

Special Feature1 Reducing Our Consumption of Energy

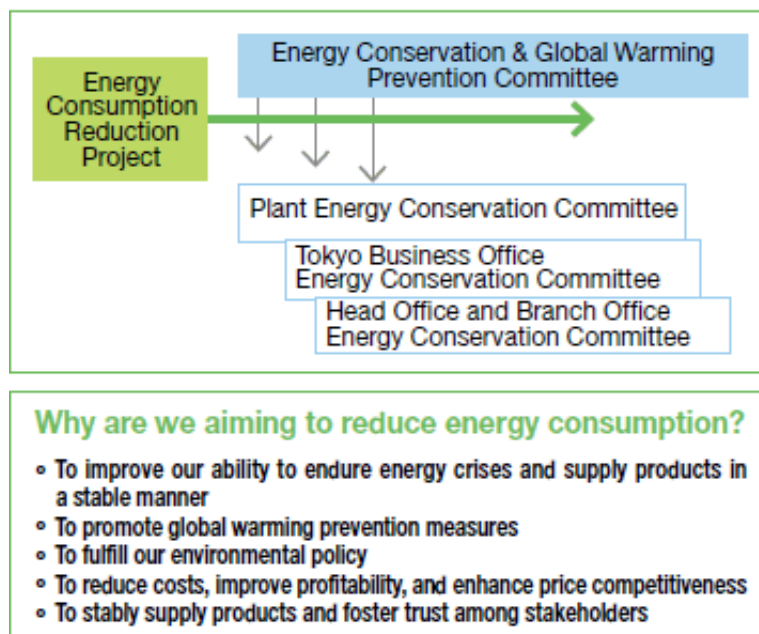
Utilizing the lessons learned from Japan's major earthquake and tsunami that struck in March 2011, Nippon Kayaku took measures to reduce its use of energy and revised its business continuity plan in fiscal 2011.

Aspiring to Become a Company that Can Better Tolerate Energy Risk

Nippon Kayaku has been actively involved in energy conservation and the prevention of global warming at each of its business sites since prior to the revision of Japan's Act on the Rational Use of Energy (below, Energy Conservation Act).

Since this law was revised in fiscal 2008, we have taken company-wide steps to reduce our use of energy, which has included setting up a committee chaired by the president to address energy conservation and global warming measures. Starting in fiscal 2011, we established the mid- to long-term environmental target of achieving a 15% reduction in greenhouse gas emissions compared to 1990 levels by fiscal 2020, and initiated even greater efforts to reduce greenhouse gas emissions from energy sources.

However, following the energy supply shortages that occurred after the Great East Japan Earthquake, we stepped up these activities as part of our stated commitment to become a company that uses less energy in order to endure an energy crisis. In conjunction with this, we reduced our use of purchased electricity and revised our core power system in order to avoid the impact of electricity supply shortages from power companies as well as to ensure that we are a company that can better tolerate energy risk and continually produce our products in a stable manner.



Examining Ways to Reduce Energy Consumption Using Five Themes

1. Change power systems to build a stronger foundation for energy conservation
 We will change over facilities at our plants and business sites to accommodate electricity supply shortages and will install back-up generators and secondary power sources where needed. This will enable us to achieve stable production and continually implement energy conservation measures.
2. Promote existing energy conservation and global warming prevention themes
 We will prepare plans based on the Energy Conservation Act and implement actions under existing themes ahead of schedule. We will strive to realize further reductions in order to improve our specific energy consumption by 1%.
3. Achieve ideal vision for plants
 We are preparing master plans on energy conservation and global warming prevention measures for each of our plants to demonstrate our stance toward reducing future energy usage at each of our sites aimed at our environmental target set for 2020. We will also revise and update these plans on a regular basis.
4. Fundamentally reduce the energy we use
 In order to achieve significant reductions in energy usage, we will need to fundamentally change the way we manufacture products to fundamentally reduce our consumption of energy by modifying reaction processes and developing manufacturing processes that result in less waste by-products.
 As advanced preparation for this, we plan to make a clear distinction between fixed energy consumption regardless of production

volume and fluctuating energy consumption directly related to production volume.

Currently, the Tokyo Plant is analyzing energy consumption trends. These results will be shared with other plants going forward.

5. Develop new products that are energy efficient and have less of an impact on the environment

We have initiated a review on systems that evaluate energy usage during the product development stage in order to develop new products that use less energy and create manufacturing methods that result in fewer greenhouse gas emissions.

Currently, we are aiming to raise awareness toward energy conservation among our researchers in order to estimate and assess energy consumption in our manufacturing processes when performing scale-up assessments.

Initiatives and Results in Fiscal 2011

Nippon Kayaku's energy usage in fiscal 2011 (April 1, 2011 to March 31, 2012) totaled 35,943 kl on a crude oil equivalent basis, which was 94.7% of the total seen in fiscal 2010. As a result, we were able to achieve a 21.2% reduction in greenhouse gas emissions compared to fiscal 1990. Going forward, we forecast that energy usage and emissions will rise as a result of increases in production volume, but we will nevertheless strive to reach our targets.

Our specific energy consumption also improved, as the figure for fiscal 2011 was 94.9% that of fiscal 2010.

In fiscal 2011, we decided to switch boiler fuel used at our Asa Plant (Kawahigashi Plant) from Heavy Fuel Oil A to LNG*1. Changes are currently being made at the plant for this transition, with work scheduled for completion in January 2013.

