

# Measures to Save Energy and Resources

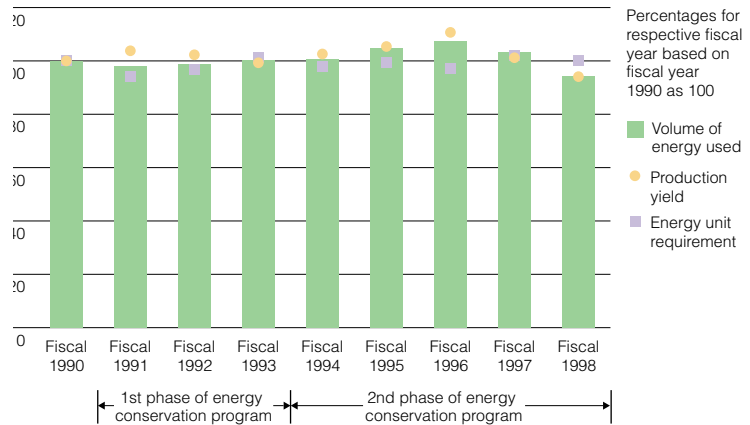
## Measures to conserve energy

### Energy conservation activities

In 1991, Kubota introduced the first phase of our energy conservation program. In the second phase of the program (fiscal 1994 to 1998), our target was to reduce the energy unit requirement by more than 5% in comparison with the 1993 level. However, the volume of energy used increased because we introduced facilities designed to improve the environment, and production equipment was renovated and upgraded. Because of these factors, combined with a decrease in production volume, we were only able to reduce the energy unit requirement by 1%.

### Transitions in volume of energy used company-wide

(percentages for respective fiscal year, based on fiscal year 1990 as 100)



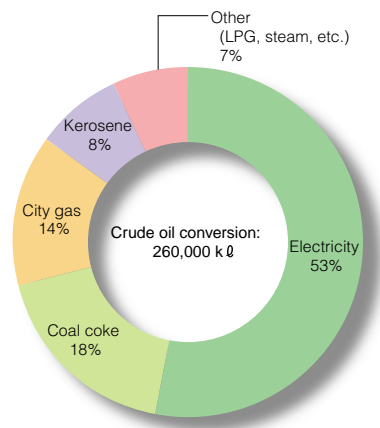
### Reducing the volume of energy used

In fiscal 1998, the volume of energy used was 260,000 kℓ, based on crude oil conversion.

Specific measures designed to conserve energy include the introduction of technology to run large-sized heat exchangers, technology to accommodate large-sized Cupola radiant heat retrieval, such as through combined cogeneration systems for using radiant heat, automated self-annealing technology, drying technology for furnaces used to cure and dry cement products, radiant heat retrieval technology, radiant heat retrieval technology for painting and coating lines, high-speed machine processing technology, and other sophisticated forms of technology.

At our Okajima Plant, we are aiming to reduce the volume of power used in our melting processes for ductile segments, by improving our melting methods and our operation methods. As a result, we have succeeded in significantly reducing energy use, mainly in terms of power, and we were awarded a commendation by the Director of the Agency of Natural Resources and Energy.

### Volumes of energy used company-wide in fiscal 1998, by type of energy



### Reducing CO<sub>2</sub> emissions

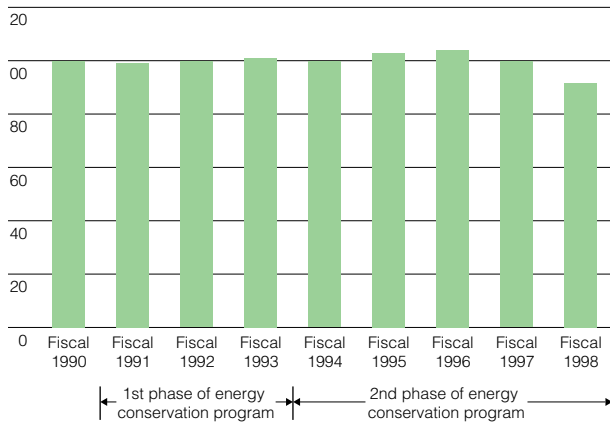
In fiscal 1998, CO<sub>2</sub> emissions amounted to 160,000 tons, based on carbon conversion.

