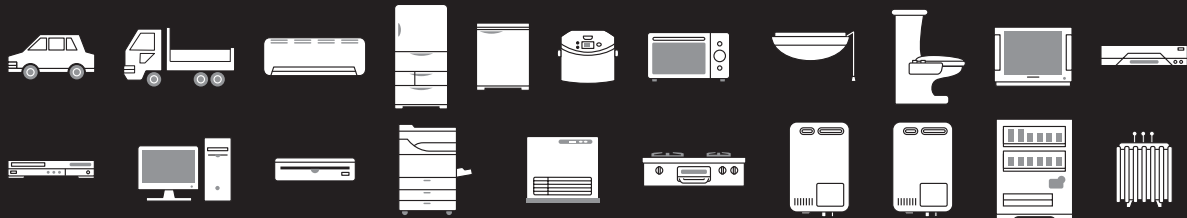


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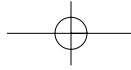
TOP RUNNER PROGRAM

Developing the world's best energy-efficient appliances



 Ministry of Economy, Trade and Industry (METI)
Agency for Natural Resources and Energy

 The Energy Conservation Center, Japan (ECCJ)

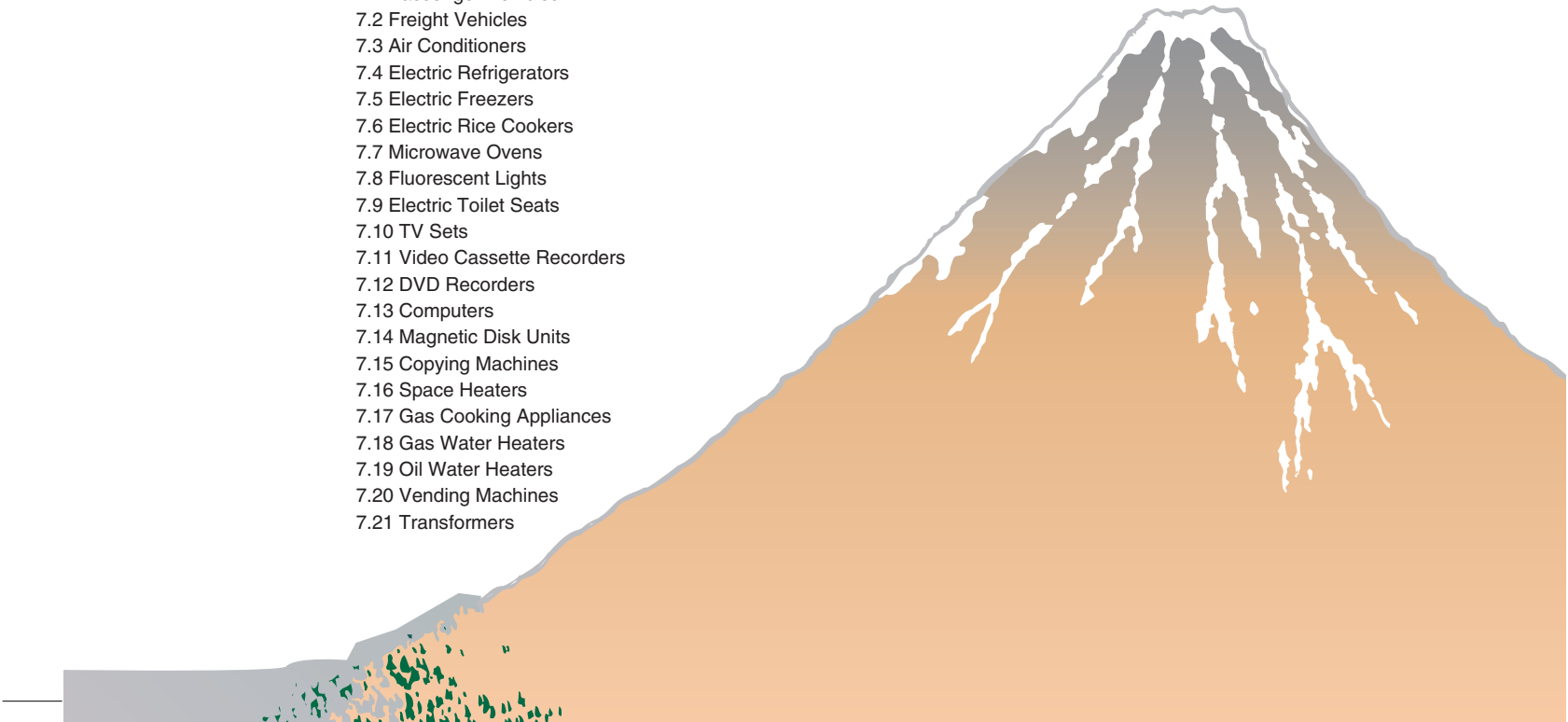
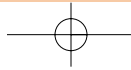
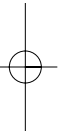
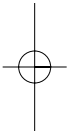


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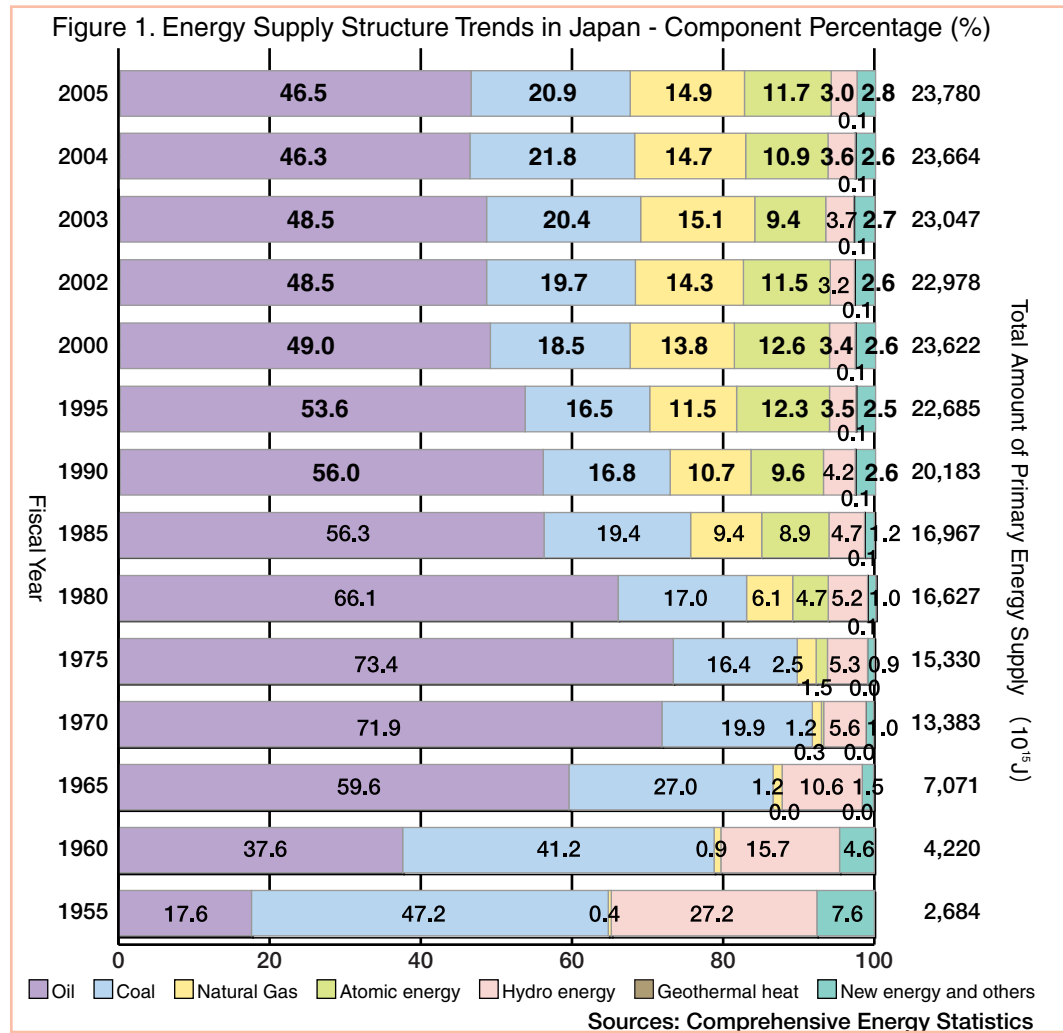


1.1 Japan's Energy Supply and Demand Issues and Energy Conservation Measures

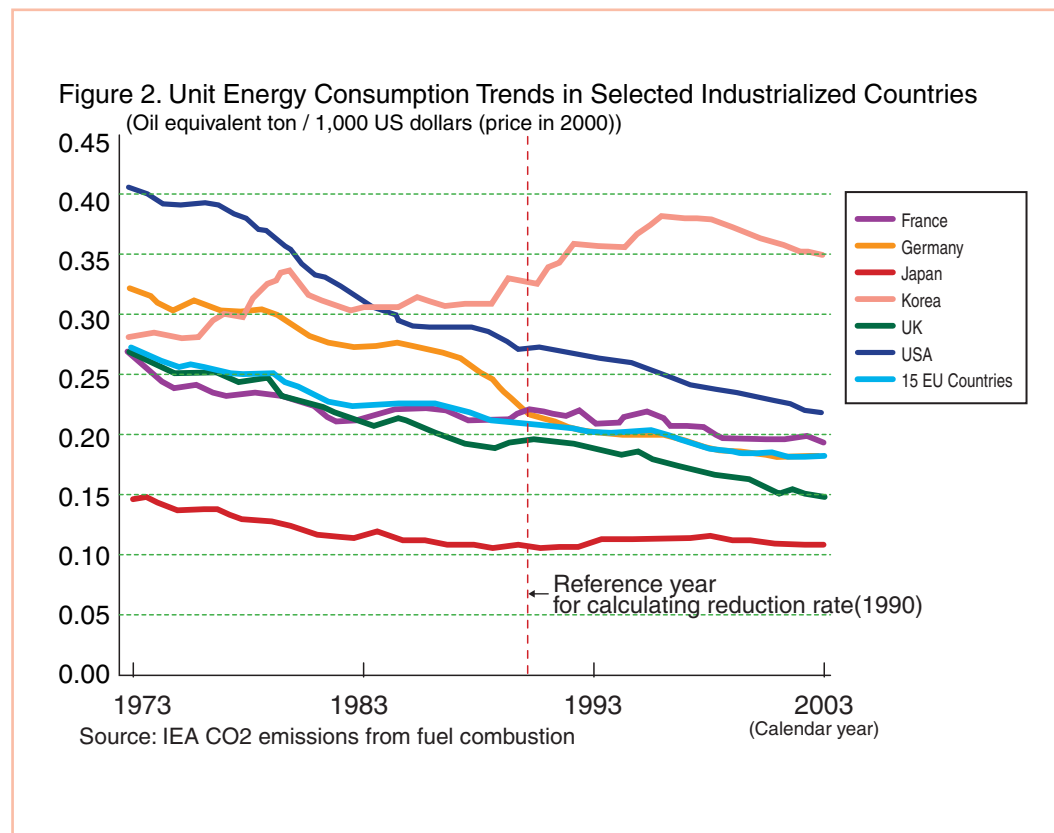
Along with water and food, energy is an essential element of the foundation of modern society.

Japan's energy consumption expanded rapidly along with economic development following the Second World War. In the fiscal year 2000, Japan's energy consumption was approximately nine times greater than in fiscal 1955, just after the end of the war. In addition, Japan's energy consumption has increased significantly, by approximately two-fold, since fiscal 1970, just prior to the oil crisis. On the other hand, Japan has almost no domestic energy resources and the country relies on overseas energy sources for the bulk of its needs. Japan's energy supply structure is characterized by an intrinsic fragility.

The turmoil caused by the first and second oil crises of the 1970s had a great impact on Japan's subsequent energy policies. The country expended great efforts to make certain it secured a stable supply of energy. As a result of this, while there had been a rapid shift from the use of coal as an energy source to oil as part of a change in energy supply sources up to then, a shift toward energy supply source diversification was adopted. Consequently, the ratio of oil as part of Japan's primary energy supply has declined from approximately 77 percent at the time of the oil crisis to about 50 percent. Meanwhile, the percentage of energy provided by natural gas and nuclear power has increased.



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On the other hand, the two oil crises focused the public interest on rational methods of energy use and the industrial sector, strongly concerned about energy costs, developed energy conservation rapidly. Acknowledging this trend, Japan enacted the “Law concerning the Rational Use of Energy” (Energy Conservation Law) in 1979 and this provided a legal basis for energy conservation activities, as well as strengthening and promoting assistance policies. Thanks to the progress this law stimulated, Japan has achieved an industrial system that features the world’s most advanced rates of energy consumption efficiency.

In addition, with issues such as acid rain, concern about global environmental problems has begun to build. There is now great concern around the world about the problem of global warming resulting from the use of fossil fuels and other fuels and this problem has become closely linked with the energy problem. In 1997, the Kyoto Protocol was adopted at the Third Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3), and Japan promised to shoulder its obligation to reduce greenhouse gases by 6% from the 1990 level within the period from 2008 through 2012. In February 2005, the Kyoto Protocol came into effect, and Japan is making tangible efforts to reduce greenhouse gas emission by promptly implementing measures and policies applicable at the present stage, in order to fulfill its obligation. Here, the role of energy conversion is extremely important.

