

# Environmental Report 2010

 CITIZEN ELECTRONICS CO., LTD.

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- Mt. Fuji Clean Up Campaign



# Environmental Targets and Achievements in FY2009, Environmental Targets for FY2010

Target achievement in FY2009 was generally good despite an underachieved target. We will continue to work toward achieving targets for FY2010 considering the FY2009 results. Please refer to the following contents.

	Targets in FY2009	Achievement	Evaluation	Targets for FY2010
1	<p>1) Enhancement of our environmentally-friendly products.</p> <ul style="list-style-type: none"> <li>• 100 percent of FY2009 new models were environmentally-friendly. (Including ten percent improvement compared with the existing ratio of energy saving or resource conservation.)</li> </ul> <p>2) Implementation of LCA evaluation</p> <ul style="list-style-type: none"> <li>• Completing evaluation of CO<sub>2</sub> emissions from LED lighting by the end of September, FY2009</li> </ul> <p>3) Introduction of a new chemical substance management system in order to meet the requirements of regulations.</p> <ul style="list-style-type: none"> <li>• Introduction of the system → Data collection → Evaluation and Registration of data by the end of December, FY2009</li> </ul>	<p>Achievement rate: 100 percent (Target: 9 models → Result: 9 models)</p> <p>Achievement rate: 100 percent &lt;Amount of actual CO<sub>2</sub> emissions&gt; • Manufacturing stage of the product 1.4g-CO<sub>2</sub> • Usage state of the product 46,500g-CO<sub>2</sub></p> <p>Achievement rate: 43 percent • Considering the functional requirements for the new system, improvement of the existing system was implemented. (Completed by the end of March, FY2009.)</p>	<p>○</p> <p>○</p> <p>△</p>	<p>Realization of manufacturing the environmentally-friendly products &amp; Enhancement of our environmentally-friendly products.</p> <p>1) Implementation of R&amp;D and Production Activities reducing the environmental burden Target: Plan achievement rate: 100%</p> <p>2) Reinforcement of EMS (Environment Management System)</p> <p>1. Improvement of the EMS system Target: Improvement rate: 20%</p> <p>2. Operational improvement of Environmental Quality Activities Target: Implementation of two or more themes</p>
2	<p>Reduction in greenhouse emissions</p> <ul style="list-style-type: none"> <li>• Reduction in CO<sub>2</sub> emissions to 2% less than FY2008's figure. (Office lighting and PCs are turned off when not in use.)</li> </ul>	<p>Achievement rate: 100 percent 7524 (tons of CO<sub>2</sub>) → 7114 (tons of CO<sub>2</sub>) 5.4% reduction</p>	<p>○</p>	<p>Reduction in greenhouse emissions &amp; promotion of energy conservation activities</p> <p>1) Reduction in CO<sub>2</sub> emissions to 1% less than FY2009's figure. 2) Drawing up of the CO<sub>2</sub> reduction plan of 25% CO<sub>2</sub> emissions reduction targets for FY2020 compared with the CO<sub>2</sub> emissions amount in FY1990 Target: Completion of drawing up of the plan by March, FY2011</p>
3	<p>Implementation of division-specific environmental activities and contribution to environmental protection.</p> <ul style="list-style-type: none"> <li>• Themes related to business targets (policy management) in terms of effects on reducing the environmental burden</li> <li>• Themes that lead to environmental protection activities</li> </ul> <p>Target: at least 1 theme</p>	<p>Achievement rate: 87 percent</p> <ul style="list-style-type: none"> <li>• Reduction by PC power-saving</li> <li>• Reducing the number of component parts</li> <li>• Reducing the amount of waste of supplementary materials</li> <li>• Reducing the amount of waste of materials for parts by improving the yield rate, etc.</li> </ul>	<p>○</p>	<p>Implementation of division-specific environmental activities and contribution to environmental protection.</p> <ul style="list-style-type: none"> <li>• Themes related to business targets (policy management) in terms of effects on reducing the environmental burden</li> <li>• Feasible actions considering outside case examples of energy conservation activities</li> </ul> <p>Target: at least 1 theme</p>
4	<p>Reduction in waste</p> <ul style="list-style-type: none"> <li>• Reduction in combustible waste</li> <li>• Reduction in CO<sub>2</sub> emission to 10% less than FY2008's figure</li> </ul> <p>This includes activities from the point of basic conservation on to site. (Thoroughness of classification, reduction in wasted paper and banning of bringing waste materials)</p>	<p>Achievement rate: 100 percent 50.6 (tons) → 44.46 (tons) 12.1% reduction (The review of the disposal standards in important documents, the review and the issue of the waste segregated disposal standards, etc. were accomplished.)</p>	<p>○</p>	<p>[Evaluation]</p> <p>○: Achievement rate equal to more than 100 percent</p> <p>○: Achievement rate equal to more than 80 percent, but less than 100 percent</p> <p>△: Achievement rate less than 80 percent</p>

