

Energy Saving/Prevention of Global Warming

We have bolstered our handling of vehicle weight reduction and energy diversification. While planning high productivity and logistics streamlining, we aim to reduce CO₂ emissions.

Highlight of fiscal 2008

Nonconsolidated: We achieved reducing CO₂ emissions by 5% toward the goal of a 10% reduction from fiscal 2003 to fiscal 2010. We also achieved the goal of CO₂ emissions per sales unit (a 14% reduction compared to the goal of 15%)

Consolidated: We achieved a 10% reduction in CO₂ emissions per sales unit, surpassing our goal of an 8% reduction.

Development/Design

Handling vehicle weight reduction and clean energy

Under the "Fourth Environmental Action Plan", we developed the following detailed implementation issues for product development: ① vehicle weight reduction that aims to improve fuel efficiency; ② responding to the matters of clean energy vehicles and fuel diversification.

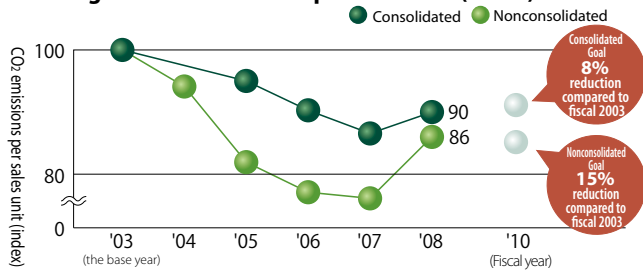
Based on this, in fiscal 2008 we contributed to vehicle weight reduction through such means as changing over to plastic fuel inlet pipes.

Production

Energy saving equipment introduction and CO₂ emissions reduction

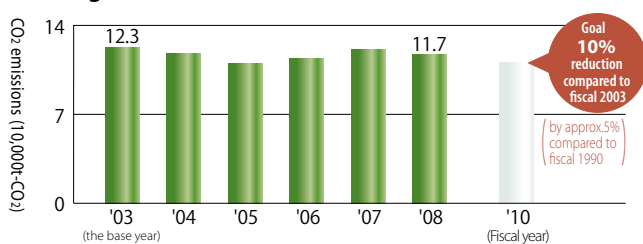
As part of Toyota Gosei Group's global warming prevention policy, we strove to reduce energy consumption while improving productivity. Since fiscal 2005 we have made it our goal to have energy reduction of more than 30% in our new facilities of a certain fixed scale, and through the present we have been replacing equipment with low-energy versions.

Changes of CO₂ Emissions per sales unit (index)



*CO₂ Emissions per sales unit (index) takes the figure for CO₂ emissions in fiscal 2004 as 100

Changes in CO₂ Emissions



* For the CO₂ conversion factor, the following figures are used:
 Conversion formula: [kg-CO₂] = [kg-C] × 3.67 Electricity: 0.3817kg-CO₂/kWh
 Heavy oil A: 2.7kg-CO₂/L LPG: 3.0094kg-CO₂/kg City gas: 2.3576kg-CO₂/m³
 Kerosene: 2.5308kg-CO₂/L

Case study

Realization of weight reduction through a switchover to resin

We changed conventional steel fuel inlet pipes through which the fuel tank is supplied with fuel from the fill opening to resin and succeeded in a 50% weight reduction. By using polyethylene and EVOH* in our materials, we plan to improve durability and fuel permeation prevention.

