7,170
Commercial hot water supply	5,920	3,940	▲ 1,980
Industrial use(※)	21,530	15,210	▲ 6,320
Total	66,130	39,470	▲ 26,660

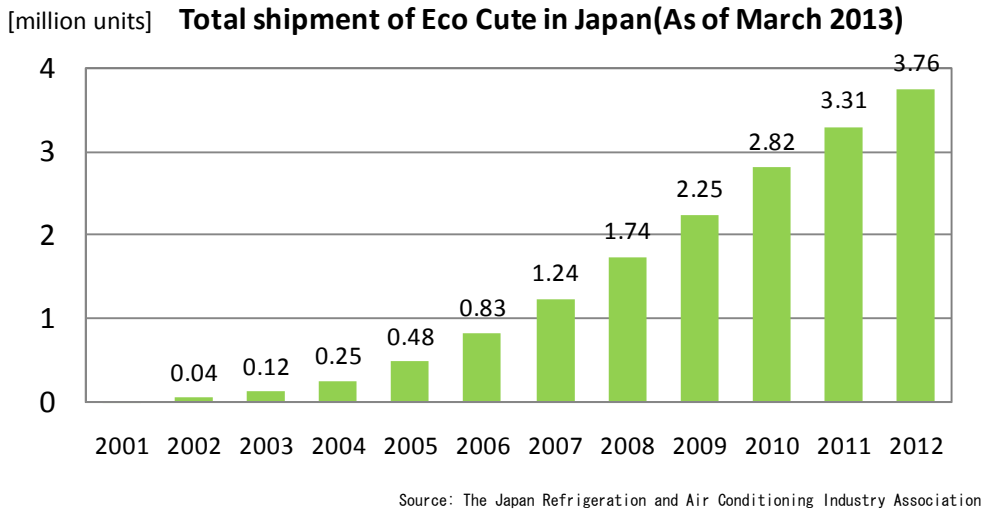
(※) Annex4 shows detailed breakdown of potential energy reduction in the Industrial sector.



○ Dissemination of the residential CO2 heat pump water heater “Eco Cute” ※4

“Eco Cute” is a high energy efficiency water heater which produces hot water by utilizing heat pump technology. By utilizing heat contained in air, 3 units※5 of heat energy can be gained from 1 input energy. A huge energy consumption reduction can be realized since residential hot water supply accounts for 1/3 of household energy usage.

※4 “Eco Cute” is a well known name for natural refrigerant CO2 heat pump water heater which is used by electric company and manufactures.
※5 In this situation annual average energy consumption efficiency is 3.



Source: The Japan Refrigeration and Air Conditioning Industry Association

○ Wider use of renewable energy by utilization of heat pumps

In the EU, the EU RES-Directive defines energy; such as aerothermal, geothermal and hydrothermal, which heat pumps use as a renewable energy source, and is promoting wider use of it. In March 2013, the European Commission announced “Guildeline on calculation of renewable energy sources” ※6 which includes aerothermal energy utilized by heat pumps.

※6 Annex1 indicates detailed condition of calculation; such as only heat pump with seasonal performance factor of 2.5 and above could be counted.

○ Utilization of heat pumps and thermal storage system in BCP

In order to be able to overcome the effects of a major earthquake, BCP has been receiving more attention. One of the earthquake measures is the use of heat pumps and thermal storage systems with huge chilling water and hot water which could be used for daily life water or fire fighting water when an emergency occurs. Using the Great East Japan Earthquake data we performed an analytical survey on the role of heat pumps and thermal storage systems during such an emergency.

Annex1: RES-Directive guideline for heat pumps
Annex2: Report on utilization of heat pumps and thermal storage systems on BCP
Annex3: Emergency use of thermal storage tanks
Annex4: Breakdown of potential energy reduction in the Industrial sector

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