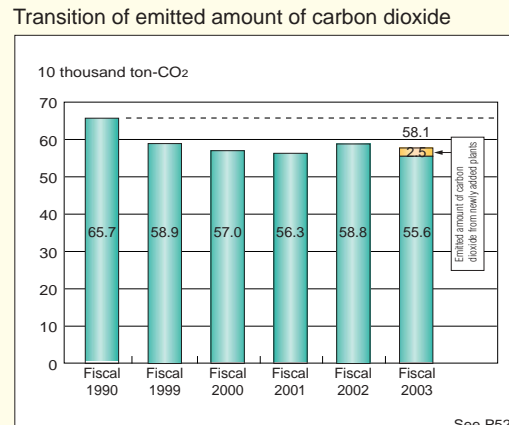
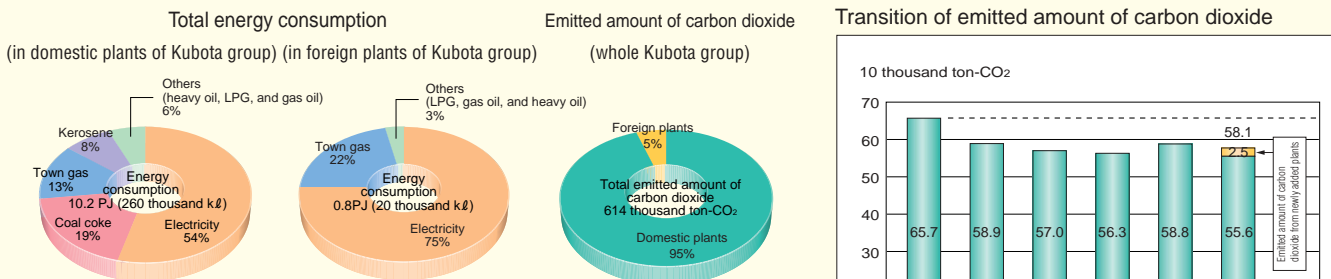


Global warming prevention

Total amount of energy consumption and emitted amount of carbon dioxide

Total emitted amount of carbon dioxide was 581 thousand ton-CO₂ in fiscal 2003. It was reduced by 15.4% compared with fiscal 1990 in Kubota's domestic plants.



*Calorific value
 Fuel: The values were calculated based on "Table of calorific value by kind of energy (revised in March 30, 2001)" edited by Agency for Natural Resources and Energy.
 Electricity: The values were calculated based on "Enforcement regulations of the law for rationalization of energy consumption (revised in December 27, 2002)," using a conversion ratio of 9.83MJ/kWh.
 *Emission coefficient of CO₂
 Until fiscal 2002: We used coefficient in "Investigation report on emitted amount of carbon dioxide (1992)" edited by Ministry of the Environment, using a conversion ratio below.
 Emitted amount of carbon dioxide (t-CO₂)=amount of carbon (t-C)×3.664
 Fiscal 2003: We used coefficient in "Guideline for calculation of emitted amount of greenhouse gas from manufactures (tentative plan version 1.4)(July 2003)" edited by Ministry of the Environment.
 *Emitted amount of carbon dioxide in fiscal 2003 would be 584 thousand ton-CO₂, if the same coefficient as that of until fiscal 2002 were used.

See P52

Promotion of saving energy activities

Results of the third saving energy activities in Kubota's domestic plants
 We at Kubota have been deliberately promoting saving energy activities such as the first ones (fiscal 1991 to fiscal 1993), the second ones (fiscal 1994 to fiscal 1998), and the third ones (fiscal 1999 to fiscal 2003) since fiscal 1991. Fiscal 2003 was the last year of "the third saving energy activities."

As a result, we achieved the goals of reduction of energy unit requirement and carbon dioxide emission unit requirement by 5% or more respectively for five years, compared with fiscal 1998, in our six plants among our seventeen targeted plants. However, we could not achieve the goals in other plants, because energy efficiency decreased in spite of effort of saving energy. In these plants, we could not help changing manufacturing system and so on because selling prices became cheap and manufacturing amount decreased.