Based on the greenhouse effect emissions established by COP3, our goal is to reduce gas emissions with a hot-

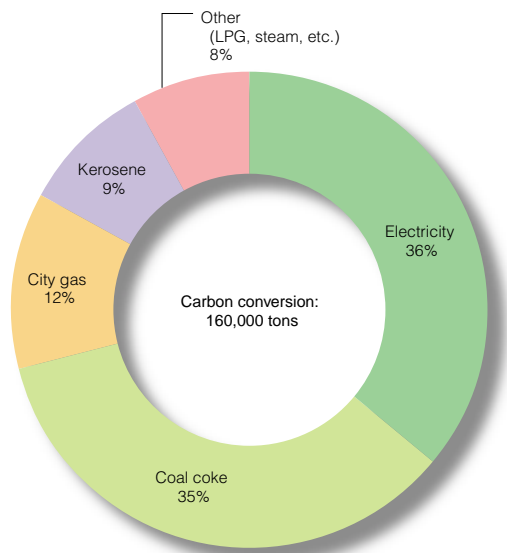
house effect by 6% by the year 2010, in comparison with 1990 levels. Through energy conservation programs, we have succeeded in reducing CO<sub>2</sub> emissions by 8%. We plan to continue these programs until our objects are reached.

### Transitions in CO<sub>2</sub> emissions

(fiscal year percentages based on fiscal 1990 as 100)



### CO<sub>2</sub> emissions company-wide for fiscal 1998



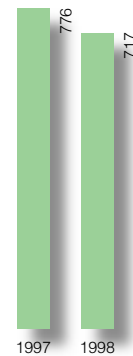
## Conserving Resources

### Using water resources efficiently

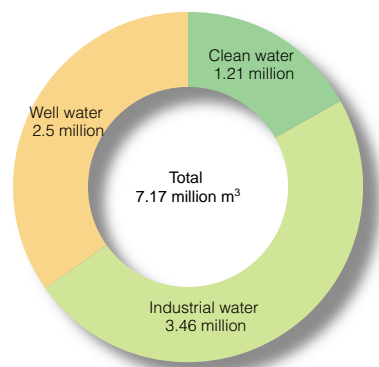
At Kubota, we know that water is a limited resource. To make the best use of this valuable resource, we are working to reduce the volume of water we use. As a result of efforts to recycle wastewater and to reuse intermediate water, the volume of water taken into our plants in fiscal 1998 was 7.17 million m<sup>3</sup>, a drop of 8% in comparison with the previous fiscal year. We are committed to ongoing efforts to conserve water and recycling in the future as well.

### Transitions in volume of water use

(unit: 10,000 m<sup>3</sup>)



### Breakdown of volumes of water used in fiscal 1998



## Environmental Conservation Measures at the Distribution Stage

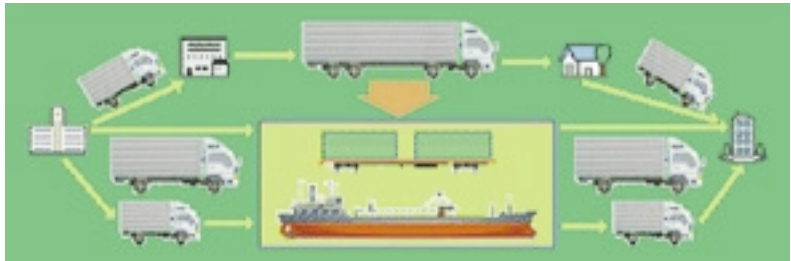
### Promoting a modal shift

In order to reduce CO<sub>2</sub> and NO<sub>x</sub> emissions at the distribution stage, Kubota is promoting a modal shift in how we transport our products. Instead of using trucks, we are now using a system that combines railroads and trucks. The rate of products involved in this modal shift was 10% in 1998, and we are working to boost it higher in the future.

In addition, we are promoting more efficient shipping methods, by using direct shipping and centralized shipping, and we are reducing waste by improving our crating and packaging systems. These efforts have resulted in the volume of CO<sub>2</sub> generated at the distribution stage by 672 tons (approximately 6%) in comparison with the previous fiscal year.



