4

Symbiosis with the global environment

Making the Environmental Contribution of Electronic Components More Transparent

In 2011, TDK formulated the TDK Environmental Action 2020 Plan. Focusing on expanding environmental contribution of products, and on reducing the environmental load connected with the manufacturing process, the ultimate aim is the achievement of carbon neutrality, a first in the electronic components industry. As electronic components get smaller, while at the same time offering higher performance, they contribute significantly to reducing the energy used by the end products in which these components are integrated. However, since electronic components are used in a myriad of different configurations in many types of products, making their contribution more transparent and visible has been a difficult undertaking. TDK is now engaged in efforts to make the environmental contribution of electronic components more transparent, as described below.

What is the environmental contribution of electronic components?

TDK electronic components are designed to harness our superior materials technology for outstanding energy efficiency. They contribute to energy-saving performance in many different types of end products, and thereby help to curb greenhouse gas emissions.

As a case in point, products such as power supplies and transformers operating in the power distribution path can convert voltage or current with high efficiency, ultimately reducing the power consumption of equipment incorporating such products. Other passive components and sensors are indispensable elements in the control circuits of end products, ensuring their efficient operation and making them more environmentally-friendly.

Because electronic components are not used in isolation, but rather become an integral part of the target equipment, it is difficult to visualize just how substantial their contribution is, and this aspect has not been extensively evaluated so far. TDK therefore has established methods of calculating the contribution of components to the reduction of greenhouse gas emissions when used in other equipment. The methods reflect the technological initiatives that were taken during development and production in order to ensure environmental benefits. Environmental contribution figures calculated according to these methods are being released progressively.

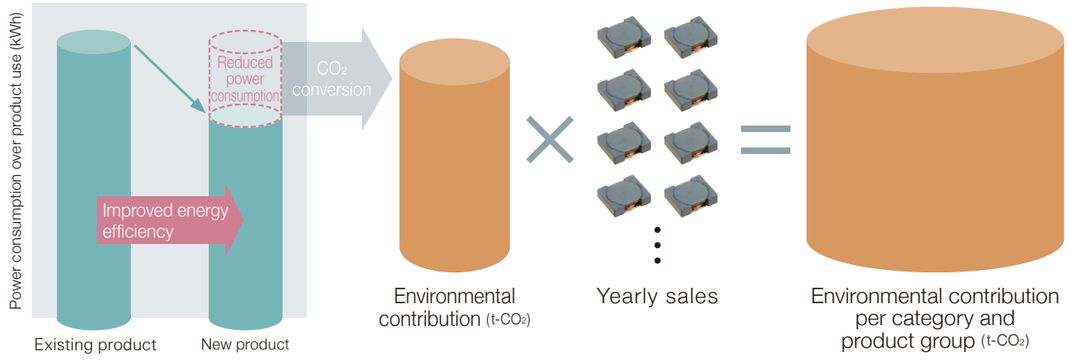
Working towards standardization of environmental contributions calculation as a leading company

To enable calculating the environmental contribution of electronic components, TDK has established a number of judicious standards for various products. Besides using these in-house, TDK is in the process of proposing these calculation criteria to other electronic component manufacturing companies in Japan via industry organizations. Proposals have also been submitted to the electric and electronic goods industry within Japan, as well as to bodies governing international standards.

This is intended to avoid a scenario whereby individual manufacturers each use their own standards to calculate environmental contribution, leading to a lack of credibility with regard to this relatively new concept.

As a leading company in the field of electronic component manufacturing, TDK believes in competition where appropriate and cooperation where necessary and prudent. The company is therefore working towards establishing a solid basis that will enable each manufacturer in the industry to smoothly calculate environmental contributions.

Calculation of environmental contributions

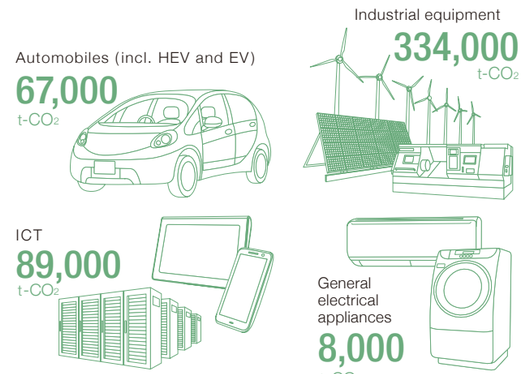


How do TDK products rate with regard to environmental contributions?

How then do TDK products measure up in terms of environmental contributions? For products where calculation standards have been formulated, the environmental contribution of TDK products in the respective categories is as shown on the right.