The third saving energy activities

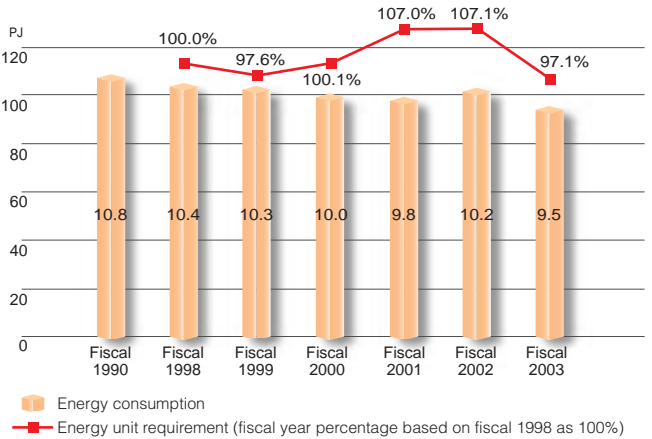
Goals of activities
 Energy unit requirement*1 → reducing by 5% or more for five years (compared with fiscal 1998)
 Carbon dioxide emission unit requirement*2 → reducing by 5% or more for five years (compared with fiscal 1998)
 Total emitted amount of carbon dioxide → controlling it under the level of fiscal 1990

Period of activities
 Fiscal 1999 to fiscal 2003 (for five years)

Targeted plants
 Kubota's domestic plants

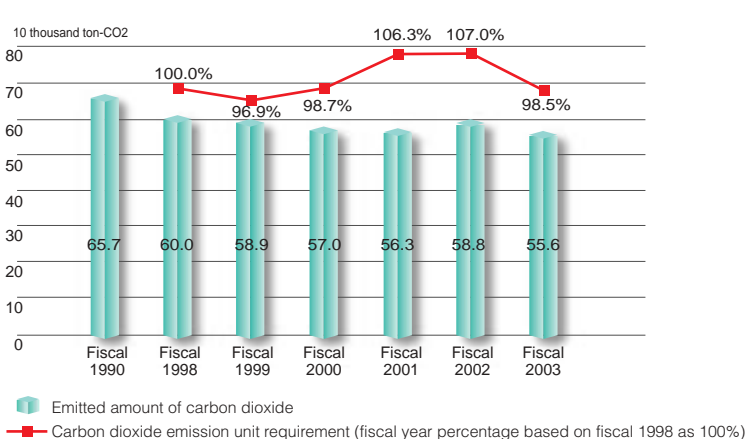
*1)Energy unit requirement = energy consumption / in-house output
 *2)Carbon dioxide emission unit requirement = emitted amount of carbon dioxide / in-house output

Transition of energy consumption (in Kubota's domestic plants)



*Calorific value
 Fuel: The values were calculated based on "Table of calorific value by kind of energy (revised in March 30, 2001)" edited by Agency for Natural Resources and Energy.
 Electricity: The values were calculated based on "Enforcement regulations of the law for rationalization of energy consumption (revised in December 27, 2002)," using a conversion ratio of 9.83MJ/kWh.

Transition of emitted amount of carbon dioxide (in Kubota's domestic plants)



*Emission coefficient of CO₂
 Until fiscal 2002: We used coefficient in "Investigation report on emitted amount of carbon dioxide (2002)" edited by Ministry of the Environment, using a conversion ratio below.
 Emitted amount of carbon dioxide (t-CO₂)=amount of carbon (t-C)×3.664
 Fiscal 2003: We used coefficient in "Guideline for calculation of emitted amount of greenhouse gas from manufactures (tentative plan version 1.4)(July 2003)" edited by Ministry of the Environment.
 *Emitted amount of carbon dioxide in fiscal 2003 would be 584 thousand ton-CO₂, if the same coefficient as that of until fiscal 2002 were used.

