

FY2015 Feasibility Studies with the Aim of Developing a
Joint Crediting Mechanism

**Feasibility Study on Introducing Water
Utilization Technology-UCHIMIZU to Improve
Air-Conditioning System Efficiency
in Vietnam**

New Energy and Industrial Technology Development Organization (NEDO)

Sanicon Co., Ltd.

Feasibility Study on Introducing Water Energy Utilization Technology-UCHIMIZU to Improve Air-Conditioning System Efficiency in Vietnam

Conducted by: Sanicon Co., Ltd.

The proposed project is designed to improve air-conditioning system efficiency at facilities with high air-conditioning demand, such as commercial complexes, by introducing Japan's advanced membrane technology and water energy utilization technology, thereby contributing to the sustainable development of Vietnam.

Study Summary

Local application of an E mizu shower (a system to spray water on outdoor air-conditioning units) and financial feasibility as well as project operation structure will be considered in a study for implementing a demonstration project to improve the efficiency of air-conditioning systems, thereby reducing CO₂ emissions.

Study Items

- ① Policy trends in Vietnam
- ② Market study of project technology
- ③ Project plans, including financial feasibility, detailed design, project schedule, and diffusion plan
- ④ Development of MRV methodology for the project
- ⑤ Estimation of GHG emission reduction and economic impact

Partners/Site

- Aeon Delight Vietnam
- Energy Conservation Center, Ho Chi Minh City
- Saigon Tourist



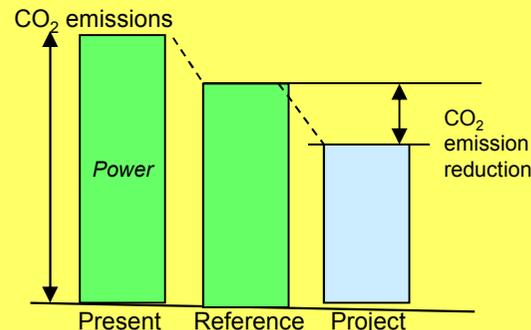
Site: Ho Chi Minh City, Hanoi, Vietnam

Estimated Reduction Amount

Reduction amount: 427 tons CO₂/year

Reference Emissions

CO₂ emissions from electricity consumption of air-conditioning systems without an E mizu shower = Electricity consumption of air-conditioning systems after project implementation x [1 / (1 - conservative energy saving coefficient)] x grid CO₂ emission factor



Project Emissions

CO₂ emissions from electricity consumption of air-conditioning systems with an E mizu shower = (Electricity consumption of air-conditioning systems with an E mizu shower + Amount of electricity consumption with water purification) x CO₂ grid emission factor

Summary of Introduced Technology



■ Outline of E mizu shower

In the cooling process, refrigerant gas returning from indoor units is compressed and cooled in outdoor units, and then it forms a liquid and emits heat absorbed indoors as evaporative latent heat outdoors. When the outdoor temperature is high, electricity consumption increases as compression and cooling efficiency decrease due to a high outdoor temperature. Applying UCHIMIZU (water spraying) with an E mizu shower will improve air-conditioning system efficiency

The project introduces E mizu shower, which is a system that sprays water on the aluminum fins of outdoor units. It leads to improvement in heat exchange efficiency of outdoor units and reduced electricity consumption. It is a unique technology that utilizes a reverse osmosis (RO) membrane to purify spraying water not only to avoid scale attached to fins and contribute to reducing maintenance costs, but also to prevent outdoor units from losing efficiency due to scaling and aluminum fin corrosion.