Environmental Target Achievement Debriefing



## Environmentally-friendly Products

We are striving to produce Environmentally-friendly Products with our multilateral approaches such as "Energy conservation", "Extended service life" and "Procurement of green materials". In FY2009, nine models were approved as environmentally-friendly products. Also a comparative study of CO<sub>2</sub> emissions utilizing LCA methodology for the LED lighting (representative type) was conducted.

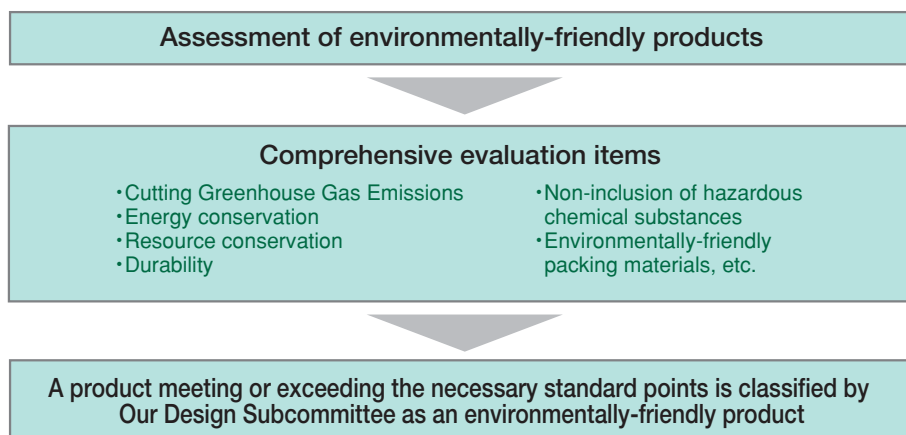
### 1) Design example of environmentally-friendly products in FY2009

Product name	Actions			Environmental effect
	Item	Conventional product	Developed product	
LED lighting (CL-L221)	Reduction in power consumption	1.27W/100 lm	1.10W/100 lm	26.4% reduction in power consumption was achieved
	Long service life design	Life: 40,000Hrs	Life: 50,000Hrs	25% longer service life was achieved
LED device (CL-482T)	Increase in parts number by increasing the layout density	2,196 pieces per sheet	3,021 pieces per sheet	27% reduction in the parts usage amount and the amount of waste was achieved



LED device  
CL-482T

#### Reference Evaluation Flow of Environmentally-friendly Products



### 2) Implementation of LCA

In the light of increased attention received by LED lighting, CITIZEN ELECTRONICS CO., LTD. considered that realizing the numerical values necessary for achieving environmentally-friendly LEDs will contribute to expanding future sales. Therefore, we evaluated the amount of CO<sub>2</sub> emissions from an LED by using LCA methodology.

