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Green IT Initiative

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The Information Explosion and Increase in Power Consumption

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- With the socioeconomic use of IT becoming standard and the employment of, for example, remote medical treatment and video conferencing becoming commonplace, large data such as high definition moving images are increasingly being exchanged across networks and there has been an explosive increase in the amount of information dealt with within society (the information explosion). It is estimated that by the year 2025, the amount of data being exchanged on the internet will be 100-200 times its present value.
- In order to deal with this information explosion, data processing IT devices (servers, network equipment, PCs and displays) will not only (1) greatly increase in number, but also (2) process a greatly increased amount of information per device. Both of these will result in a large increase in energy demand, making the future rapid increase in power consumption of IT equipment a serious issue.

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Reduction in Environmental Load by Effective Use of IT

Information technologies are actively used in quite a large number of fields including industry, transportation, business, and homes and greatly help reduce the environmental burden by improving the operational efficiency of those fields.

Worldwide: About 26.5 billion tons of CO₂
Japan 4.8%

In Japan: About 1.29 billion tons of CO₂
Industry 35% Transportation 20% Business 18% Home 14% Others 13%

Effective use of IT greatly helps reduce society's environmental burden

Production activities

- Production management system
- Energy consumption management
- Precise SCM
- CAD/CAM design

Utilization (business)

- Energy management (BEMS)
- IT promotion at offices (ERP, etc.)
- E-commerce
- Telework and video conferencing

Utilization (home)

- Use of energy-saving domestic electrical appliances
- Distribution of music and software
- Energy management (HEMS)

Reduction of need to transport people and materials

Distribution and transportation

- Distribution and delivery management system
- Online dealing
- ITS and car navigation
- Music distribution and software distribution

Improvement of production and distribution efficiency

Improvement of energy use efficiency

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Realization of an IT Society in Harmony with the Environment

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Broadband Internet Era

- Develop innovative energy-saving technologies (ex. Green IT Project)
- Promote using more energy-efficient products (ex. Top Runner Program)

- Improve productivity by the introduction of IT (ex. ERP, SCM, ...)
- Introduce IT-driven energy-saving measures (ex. HEMS, BEMS, ...)

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Outline of "Green IT Project"

The development of advanced energy-saving technologies, such as semiconductors and display technologies, has been supported by the collaboration of industry, academia, and government.

In addition to existing programs, the "Green IT Project" will be started to develop innovative information technologies based on medium and long-term perspectives (draft budget for fiscal 2008: 3 billion yen).

Green IT Project

Internet Data Centers (IDC)

- High efficiency cooling system
- Ultra high density HDD
- High efficiency data storage system

Organizations such as private companies and government agencies

Office

- Data centers or server rooms
- Energy-saving OLED technology

Networks (including the Internet)

- Power consumption adjustment technology of routers in response to the amount of data traffic

Homes

SMEs

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Top Runner Program

The Energy Conservation Law stipulates energy conservation standards for electric appliances and motorcars according to the Top Runner Method. Manufacturers and the like have to comply with the standards, and if they don't, they are imposed recommendation, publication, order or penalty (one million yen or less).

LCD, plasma TV, rice cookers, microwave ovens, etc., were added in FY2006, and the applicable products are 21 items at present.

Example of Top Runner Program

Achievement is judged by weighted average per product category.

Standard Setting FY Target FY

Energy conservation standard based on the Top Runner Program

Specific Equipment (21)

- Passenger vehicles
- Freight vehicles
- Air conditioners
- TV sets
- Videocassette recorders
- Fluorescent lights
- Copying machines
- Computers
- Magnetic disk units
- Electric refrigerators
- Electric freezers
- Space heaters
- Gas cooking appliances
- Gas water heaters
- Oil water heaters
- Electric toilet seats
- Vending machines
- Transformers
- Rice cookers
- Microwaves
- DVD recorders

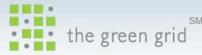
9. Magnetic disk units

*) Routers/Switches will be added to the list soon.

***Top Runner Program:** The concept of the program is that fuel economy standards for vehicles and energy conservation standards for electric appliances, etc. shall be set exactly the same as or higher than the best standard value of each product item currently available on the market.