By further refining and adjusting calculation standards, broadening the scope to other suitable products, and widely offering environmentally beneficial products to world markets, TDK aims to achieve an environmental contribution level of 1,000,000 t-CO_2 by fiscal 2021.

Environmental contributions of TDK products (by category)



Comments from the Expert — Eco innovation driven by eco components

Faculty of Environmental and Information Studies
Tokyo City University
Norihiro Itsubo

Various efforts towards the visualization of environmental information are drawing attention in recent years. The concept of LCA (Life Cycle Assessment) that covers the entire environmental impact of a product, from raw materials mining, production of materials and parts, assembly, use, and recycling all the way to decommissioning, became internationally recognized in the 1990s. International standards for its implementation were adopted, and extensive research carried out in worldwide resulted in making its application more feasible. These standards are now in the process of becoming an indispensable tool for environmental evaluation of advanced eco products.

As LCA case studies have shown, many electric home appliances generate sizable CO_2 emissions over their long period of use, while high-performance products incorporating a large number of electronic components - such as mobile phones and notebook computers - tend to have a high environmental load related to the manufacturing process of their parts. Parts that contribute to energy savings during the use of electric products, or during the manufacture of electronic components therefore contribute significantly to reducing the environmental load over the life cycle of electrical goods.

TDK has set itself a highly ambitious goal, aiming to cancel out the CO_2 emissions generated by its industrial activities with the CO_2 reduction provided by its products over their total life cycle. The company is working towards achieving this goal by 2020. In order to keep track of progress made in this area, the company is establishing a methodology for making the CO_2 reduction gained by the use of eco components more transparent and quantifiable. As an attempt to raise awareness of eco components, this initiative can be expected to become a driving force that will further accelerate environmental innovation in the area of electronic components. The concept of evaluating the environmental contribution of eco components, and the efforts via industry organizations towards international standardization demonstrate TDK's dedication to act as a leader in the electronic components sector. As the information society evolves towards ever higher levels of sophistication, further improvements in the performance of electronic components have become a social need. However, attention must be paid not only to performance improvements. Disregarding the environmental side would result in further aggravation of environmental problems, thereby blocking the way towards sustainable development for humanity. According to a recent news report, more than half of the electronic components found in the latest generation of advanced mobile devices are made in Japan. The pursuit of eco innovation in Japanese electronic components is therefore absolutely vital for the reduction of environmental load worldwide.

The fact that TDK as a major player in the Japanese electronic components industry is steadfastly pursuing a goal that at first glance may seem contradictory, namely further improvements in performance combined with a consistent reduction of environmental load, carries enormous significance.

4 Symbiosis with the global environment

FY 2013 Activity Report

Promoting Environmental Vision: TDK Environmental Action 2020

The TDK Environmental Action 2020 Plan established in fiscal 2012 encompasses TDK's ambition to realize carbon neutrality and thereby contribute to the creation of a sustainable society. Shinya Yoshihara, General Manager of TDK's Manufacturing HQ, explains the company's stance.

Working together towards achieving carbon neutrality for the entire organization

The TDK Environmental Action 2020 Plan put forth in April 2011 represents a new challenge for TDK. Until then, activities aimed at reducing the environmental load of manufacturing at the production sites had been the central focus of the efforts to protect the environment, pursued vigorously by all companies. However, once the manufactured products leave our factories and are being used in society, there is the question of how much they are able to reduce the environmental impact, what their contribution is in that regard. This question, while of course being a concern for the companies making the end products, had not really been systematically explored by the manufacturers of the individual electronic components. With the aim of achieving carbon neutrality by fiscal 2021, TDK formulated a long-term vision encompassing both the environmental load (CO_2 emissions from manufacturing operations) and the environmental contribution (reduction of CO_2 emissions due to our products). In shared awareness of this dual-pronged approach, each and every member of our organization is now working towards meeting the formidable challenges ahead.

Shinya Yoshihara
Senior Vice President, General Manager of Manufacturing HQ, TDK Corporation

【Achieving carbon neutrality—the TDK way】
CO_2 emissions (environmental load) due to manufacturing operations —(minus)reduction of CO_2 emissions through products (environmental contributions) ≦ zero

* There are many different aspects both to environmental load and environmental contributions, but the TDK Environmental Action 2020 identifies energy source CO_2 reduction as the major element and defines carbon neutrality as a state of balance in this regard.