1.2 The Top Runner Program as a Countermeasure to Ongoing Residential and Commercial Sector and Transportation Sector Energy Consumption Increases

Although Japan's final energy consumption was temporarily reduced under intensive energy conservation efforts in the industrial sector after two oil crises, it turned upward in 1982. While the industrial sector's final energy consumption has since been curbed due to industry efforts, the residential and commercial sector and transportation sectors' have risen continuously except during the oil crisis periods, when these sectors' final energy consumption temporarily stagnated. It is thought that this phenomenon was caused by the continuous economic development during the period and by the public's pursuit of richer lifestyles as a result of economic development. However, energy consumption in the transportation sector has recently leveled out or begun decreasing.

In planning for energy conservation in the residential and commercial sector and the transportation sector, improvements in the energy efficiency of cars, electric appliances, etc., (hereafter machinery and equipment) would be an extremely effective measure. From the beginning, the Energy Conservation Law contained energy consumption efficiency standards for machinery and equipment to stimulate equipment energy conservation. Initially, the types of machinery and equipment covered by the regulations were limited to three items: electric refrigerators, air conditioners, and passenger cars. Efficiency standard values were established with the idea that technological improvements would enable achievement of the values by the target fiscal year. In addition, these values were set primarily to stimulate manufacturers and importers (hereafter referred to as manufacturers) to achieve energy efficiency standards through their voluntary efforts. The Kyoto Protocol was entered into and greenhouse gas reduction goals were established. Strengthened energy conservation measures were specified as leading measures to counter global warming. Japan consequently revised the Energy Conservation Law in April 1999 with the goal of strengthening the legal underpinnings of various energy conservation measures. As a staple energy conservation measure for the residential and commercial sector and the transportation sector, the Top Runner Program was introduced to advance energy efficiency of machinery and equipment.

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Specific Details of the Top Runner Target Product Standards (21 Items)

Overview of the Top Runner Program

2.1 Distinctive Features of the Top Runner Program

There are three main methods for determining machinery and equipment energy consumption efficiency standards. The first is a minimum standard value system, under which all the machinery and equipment products covered by this system should exceed standard values. The second is an average standard value system, under which the average values of all machinery and equipment products covered by this system should exceed standard values. The third is called a maximum standard value system (Top Runner Program). Under this system, targets are set based on the value of the most energy-efficient products on the market at the time of the value setting process. Currently, the most popular minimum standard value system in the world is the Minimum Energy Performance Standard (MEPS). Under the standard, a minimum value that all the targeted machinery and equipment products must exceed is established and in the event a product does not exceed the value, actions such as suspension of product shipments can be taken. At first glance, the system appears extremely easy to understand, however, to establish efficiency standard values that all products must exceed, evaluations of the economic validity of the standard values must be conducted carefully. In the US which employs the minimum standard value system, several different points of view regarding economic fairness are evaluated including life cycle assessments (LCA) before standard values are established. In spite of these logical processes, it requires long periods of time to establish standards finally, including substantial coordination with manufacturers.

The second system, the average standard value system, was introduced to Japan when the Energy Conservation Law was enacted as an equipment energy consumption efficiency value system. The target values are arbitrarily determined after consideration of a number of factors, such as potential technical improvements and potential impact of categorical improvements that may contribute to overall improvements, based on information provided by manufacturers (through hearings, supplemental materials, and other methods). Under this system, designated machinery and equipment products are required to achieve a weighted average value by the target fiscal year, using each manufacturer's shipment volumes by category. Under this method, if demand is high for a product whose manufacturer emphasizes other functionalities over energy consumption efficiency, the manufacturer can ship the equipment even if the energy consumption efficiency is lower than the target value. That is, the manufacturer can achieve the target value on average basis by shipping a product with higher efficiency in the same category. The system functions well to facilitate manufacturers' voluntary activities. However, energy conservation effects may have less impact than expected as the establishment of standard values is left to manufacturers' discretion.

Expectations regarding the role of energy conservation are increasing due to mounting global environmental problems. As a result, demands that machinery and equipment's energy consumption efficiency be increased to the greatest extent possible are now a reality. The Top Runner Program has come into existence in light of this situation. This Top Runner Program uses, as a base value, the value of the product with the highest energy consumption efficiency on the market at the time of the standard establishment process and sets standard values by considering potential technological improvements added as efficiency improvements. Naturally, target standard values are extremely high. For achievement evaluation, manufacturers can achieve target values by exceeding target values by weighted average values using shipment volume, the same as the average standard value system. The implication of using weighted average values is the same as the average standard value system, that is, the system is meant to give manufacturers

incentives for developing more energy-efficient equipment. Above all, deliberation studies during the value establishment process in this system can proceed smoothly in a shorter period from the start to the final standard determination. While this system gives manufacturers substantial technological and economic burdens, the industry should conduct substantial prior negotiations on possibility of achieving standard values and adopt sales promotion measures for products that have achieved target values.

2.2 Legal Status

The Top Runner Program is prescribed under the “Law Concerning the Rational Use of Energy (Energy Conservation Law)– Section 6 : Measures Related to Machinery and Equipment.” The law stipulates manufacturers’ judgment standards as an obligation to make efforts. For energy-consuming equipment, making efforts to reduce energy consumption when in use is certainly important, but if the equipment is inefficient to start with, there are naturally limits to efforts while in use. For this reason, manufacturers are required to work to improve the energy consumption efficiency of their machinery and equipment.

“Manufacturers” here refers to manufacturers that manufacture and import machinery and equipment repeatedly and continuously.

The Top Runner Program is stipulated under the Energy Conservation Law and related laws include the “Enforcement Ordinances” (Government Ordinance), “Enforcement Regulations” (Ministerial Ordinance), and “Notifications.” Under the Government Ordinances, targeted equipment and manufacturers’ machinery and equipment production volume and import volume requirements are specified. Under the Enforcement Regulations, excluded ranges of machinery and equipment are specified. Under the Notifications, standard values, measurement methods, and so forth are specified.

2.3 Overview of Standards

The standards are composed of targeted machinery and equipment ranges; items necessary for judgment standards; display items; and energy consumption efficiency measurement methods. Items necessary for judgment standards include target categories, target fiscal year, target standard values, and achievement evaluation methods.

This standard stipulates individual “energy consumption efficiency” under the Ministerial Ordinance. The term “efficiency” does not necessarily mean the same as the “efficiency” generally used in mechanical engineering and the like. When considering rational use of energy for machinery and equipment, it is also important to reduce the input energy volume used for the “equipment.” Therefore, there are likely to be cases in which the energy consumption volume such as annual power consumption volume is defined as “energy consumption efficiency.” Energy consumption efficiency measurement methods are generally based on international standards and the Japanese Industrial Standard (JIS), but when applicable standards do not exist, measurement methods are established independently. Display and other topics will follow in details in a separate paragraph.

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2.4 Results of Introducing the Top Runner Program

The Top Runner Program is the requirement imposed on manufacturers of machinery and equipment. Thus, as long as manufacturers make an effort to meet these requirements, energy conservation will advance through replacement of machinery and equipment by consumers. However, as a result of new technological development that accompany manufacturers to exceed standard values, the prices of products that exceed standard values are inevitably higher than earlier products. The introduction of this system will yield no results until these high-priced products appear on the market. In this case, the system only brings manufacturers with burdens and the system itself may become a failure. Acknowledging current conditions in Japan, technical progress has been substantial for targeted machinery and equipment and consumer interests are high in equipment functionality. Thus, there is currently steady progress being made in the shift to products with higher efficiency. To hasten this shift, plans for promoting replacement purchases of products that achieve standards will be needed. This can be done by demonstrating the significance of highly efficient products through a comparison of the overall costs of highly efficient products and earlier products. The overall product cost is the sum of the purchase price at the time of the replacement product purchase (initial cost) and subsequent energy consumption costs (running costs). Further, as measures to facilitate retailers' energy-efficient activities, rewarding retailers who actively promote sales of energy efficient products will be effective and important.

On the other hand, due to rapid technical advances in machinery and equipment, there may be cases in which products, not targeted at the time of standards establishment process because they were not on the market or only on the market in extremely limited numbers, crowd out the conventional products and take a large market share. Therefore, evaluating the changes in shipment volume etc, it is necessary to deal with such cases appropriately.

<Result of Achieving Standard Values>

A period has passed since the introduction of Top Runner Program. Up to this point, TV sets, VCRs, air conditioners (room air conditioners), etc. had the first target fiscal year respectively.

Due to the efforts by manufacturers and others, each product category attained efficiency improvement that exceeds our initial expectations.

Product category	Energy efficiency improvement (result)	Energy efficiency improvement (initial expectation)
TV receivers (TV sets using CRTs)	25.7% (FY 1997 →FY 2003)	16.4%
VCRs	73.6% (FY 1997 →FY 2003)	58.7%
Air conditioners * (Room air conditioners)	67.8% (FY 1997 →2004 freezing year)	66.1%
Electric refrigerators	55.2% (FY 1998 →FY 2004)	30.5%
Electric freezers	29.6% (FY 1998 →FY 2004)	22.9%
Gasoline passenger vehicles *	22.8% (FY 1995 →FY 2005)	22.8% (FY 1995 →FY 2010)
Diesel freight vehicles *	21.7% (FY 1995 →FY 2005)	6.5%
Vending machines	37.3% (FY 2000 →FY 2005)	33.9%
Computers	99.1% (FY 1997 →FY 2005)	83.0%
Magnetic disk units	98.2% (FY 1997 →FY 2005)	78.0%
Fluorescent lights *	35.6% (FY 1997 →FY 2005)	16.6%

For the product categories marked with *, energy efficiency standard values are defined by the energy consumption efficiency (e.g. km/l), while those without * are by the amount of energy consumption (e.g. kWh/year). In the above table, values of the "Energy efficiency improvement" indicate the rate of improvement calculated based on each standard. (Example: If 10 km/l is developed to be 15km/l, an improvement rate is calculated as 50% (It is not calculated as the improvement of fuel consumption by 33% from 10 liters down to 6.7 liters for a 100 km drive.); and if 10 kWh/year is developed to be 5 kWh/year, the improvement rate is 50 %.)

2.5 Evaluation of the Top Runner Program

As described above, advantageous effects of the Top Runner Program have been steadily realized. Since greater effects are expected to be produced as more products increasingly satisfy the Top Runner standard value, it is necessary to continue adding new target products as well as reviewing standard values for the product categories whose target fiscal year is fulfilled.

Until now, 21 product categories have been specified as target products covering substantial product ranges. These product categories were selected mainly from high energy-consuming products based on three basic criteria: (1) the machinery and equipment used in large quantity in Japan, (2) the machinery and equipment that consume considerable amounts of energy while in use, (3) the machinery and equipment that require particular efforts to improve their energy consumption efficiency.

It is now needed to consider specifying additional product categories from commercial machines and equipment which are currently covered only by 20%, and newly prevailing high energy-consuming products. Regarding commercial machines and equipments, many products are exempted from the target candidates due to the lack of established objective and quantitative method to measure the energy consumption efficiency. Therefore, it is particularly required to examine the measuring method and strengthen the countermeasures for commercial sectors where energy consumption considerably increases.

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Overview of Top Runner Standards

Process of Establishing Top Runner Standards

Basic Concept behind Setting Judgment Standards

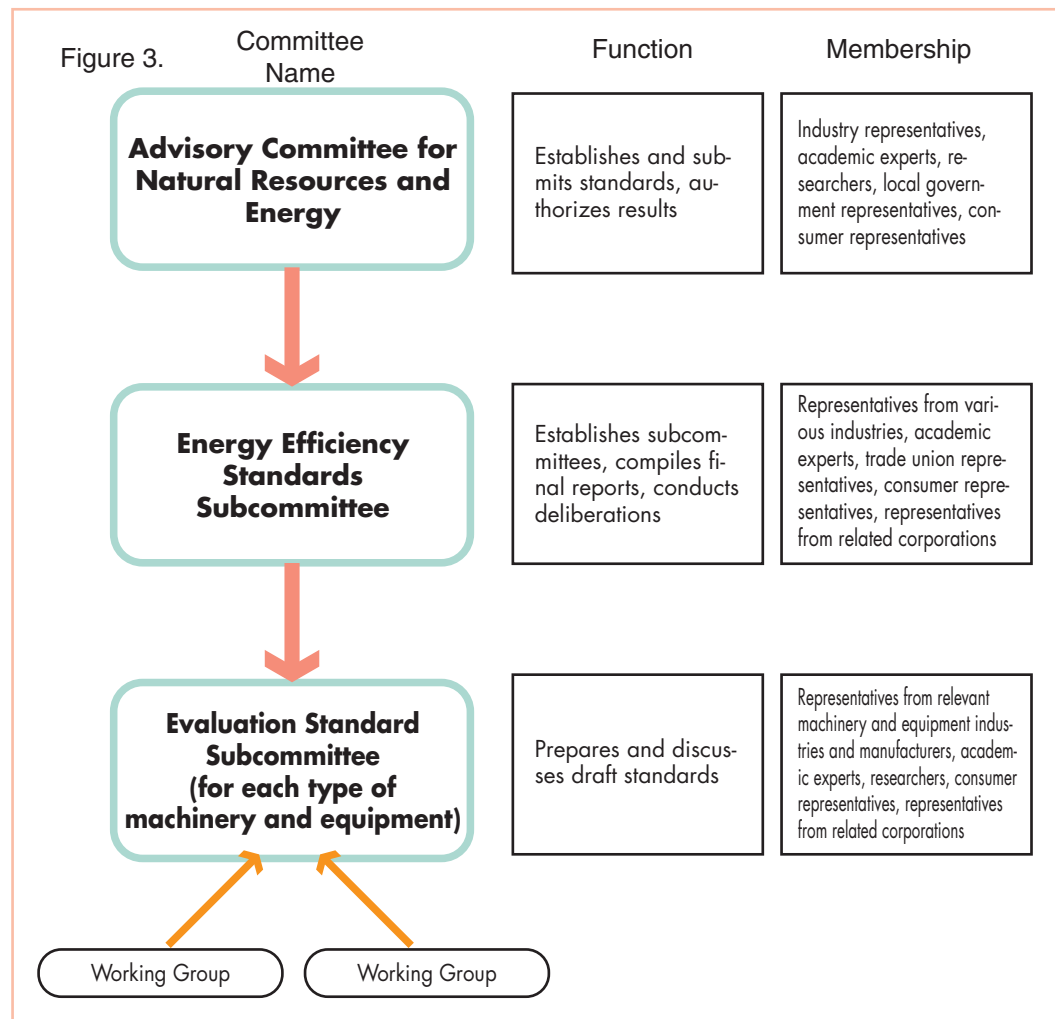
Policy Concerning Popularization of Top Runner Target Machinery and Equipment

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3.1 Committee Establishment

Japan’s energy conservation policies are deliberated by an “Advisory Committee for Natural Resources and Energy.” The committee, as an advisory body to the Minister of Economy, Trade and Industry, was established based on the “Ministry of Economy, Trade and Industry Establishment Law.” For the Top Runner Standard Values, deliberations are conducted by the “Energy Efficiency Standards Subcommittee”, established under the “Advisory Committee for Natural Resources and Energy.” To deliberate standard details, an “Evaluation Standard Subcommittee” is established by product under the “Energy Efficiency Standards Subcommittee.” These discussions include technical deliberations on details of standards for individual machinery and equipment products. The “Evaluation Standard Subcommittee” then presents its findings to the “Energy Efficiency Standards Subcommittee” which makes decisions that complete the process. These committees and subcommittees are assisted and administered by an office in charge in the Agency for Natural Resources and Energy. Depending on the situation, working groups are established in the preparatory stages prior to the establishment of subcommittees and these working groups carry out studies concerning whether machinery and equipment under consideration are potential Top Runner Target machinery and equipment, as well as studies concerning energy consumption efficiency measurement methodologies. The organization chart below shows the role of the committees and their membership.



