

Eco-factories

We promote efforts to reduce the environmental impact of our factories through efficient use of resources, reduction of greenhouse gas emissions, reduction and improved management of chemical substances, reduction and recycling of industrial waste, and implementation of environmental risk management.

Efficient Use of Energy

We promote energy-saving activities in our factories.

The NEC Electronics Group is currently working to reduce the amount of energy it consumes in Japan to 65% or less of the fiscal 1991 level in terms of real production units by fiscal 2011.

Thus far, we have actively participated in efforts by the semiconductor industry to use energy efficiently by working to eliminate wasteful use of energy, and reexamining our manufacturing processes. We also work closely with production facility and incidental facility industries to promote energy conservation activities.

Also, in recent years we have been promoting energy-saving measures from the standpoint of improved productivity.

Improving efficiency of existing manufacturing lines

The NEC Electronics Group has prepared a booklet of energy-saving measures that is used and applied by all group companies.

In fiscal 2008, we achieved implementation of 92% of the measures in our companies in Japan. The booklet is updated every year; the latest update in February 2007 added two new energy-saving measures. At present, we have completed implementation of 66 of the 83 tasks and are at work on the remaining 17 tasks. Also, we have experts from outside the company come in to conduct energy-conservation diagnoses and the results of these diagnoses are reflected separately.

Upgrade of chillers

The NEC Electronics Group plans to upgrade all factory chillers that contain specified CFCs. Besides using these ozone-depleting substances as refrigerants, conventional chillers are outdated and thus are unsatisfactory in terms of energy efficiency. Upgrading is anticipated to result in 20% or more improvement in energy efficiency per unit. This will help prevent depletion of the ozone layer while also contributing to energy conservation. Upgrading in group companies in Japan is almost complete. Plans call for completion of upgrading in all group companies in and outside Japan by fiscal 2011.

Energy-conservation diagnosis

To verify the appropriateness of our energy-saving activities thus far and uncover new energy-saving measures, group companies have been undergoing energy-conservation diagnoses by experts from outside the company since fiscal 2007. In fiscal 2007, the Shiga Plant at NEC Semiconductors Kansai and the Yamaguchi Plant at NEC Semiconductors Kyushu Yamaguchi underwent a diagnosis, and in fiscal 2008, NEC Semiconductors Yamagata underwent a diagnosis. The companies are now examining possible application of additional energy-saving measures. With the introduction of the ESCO business in fiscal 2009, we plan to promote even more in-depth energy-saving measures.

Improving efficiency of newer manufacturing lines

Recently, a mini-environment system was employed for a newly installed semiconductor manufacturing line. The system maintains a high level of cleanliness within a limited area of the clean room where products are handled, while lowering the cleanliness level of other areas of the clean room to increase energy efficiency.

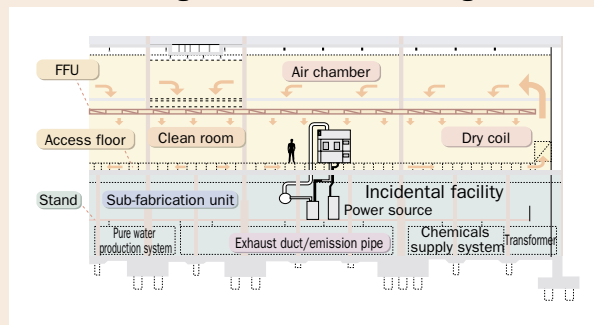
This system, combined with effective utilization of waste heat and outside air, helped cut energy consumption by 20% or more compared to a conventional system. The technology is also employed for the 8-inch line in the Shiga Plant at NEC Semiconductors Kansai and the 300-mm line at NEC Semiconductors Yamagata. We also incorporate energy-saving considerations at the design stage; on the extended 8-inch line at NEC Semiconductors Kansai scheduled to start up operation in fiscal 2009, we will install the most efficient machinery and equipment.

Some of the energy-saving measures implemented by new manufacturing lines

Introduction of high-efficiency systems and equipment

1. Large clean room and mini-environment system
2. Use of the latest energy-saving-type manufacturing equipment
3. Use of the latest model oilless vacuum pumps

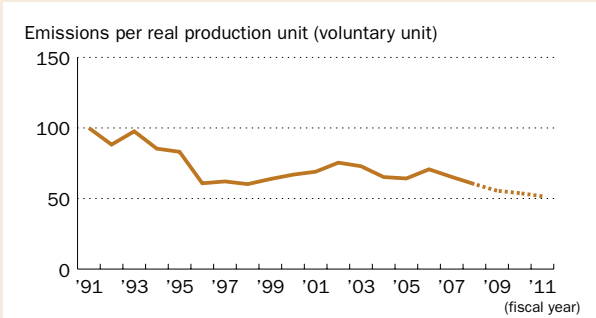
Schematic diagram of a new manufacturing line



Transitions in CO₂ emissions

In fiscal 2008, we implemented measures to save an equivalent of approximately 6,400 tons of energy and also consolidated some of our old production lines. These efforts resulted in a 2-ton reduction in CO₂ emissions and an improvement in emissions per real production unit, which decreased by 5.1 points.

Fluctuation in CO₂ emissions per real production unit



*Until fiscal 2002, we used the CO₂ conversion factor specified by Japan's Ministry of the Environment. Since fiscal 2003, we have used a fixed value (0.4t-CO₂/MWh) to evaluate activity results.

Compliance with obligations of transporters established by the revised Law concerning the Rational Use of Energy

In fiscal 2008, NEC Electronics transported 12.81 million ton kilometers of goods and all group companies in Japan transported 5 million ton kilometers or less. The total amount transported by the entire group was 19.33 million ton kilometers. Again this year, we were able to verify that no company in the NEC Electronics Group qualified as a specified transporter of over 30 million ton kilometers under the revised Law concerning the Rational Use of Energy.

Based on the obligations of transporters established by the law, the NEC Electronics Group promotes reduction of energy consumed for transport with the support of NEC Logistics, a distribution management company.

Greenhouse Gas Emission Reduction

We promote measures to reduce greenhouse gas emissions in our volume-production factories.

Greenhouse gases used by the NEC Electronics Group consist primarily of perfluorocarbon (PFC) gases used for cleaning reaction chambers used in the semiconductor manufacturing process. Reducing PFC emissions is an urgent issue because of its long atmospheric life and high global warming potential some 6,000 to 12,000 times that of CO₂.

In light of this urgency, NEC Electronics is at work developing technologies that will enable reduction of PFC gas emissions to no more than 90% of the 1995 level by 2010.

In 2007, by accelerating implementation of emission reduction measures such as use of substitute gases and introduction of gas removal equipment together with increased optimization of gas usage conditions, we were successful in reducing emissions by 21% compared to the previous year. In future, higher production volumes will no doubt rise. However, we will persevere in the effort to achieve our targets for reduction of greenhouse gases by introducing various technologies in our volume-production factories for optimization of gas usage conditions and use of substitute gases, and also accelerate introduction of extraction equipment.

Transition in greenhouse gas emissions, reduction target