Total energy consumption in the whole Kubota's domestic plants was 9.5PJ in terms of heat (250 thousand kJ in terms of crude oil) in fiscal 2003. And energy unit requirement was improved by 2.9% compared with standard year (fiscal 1998).
 Emitted amount of carbon dioxide was 556 thousand ton-CO₂. Carbon dioxide emission unit requirement was improved by 1.5% compared with standard year (fiscal 1998).

In Kubota's domestic plants, we searched for new themes of saving energy this year, and picked up seventy-nine new themes. In this way, we are tackling saving energy activities continuously.
 We promoted a total number of 236 themes including the themes from the previous year in fiscal 2003, reducing a cost of 480 million yen a year.

We were awarded in a commendation ceremony of excellent plant in controlling energy in fiscal 2003.

We got a minister award of Ministry of Economy, Trade and Industry (in an area of heat) for our Keiyo plant (Funabashi), a chief award of Kansai Bureau of Economy, Trade and Industry (in an area of electricity) for our Sakai plant respectively in a commendation ceremony of excellent plants in controlling energy in February 2004.



Main themes of saving energy activities in the awarded plants

Plants	Award	Main themes of saving energy activities
Keiyo plant (Funabashi)	A minister award of Ministry of Economy, Trade and Industry (in an area of heat)	① Reduction of coke unit requirement in melting in cupola ② Reduction of kerosene unit requirement in annealing furnace ③ Efficient operation of gas turbine cogeneration system
Sakai plant	A chief award of Kansai Bureau of Economy, Trade and Industry (in an area of electricity)	① Saving energy activities in connection with layout change of machining line of connecting rods of V3300 engines ② Adoption of high-efficiency equipments (transformers and lighting equipments) ③ Introduction of energy consumption controlling system by line

Moving course of lectures on saving energy

A moving course of lectures on saving energy was held in December 2003 in Kyuhoji business center which got “a chief award of Agency for Natural Resources and Energy (in the field of electricity)” as an excellent plant controlling energy in the previous year. Saving energy activities and examples of improvement were introduced in the course.



Moving course of lectures on saving energy (in Kyuhoji business center)

Activities in a saving energy month in fiscal 2003

We tackled saving energy activities whose main themes were saving energy patrol, saving energy in compressors, reducing electric power on standby, reducing energy loss and so on, in a saving energy month in fiscal 2003.

As a result, we could expect reduction of about four thousand ton-CO₂ in emitted amount of carbon dioxide, and expect cost reduction of about 100 million yen in terms of a year basis, extrapolating from the results mainly in a saving energy month.

We also implemented original and various kinds of activities on saving energy awareness in each plant. We made field trips to excellent plants in saving energy in other companies. We disseminated information regarding saving energy through the in-house intranet. In this way, we promoted to make all of our employees be aware of saving energy.



Confirmation of management standards and slips in a saving energy patrol (in Hirakata plant)

Main themes and main activities in a saving energy month

Main themes	Main activities	Plants
1) saving energy in compressors	① fixing air leak	All plants
	② reducing primary pressure	Sakai coastal, Utsunomiya
	③ reducing time of automatic operation	Ichikawa
	④ operation with automatic control of pressure	Ryugasaki
	⑤ installing inverters in gas compressors	Okajima
2) reducing electric power on standby	① turning off unnecessary electric power	Mukogawa, Funabashi
	② closing primary valves in each equipment	Funabashi
	③ installing exclusive compressor in keeping furnace (for holidays)	Hirakata
	④ introducing saving energy oil hydraulic syste	Sakai coastal
3) reducing energy loss	① turning off unnecessary lamps	All plants
	② power supply of air conditioners, adjusting temperature	All plants
	③ cutting off power supply of OA equipments when unnecessary	Hirakata, Sakai PVC pipe, Odawara
	④ suspending operation of equipments when nothing is loaded	Mukokawa, Shiga
	⑤ shortening the shining period of time in outdoor lamps	Ichikawa
	⑥ eliminating steam leaks completely	Shiga
4) grasping status of energy consumption firmly	① setting up a model line	Funabashi
	② reviewing electric power contracted	Odawara, Kyuhoji
	③ operation of saving energy measurement system in a transformer room	Ichikawa
	④ installing a new electric power watching panel, installing a cubicle-type equipment in a transformer room	Hirakata
5) others	① improving air conditioning system (Eco-ice)	Ichikawa
	② installing saving-energy-type lamps	Ichikawa
	③ intermittent operation of drier in silk printing equipment	Ryugasaki
	④ intermittent operation of forty-three air conditioners	Kyuhoji