3.2 Deliberation Process

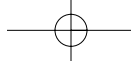
The Energy Efficiency and Conservation Division of the Agency for Natural Resources and Energy is the department in charge and it conducts studies regarding the types of machinery and equipment that might be eligible for the Top Runner Program. Equipment and machinery that meet the requirements are proposed to the Energy Efficiency Standards Subcommittee. At this point, machinery and equipment must meet three requirements in principle. These include: (1) the machinery and equipment used in large quantity in Japan, (2) the machinery and equipment that consume considerable amounts of energy while in use, (3) the machinery and equipment that require particular efforts to improve their energy consumption efficiency. Decisions are based on these three requirements, as well as consideration of marketplace trends for the machinery and equipment in question, along with other factors.

The Energy Efficiency Standards Subcommittee receives these proposals, studies whether target machinery and equipment are suitable candidate products for the Top Runner Program, and confirms the need for studies, then, the “Evaluation Standard Subcommittee” is established to study concrete standard values and other factors.

In some cases, deliberations over certain equipment are difficult as candidate products for the Top Runner Program. Typically, these cases involve equipment for which measurement methods for energy consumption efficiency have not yet been established. In such cases, studies take place before Evaluation Standard Subcommittee discussions. These studies are primarily approached from a technological viewpoint and take place within a working group composed of, among others, industrial organizations with connections to the machinery and equipment in question, academic experts, and consumers. Working groups are established within public utility corporations and the like, along with related organizations. After a working group’s discussions yield a final confirmation to evaluate energy conservation performance, a draft standard is then proposed.

Evaluation Standard Subcommittee’s discussions proceed in accordance with specific concepts behind setting standards explained in Chapter 4. For setting standards, firstly, target scope of the equipment, category, and measurement methods of energy consumption efficiency are deliberated and determined. Then, cooperated with industry, the energy consumption efficiency of all products currently on the market is measured. Using the resulting data, the most up to date maximum efficiency value is determined. Target years are determined with giving consideration to the degree of how the society demands the equipment energy conservation and efficiency, and manufacturers’ product development planning and capacity. Target standard values (Top Runner Standard values) are determined by evaluating potential technical development toward target years, as well as adding the technical development to above maximum efficiency values. Although The Evaluation Standard Subcommittee meets in sessions that are partially closed to the public to preserve industry data confidentiality, an interim decision is reached after all items have been discussed, and an interim report is made public through a homepage to elicit public comment. The Evaluation Standard Subcommittee considers the public comments it receives and prepares its final report. By Energy Efficiency Standards Subcommittee approval, draft standards are determined.

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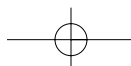
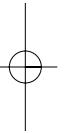
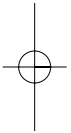
3.3 Standards Establishment Process

Draft Top Runner Standard Values approved by the Energy Efficiency Standards Subcommittee are reported to the WTO/TBT* to avoid trade barriers to imported products. Completing these procedures, government ordinances and other ordinances are amended to formally add draft Top Runner Standard Values to a target product's range.

The time it takes to enact legislation following the proposal of target machinery and equipment differs according to the machinery and equipment, but the process generally takes from a year to two and a half years, with the working group study taking a year, subcommittee deliberations from half a year to a year, and various other procedures around half a year.

* World Trade Organization: Agreement on Technical Barriers to Trade

The TBT agreement is a comprehensive agreement applicable to all WTO member states. It aims to prevent countries' standards certification systems (standards and conformity assessment system) from causing unnecessary impediments to international trade so that standards of products and the procedures to assess their conformity do not unnecessarily hinder trade. The TBT notification is an international procedure based on the TBT agreement to secure international transparency in adoption and revision of standards certification systems by notifying the WTO Secretariat of the draft proposals and receiving comments from member countries.



4.1 Concept behind Target Scope

Principle1. Concepts for the target scope are set taking into account general structure, application, and potential type of use. The following types of equipment are ineligible in principle: 1) equipment used for a specific application; 2) equipment for which technical measurement and evaluation methods have not been established, thus difficult to set target standards; and 3) equipment that has an extremely low usage rate in the market.

4.2 Concept behind Categorization and Setting Target Standard Values

Principle2. For specified products, categories are determined based on certain indices. Those indices (basic indices) are defined using products' physical quantities, functions, etc. that are closely related to the energy consumption efficiency, taking into account the criteria used by consumers when selecting products (factors representing consumer needs) and other factors.

Basic indices are established by: (1) giving consideration to factors closely related to energy consumption efficiency of specified machines and equipment, such as basic physical quantity (TV receivers: screen size; vehicles: vehicle weight; refrigerator: cubic capacity; etc.), functions or performances (DVD recorders: equipped with HDD and VCR, etc.), and (2) considering factors representing consumer needs and others.

Basic indices are basically preferred to have only one index, but multiple indices should be allowed when necessary to address and accommodate consumer needs (to accommodate potential cases in which the product may not be brought to the market in spite of its high consumer needs, because indices were not taken into considerations, etc.)

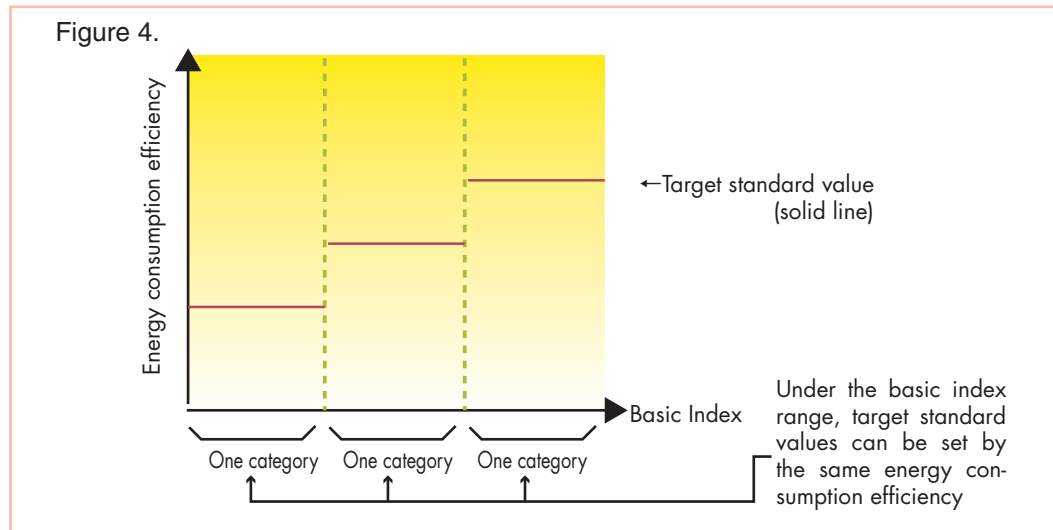
Principle3. Target standard values are determined by adequate basic index category that enables achievement of the same degree of energy consumption efficiency, using a single numeric value or relational expression. There are two methods for setting target standard values in each category: setting by numeric values and setting by relational expressions.

(1) Setting target standard values by numeric values

From the standpoint of maximizing energy savings, it is preferable to keep the target scope as broad as possible and establish a numeric value with high-efficiency. If setting the same energy consumption efficiency as a target standard value is not possible, a separate category should be created to establish the target standard value for the category.

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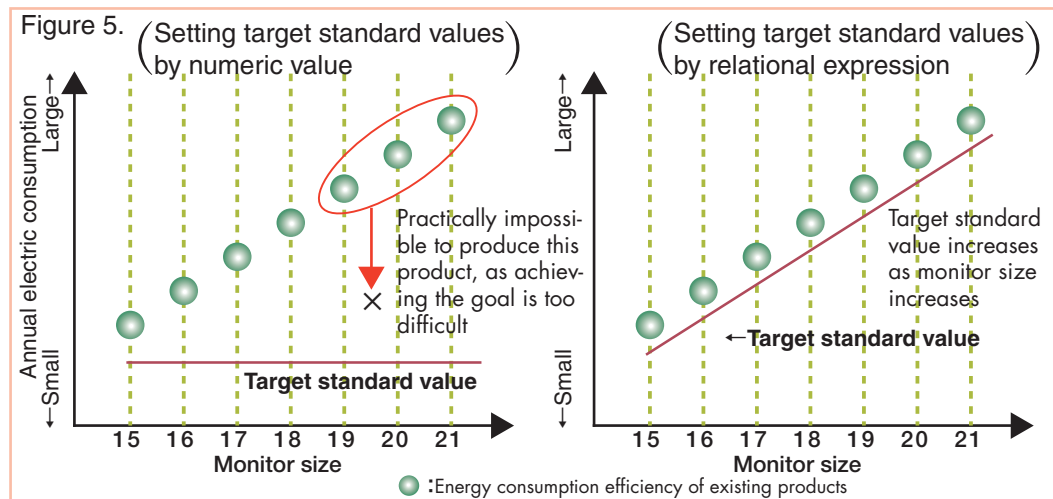


In cases where there is no consecutive relation to energy consumption efficiency, functions that influence energy consumption efficiency are set as basic indices. Corresponding to basic indices, numeric values are set. The establishment of DVD recorder categories by either being equipped with “HDD” and “VCR”, etc. can be cited as examples.

(2) Setting target standard values with relational expressions

For certain specified equipment, to create categories and use one numeric value is not adequate when setting target standard values.

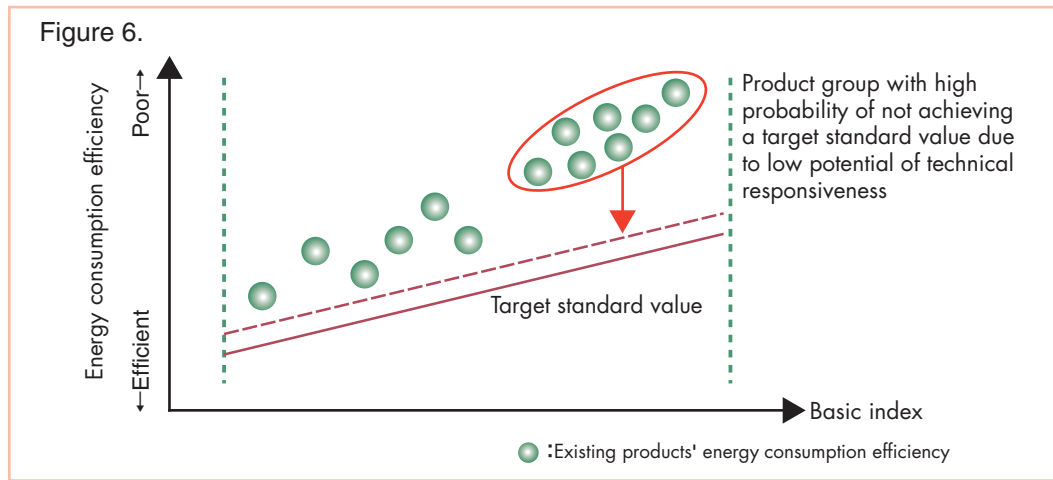
For TV sets, by setting screen size as the basic index, and setting annual electric consumption as energy consumption efficiency, annual electric consumption will increase as the screen size increases. Hypothetically, resulted from setting 15 to 21-inch TV sets as one category and setting one numeric value based on Top Runner Program as the target standard value, energy consumption efficiency of the 15-inch TV sets becomes the target standard value of the category. In this case, it is technically extremely difficult to achieve the energy consumption efficiency of a 15-inch TV set on a 21-inch TV set. Consequently, it becomes infeasible to produce 21-inch TV sets and it is no longer possible to meet the consumers' various needs.