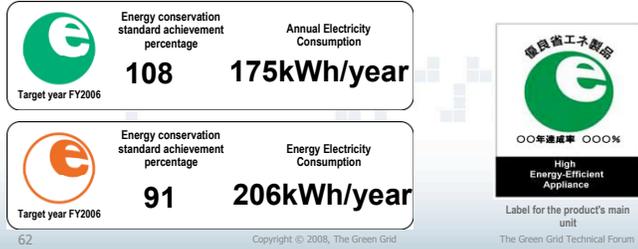
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Energy-Saving Labeling System



- The energy-saving labeling system has been introduced to inform consumers of energy efficiency of home appliances and to promote energy-efficient products.
- As of April 2007, labeling is applied to the following 16 products: air conditioners, refrigerators, freezers, fluorescent lights, TV sets, space heaters, gas cooking appliances, gas water heaters, oil water heaters, electric toilet seats, computers, magnetic disks, transformers, DVD recorders, rice cookers and micro wave ovens.

Examples of energy-saving labeling

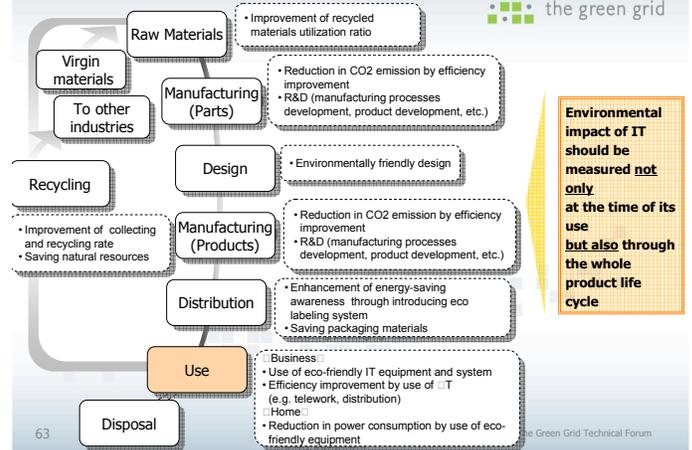


62

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Environmental Impact of IT companies



63

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Numerical evaluation of environmental contribution (P)



Some examples of numerical evaluation under consideration

Design

- (Amount of eco-friendly products)
- X (Diminution of parts and materials) [per each product]
- X (Energy needed to produce parts and materials)
- X (Ratio of CO2 per the unit energy)

IT System / Infrastructure

- (Operation amount of IT system users)
- X (Operation-efficiency coefficient of users) [per the unit operation]
- X (Energy consumption per the unit operation)
- X (1 - (Weight of efficiency by effort other than IT system))
- X (Ratio of CO2 per the unit energy)

Products / Parts

- (Amount of sales)
- X (Energy consumption by using such products commonly)
- X (Energy saving ratio to conventional products)
- X (Ratio of CO2 per the unit energy)
- X (Contribution ratio of parts to end-products) [in case of "parts"]

Factory (overseas)

- (Amount of production)
- X (Diminution of air/ water pollution compared to common local factory)
- X (Energy needed to recover from air/water pollution)
- X (Ratio of CO2 per the unit energy)

Recycle

- (Amount of recycled materials)
- X ((Environmental load in the case of not recycling) - (Energy consumption of recycling) + (Energy consumption of production in the case of using virgin materials))
- X (Ratio of CO2 per the unit energy)

64

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Establishment of promotion organization



- As a organization to promote "Green IT" movement, "Green IT Promotion Council" was established on February 1

- Over 100 companies and organizations participate in the council and JEITA (Japan Electronics and Information Technology Industry Association) is in charge of secretariat
- METI and other governmental organizations also participate in the council as observers



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Green IT Promotion Council

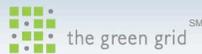
- Technical Committee**
 - Discussing innovative energy-saving technologies
 - Proposing new themes for national projects to the government
- Public Relations Committee**
 - Educating the importance of IT to protect environment
 - Preparing for "Green IT International Symposium" held on May 29
- Research and Analysis Committee**
 - Visualization of environmental loads / contributions of IT to society as a whole

65

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Action Plan

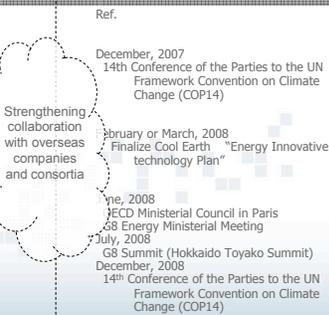


- Based on "Green IT Initiative", "Green IT Promoting Council" will be launched and deepen the discussion. An international symposium will be held on the theme of "Green IT" to bring discussion outcomes as a prelude to 2008 Hokkaido Toyako Summit

February 1, 2008
□ Establishment of a private consortium "Green IT Promoting Council"

April or May, 2008
□ "The 2nd Green IT Initiative Meeting" hosted by Minister of Economy, Trade, Industry

May 29, 2008
□ "International Symposium on Green IT"



66

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