#### <Results>

Life cycle	Amount of CO <sub>2</sub> emissions (per product)
Manufacturing stage of the product (materials manufacturing~LED lighting assembly)	1.4g of CO <sub>2</sub>
Usage state of the product (Rating: 3.255W Usage time: 40,000h)	46,500g of CO <sub>2</sub>

\*Target model: The product of luminous efficiency 104 lm/W CO<sub>2</sub> emission coefficient: 0.357kg-CO<sub>2</sub>/kwh

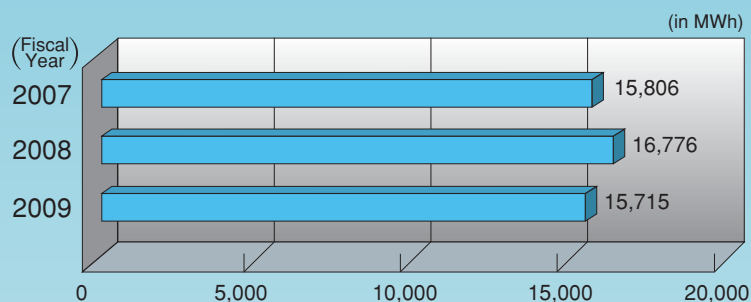
We recognized that LED luminous efficiency (lm/w) improvement is very effective in restricting CO<sub>2</sub> emissions. This is because we know that more than 99% of the CO<sub>2</sub> emissions from LEDs occur in the usage stage of the product judging from their life cycles.



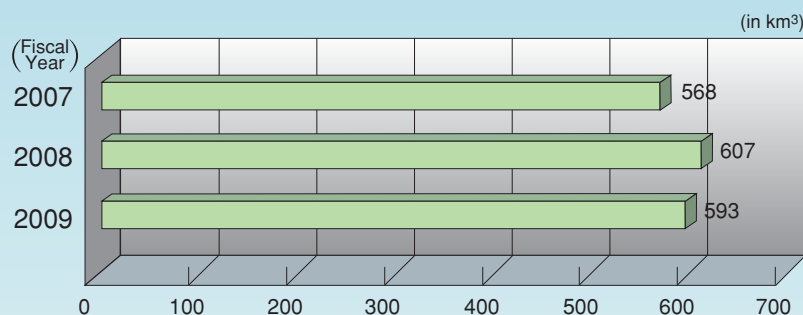
## Energy Conservation-1

With Energy conservation measures such as PC power saving, time management of cooling and heating, attaching reflective plates to fluorescent lighting fixtures and reducing the number of fluorescent tubes at regular spaces in offices, demolishing of one building and reduction in production volume, etc., energy consumption has decreased by approximately six percent, and Fuel (Utility gas) consumption has also decreased by approximately two percent.

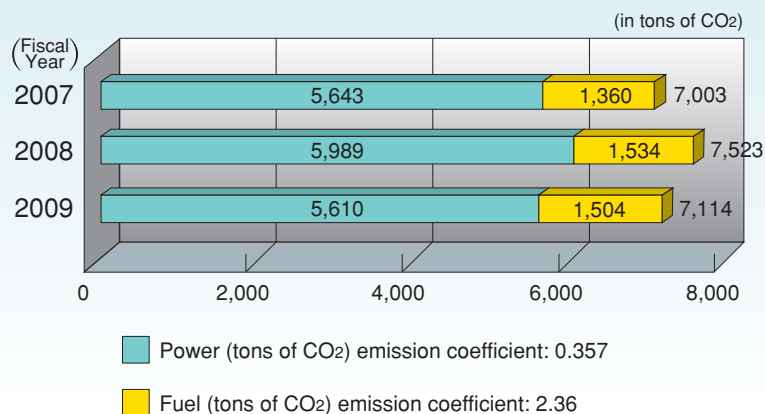
### ● Power consumption (MWh)



### ● Fuel (Utility gas) consumption (km<sup>3</sup>)



### ● CO<sub>2</sub> emissions (tons of CO<sub>2</sub>) <reference value>





## Energy Conservation-2

### Reducing the number of fluorescent tubes

We aim to achieve energy conservation by attaching reflective plates to fluorescent lighting fixtures in offices in order to increase the illumination intensity and reducing the number of fluorescent tubes at regular spaces.