Global warming prevention activities in Kubota group (activities from fiscal 2004)

We promoted our saving energy activities mainly in our domestic plants as “the third saving energy activities” until fiscal 2003. We are going to develop “global warming prevention activities of Kubota group” based on environment promotion mid-term plan from fiscal 2004 in order to cope with global warming prevention better.

A goal of the activities is reduction of carbon dioxide emission unit requirement by 1% a year. We are going to tackle mainly saving energy activities to prevent global warming in the whole Kubota group including manufacturing departments, non-manufacturing departments, distribution departments, and affiliated companies.

Outline of global warming prevention activities in Kubota group

Goal	Reduction of carbon dioxide emission unit requirement by 1% a year				
Period of activities	Fiscal 2004 to fiscal 2012 (for 9 years)				
	A phased promotion complying with governmental policies				
Targeted plants	Kubota		Affiliated companies		Distribution departments
	Manufacturing workplace	Non-manufacturing workplace	Manufacturing workplace	Non-manufacturing workplace	
	Domestic				
Overseas	-			-	-

Eco-office activities

We have tackled environmental management activities mainly in plants whose environmental load is relatively large so far. We planed substantial activities, named “Eco-office activities,” in our non-manufacturing workplaces, in fiscal 2003, in order to promote better environmental management activities in our non-manufacturing workplaces. We are going to start the activities in Kubota’s non-manufacturing workplaces from fiscal 2004. However, we already started the activities in our Head office in December 2003.

Main activities

Themes of activities	Main promoting contents
Reduction of greenhouse gas	Turning off unnecessary lamps and OA equipments
Saving energy	Controlling air conditioning temperature frequently
Reduction of municipal solid waste	Separated collection and recycling Reduction of waste paper and recycling used paper
Promotion of green purchasing	Purchasing green products preferentially

We are using the sunlight in our Hanshin office in Head office to reduce environmental load.

We have installed a photovoltaic system in our Hanshin office in Head office. The system generates electric power of 20 kWh a day, which amounts to a few percentage points of total used amount of electric power. Though the figure may look small, the system makes our employees be aware of environmental load reduction.

We also use an air conditioning system adopting a micro gas turbine in this office.



Environmental conservation activities at distribution stage

In order to reduce the emission of carbon dioxide and air pollutants in transportation, we are tackling promotion of modal shifts in which we change our transportation means from trucks to railways and ships, the cooperative transportation and distribution, use of returning trucks, the improvement of transportation efficiency and so no. We are also tackling waste reduction by reducing packing material, and carbon dioxide reduction when producing and discarding packing materials.

Results in fiscal 2003

Total transportation amount of products	44575	10 thousand ton-km
Emitted amount of carbon dioxide during transportation of products	53652	ton-CO ₂
Modal shift rate	44.5	%
Reduced amount of carbon dioxide by improving distribution	4015	ton
Monetary effect	97	million yen

*The data only in Kubota’s domestic plants was adopted.

An example of crate improvement for tractors exported



We reduced used amount of steel simplifying a steel crate, using the strength of a safety frame of a tractor. (reduction of 15 kg per tractor)