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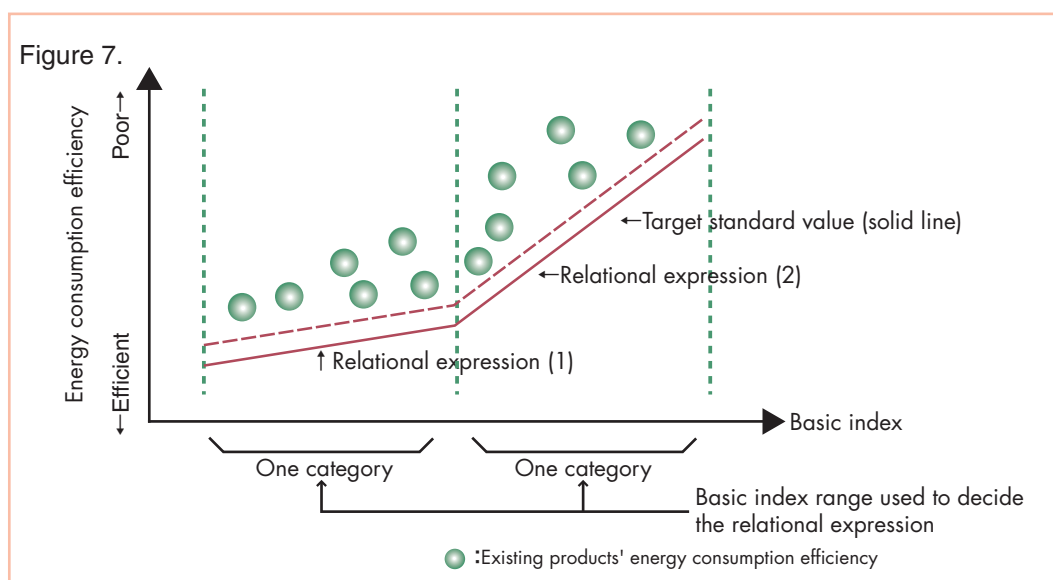
As in this example, in the case where an increase in the basic index consequently worsens (improves) the energy consumption efficiency; if a single value is specified as a target standard for the category, the Top Runner Program may make the production concentrate on the products that can most easily clear the target value and it becomes difficult to satisfy various customer needs; it is therefore appropriate to define the target standard value using calculation formulae.

Also, when setting target standard values using relational expressions above, it may be probable that target standard values will not be achieved within a basic index range due to the low potential of technical responsiveness in spite of high consumer needs.



In the above case, another category is established according to the standard index range and relational expressions that encompass the distribution point of the most efficient product within the categorized standard index range are acquired to set the target standard value.

To set another category as in this case, to have technical and structural differences that affect the energy consumption efficiency within the categorized basic index is required.

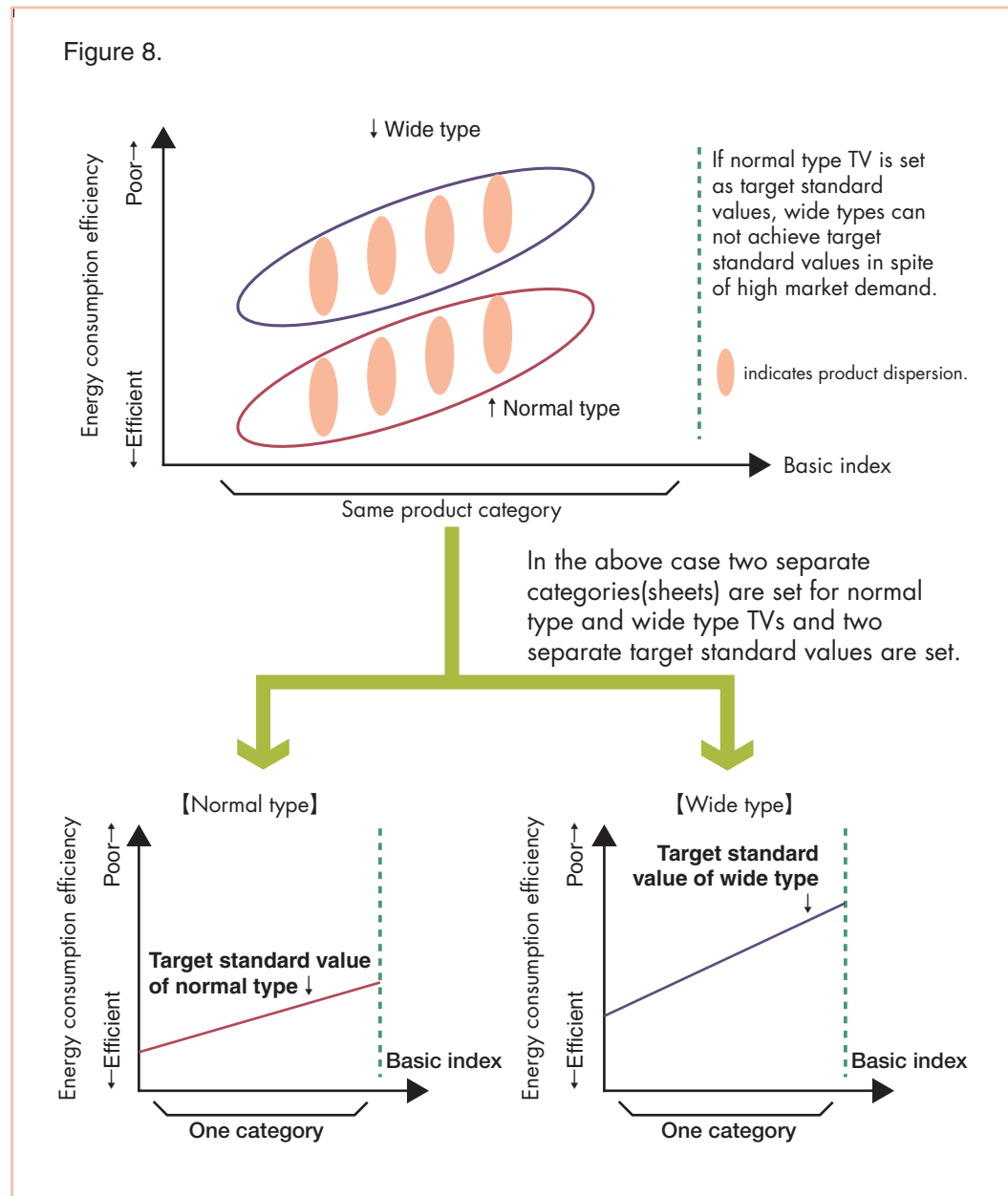


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Principle4. For a category setting, additive functions should be disassociated in principle. However, the following concept is applied to cases in which a target standard value is set at the value of the energy consumption efficiency of a product with no additive functions. If there is a very high possibility that products with additive functions will have to be withdrawn from the market because of failure to meet target standard values in spite of high market demand, different categories (sheet) may be established.

An additional category (sheet) is established when another calculation formula for the target value is defined considering products' functions. As an example, when the target standard values are specified by different expressions due to the differences of TV set screen types (normal and wide type), separate categories (sheets) shall be specified.

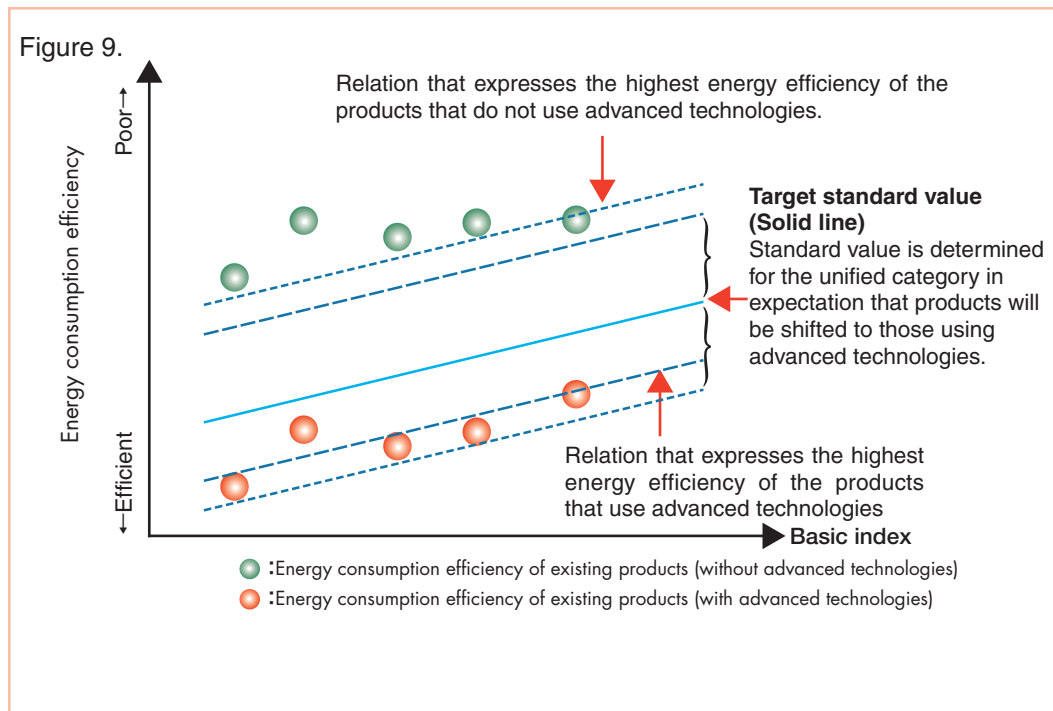


Principle5. For those products having high prices and high energy consumption efficiency due to incorporated advanced energy saving technologies, although one possible choice is to add a separate category, it is desirable to treat them in the same category as much as possible so that manufacturers are encouraged to actively promote the products having high energy consumption efficiency.

With regard to the products incorporating advanced energy saving technologies, if they are treated in the same category, manufactures are provided with an incentive to actively promote these products, because sales of these products makes it easier to achieve the target.

In addition, products having high energy consumption efficiency bring economical results through reductions in running costs in spite of high purchase price. Even if the purchase price is too high for the introduction cost of energy saving technologies to be compensated by the running costs, it is expected that widespread use of the products brings down the price. It is thus desirable to treat products having advanced high energy consumption efficiency in the same category, not setting a separate category by focusing on their technical differences.

However, when establishing standard values it should be also considered that if they are determined to be paying too much consideration to high-priced products having high energy consumption efficiency, consumers may possibly be forced to purchase economically inappropriate high-priced products in the name of energy saving.



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Principle6. Specialty goods are excluded when setting target standard values for a category. However, the potential availability for use of excluded specialty goods' technology is taken into account when the efficiency improvement through technological development is reviewed.

(1) Concept of specialty goods

When setting target standard values, it is appropriate to exclude the following products as specialty goods due to potential disruption of responses to various consumer needs, concerns to safety matters, and further innovations of energy conservation technologies.

1) Mainly custom order or made-to-order products not produced in large quantities with specific intended uses.

2) Products acknowledged having a high probability of being sold at lower than original cost to improve a company's image.

3) Products acknowledged immature in production techniques because safety and reliability evaluations have not been established.

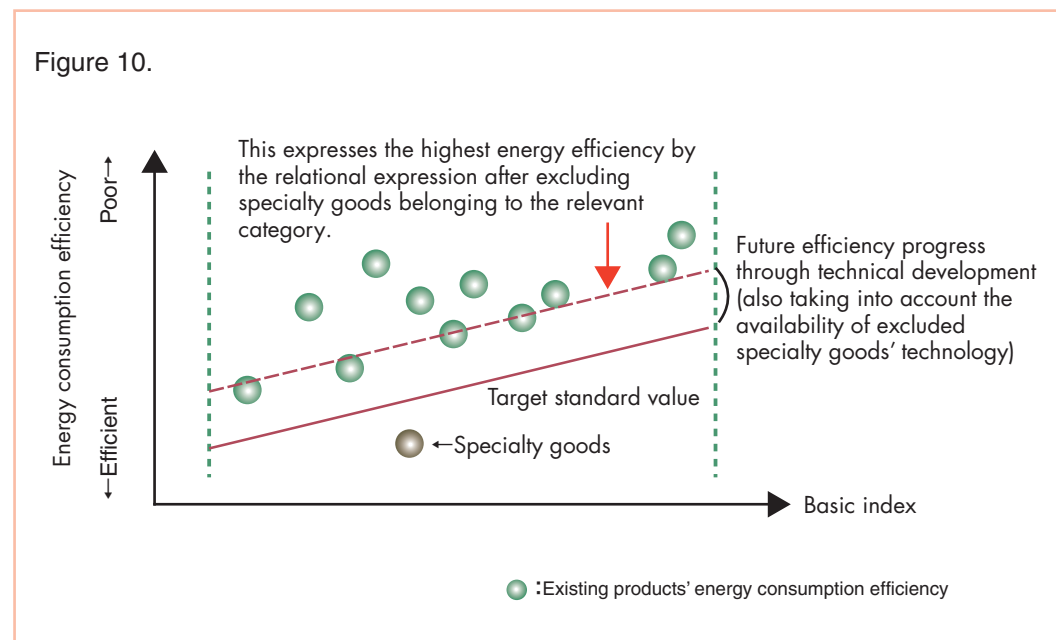
4) Products acknowledged to use specific technologies with substantially low market share and considered to have potential uncertain future. If energy consumption efficiency values of products using these technologies are used as target standard values, it is highly likely that products that rely on widely-used technology will not be able to exist and this will distort the market excessively or restrict other improvements and innovations.

5) Performances and functions directly linked to consumer needs are not taken into consideration. Consequently, some products have possibly realized high energy consumption efficiency. Principle 3 should be applied to these products, but target standard values are difficult to be determined due to very few number of models (1 or 2 models) belonging to the category in concern.

