Feasibility Studies with the Aim of Developing a Joint Crediting Mechanism FY2013

Studies for Project Exploration and Planning

Refrigerant Supercooling System Project for Air Conditioners in Thailand

New Energy and Industrial Technology Development Organization (NEDO)
Takasago Thermal Engineering Co., Ltd.
Recycle One, Inc.
Explore a feasible project for reducing energy cost and GHG emission in factories and buildings by installing a water-cooled heat exchanger with supercooled refrigerant to an existing air-cooled air conditioning package to improve its energy efficiency.

**Survey in Summary**

- **Survey Items**
  1. Investigation of governmental policies
  2. Evaluation of business potential
  3. Evaluation of implementation sites
  4. Development of an implementation plan
  5. Establishment of MRV methodology

- **Partner / Site**
  - Thailand
    - Factory of Japanese Company
  - Thailand
    - Bangkok Vicinity

**Estimated Reduction amount**

- Reduction amount: 20%, 9.4 ton-CO2/year*unit
- (Potential market: 3.29 million ton/year)

The reference scenario would be assumed that air conditioners will have been used without the refrigerant supercooling system.

**Purchased Electricity**

- **Present**
- **After Implementation**

**CO2 Emission**

- **Present**
- **After Implementation**

**GHG Emission**

- **Reference Emission**
- **Project Emission**

**Monitoring**
Summary of Introduced Technology

NEDO’s Feasibility Studies with the Aim of Developing a Joint Crediting Mechanism
Country: Kingdom of Thailand Sector: Energy Conservation

Technology / System Overview
- Increases air cooling capacity by inserting water-refrigerant heat exchanger (subcooling unit) to the main refrigerant line and supplying cooling water from outside to cool the refrigerant
- 10-20 units are typically installed in one factory.

Strength
- Reduction of 25% of maximum power and 20% of yearly power consumption is possible under Thailand’s climate condition.
- Relatively low initial investment of approx. 1 million yen/system. Payout time can be less than four years.
- Can be installed to the existing air conditioning system.
- Easy maintenance
- Elongate lifetime of an air conditioner lifetime

Importance of Technology Dissemination
- The technology has potential of being implemented to many of the air conditioning equipments installed along with the economic growth of the project country and will contribute greatly to its energy savings.