Improving the Resource Efficiency of Products

Our Approach

Amid the strains on nature from excessive mining and the depletion of resources, rapid rise and fall of international resource prices, uncertain supply of rare metals, and other growing threats to the sustainability of companies and society, there is also a growing view worldwide of the importance of resource efficiency. An example can be seen in the EU's designation of resource efficiency as a growth strategy and its establishment of the Resource Efficiency Flagship Initiative.

The Fujitsu Group believes in the importance of efficiently using resources in the ICT products that we provide to customers. We have engaged in "3R design" that draws on the principles of reduce, reuse, and recycle, and have developed our products with technology that is effective in reducing the use of resources. We are making efforts to improve resource efficiency, which is made possible by designing products to be lighter and smaller, using recycled plastics, reducing the number of parts, enhancing ease of disassembly, and improving recyclability. Our goal is to offer outstanding products that provide customers with benefits including compactness, light weight, and space savings.

Summary of FY 2015 Achievements

Targets under the Fujitsu Group Environmental Action Plan (Stage VII) (toward FY 2015)	Increase resource efficiency of newly developed products by **35%** or more (compared to FY 2011)
FY 2015 Targets	Increase resource efficiency of new products by **35%** or more (compared to FY 2011)
FY 2015 Key Performance	Increased resource efficiency of new products by **44.8%** (compared to FY 2011)

FY 2015 Performance and Results

Improving the Resource Efficiency of New Products

In FY 2012, the Fujitsu Group created its own definition of "resource efficiency" since no official indicator existed.

In FY 2015 as well, we continued to use our indicators in the evaluation of products newly developed by Fujitsu*, while also undertaking initiatives aimed at reducing the number of parts in products and reducing the size of products through smaller, thinner, and lighter parts and higher-density mountings.

* Products newly developed by Fujitsu: Excludes products for which resource efficiency would be determined by customer specifications or standards.

Achieving 44.8% Improvement in Resource Efficiency

Fujitsu has achieved a 44.8% improvement in FY 2015 resource efficiency, against a target of 35%. This is the result of smaller size and lighter weight, primarily in tablets, PCs, PC servers, mission-critical IA servers, and mobile phone base stations.

Reference Information

Definition and Calculation of Resource Efficiency

Resource efficiency is evaluated by dividing the value of a production, by the environmental burden (in terms of use and disposal) of the elements (resources) comprising the products.

$$\text{Resource efficiency} = \frac{\text{Product value}}{\text{Environmental burden from resource usage} + \text{Environmental burden from resource disposal}}$$

Environmental burden from resource usage = Σ (Resource burden coefficient x Resource usage volume)

Environmental burden from resource disposal = Σ (Resource burden coefficient x Resource disposal volume)

FY 2016 Targets and Plans

Further Improvements in Resource Efficiency in Our Sights

In Environmental Action Plan (Stage VIII) for FY 2016-18, we have stated the target of " Promoting eco design for resource saving and circulation and increasing resource efficiency of newly developed products by more than 15% (over FY 2014)." Toward achieving this target, Fujitsu is continuing current initiatives, while expanding development of new lightweight, rigid materials and the use of recycled materials. We also seek to widely publicize our products' environmental performance to increase recognition of this factor, which we will link to sales growth.

Definition of Each Item

Product value	To place emphasis on the valuation of reduction in environmental burden due to resource usage and disposal, product value is limited to those that related to resource usage and is set on a per-product basis. (Example of factor not considered: CPU performance improvements)
Resource burden coefficient	Environmental burden weighting coefficient that is specific to a particular resource and considers factors like exhaustibility, scarcity, and environmental impact from mining and disposal. Activities will begin with this figure set to a value of "1" for all resources.
Resource usage volume	Mass of each resource used in the product (excluding the mass of recycled plastic used).
Resource disposal volume	Mass of each resource disposed of (not reused) in connection with a post-use product (design value). Activities will begin with this figure set to a value of "0."

Improving the Resource Efficiency of Products

Main Activities in FY 2015

Tablet-shaped Handheld Terminal Only 70% the Thickness of Previous Models

FUJITSU Handheld Terminal Patio 720

9.9% resource efficiency improvement (over conventional models)

The FUJITSU Handheld Terminal Patio 720 is shaped like a tablet and ideal for worksite tasks such as placing orders and inspecting products. It features an easy-to-read screen, user friendliness, and a sturdy design, while also being only 18 mm thick (approx. 70% the size of conventional models).

The internal frame, which is the supportive skeleton of the device, was switched from plastic to magnesium alloy in order to make the terminal thinner, yet more robust. Additionally, adopting the Intel Z3745 1.3 GHz (4 core) chip in the CPU greatly reduced the number of components, allowing the double-sided printed circuit board to be concentrated onto a single side.

The battery and external connectors were upgraded as well. The new model adopts a thin, square battery that eliminates unused space. External connectors such as the USB ports have fixed height. Cutting indentations into the printed circuit board allowed the connectors to be seated lower in the board and placed more freely in the vertical plane.

Smartphones Featuring Both Thinner and High Strenghth Designs

arrows NX F-02H

17.1% resource efficiency improvement (over conventional models)

Smartphone "arrows NX F-02H" launched in the winter of 2015, has been reduced the thickness by 0.9 mm (approx. 10%) compared to previous models. In addition to saving the overall parts by 8%,. And this model has used the cutting-edge materials, called nanotech fiber that is as approximately 1.5 times strong as previous resin-based material. As a result, arrows NX F-02H has a greater strength than any other conventional smartphones in spite of thinner design.

The space gained byreducing components enables to put the high-capacity 3390-mAh battery inside. Despite built-in high-resolution display, energy-saving innovations in the display itself and the drawing process minimize battery drain down to the same level as full-HD models. As a result, arrows NX F-02H has been achived the top-notch actual use time, 99.6 hours.*

* Battery life assumes typical smartphone use of approx. 187 min. /day, including app use while charging (NTT Docomo research).

Advancing 3R Design

Through our proprietary product environmental assessments and green product evaluations, the Fujitsu Group is working toward the application of reduced resource usage, improved recyclability, and other technologies that take into account the 3Rs. Examples of the effective resource-saving technologies that we are deploying in our products include reductions in the number of components and cables, performance enhancements, space savings through higher-density integration, and digital product manuals. Furthermore, we are using Fujitsu's own 3-D Virtual Product Simulator (VPS), which is popular with many of our customers during their product design processes, to test the steps involved and the convenience of product assembly and disassembly before creating prototypes.

From 2010, we have also conducted regular study tours for designers at the Fujitsu Group recycling centers. In addition to hands-on experience with dismantling used products, designers gain feedback from staff in charge of recycling through idea exchanges and explanations of the obstacles to ease of dismantling. From FY 2015, the Fujitsu Group has been summarizing examples of the obstacles to ease of dismantling that we have learned from some 90 case studies at 5 recycling centers. Results are distributed in a systematic collection complete with pictures.

Gaining experience in dismantling at recycling center study tour