(2) Consideration of specialty goods on the target standard value

When establishing target standard values, the availability of excluded specialty goods technology will be considered when reviewing efficiency improvements yielded by technical developments.

Figure 10.



Principle7. To establish target standard values for home electric appliances and office equipment, reduction of standby power consumption should be taken into account.

Standby power consumption, which reportedly accounts for around 10% of household electric power consumption, needs to be further reduced. It is necessary to set target standard values that incorporate measurement methods that encourage the reduction of standby power consumption in anyway possible. As an example, in cases in which the product usage pattern in operation and in standby mode can be patterned, it will be necessary to reflect this factor in measurement methods and target standard values.

Energy saving modes to reduce standby power consumption are beginning to be introduced for some equipment. (For example, by user settings, the clock display function is disabled in standby mode; machine operation is switched to ready mode when not used for a certain predetermined time.) These energy saving modes should be considered when establishing judgment standards to further promote their use, as well as taking user needs into account.

4.3 Concept behind the Target Fiscal Year

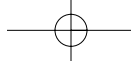
Principle8. Target fiscal years are set three to ten years ahead per product, reflecting certain products development periods and the outlook for future technical developments.

It is thought that the period of time required to achieve a target varies depending on the relation between current energy consumption efficiency and a target standard value, and the degree of past energy consumption efficiency improvements. It is therefore considered appropriate to set target fiscal years three to ten years ahead providing an adequate lead time that accommodates product development periods, equipment investment periods, and the future technical development outlook for the relevant equipment.

It is also appropriate to set different target fiscal years for each specified product because the relation between current energy consumption efficiency, the target standard value, and the degree of past energy efficiency improvements differ depending on the equipment specified.

of specific products.

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4.4 Concept behind the Achievement Evaluation Method

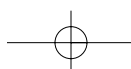
Principle9. Whether the result achieves the target standard value in the target fiscal year is determined by a weighted average method per manufacturer and category.

The weighted average method (weighted harmonized average method) enables products rated under the target standard value to be brought to market if there is high market demand, by creating many more energy-efficient products rated above the target standard value. Consequently, manufacturers will be offered incentives to bring higher energy efficient products to market and lead to improvements in other products' energy consumption efficiency. The impact of the relevant judgment will also help ensure a variety of specific products.

4.5 Concept behind the Measurement Methodology

Principle10. Measurement methods should bear domestic and international harmonization in mind. If a standard has been already established, the measurement method should harmonize with the standard to the extent possible. Where no measurement method standard exists, it is appropriate to adopt specific, objective, and quantitative measurement methods based on actual equipment usage.

Measurement methods should be based on specific equipment's actual usage. If a measurement method has been established through voluntary or compulsory standards, including International Standards and Japanese Industrial Standards (JIS), it is appropriate to adopt relevant measurement methods that ensure domestic and international harmonization. When no measurement method exists as described above, the measurement method should be objective and quantitative.



5.1 Display Obligations

The Energy Conservation Law has established a display program for Top Runner target machinery and equipment so that buyers can obtain information concerning such as the energy consumption efficiency of machinery and equipment at the time of purchase. Under the display program, manufacturers of Top Runner target machinery and equipment are required to display regulated under the “Notifications” and penalties will apply when a manufacturer does not comply to display requirements. Intentions of these requirements are, in addition to requiring manufacturers to work to improve energy consumption efficiency, providing buyers correct information concerning such as the energy consumption efficiency of individual machinery and equipment products to facilitate the popularization of energy efficient products, which may achieve the secondary effect such as encouraging manufacturers’ motivation regarding technical development.

Display and compliance items are described in a “Notification” for each piece of machinery and equipment. Display items generally include: 1) energy consumption efficiency and closely related items; 2) product name and type, which specifies the product; 3) name of the manufacturer responsible for the display. Compliance items are items that must be included specifically at the time of display on the machinery and equipment, such as the location of the display, the size of display characters, units, and so forth. To avoid duplication of laws, machinery and equipment for which displays are already stipulated under the Household Goods Quality Labeling Law should follow this law.

If a manufacturer’s display does not adhere to the display and compliance items, the Minister of Economy, Trade and Industry (in cases involving cars, the Minister of Economy, Trade and Industry and the Minister of Land, Infrastructure and Transportation) will advise the manufacturer in question. Further, if this advice is not heeded, the advice will be made public and the manufacturer will be ordered to follow the recommendations. If the manufacturer does not obey the order in question, penalties are imposed.

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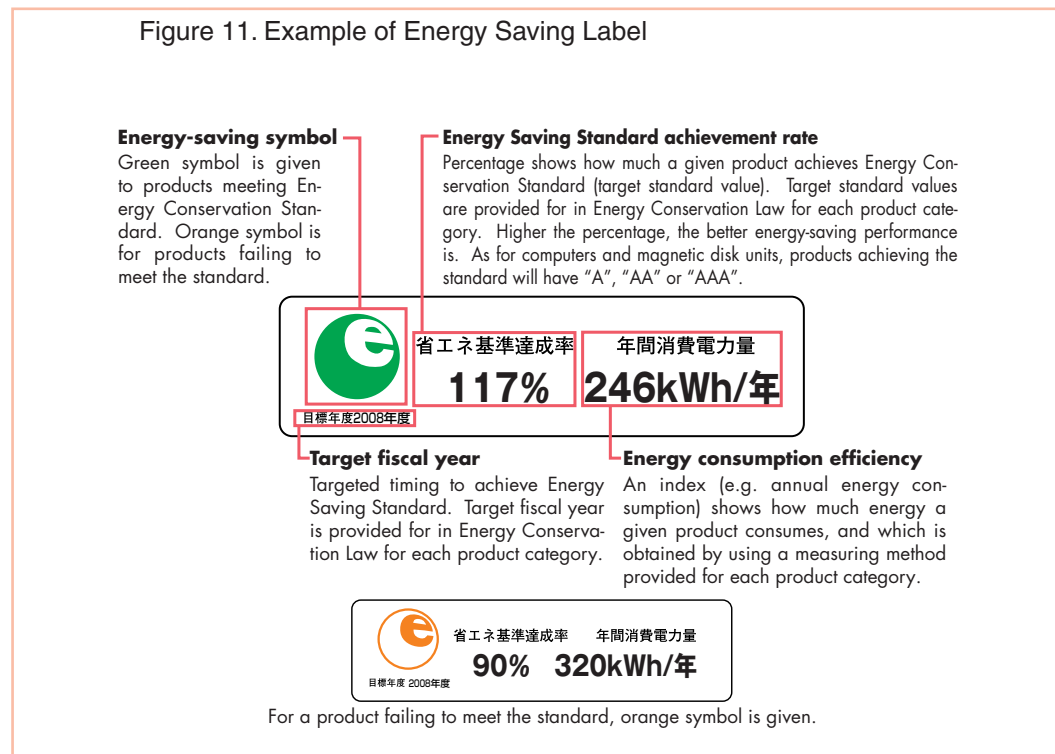
5.2 Labeling Program

To promote the popularization of highly efficient machinery and equipment that have achieved Top Runner Standard values through manufacturers' efforts, providing consumers with information is essential.

For this end, to further facilitate the popularization of energy-efficient equipment, the Energy Efficiency Standards Subcommittee under the Advisory Committee for Energy (name changed to the Advisory Committee for Natural Resources and Energy in 2001) held discussions toward the establishment of the best labeling program (Energy saving Labeling Program) in Japan. These discussions resulted in a decision to have four items shown on the label, including a symbol used to show the degree that energy saving standards had been achieved, energy saving standard achievement rate, energy consumption efficiency, and the target fiscal year. The discussions also led to a decision that the JIS should devise the energy saving labeling program.

Following this, the "JIS Energy Saving Labeling Committee" assembled a first draft and the Japanese Industrial Standards Committee's Committee on Electricity and Electronics approved the draft. Subsequently, in August 2000, the labeling program was established as a JIS standard and the energy saving labeling program was launched. During initial phases, the energy saving labeling program targeted five product categories, including air conditioners, fluorescent lights, TV sets, electric refrigerators, and electric freezers, but in 2003, five additional product items were added, including space heaters, gas cooking appliances, gas water heaters, oil water heaters, and electric toilet seats. Additional product items, including computers, magnetic disk units, and transformers later followed. As of December 2007, the labeling program covered 16 product items. The labeling program is a voluntary program, based on JIS, and displayed in product catalogues as well as on products themselves. Labels may be displayed on packaging, a product itself, tags, and the like besides catalogues.

Figure 11. Example of Energy Saving Label



5.3 Label Display Program for Retailers

Efficient machinery and equipment had so far been promoted with the labeling program described in 5.2. However, taking into consideration the importance of retailers' role as an interface to consumers, obligation of retailers to make efforts for information provision was included in the revised Law Concerning the Rational Use of Energy that went into effect in April 2006. Retailer Evaluation Standard Subcommittee established under Energy Efficiency Standards Subcommittee of Advisory Committee for Natural Resources and Energy discussed the concept of display of energy-saving information and asked for comments from various levels of Japanese society. Thus, a guideline was finally developed.

To be specific, it stipulates that retailers provide information of products displayed at their shops with the use of "Uniform Energy-Saving Label" which presents multistage rating, expected electricity bill and other information. The multistage rating uses 5-star-mark to represent a relative position of a given product in the market with respect to energy-saving performance.

Since October 2006, the "Uniform Energy-Saving Label" has been applied to air conditioners, electric refrigerators (freezers) and TV sets, whose large energy consumption per unit results a wide variation in energy-saving performance. As for other designated products, Energy-Saving Label as in 5.2 and expected annual electricity bill (expected annual fuel usage for gas/oil equipments) are required to be displayed on the product body or nearby (Simplified label or retailer's own format). Products covered by these labeling programs are as shown in the table below.

Uniform Energy-Saving Label (including simplified label) can be printed from the following website

<http://eccj06.eccj.or.jp/cgi-bin/real-catalog/index.php>

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Target Products Covered by the Labeling Program

Product	Energy-Saving Labeling Program	Expected annual electricity bill	Uniform Energy-Saving Label
Air conditioners	●	●	●
Electric refrigerators	●	●	●
Electric freezers	●	●	
Fluorescent lights	●	●	
Electric toilet seats	●	●	
TV sets	●	●	●
Computers	●		
Magnetic disk units	●		
Space heaters	●		
Gas cooking appliances	●	●(Fuel usage)	
Gas water heaters	●	●(Fuel usage)	
Oil water heaters	●	●(Fuel usage)	
Transformers	●		
Electric rice cookers	●	●	
Microwave ovens	●	●	
VCRs		●	
DVD recorders	●	●	

Figure 12. Uniform Energy-Saving Label (Format)

For non-CFC electric refrigerators, non-CFC sign is displayed.

Fiscal year when criteria of the 5-star multistage rating is set.

[Energy-Saving Labeling Program]

Manufacturer's name and model name

[Expected annual electricity bill]
This information is provided so as to make energy consumption efficiency (e.g. annual energy consumption) comprehensible. Expected annual fuel usage for gas/oil appliances (simplified label).

[Multistage rating system]
For air conditioners, refrigerators and TV sets, energy-saving performance of a product is rated according to 5-level criteria. Products with the best performance in the market will receive 5-star. In order to clarify the number of stars given to products meeting the Top Runner Program, a border line of 100% target achievement is shown under the stars.

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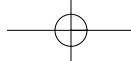
5.4 Retailer Assistance

To curtail increases in energy consumption, it is important that manufacturers produce machinery and equipment that offer superior energy consumption efficiency, but additionally, to achieve results, these highly efficient machinery and equipment should be popularized and distributed to consumers to use. To further accelerate the popularization of these products, it is vital to devise plans that target retailers, places where manufacturers and consumers intersect. Acknowledging this point, the Energy Conservation Center, Japan established the “Energy Efficient Product Retailer Assessment Program” and manages and administers the program.

Under this program, a public invitation is made to each home appliance retail shop, each shop that actively offers information and promotes sales is selected as an “Outlets that Excel at Promoting Energy-Efficient Products,” and the results of the public invitation are announced. In addition, the Minister of Economy, Trade and Industry Award, the Minister of the Environment Award, the Director-General of the Agency for Natural Resources and Energy Award, and the Energy Conservation Center Chairman Award are given to particularly excellent shops. The results of selection and award-giving are made known to consumers through newspapers, magazines, journals of consumer organizations, NPOs, and so on, and the public relations magazines of local public agencies, and so on. Excellent shops that are selected and receive awards can use the “Outlets that Excel at Promoting Energy-Efficient Products” logo mark.

Figure 13.
The logo mark





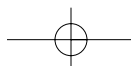
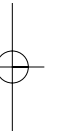
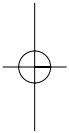
6.1 Target Achievement Verification Method

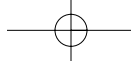
For each of the companies that manufacture or import machinery and equipment covered by the Top Runner Program, each machinery and equipment category's weighted average value must achieve a standard value by the target fiscal year. To confirm achievement of standards, questionnaires are distributed to machinery and equipment manufacturers soon after the target fiscal year and information are obtained on numbers of units shipped, energy consumption efficiency, and the like in the target fiscal year. The surveys are conducted by the Agency for Natural Resources and Energy that is responsible for enforcing the Energy Conservation Law.

Weighted average energy efficiency
 = the sum of {(the number of units shipped domestically for each product name and type) × (energy consumption efficiency per unit)} / the total number of units shipped domestically.

To confirm display implementation, product catalogues, as the primary source for displays, are periodically and continuously collected. For displays on products themselves, submission of name plates, etc. or retail store surveys are conducted to confirm the implementation.

