Feasibility Studies with the Aim of Developing
Joint Crediting Mechanism FY2014

Research Of Energy-Saving Air Conditioning
Via Water Source Heat Pump Unit
Project In Vietnam

New Energy and Industrial Technology Development Organization (NEDO)
NIPPON PMAC Co., Ltd. / Renova, Inc.
Conduct a project evaluation and identify potential markets to install WSHP at factories and buildings in Viet Nam through some research.

**Study Items**

1. Policies related to this project in Vietnam
2. Reviewing installation potential
3. On-site research of planned site
4. Planning equipment installation
5. Studying MRV methodology

**Partner and Study Site**

- Factories and Buildings (Mainly Hanoi and Ho Chi Minh City), clients of Takasago Vietnam Co., Ltd. (Hanoi,※)
- ※The parent company of NIPPON PMAC Co., Ltd

**Supposed Reduction and Measuring Method**

**Current Situation and References**

Assumption of reference emission:

Electricity consumption with common air-conditioning in Viet Nam

**CO2 emission**

<table>
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<tr>
<th>Phase</th>
<th>Description</th>
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<tbody>
<tr>
<td>Before</td>
<td>Common AC</td>
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<tr>
<td>After</td>
<td>WSHP</td>
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**Amount of Reduction**

Contributes to reduction of GHG emission with less electricity consumption compared to air-cooling type

**After Installation (expectation)**

Estimate of the amount of the reduction after installation

**Scale of Reduction:** Approx. 5.1t-CO2/yr. (Current expectation Per Facility)
Outline of technology and system

- Water heat source heat pump unit type is a kind of the water-cooling air conditioner type, placing the heat pump package of air conditioner which utilizes water as heat source to a location where needed.

Advantage

- It can utilize the wide range of unused heat such as water from underground and river
- When we compare with the conventional air conditioning, we can expect the huge energy saving by approximately 15-20% electricity consumption reduction.
- It emits little heat, so it prevents “heat island phenomenon” in the summer

Advantages of the dissemination of this system

- In the near future, as the economic growth of the target countries, the possibility of installation of this system will be increased. It may contribute to energy saving in the target countries.