In addition, the Takasaki Plant will install a gas co-generation system (CGS)*2 in fiscal 2012, with work slated for completion in June 2013.

*1 LNG: liquefied natural gas

*2 CGS: Co-generation system that produces electricity using gas as well as collects and reuses resulting heat emissions

The Nippon Kayaku Group's Energy Conservation Activities in Fiscal 2011

The Nippon Kayaku Group proactively undertakes energy conservation activities, which are led primarily by each of its subsidiaries.

Energy Conservation Activity Led by Employees of Nippon Kayaku Group Companies – My Family's Environmental Impact Budget

Fiscal 2011 marked the fifth year of the My Family's Environmental Impact Budget program, which was launched in order to help employees uncover energy waste in their daily lives and to foster greater awareness toward energy conservation.

The results of these environmental impact budgets are presented below.

● Summary of Results for the My Family's Environmental Impact Budget Program

(unit: kg)

	Implementation	Period	Participating households	Average CO ₂ emissions per Nippon Kayaku Group employee household		Average CO ₂ emissions per household in Japan
				Overall	1-month average	1-month average *3
1 st Program	March 2009 to May 2009	3 months	517 households	1,453	484	387*4
2 nd Program	October 2009 to December 2009	3 months	267 households	1,735	574	
3 rd Program	January 2010 to March 2010	3 months	268 households	1,490	497	
4 th Program	April 2010 to March 2011	1 year	191 households	6,836	570	380*5
5 th Program	April 2011 to March 2012	1 year	177 households	6,148	512	Yet to be released *6

*3 Source: Greenhouse Gas Inventory Office (Japan Center for Climate Change Actions: <http://www.jccca.org/>)

*4 CO₂ emissions resulting from heat, light oil and waste were subtracted from publicly disclosed data, with average CO₂ emissions calculated using the fraction 1/4.

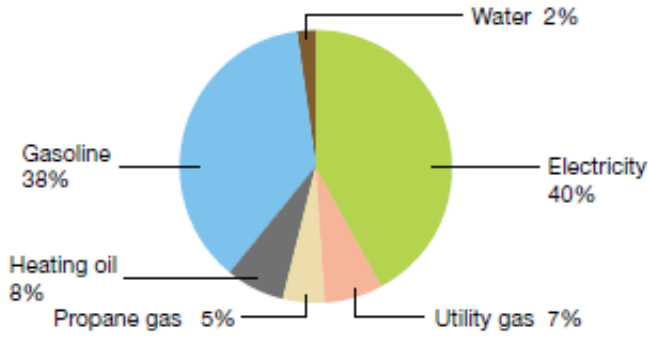
*5 CO₂ emissions resulting from heat, light oil and waste were subtracted from publicly disclosed data, with average CO₂ emissions calculated using the fraction 1/12.

*6 Data had yet to be released as of August 2012.

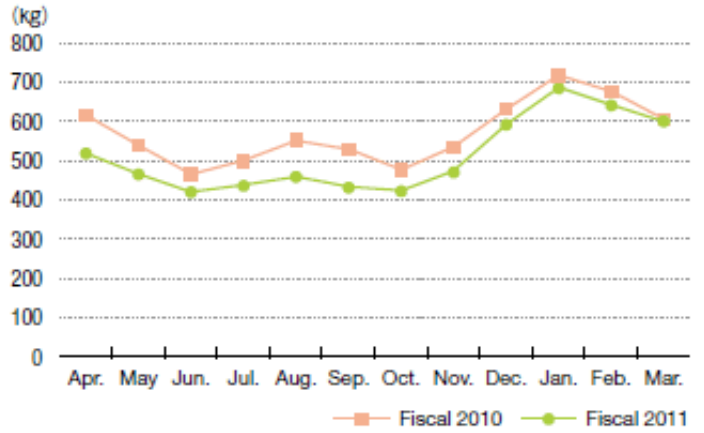
Fiscal 2011 Energy Usage Breakdown per Participating Household

The fifth program saw a total of 177 Nippon Kayaku Group employee households participate. Results showed that employees had around 50% more CO₂ emissions per household compared to the average CO₂ emissions per household in Japan for fiscal 2010. This is because many of our employees drive to work, which resulted in a much larger use of gasoline when compared to ordinary households in Japan.

Fiscal 2011 Energy Usage Breakdown per Participating Household



Fiscal 2011 CO₂ Emissions per Participating Household



Degree of Energy Conservation at Nippon Kayaku Group Employee Households

We calculated the Nippon Kayaku Group's overall degree of energy conservation by comparing the results of the fourth and fifth My Family's Environmental Impact Budget held in fiscal 2010 and fiscal 2011 respectively.

There was a 10% reduction in CO₂ emissions in participating households in fiscal 2011 compared to fiscal 2010, which indicates we are making progress in our homes. A colder than usual winter and more households increasing their use of heating oil, while reducing their use of electric heaters to curb energy use, can be cited as reasons for the increase in heating oil consumption seen in fiscal 2011.

Fiscal 2010 vs. Fiscal 2011

Electricity	Utility gas	Propane gas
15% reduction	31% reduction	21% reduction
Heating oil	Gasoline	Water
14% increase	0% reduction	25% reduction
CO₂ emissions 10% reduction		