

Summary

The demonstration experiment was carried out for the purpose of CO₂ reduction in residential sector by visualization of real-time electricity consumption in households. It clarified that continued actions for electricity saving can be promoted by the social psychological approach is: a comparison with others based on the concept of social norms; and a provision of minimum information applied the concept of “Nudge”. In addition, we acquired through the experiment a lot of scientific knowledge which can be applied to the interactive communication website for energy saving named “i-cosmos”.

According to the analysis of refrigerator, about 27% of experiment participants are able to save their electricity by replacement of refrigerator. Each refrigerator of those participants consumed over 600kWh/y (average 804kWh/y). If they replace them with new ones (200kWh/y, 100,000JPY), the electricity cost can be reduced to 1/4 and it enables early payback before lifetime of refrigerator. Also, about 70% of participants would be able to save their electricity by change the operation mode of refrigerator.

The analysis of TV showed that the adjustment of screen brightness is possibly effective for electricity saving in 81% of participants. An average viewing time estimated by actual data was longer than statistical data based on questionnaire survey. This implies that an intentional behavior for power-off of TV is considered to be another effective way for electricity saving.

The knowledge was acquired not from catalog or laboratory data but from the actual electricity consumption data. We started supplying an advisory system on “i-cosmos” which is useful for energy saving and well-reflecting reality, based on the social psychological approach. A further data analysis is necessary to obtain applicable knowledge for improving/updating electricity-saving advice and to verify the effects of actual energy saving resulted from the advices and target-setting for each household. Widespread diffusion of both knowledge and system will contribute to CO₂ reduction in residential sector.