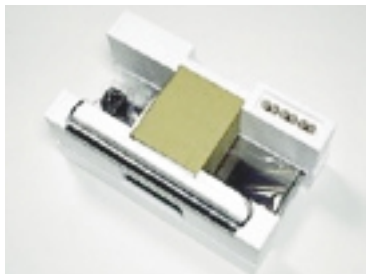
Shipments equal to 300 10-ton trucks are being transferred to freight shipping routes every month (Odawara Plant)



Composite shipping systems are being encouraged, to reduce exhaust gases

### Reducing styrene foam packing materials

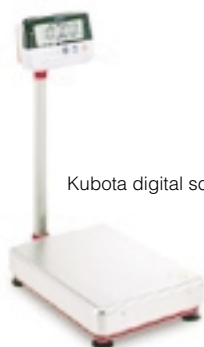
Styrene and urethane foam packing materials are not only bulky, but are difficult to dispose of, making them a particularly problematic form of waste. In our Electronic Equipment Business Division, we have already completely eliminated the use of these materials for packing mass-produced products. Ultimately, we plan to use cardboard and other environmentally friendly materials for all new product packing, and we are planning to switch to delivery boxes that can be used more than once.



Prior to improvement (styrene foam packing)



Following improvement (cardboard box)



Kubota digital scales

### “Engine Stop” campaign

In the course of our work, we use over 100,000 vehicles of various types during the year, ranging from vehicles used to ship products, to those that deliver raw materials and other goods, as well as vehicles used for other corporate business. In order to prevent air pollution, noise and vibration from idling engines, we have a campaign underway that encourages drivers to turn off their engines while their vehicles are stopped. Not only our own employees, but personnel from affiliated and cooperating companies are also being urged to take part in this effort.



Poster promoting the “Engine Stop” campaign

## Environmental Measures at the Office

### Green purchases of office supplies

In 1996, Kubota joined the Green Purchasing Network, which gives priority to products that lighten the load on the environment and encourages purchases of environmentally friendly products. Our “green” purchases currently center mainly on office supplies, but in the future, we look forward to expanding this program to include parts and materials used in our products.

### Using recycled paper and retrieving it by category

In order to reduce the vast quantities of paper that are used in office environments, we are involved in a company-wide effort to recycle all kinds of paper, from copier paper to business cards, and everything in between. This project contributes to protecting as many as 2,400 trees in a single year.

Also, when we sort waste materials, we recover paper by category, and currently we retrieve 120 tons of newspaper, magazines, cardboard, and other types of paper every year.

### Reusing waste water

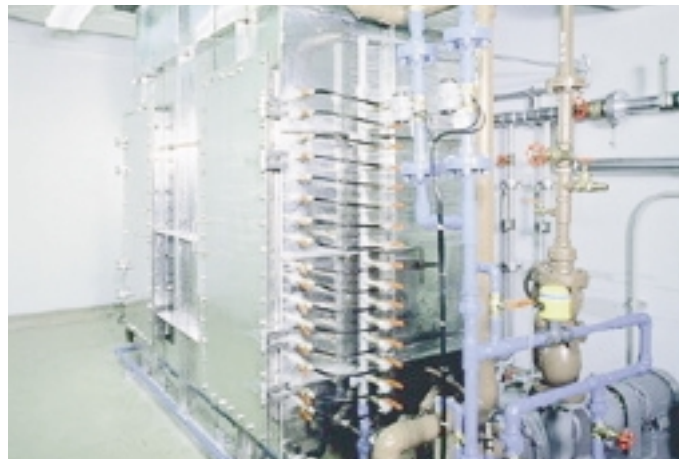
In our head office building, waste water from kitchens (40 m<sup>3</sup>/day) is treated by ceramic membrane filtration. We reuse treated water for flush toilets, fountains and cascades.

### ■ Example of an office supply purchase list

<i>Item</i>	<i>Features</i>
OA paper	Wastepaper 100%, whiteness 70
Business cards	Wastepaper 100%
Catalogs	Wastepaper 100%
Toilet paper	Wastepaper 100%
Fax paper	Reverse side of retrieved paper used
Mechanical pencils, ballpoint pens, highlighting pens, corrective fluids, adhesive	Recycled resin used for caps, shafts, containers, etc.



Recycling box set up in the company



Waste water reuse plant with Kubota ceramic membrane system. (head office building)