[Reducing the number of fluorescent tubes] <54 tubes>

#### Effect of energy conservation

Reduction in CO<sub>2</sub>

-2.1 [tons of CO<sub>2</sub>] per year

[Equivalent to -6.0MWh per year]



### PC power-saving management program

In order to have the PC power supply shut down automatically when staff are away from their desks for more than ten minutes, a software program was developed by IT staff deployed company-wide as PC power-saving management.

#### Effect of energy conservation

Reduction in CO<sub>2</sub>

-9.8 [tons of CO<sub>2</sub>] per year

[Equivalent to -27.5MWh per year]



### Energy Conservation Activities target for FY2010

Concerning the reduction in CO<sub>2</sub> emissions for FY2010, we set the target of one percent reduction compared with the actual CO<sub>2</sub> emissions amount (7,114 tons of CO<sub>2</sub>) in FY2009 and implemented the following measures.

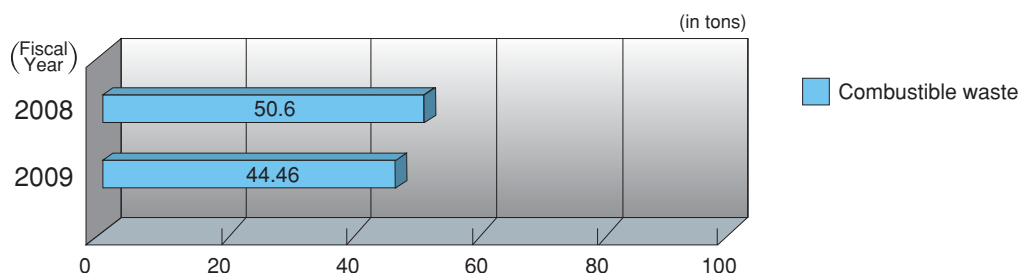
- 1) Reduction by applying energy-saving program to the reliability testers.
- 2) Reduction by installing a renewal energy-saving air conditioner.
- 3) Reduction by energy-saving activities in each division.

Also, the former prime minister declared at the United Nations General Assembly that Japan would strive to achieve 25% reduction in CO<sub>2</sub> emissions in FY2020 compared with the CO<sub>2</sub> emissions amount in FY1990. Therefore, CITIZEN ELECTRONICS CO., LTD. will position FY2010 as the year to start further energy conservation activities, implement activities to obtain the actual data relating to equipment used in principal industries, and draw up a CO<sub>2</sub> reduction plan.



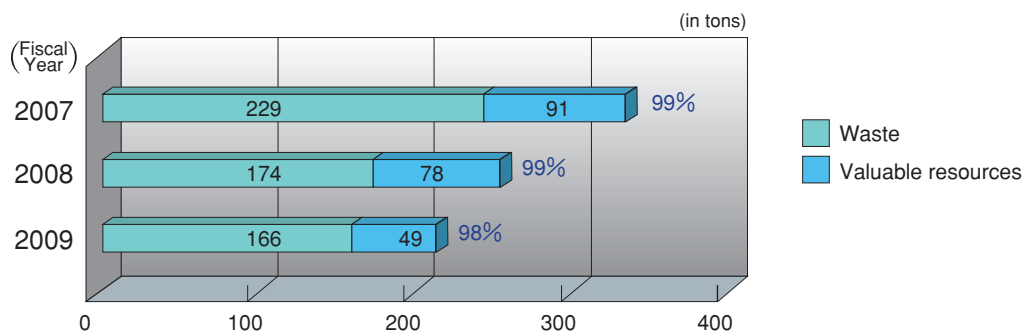
## Waste Reduction

As the main activities in FY2009, the review of the disposal standards in important documents, the review and the issue of the waste segregated disposal standards were accomplished. The recycling rate was increased and reduction in combustible waste was achieved through these activities. As for the target in FY2009, "10% reduction (45.54 tons) of the total combustible waste amount (50.6 tons) in FY2008", actually 12.1% reduction (44.46 tons) was accomplished.