*Ethylene vinyl alcohol copolymer



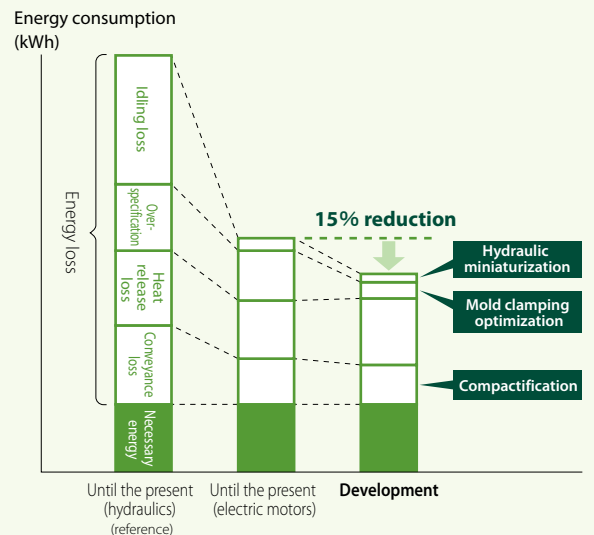
Case study

Reducing energy loss through independently developed molding machines

As a joint venture between the Equipment Division and Molding Division, we independently developed molding machines and reduced energy loss stemming from manufacturing of products. By proactively reducing mold clamping loss and conveyance loss that had occurred with our conventional molding machines (commercial devices) and making the molding machines themselves more compact, we cut energy waste.

Through this we succeeded in reducing consumed energy by 15% in comparison with conventionally commercial molding machines (electric motor).

Comparison of energy consumption for molding



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Logistics

Thorough logistics in response to quantity fluctuations

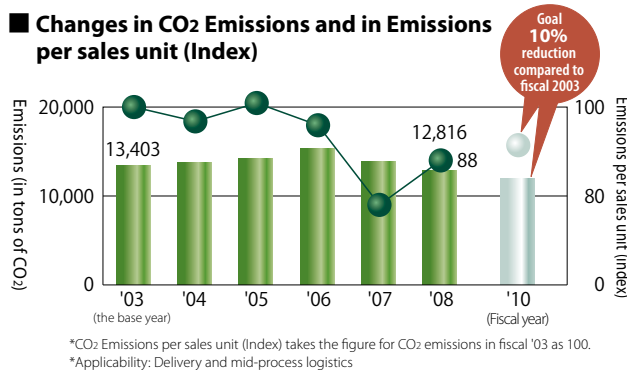
To reduce CO₂ emissions during transportation, we streamlined cargo, dispatching appropriate production quantities, and determining loading capacity based on the "3 Gen-ism" ("Genchi", "Genbutsu", and "Genjitsu", which are translated as "actual locations", "actual materials" and "actual situations", respectively) and tried to "improving efficiency of loading" Every year we set challenging goals and move forward.

Also we reduced CO₂ emissions by expanding "Localization of productions among customers" as a "shortening of logistics flow lines".

Three Pillars for Activities Designed to Reduce CO₂ Emissions from Logistics Operation

1. Actions to increase efficiency and to reduce the number of vehicles dispatched
2. Shortening flow line through route alterations and localization of production sites
3. Pursuing transportations producing less CO₂ emissions

Changes in CO₂ Emissions and in Emissions per sales unit (Index)



Resource Circulation

Through effective resource utilization and recycling of goods, we pursue production activities without material discarded.

Highlight of fiscal 2008

- **Nonconsolidated:** We achieved reducing materials discarded by 13% compared with fiscal 2003
- **Consolidated:** We achieved a 23% reduction in materials discarded per sales unit versus a goal of 5% from fiscal 2003 to fiscal 2010.

Development/Design

Promoting new recycling techniques

Our company promotes design that keeps recycling in mind, and in fiscal 2008 we focused our efforts on high quality material recycling technology to promote reuse of high polymer materials such as rubber products. We are accumulating technology that enables mid process recycling technology to be used in ELV* parts recycling.

*End of Life Vehicle

Technological Development for ELV Parts Recycling

Key items	Approaches
New recycling	<ul style="list-style-type: none"> • New recycling techniques (high quality material recycling) • Techniques to separate composite materials
Installing parts made of recycled materials in vehicles	<ul style="list-style-type: none"> • Development of applications for recycled materials • ELV parts recycling technology
Designing products that are easy to recycle	<ul style="list-style-type: none"> • Easy-to-recycle materials, and innovative component units • Easy-to-dismantle designs for products