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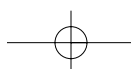
6.2 Measures Implemented When Target Values Are Not Achieved

If the results obtained from the energy efficiency surveys mentioned in the previous paragraph appear to be remarkably low compared to judgment standards and a need to make suitable improvements in energy efficiency is recognized at the time, the Minister of Economy, Trade and Industry (in cases involving cars, the Minister of Economy, Trade and Industry and the Minister of Land, Infrastructure and Transportation) offer recommendations to the manufacturer in question as required. Further, if this advice is not followed, the recommendations are made public and the manufacturer may be ordered to follow the recommendations.

Manufacturers subject to these recommendations and advice should be limited to those whose improvements in manufacturing and imports of equipment are considered to have a substantial impact on energy consumption in Japan. Also, targets should be limited to manufacturers whose organizational capacity is economically and financially firm enough, that is, limited to manufacturers for which there will be no problems regarding social appropriateness. For each machinery or equipment product covered by the Top Runner Program, a cutback in shipping volume will be set according to production and import volume, as stipulated by government decree.

Moreover, if, there are categories that partially fail to achieve goals among the many items, it will not be appropriate to advise the manufacturer immediately. Instead, reasons why goals were not achieved, other companies' achievement records in the same field, achievement records in other categories of the company in question, and percentages of categories that have not achieved target standards in overall categories, and other factors will be comprehensively evaluated.

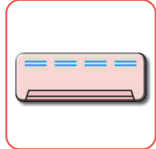
These measures are implemented for manufacturers that do not adhere to display rules. For displays, cutbacks based on manufacturers' production and import volume are not applied and all companies are subject to these measures in spite of small volume in production and import.



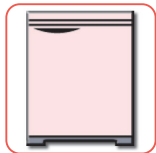
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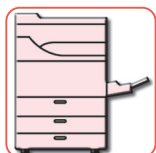
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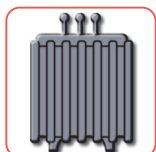
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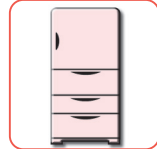
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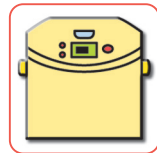
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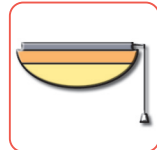
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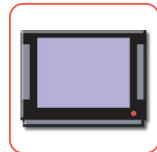
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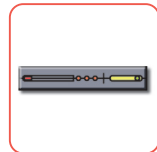
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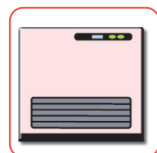
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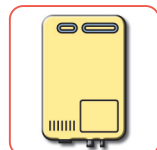
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7.1 Passenger Vehicles(1)

Target Scope

- Gasoline, diesel and LP gas passenger vehicles with a riding capacity of 10 persons or fewer that have received model designation (type-approved vehicles) based on Item 1, Article 75 of the Road Trucking Vehicle Law (Law No. 185 enacted in 1951)
- Gasoline and diesel passenger vehicles with a riding capacity of 11 persons or more (limited to gross vehicle weight of 3.5 tons or less) that have been type-approved (hereinafter referred to as “small buses”).
- Diesel passenger vehicles with a riding capacity of 11 persons or more (limited to vehicles with a gross vehicle weight exceeding 3.5 tons) that have received model designation as well as vehicles fitted with a device for preventing the emanation of carbon monoxide, and so on, designated based on Item 1 of 2 of Article 75 of the Road Trucking Vehicle Law (vehicles designated to be fitted with a device for preventing the emanation of carbon monoxide and so on)

Energy Consumption Efficiency

A numeric value (fuel consumption in km/l) stipulated by the statute related to the calculation of the energy consumption efficiency of an automobile (No. 3 statute of the Ministry of International Trade and Industry and the Transport Ministry enacted in 1979)

It is noted that the following fuel consumption values shall be used according to the type of vehicles.

- Gasoline passenger vehicles, diesel passenger vehicles and small buses: 10・15 mode fuel consumption values *
- LP gas passenger vehicles: 10・15 mode fuel consumption values
- Route buses, and ordinary buses: Heavy vehicle mode fuel consumption values

*Fuel consumption in the JC08 mode shall also be displayed for vehicles that comply with the safety standards for road trucking vehicles in both JC08H and JC08C modes, which are specified in the “Notice of the safety standard details for road trucking vehicles (Notice No. 619 of the Ministry of Land, Infrastructure and Transport, 2002)”

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Vehicle Type	Fuel Type	Target Fiscal Year and Target Standard Value
Passenger vehicles (Riding capacity of 10 persons or less)	Gasoline	<ul style="list-style-type: none"> ● FY 2010 and each subsequent fiscal year (until FY 2014) : Target standards (1) shall be complied with. ● FY 2015 and each subsequent fiscal year : Target standards (2) shall be complied with.
	Diesel oil	<ul style="list-style-type: none"> ● FY 2005 and each subsequent fiscal year (until FY 2014) : Target standards (1) shall be complied with. ● FY 2015 and each subsequent fiscal year : Target standards (2) shall be complied with.
	LP gas	<ul style="list-style-type: none"> ● FY 2010 and each subsequent fiscal year : Target standards (1) shall be complied with.
Small buses (Riding capacity of 11 persons or more, gross vehicle weight of 3.5 tons or less)	Gasoline or diesel oil	<ul style="list-style-type: none"> ● FY 2015 and each subsequent fiscal year : Target standards (2) shall be complied with.
Route buses, ordinary buses (Riding capacity of 11 persons or more, gross vehicle weight over 3.5 tons)	Diesel oil	<ul style="list-style-type: none"> ● FY 2015 and each subsequent fiscal year : Target standards (2) shall be complied with.



7.1 Passenger Vehicles(2)

(1) Vehicles whose target fiscal year is :

- FY 2005 and each subsequent fiscal year (until FY 2014) (Diesel passenger vehicles),
- FY 2010 and each subsequent fiscal year (until FY 2014) (Gasoline passenger vehicles),
- FY 2010 and each subsequent fiscal year (LP gas passenger vehicles)

Passenger vehicles that have a riding capacity of 10 persons or fewer

Category	Standard energy consumption efficiency		
	Gasoline	Diesel	LP gas
Vehicles weighing less than 703 kg	21.2	18.9★	15.9
Vehicles weighing 703 or more and up to 828 kg	18.8	18.9★	14.1
Vehicles weighing 828 or more and up to 1,016 kg	17.9	18.9★	13.5
Vehicles weighing 1,016 or more and up to 1,266 kg	16.0	16.2	12.0
Vehicles weighing 1,266 or more and up to 1,516 kg	13.0	13.2	9.8
Vehicles weighing 1,516 or more and up to 1,766 kg	10.5	11.9	7.9
Vehicles weighing 1,766 or more and up to 2,016kg	8.9	10.8	6.7
Vehicles weighing 2,016 or more and up to 2,266 kg	7.8	9.8	5.9
Vehicles weighing 2,266 kg or more	6.4	8.7	4.8

★A vehicle weight less than 1,016kg is treated as one category.

Note: "Vehicle weight" refers to the weight of a vehicle when empty as specified in Item 4, Article 1 of the safety standards for road trucking vehicles (No. 67 statute of the Transport Ministry enacted in 1951). The same applies hereinafter.

(2) Vehicles whose target fiscal year is FY 2015 and each subsequent fiscal year

Passenger vehicles fueled with gasoline or diesel oil and having a riding capacity of 10 persons or less

Category	Standard Energy Consumption Efficiency (JC08 mode fuel consumption value)
Vehicles weighing less than 601 kg	22.5
Vehicles weighing 601 or more and up to 741 kg	21.8
Vehicles weighing 741 or more and up to 856 kg	21.0
Vehicles weighing 856 or more and up to 971 kg	20.8
Vehicles weighing 971 or more and up to 1,081 kg	20.5
Vehicles weighing 1,081 or more and up to 1,196 kg	18.7
Vehicles weighing 1,196 or more and up to 1,311 kg	17.2
Vehicles weighing 1,311 or more and up to 1,421 kg	15.8
Vehicles weighing 1,421 or more and up to 1,531 kg	14.4
Vehicles weighing 1,531 or more and up to 1,651 kg	13.2
Vehicles weighing 1,651 or more and up to 1,761 kg	12.2
Vehicles weighing 1,761 or more and up to 1,871 kg	11.1
Vehicles weighing 1,871 or more and up to 1,991 kg	10.2
Vehicles weighing 1,991 or more and up to 2,101 kg	9.4
Vehicles weighing 2,101 or more and up to 2,271 kg	8.7
Vehicles weighing of 2,271 kg or more	7.4

Small buses riding capacity of 11 persons and more (Gross vehicle weight of 3.5 tons or less)

Category	Standard Energy Consumption Efficiency (JC08 mode fuel consumption value)
Fueled with gasoline	8.5
Fueled with diesel oil	9.7

Note

"Gross vehicle weight" refers to the gross vehicle weight as specified in Item 3, Article 40 of the Road Trucking Vehicle Law. The same applies hereinafter.

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7.1 Passenger Vehicles(3)

Buses fueled with diesel oil and having a riding capacity of 11 persons or more
(Gross vehicle weight of over 3.5 tons)

Category	Standard energy consumption efficiency(heavy vehicle mode fuel consumption value)	
	Route buses	General buses
Gross vehicle weight exceeding 3.5 tons and no more than 6 tons	6.97★1	9.04
Gross vehicle weight exceeding 6 tons and no more than 8 tons	6.97★1	6.52
Gross vehicle weight exceeding 8 tons and no more than 10 tons	6.30	6.37
Gross vehicle weight exceeding 10 tons and no more than 12 tons	5.77	5.70
Gross vehicle weight exceeding 12 tons and no more than 14 tons	5.14	5.21
Gross vehicle weight exceeding 14 tons and no more than 16 tons	4.23★2	4.06
Gross vehicle weight exceeding 16 tons	4.23★2	3.57

- ★1 Buses with a gross vehicle weight exceeding 3.5 tons and not over 8 tons make one category.
★2 Buses with a gross vehicle weight exceeding 14 tons make one category.

Target Fiscal Year

- Gasoline passenger vehicles: (1) FY 2010 and each subsequent fiscal year (until FY 2014)
(2) FY 2015 and each subsequent fiscal year
- Diesel passenger vehicles: (1) FY 2005 and each subsequent fiscal year (until FY 2014)
(2) FY 2015 and each subsequent fiscal year
- LP gas passenger vehicles: FY 2010 and each subsequent fiscal year
- Small buses: FY 2015 and each subsequent fiscal year
- Route buses and general buses: FY 2015 and each subsequent fiscal year

Energy Saving Effects

- (1) As for gasoline passenger vehicles whose target fiscal year will be fulfilled in FY 2010, energy consumption efficiency in FY 2010 is assumed to be improved by approximately 22.8% from FY 1995.
- (2) As for diesel passenger vehicles whose target fiscal year was fulfilled in FY 2005, efficiency was improvement by approximately 8.8% from FY 1995.
- (3) As for gasoline passenger vehicles and diesel passenger vehicles whose target fiscal year will be fulfilled in FY 2015, efficiency in FY 2015 is assumed to be improved by approximately 23.5% from FY 2004.
- (4) As for LP gas passenger vehicles whose target fiscal year will be fulfilled in FY 2010, efficiency in the target fiscal year (FY 2010) is assumed to be improved by approximately 11.4% from FY 2001.
- (5) As for small buses whose target fiscal year will be fulfilled in FY 2015, efficiency in the target fiscal year (FY 2015) is assumed to be improved by approximately 7.2% from FY 2004.
- (6) As for route buses and general buses whose target fiscal year will be fulfilled in FY 2015, efficiency in FY 2015 is assumed to be improved by approximately 12.1% from FY 2002.

Display Items

Vehicle name and type, engine type, total displacement, maximum output, and maximum torque*, vehicle weight, transmission type and each gear ratio*, fuel system type, other major fuel efficiency improvement measures, such as cylinder injection, etc., energy consumption efficiency (Annotation concerning the specifications of complete vehicle curb weight, riding capacity, overall height, overall width, final reduction gear ratio and tire dynamic load radius used to calculate the energy consumption efficiency*), manufacturer's name, notice for the use of premium gasoline, if necessary.

* Limited to route buses and general buses.

Place of Display

Catalogues, exhibits

Exemption

Manufacturers or importers whose total shipment volume is fewer than 2,000 vehicles (or 350 passenger vehicles in the case of a capacity of 11 persons or more) are exempted. Note, however, that display obligations must be met regardless of the number of vehicles shipped.



7.1 Passenger Vehicles(4)

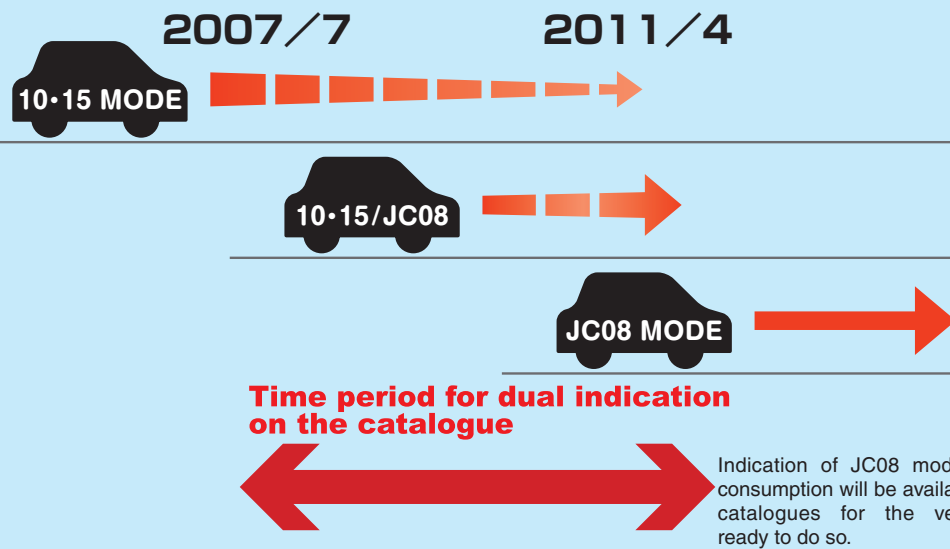
Fuel consumption values displayed on the catalogue - How are they changed?