### ●Waste volume, amount of resources, and their recycling rate

Due to reduction in production volume, waste has decreased by approximately five percent and also use of valuable resources decreased by approximately thirty-seven percent in FY2009. We are going to continue to treat reduction in waste and improvement of the recycling rate as maintenance activities.



※ The percentages indicate the recycling rate of the total amount consisting of waste and valuable resources.  
 [Ex.] Recycling rate in FY2009:  $[(162+49) / (166+49)] \times 100 = 98 (\%)$

#### Note

- Recycling rate (%) =  $[(\text{amount of recycled resources} + \text{amount of valuable resources}) / (\text{waste volume} + \text{amount of valuable resources})] \times 100$
- Valuable resources: Resources with profit reported having subtracted the transportation expense after selling the waste
- Recycled resources: Resources obtained from waste that is recycled.

## Chemical Substance Management

### Released and transferred quantities of substances relevant to the PRTR Law

The following table shows the results of released and transferred quantities of substances in FY2009 that are relevant to the PRTR Law. None of them required reporting to the prefectural government.

(in kg)

Contained substance	Substance							
	Substance No.	Annual handling amount	Released products	The amount discharged into environment				
				Total amount	Amount transferred	Amount released into the air	Amount released into the water	Amount released into the soil
Antimony	25	12.4	12.3	0.1	0.1	0	0	0
Bisphenol A type epoxy resin (liquid)	30	15.8	12.6	3.2	3.2	0	0	0
Ethylene glycol	43	3.4	0	3.4	3.0	0.4	0	0
Ethylene glycol Monomethyl ether	45	1.6	0	1.6	1.5	0.1	0	0
Silver and its water-soluble compounds	64	12.8	9.6	3.2	3.2	0	0	0
Poly (oxyethylene) Nonylphenylether	309	60	0	60	55	5	0	0

### Proper treatment of a PCB-filled high voltage capacitor as PCB waste

Pursuant to the Japanese law "Act on Special Measures Concerning the Proper Treatment of Polychlorinated Biphenyl (PCB) Waste", which is related to the "Stockholm Convention on Persistent Organic Pollutants", a PCB-filled high voltage capacitor classified as PCB waste carefully stored on our premises for more than 20 years was properly disposed of on August 25th, FY2009.



Processing status



Processing status



## Environmental Education and Training

In the maintenance and improvement of environmental activities, education for employees is regarded as important. Therefore, necessary employee education is conducted at appropriate intervals. In FY2009, education corresponding to the change regulations (EU REACH regulations, etc.) and making them known to employees, Brief Presentation Meeting of EMS (Environmental Management System) and Internal Auditor Training Course for increasing the number of staff were planned and undertaken.



Explanatory Meeting for EU Regulation Compliance



EMS internal auditor training course as an education program

## As a Member of the Community

As one of the education programs, new employees at CITIZEN ELECTRONICS CO., LTD. took part in the "1 Million Woods Tree Planting Movement" sponsored by Yamanashi Prefecture, which was held in May FY2009 in Fujiyoshida City, where they planted Japanese cypress with local residents and volunteers.

Also, fifty-three people participated in the "Mt. Fuji Clean Up Campaign" and conducted clean up activities near the 5th station of Mt. Fuji. in August, FY2009. Through willing attendance at these regional planning activities, they are actually adhering to the 5th Article of CITIZEN Group Code of Conduct, "Value symbiosis with local communities, and strive to contribute to society as a good corporate citizen."



1 Million Woods Tree Planting Movement (May 9, 2009)



Mt. Fuji Clean Up Campaign (August 8, 2009)