Dual-pronged activities towards achieving carbon neutrality

Reaching the ultimate goal of carbon neutrality hinges on efforts in two areas, namely the reduction of environmental load and the expansion in environmental contributions. The reduction of environmental load volumes was the basic tenet of environment oriented activities so far. At TDK, we pursue this through concerted efforts and strengthened collaboration between our various manufacturing sites around the world. The entire process, from trials to practical implementation, is realized on a global basis. In fiscal 2013, we made use of trial production lines at manufacturing sites in China to test ways of reducing energy consumption for the respective processes. Successful approaches were then implemented throughout production in the Philippines, thereby expanding the scale and taking energy saving measures to the next level. Over the short time period of six months, this project resulted in a reduction of energy use by more than 30 percent. TDK will continue to pursue such worldwide activities in the future, with the aim of further lowering the environmental load.

With regard to environmental contributions, calculations used to be made only in the category of power supply units where it is possible to directly quantify the environmental contribution. When it comes to the electronic components incorporated within end products, the calculation of environmental contribution is much more difficult, and there have been few efforts in the electronic components industry to assess quantifiable contributions in terms of environmental benefits. To address this situation, we have worked with industrial organizations and in consultation with other manufacturers to establish impartial standards for calculation. Using these standards to determine direct as well as indirect environmental contributions, TDK is promoting activities aimed at realizing our goal of carbon neutrality.

Reducing the use of energy in manufacturing operations worldwide and making processes more efficient, as well as making direct environmental contributions through products, is the new dual-pronged approach that is certain to also strengthen our international competitiveness.

TDK's goal of carbon neutrality

Reduction of CO_2 emissions (environmental load) from manufacturing operations

【FY 2013 target】
Reduction of CO_2 emissions (environmental load) from manufacturing operations: Less than 1,090 thousand t-CO_2

TDK has manufacturing bases in Japan, China, other Asian countries, the Americas, and Europe, producing a wide range of products in various production types. As business operations expand, the company has identified the reduction of total CO_2 emissions as a major goal in the interest of reducing environmental impact. At manufacturing bases, energy-saving measures are being actively implemented with a target setting of at least 2% reduction in CO_2 emissions as compared to the previous year's total.

Increase reduction of CO_2 emissions through products (environmental contributions)

【FY 2013 target】
Increase the reduction of CO_2 emissions through products (environmental contributions): Preparation of own standards for calculating environmental contribution volume

TDK products contribute to a reduction of environmental load not only in energy-related fields but also in various other sectors including industrial equipment, ICT, automobiles, home electric appliances, and more.

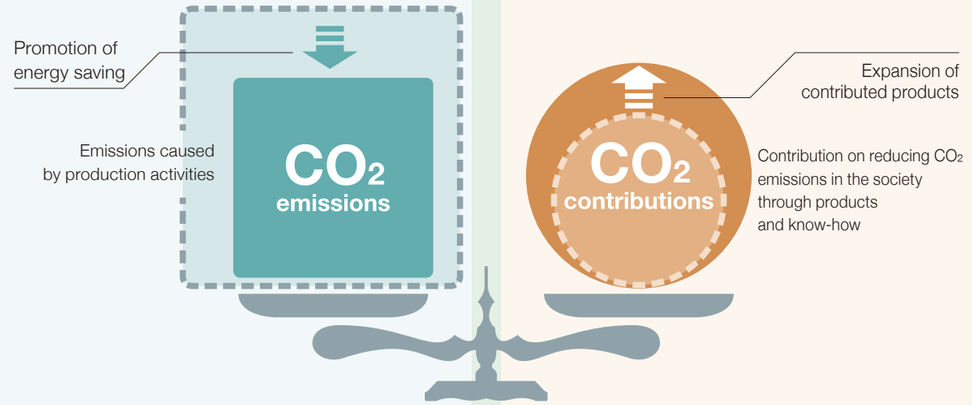
The TDK Environmental Action 2020 Plan aims to make the environmental contributions more transparent by establishing standards for the calculation of CO_2 emission reduction quantities.

CO_2 emissions (environmental load) from manufacturing operations

1,031 thousand t-CO_2

Reduction of CO_2 emissions through products (environmental contributions)

498 thousand t-CO_2



Strengthening of existing measures (each plants)
- ☐Fuel conversion/introduction of high-efficiency equipment
- ☐Strengthening of management

Drastic improvement of methods/processes
- ☐Optimization of local cleaning
- ☐Increased furnace efficiency/Use of waste heat

Development contributing to reduction of burden
- ☐Materials enabling low-temperature calcination
- ☐Smaller size, higher performance

Development contributing to product contribution
- ☐Materials/parts with no energy loss when used
- ☐Expanded performance through product unitization/modularization
- ☐Proposals to customers for better product contribution

Quantification/visualization of product contribution
- ☐Making of rules for calculating product contribution
- ☐Proposal of common calculating rules for the industry

Note: Promotion through industrial organization activities

* KPI figures shown above are representative data only, provided as a measure of the progress of related items. For further KPI figures, please visit our website.