- Until FY 2010, all vehicle catalogues display 10·15 mode fuel consumption values, which allow the comparison of fuel consumption for different vehicles in the conventional manner using 10·15 mode fuel consumption values.
- Meanwhile, new vehicle catalogues have begun to also display JC08 mode fuel consumption values, which provide more practical information on the fuel consumption.

At present, all vehicle catalogues display 10·15 mode fuel consumption values.

New vehicle catalogues begin to display fuel consumption values both in 10·15 mode and JC08 mode

In the future, all vehicle catalogues will be revised to display JC08 mode fuel consumption values.



Q&A

Q1

Does a car that has better fuel efficiency in JC08 mode also show better fuel efficiency in actual driving?

A1

Yes, a car that has better fuel efficiency in JC08 mode will also show better fuel efficiency in actual driving, because the JC08 mode appropriately evaluates vehicles that have better fuel efficiency.

Q2

What is the difference between 10·15 mode and JC08 mode fuel consumptions?

A2

Although the difference varies depending on vehicles, the JC08 mode fuel consumption value is generally lower than 10·15 mode value by about 10%.

Q3

When both 10·15 mode and JC08 mode fuel consumption values are displayed, which value should be used for comparison?

A3

The JC08 mode fuel consumption value is more suited for comparison purpose, because it closely represents recent average driving in Japan.

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7.2 Freight Vehicles(1)

Target Scope

- Gasoline and diesel freight vehicles with a gross vehicle weight of 3.5 tons or less that have received model designation (type-approved vehicles) based on Item 1, Article 75 of the Road Trucking Vehicle Law (Law No. 185 enacted in 1951) (Hereinafter referred to as Gasoline freight vehicle and Diesel freight vehicle, respectively.)
- Diesel freight vehicles with a gross vehicle weight exceeding 3.5 tons that have received model designation as well as vehicles fitted with a device for preventing the emanation of carbon monoxide, and so on, designated based on Item 1 of 2 of Article 75 of the Road Trucking Vehicle Law (vehicles designated to be fitted with a device for preventing the emanation of carbon monoxide and so on) Two-wheel vehicles (including motorcycles with sidecar) and crawlers are excluded.

Energy Consumption Efficiency

A numeric value (fuel consumption in km/l) stipulated by the statute related to the calculation of the energy consumption efficiency of an automobile (No. 3 statute of the Ministry of International Trade and Industry and the Transport Ministry enacted in 1979)

It is noted that the following fuel consumption values shall be used according to the type of vehicles.

- Gasoline freight vehicles, diesel freight vehicles: 10 · 15 mode fuel consumption values *
- Trucks and tractors: Heavy vehicle mode fuel consumption values

*Fuel consumption in JC08 mode shall also be displayed for vehicles that comply with the safety standards for road trucking vehicles in both JC08H and JC08C modes, which are specified in the “Notice of the safety standard details for road trucking vehicles (Notice No. 619 of the Ministry of Land, Infrastructure and Transport, 2002)”

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Vehicle Type	Fuel Type	Target Fiscal Year and Target Standard Value
Freight vehicles (gross vehicle weight of 3.5 tons or less)	Gasoline (Gasoline freight vehicle)	<ul style="list-style-type: none"> ● FY 2010 and each subsequent fiscal year (until FY 2014): Target standards (1) shall be complied with. * Applicable only to those with a gross vehicle weight of 2.5t or less ● FY 2015 and each subsequent fiscal year: Target standards (3) shall be complied with.
	Diesel oil (Diesel freight vehicle)	<ul style="list-style-type: none"> ● FY 2005 and each subsequent fiscal year (until FY 2014): Target standards (2) shall be complied with. * Applicable only to those with a gross vehicle weight of 2.5t or less ● FY 2015 and each subsequent fiscal year: Target standards (3) shall be complied with.
Trucks (excluding tractors, gross vehicle weight over 3.5 tons)	Gasoline or diesel oil	<ul style="list-style-type: none"> ● FY 2015 and each subsequent fiscal year: Target standards (3) shall be complied with.
Tractors (traction engines with a gross vehicle weight over 3.5 tons)	Diesel oil	<ul style="list-style-type: none"> ● FY 2015 and each subsequent fiscal year: Target standards (3) shall be complied with.



7.2 Freight Vehicles(2)

(1) Vehicles whose target fiscal year is FY 2010 and each subsequent fiscal year (until FY 2014)
(Gasoline freight vehicles (with a gross vehicle weight of 2.5 tons or less))

Vehicle type	Category			Standard energy consumption efficiency
	Transmission type	Vehicle weight	Vehicle structure	
1. Mini cars stipulated under the Road Trucking Vehicle Law (1951 ordinance of the Transport Ministry No. 74), Article 2, that are used to transport cargo.	Manual	Less than 703 kg	Structure A	20.2
		703 or more and up to 828 kg	Structure A	17.0
			Structure B	18.0
	Other than manual	828 kg or more	Structure A	16.7
			Structure B	15.5
		Less than 703 kg	Structure A	18.9
2. Standard vehicles and small vehicles (restricted to vehicles weighing less than 1.7 tons in total) stipulated under the Road Trucking Vehicle Law, Article 2, that are used to transport cargo.	Manual	703 or more and up to 828 kg	Structure A	16.5
		Structure B	15.5	
	828 kg or more		14.9	
3. Standard vehicles and small vehicles (restricted to vehicles weighing over 1.7 and less than 2.5 tons in total) stipulated under the Road Trucking Vehicle Law, Article 2, that are used to transport cargo.	Manual	Less than 1,016 kg		17.8
		1,016 kg or more		15.7
3. Standard vehicles and small vehicles (restricted to vehicles weighing over 1.7 and less than 2.5 tons in total) stipulated under the Road Trucking Vehicle Law, Article 2, that are used to transport cargo.	Manual	Less than 1,016 kg	Structure A	14.9
			Structure B	13.8
		1,016 kg or more		13.8
	Other than manual	Less than 1,266 kg	Structure A	14.5
			Structure B	12.3
		1,266 or more and up to 1,516 kg		10.7
Other than manual	1,516 kg or more	Structure A	9.3	
		Structure B	12.5	
	Less than 1,266 kg	Structure A	11.2	
	1,266 kg or more		10.3	

Remarks

- Gross vehicle weight is the weight as stipulated by the Road Trucking Vehicle Safety Standard, article 40, No. 3. This applies from here on.
- Vehicle weight is the weight of vehicles when not loaded as stipulated by the Road Trucking Vehicle Safety Standard (No. 67 Ministry Ordinance of the Ministry of Transport, 1951), article 1, No. 4. This applies from here on.
- Structure A is a structure that fulfills all the following requirements. This applies from here on.
 - A value obtained by dividing maximum authorized freight mass by gross vehicle weight is less than 0.3.
 - Passenger devices and loading devices are installed in a same compartment. Inside and outside of the device are separated by fixed roofs, windows, etc.
 - Engines are installed in front of the driver's seat and power transmitted only to the front axle. Or, engines are installed in front of the driver's seat and power transmitted to more than one axle, the front and rear axles. (limited to those that transmit power to the rear axles by using transfers or propeller shafts in the front axles when transmitting power to the rear axles).
- Structure B refers to structures other than structure A. This applies from here on.

(2) Vehicles whose target fiscal year is FY 2005 and each subsequent fiscal year (until FY 2014)
(Diesel freight vehicles (with a gross vehicle weight of 2.5 tons or less))

Vehicle type	Category			Standard energy consumption efficiency
	Transmission type	Vehicle weight	Vehicle structure	
1. Standard vehicles and small vehicles (restricted to vehicles weighing less than 1.7 tons in total) stipulated under the Road Trucking Vehicle Law, Article 2, that are used to transport cargo.	Manual			17.7
	Other than manual			15.1
2. Standard vehicles and small vehicles (restricted to vehicles weighing over 1.7 and less than 2.5 tons in total) stipulated under the enforcement regulations of the Road Trucking Vehicle Law, Article 2, that are used to transport cargo.	Manual	Less than 1,266 kg	Structure A	17.4
			Structure B	14.6
		1,266 or more and up to 1,516 kg		14.1
				12.5
	Other than manual	Less than 1,266 kg	Structure A	14.5
			Structure B	12.6
		1,266 or more and up to 1,516 kg		12.3
			1,516 or more and up to 1,766 kg	
	1,766 kg or more			9.9

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7.2 Freight Vehicles(3)

(3) Vehicles whose target fiscal year is FY 2015 and each subsequent fiscal year

Gasoline freight vehicles and diesel freight vehicles (with a gross vehicle weight of 3.5 tons or less))

Vehicle Type	Fuel Type	Category		Vehicle Weight	Standard Energy Consumption Efficiency (JC08 mode fuel consumption value)				
		Vehicle structure	Transmission Type						
1. Mini vehicles specified in the enforcement regulations of the Road Trucking Vehicle Law Article 2 and used to transport cargo	Gasoline or diesel oil	Structure A	Manual	Less than 741 kg	23.2				
				741 kg or more	20.3				
			Other than manual	Less than 741 kg	20.9				
				741 or more and up to 856 kg	19.6				
				856 kg or more	18.9				
				856 kg or more	18.9				
		Structure B	Manual	Less than 741 kg	18.2				
				741 or more and up to 856 kg	18.0				
				856 or more and up to 971 kg	17.2				
				971 kg or more	16.4				
			Other than manual	Less than 741 kg	16.4				
				741 or more and up to 856 kg	16.0				
2. Standard vehicles and small vehicles (limited to those with a gross vehicle weight of 1.7 tons or less) specified in the enforcement regulations of the Road Trucking Vehicle Law Article 2 and used to transport cargo	Gasoline or diesel oil		Manual	Less than 1,081 kg	18.5				
				1,081 kg or more	17.1				
			Other than manual	Less than 1,081 kg	17.4				
				1,081 or more and up to 1,196 kg	15.8				
				1,196 kg or more	14.7				
				1,196 kg or more	14.7				
			3. Standard vehicles and small vehicles (limited to those with a gross vehicle weight over 1.7 tons and not over 3.5 tons) specified in the enforcement regulations of the Road Trucking Vehicle Law Article 2 and used to transport cargo	Gasoline	Structure A	Manual		14.2	
						Other than manual	Less than 1,311 kg	13.3	
							1,311 kg or more	12.7	
						Structure B1	Manual	Less than 1,311 kg	11.9
								1,311 or more and up to 1,421 kg	10.6
1,421 or more and up to 1,531 kg	10.3								
1,531 or more and up to 1,651 kg	10.0								
1,651 or more and up to 1,761 kg	9.8								
1,761 kg or more	9.7								
Other than manual		Less than 1,311 kg				10.9			
		1,311 or more and up to 1,421 kg				9.8			
		1,421 or more and up to 1,531 kg			9.6				
		1,531 or more and up to 1,651 kg			9.4				
		1,651 or more and up to 1,761 kg			9.1				
		1,761 or more and up to 1,871 kg			8.8				
Structure B2	Manual	Less than 1,311 kg			11.2				
		1,311 or more and up to 1,421 kg			10.2				
		1,421 or more and up to 1,531 kg			9.9				
		1,531 or more and up to 1,651 kg			9.7				
		1,651 or more and up to 1,761 kg			9.3				
		1,761 kg or more			8.9				
	Other than manual				Less than 1,311 kg	10.5			
					1,311 or more and up to 1,421 kg	9.7			
			1,421 or more and up to 1,531 kg	8.9					
			1,531 or more and up to 1,651 kg	8.6					
			1,651 kg or more	7.9					
			1,651 kg or more	7.9					



7.2 Freight Vehicles(4)

Vehicle Type	Fuel Type	Category		Vehicle Weight	Standard Energy Consumption Efficiency (2018 model fuel consumption value)	
		Vehicle structure	Transmission Type			
3. Standard vehicles and small vehicles (limited to those with a gross vehicle weight over 1.7 tons and not over 3.5 tons) specified in the enforcement regulations of the Road Trucking Vehicle Law Article 2 and used to transport cargo	Diesel Oil	Structure A or Structure B1	Manual	Less than 1,421 kg	14.5	
				1,421 or more and up to 1,531 kg	14.1	
				1,531 or more and up to 1,651 kg	13.8	
				1,651 or more and up to 1,761 kg	13.6	
				1,761 or more and up to 1,871 kg	13.3	
				1,871 or more and up to 1,991 kg	12.8	
				1,991 or more and up to 2,101 kg	12.3	
			2,101 kg or more	11.7		
			Other than manual	Less than 1,421 kg	13.1	
				1,421 or more and up to 1,531 kg	12.8	
				1,531 or more and up to 1,651 kg	11.5	
				1,651 or more and up to 1,761 kg	11.3	
		1,761 or more and up to 1,871 kg		11.0		
		Structure B2	Manual	Less than 1,421 kg	14.3	
				1,421 or more and up to 1,531 kg	12.9	
				1,531 or more and up to 1,651 kg	12.6	
			Other than manual	1,651 or more and up to 1,761 kg	12.4	
				1,761 or more and up to 1,871 kg	12.0	
				1,871 or more and up to 1,991 kg	11.3	
		Structure B2	Manual	1,991 or more and up to 2,101 kg	11.2	
				2,101 kg or more	11.1	
				Other than manual	Less than 1,421 kg	12.5
					1,421 or more and up to 1,531 kg	11.8
					1,531 or more and up to 1,651 kg	10.9
Other than manual	1,651 or more and up to 1,761 kg			10.6		
	1,761 or more and up to 1,871 kg		9.7			
	1,871 or more and up to 1,991 kg		9.5			
Other than manual	1,991 or more and up to 2,101 kg		9.0			
	2,101 kg or more	8.8				

Note

- "Gross vehicle weight" refers to the gross vehicle weight as specified in Item 3, Article 40 of the Road Trucking Vehicle Law. The same applies hereinafter.
- "Structure B1" refers to Structure B that meets the following requirement.
The seating equipment and cargo-loading equipment are installed inside the same vehicle compartment, which is separated from the vehicle exterior by bulkheads such as the fixed roof and window glass.
- "Structure B2" refers to Structure B excluding Structure B1.

