

Smart Factories Using Renewable Energy

"Under the Course of Action for Climate Change Towards 2050 announced in 2017, NEC has set a target of reducing CO₂ emissions from its own business activities (Scope 1, 2) to "effectively zero." Our approach to achieving effectively zero in 2050 includes 1) reducing energy usage through rigorous energy saving, 2) converting our energy usage to renewable sources, and 3) offsetting our final CO₂ emissions. As one of the initiatives to achieve this target, we have been promoting an initiative for converting plants and other facilities into smart factories.

At a newly built factory of the NEC Group's production-related company, NEC Platforms Thai Company Limited, we aim to create a state-of-the-art smart factory in Thailand using ICT. Our main initiatives include installing solar power generation equipment, optimizing operation control for air conditioning equipment, changing the nitrogen supply system, and converting all of the lighting to LEDs.

In the installation of solar power generation equipment to provide a source of renewable energy, we have installed a megasolar system with a total electric power capacity of 1,400 kW (1.4 MW) covering the entire roof area of the factory building, office building, and parking building, totaling 8,330 m². The system is expected to generate 1,900 MWh of electricity every year.

Since the air-conditioning equipment accounts for a significant portion of the plant's electricity use, we have installed controls over the number of units in operation and an inverter control. These can automatically control the equipment in response to changes in the environmental load due to operating status, temperature, and the status of people present in rooms, helping to reduce electricity use.

For the nitrogen supply system, we purchased nitrogen that we previously manufactured, helping to reduce costs. The air compressor equipment has a controller for the number of units installed to enable electricity-saving operation.

For the lighting equipment, we have installed LEDs throughout the plant, including the assembly area work tables in the factory, adding switches that allow people to turn lights on and off as needed, which also helps to reduce electricity use.

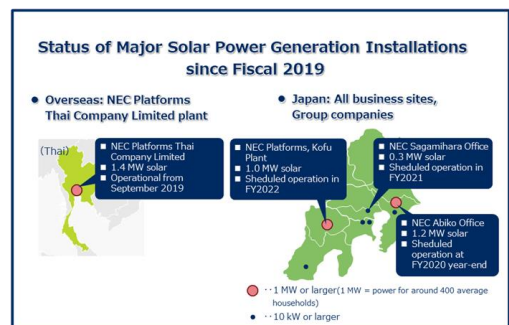
In addition, we have also installed a Factory Energy Management System (FEMS) to enable visualization and control of operation status by gathering data from these facilities so that we can monitor the control status and make further improvements.

By introducing renewable energy and enhancing the efficiency of these energy facilities, we expect to reduce the plant's overall energy usage by about 40%.

The Thai plant is NEC's first step in achieving production with zero CO₂ emissions, and we now plan to install solar power generation equipment on the roofs of all NEC Group facilities where it can be installed.



Air conditioning equipment control panel



Nitrogen supply system



NEC Platforms Thai Company Limited