Feasibility Studies with the Aim of Developing Joint Crediting Mechanism FY2014

Introduction of Energy-Saving Systems to Supermarkets in Myanmar

New Energy and Industrial Technology Development Organization (NEDO)
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Possibility of future CO₂ reduction by introducing energy saving systems (remote controlled energy management system for refrigeration equipment) for supermarkets in Myanmar.

**Summary**

Possibility of future CO₂ reduction by introducing energy saving systems (remote controlled energy management system for refrigeration equipment) for supermarkets in Myanmar.

**Survey Items**

1. Investigate Myanmar government's policy and its intentions towards JCM
2. Investigate market prospects of supermarkets
3. Investigate the situation of refrigeration and frozen machinery in supermarkets and conduct actual measurement of its electric quantity
4. Investigate obstacles to adopting the energy-saving system
5. Establish a MRV methodology and conduct a validation survey

**Partner/Site**

Local Super Markets in Myanmar

**Estimated Reduction Amount**

4.4 ktCO₂/year (in the case of applying to 20 stores)

The reference will be set in a case where conventional refrigerators are replaced with refrigerators that are efficient to some extent* and are available in the targeted markets. Power consumption will be measured by power meters.

*The efficiency is assumed to be about the same as the models that were used in Japan ten years ago

Expected to achieve reduction of CO₂ emissions by reducing electricity consumption by introducing Japan-made high-efficiency energy-saving refrigerators and energy control systems using BEMS. Energy consumption is expected to be reduced by 30% compared to the reference. The amount of power consumed will be measured and recorded in an integrated manner by BEMS.

Reference

Project
In response to changes in the refrigeration load, the inverter controls the rotational speed of the compressor. Compared to conventional refrigerators with compressors controlled at a constant speed, energy can be saved up to 22-40%. By mutual communication control with the latest model of showcase, the effect is further increased.

Up to 45% reduction in electricity consumption is possible compared with models used in Japan 10 years ago.

### Features

- **Changes of the expansion valve specifications**
  Updated to electronic expansion valves from conventional thermal expansion valves. By fine-grained control, high accuracy control of ± 0.2 °C is achieved. Also it reduces unnecessary energy consumption.

- **Change in the air curtain structure**
  Achieved approximately 15-50% of energy saving by increasing the size of the structure.

- **Implementation of optimal heater control**
  The heater output is optimally controlled to match the in-store environment. Reduces unnecessary consumption of heater power, achieving about 20% of the energy saving compared to conventional products.