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Japan Science and Technology Agency (JST)

The University of Tokyo

Shizuoka Gas Co.,Ltd.

Replacement of old refrigerator by an energy saving one without initial cost:

Repayment plan uses monthly electricity savings to pay off cost in about 7 years

JST's Center for Low Carbon Society Strategy (LCS) and the University of Tokyo have proposed a "Pay-as-you-save (PAYS)" type scheme to induce more deployment of energy efficiency measures within the household sector. The scheme is now at the developing phase to be deployed as a profitable business.

In the PAYS type scheme, when a household replaces an old electrical appliance (e.g. refrigerator) with an energy saving one, initial cost will be covered by financial institutions or lease companies. After the installation of energy efficiency measures, households continue to pay about the same energy fee, and the energy company will pay back the amount of money for conserved electricity to financial institutions who paid the initial cost, until the repayment is complete. Based on the analysis of electricity consumption data collected by LCS for other research projects with the cooperation of households, LCS and the University of Tokyo developed a tool that easily estimates electricity cost saved by replacement with an energy efficient refrigerator.

In April 2015, LCS, the University of Tokyo, and the Shizuoka Gas Co., Ltd. launched a demonstration experiment of the PAYS type scheme in Mishima-city, Shizuoka Prefecture. In this experiment, two households out of five which were offered our PAYS scheme replaced their refrigerator. In the households who replaced the refrigerators, energy saving effects are more than 60% (> 1,500 yen / month in electricity fee). We will continue to verify and improve this scheme through the opinions from households participating in this experiment.

The examples of the refrigerator replacements using our scheme in Mishima-city is the first step to deploy the PAYS type scheme on a large scale. LCS and the University of Tokyo have already started similar PAYS projects in other regions within Japan. We expect to receive more reliable data as we expand our replacement scheme in other regions. In the future, by applying this scheme for other electrical appliances and improvement of insulation, the contribution of our PAYS scheme will be viable even in national statistics.

With the cooperation of local governments and other stakeholders, we plan to set up funds for this scheme, to create self-sustaining businesses, and to aim for adoption across the country.

LCS (Center for Low Carbon Society Strategy)

LCS is a think tank under JST, and aims to contribute to the construction of a sustainable low carbon society with affluent life. LCS studies and assesses low carbon technologies in the purpose to promote its introduction, analyze the economic effects, and also propose new regional social systems related to the low carbon society project.

Contact

[About Program]

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