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7.2 Freight Vehicles(5)

Trucks (Excluding tractors, fueled with diesel oil, gross vehicle weight over 3.5 tons)

Category	Standard energy consumption efficiency (Heavy vehicle mode fuel consumption)
1. Gross vehicle weight over 3.5 tons and not more than 7.5 tons (Limited to those with a maximum load capacity of 1.5 tons or less)	10.83
2. Gross vehicle weight over 3.5 tons and not more than 7.5 tons (Limited to those with a maximum load capacity over 1.5 tons and not more than 2 tons)	10.35
3. Gross vehicle weight over 3.5 tons and not more than 7.5 tons (Limited to those with a maximum load capacity over 2 tons and not more than 3 tons)	9.51
4. Gross vehicle weight over 3.5 tons and not more than 7.5 tons (Limited to those with a maximum load capacity over 3 tons)	8.12
5. Gross vehicle weight over 7.5 tons and not more than 8 tons	7.24
6. Gross vehicle weight over 8 tons and not more than 10 tons	6.52
7. Gross vehicle weight over 10 tons and not more than 12 tons	6.00
8. Gross vehicle weight over 12 tons and not more than 14 tons	5.69
9. Gross vehicle weight over 14 tons and not more than 16 tons	4.97
10. Gross vehicle weight over 16 tons and not more than 20 tons	4.15
11. Gross vehicle weight over 20 tons	4.04

Tractors (Traction engines fueled with diesel oil and, a gross vehicle weight over 3.5 tons)

Category	Standard energy consumption efficiency (Heavy vehicle mode fuel consumption)
1. Gross vehicle weight of not more than 20 tons	3.09
2. Gross vehicle weight over 20 tons	2.01

Target Fiscal Year

- Gasoline freight vehicles
(Gross vehicle weight of 2.5 tons or less): FY 2010 and each subsequent fiscal year (until FY 2014)
(Gross vehicle weight of 3.5 tons or less): FY 2015 and each subsequent fiscal year
- Diesel freight vehicles
(Gross vehicle weight of 2.5 tons or less): FY 2005 and each subsequent fiscal year (until FY 2014)
(Gross vehicle weight of 3.5 tons or less): FY 2015 and each subsequent fiscal year
- Trucks and tractors: FY 2015 and each subsequent fiscal year

Energy Saving Effects

- (1) As for gasoline freight vehicles whose target fiscal year will be fulfilled in FY 2010, energy consumption efficiency in FY 2010 is assumed to be improved by approximately 13.2 % from FY 1995.
- (2) As for diesel freight vehicles whose target fiscal year was fulfilled in FY 2005, efficiency was improved by approximately 6.5 % from FY 1995.
- (3) As for gasoline freight vehicles and diesel freight vehicles whose target fiscal year will be fulfilled in FY 2015, efficiency in FY 2015 is assumed to be improved by approximately 12.6 % from FY 2004.
- (4) As for trucks and tractors whose target fiscal year will be fulfilled in FY 2015, efficiency in FY 2015 is assumed to be improved by approximately 12.2 % from FY 2002.

Display Items

Vehicle name and type, engine type, total displacement, maximum output, and maximum torque*, vehicle weight, transmission type and each gear ratio*, fuel system type, other major fuel efficiency improvement measures, such as cylinder injection and lean-burn engines, energy consumption efficiency (Annotation concerning the specifications of the vehicle model, complete vehicle curb weight, maximum load capacity, overall height, overall width, final reduction gear ratio and tire dynamic load radius used to calculate the energy consumption efficiency*), manufacturer's name, notice for the use of premium gasoline for gasoline freight vehicles if necessary.

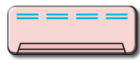
*Limited to trucks, and so on, and tractors.

Place of Display

Catalogues, exhibits

Exemption

Manufacturers or importers whose total shipment volume is fewer than 2,000 vehicles are exempted. Note, however, that display obligations must be met regardless of the number of vehicles shipped.



7.3 Air Conditioners (1)

Target Scope

Cooling-cum-heating air conditioners and dedicated cooling air conditioners, except the following: 1) ones with cooling capacity of over 28 kW, 2) ones of water-cooling type, 3) ones without compressors, 4) ones using any energy other than electricity as a heat source for heating, 5) ones having temperature control function or dust control function for maintenance of machine operations or food hygiene, 6) ones which mainly cool outside air and send it into indoors, 7) spot air conditioners, 8) ones designed for vehicles and other transports, 9) ones having a duct at suction/exhaust outlet of a heat-exchanger of an outdoor unit, 10) ones having a thermal storage tank dedicated for cooling (including cooling-cum-heating), 11) ones designed for highly gas-tight/heat-insulating housing, and which send air to multiple rooms through a branched duct and operate coupled with ventilation devices, 12) ones whose compressors, air blowers and other main components are powered by electricity generated from a dedicated solar cell module, and 13) ones having floor heating function or hot-water supply function.

Energy Consumption Efficiency

(1) Air conditioners whose target fiscal year is 2004 freezing year or 2007 freezing year
 For cooling air conditioners, energy consumption efficiency is cooling energy consumption efficiency (COP). It is a numeric value obtained from dividing cooling capacity as measured in the manner stipulated by Japanese Industrial Standards (JIS) B8615-1 or B8615-2, by cooling power consumption measured in the same way. For cooling-cum-heating air conditioners, it is cooling-heating average energy consumption efficiency (cooling-heating average COP). It is a numeric value obtained from dividing the sum of cooling energy consumption efficiency and heating energy consumption efficiency (measured in the same way as for cooling energy efficiency) by 2.
 (2) Air conditioners whose target fiscal year is 2010
 Energy consumption efficiency is annual performance factor (APF), which is a numeric value calculated with the method stipulated in JISC 9612 (2005), Appendix 3.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Residential air conditioners	
Air conditioners of wall-hung type among the non-duct types (excluding the multi-types that control operation of indoor unit separately), and whose cooling capacity is 4.0 kW or less (limited to cooling-cum-heating types).	<ul style="list-style-type: none"> ●2004 freezing year and each subsequent freezing year (until "the period from October 1, 2009 through March 31, 2010"): compliance with the target standard value for (1). ●FY 2010 and each fiscal year after that: compliance with the target standard value for (2).
Other	<ul style="list-style-type: none"> ●2007 freezing year and each freezing year after that: compliance with the target standard value for (1).
Service air conditioners	
Air conditioners of wall-hung type among the non-duct types (excluding the multi-types that control operation of indoor unit separately), and whose cooling capacity is 4.0 kW or less (limited to cooling-cum-heating types).	<ul style="list-style-type: none"> ●2004 freezing year and each freezing year after that: compliance with the target standard value for (1).
Other	<ul style="list-style-type: none"> ●2007 freezing year and each freezing year after that: compliance with the target standard value for (1).

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7.3 Air Conditioners (2)

(1) Air conditioners whose target fiscal year is 2007 freezing year and each freezing year after that (for some categories, 2004 freezing year and each freezing year after that)

Cooling-cum-heating air conditioners

Unit type	Category		Standard energy consumption efficiency (COP)
	Cooling capacity	Category name	
Non-ducted window/wall-installed type	-	a	2.85
Non-ducted wall-mounted type (except multi-type operating indoor units individually)	Up to 2.5kW	b	5.27
	Over 2.5kW up to 3.2kW	c	4.90
	Over 3.2kW up to 4.0kW	d	3.65
	Over 4.0kW up to 7.1kW	e	3.17
	Over 7.1kW	f	3.10
Other non-ducted type (except multi-type operating indoor units individually)	Up to 2.5kW	g	3.96
	Over 2.5kW up to 3.2kW	h	3.96
	Over 3.2kW up to 4.0kW	i	3.20
	Over 4.0kW up to 7.1kW	j	3.12
	Over 7.1kW	k	3.06
Ducted type (except multi-type operating indoor units individually)	Up to 4.0kW	l	3.02
	Over 4.0kW up to 7.1kW	m	3.02
	Over 7.1kW	n	3.02
Multi-type operating indoor units individually	Up to 4.0kW	o	4.12
	Over 4.0kW up to 7.1kW	p	3.23
	Over 7.1kW	q	3.07

Cooling air conditioners

Unit type	Category		Standard energy consumption efficiency (COP)
	Cooling capacity	Category name	
Non-ducted window/ wall-installed type	-	ca	2.67
Non-ducted wall-mounted type (except multi-type operating indoor units individually)	Up to 2.5kW	cb	3.64
	Over 2.5kW up to 3.2kW	cc	3.64
	Over 3.2kW up to 4.0kW	cd	3.08
	Over 4.0kW up to 7.1kW	ce	2.91
	Over 7.1kW	cf	2.81
Other non-ducted type (except multi-type operating indoor units individually)	Up to 4.0kW	cg	2.88
	Over 4.0kW up to 7.1kW	ch	2.85
	Over 7.1kW	ci	2.85
Ducted type (except multi-type operating indoor units individually)	Up to 4.0kW	cj	2.72
	Over 4.0kW up to 7.1kW	ck	2.71
	Over 7.1kW	cl	2.71
Multi-type operating indoor units individually	Up to 4.0kW	cm	3.23
	Over 4.0kW up to 7.1kW	cn	3.23
	Over 7.1kW	co	2.47

Remarks

1. "Ducted type" indicates systems connected to ducts at the outlet.
2. "Multi-type" indicates a type that has two or more indoor units connected to an outdoor unit.

(2) Air conditioners whose target fiscal year is FY 2010 and each subsequent fiscal year

Cooling capacity	Category		Standard energy consumption efficiency (APF)
	Dimension type of indoor units	Category name	
Up to 3.2kW	Dimension-defined type	A	5.8
	Free-dimension type	B	6.6
Over 3.2kW up to 4.0kW	Dimension-defined type	C	4.9
	Free-dimension type	D	6.0

Remarks

"Dimension Type of Indoor Unit" means that air conditioner models whose indoor unit has horizontal width of 800 mm or less and height of 295 mm or less shall be defined as a dimension-defined type. Air conditioners other than those of dimension-defined type shall be free-dimension type.



7.3 Air Conditioners (3)

Target Fiscal Year

1. 2007 freezing year (October 1, 2006, through September 30, 2007) and each subsequent freezing year (until "the period from October 1, 2009 through March 31, 2010")
As for non-ducted wall-mounted type cooling-cum-heating air conditioners whose cooling capacity is up to 4kW, it is 2004 freezing year (October 1, 2003 through September 30, 2004) and each subsequent freezing year after that.
2. As for non-ducted wall-mounted type cooling-cum-heating air conditioners which are covered by the Household Good Quality Labeling Law, enforcement order, appendix no. 3, it is FY 2010 and each subsequent fiscal year after that.

Energy Saving Effects

1. As for non-ducted wall-mounted type cooling-cum-heating air conditioners whose cooling capacity is up to 4 kW, its target year was 2004 freezing year, and energy efficiency was improved by approximately 67.8% compared to that of 1997 freezing year (October 1, 1996 to September 30, 1997).
2. As for air conditioners whose target year is 2007 freezing year, energy efficiency is assumed to be improved by approximately 63% for the cooling-cum-heating type and approximately 14% for the cooling type from 1997 freezing year.
3. As for air conditioners whose target year is FY 2010, energy efficiency is assumed to be improved by approximately 22.4% from FY 2005.

Display Items

Product name and type, cooling capacity, cooling power consumption, cooling energy consumption efficiency, heating capacity (heating units only), heating power consumption (restricted to heating systems), heating energy consumption efficiency (heating units only), average cooling/heating energy consumption efficiency (heating units only), manufacturer's name

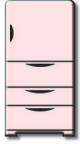
Place of Display

Prominent position on the product body
* Indications on domestic air conditioners are based on the stipulations of the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962) (scheduled to be revised), and are not covered by the Energy Conservation Law.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 500 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.4 Electric Refrigerators (1)

Target Scope

Electric refrigerators including ones combined with a freezer, except the followings:
 1) ones using thermo-elements, 2) ones produced for industrial use, and 3) ones of absorption type.

Energy Consumption Efficiency

1. Electric refrigerators whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY 2009)
 Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (1999), 15. Energy Consumption Measurement.
2. Electric refrigerators whose target fiscal year is FY 2010 and each subsequent fiscal year
 Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (2006), 15. Energy Consumption Measurement.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

1. Electric refrigerators whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY 2009)

Product type	Category			Calculation formula of standard energy consumption efficiency
	Cooling type	Use of specified technology	Category name	
Refrigerator	Cold air-natural convection type *1		a	$E_1=0.427V_1+178$
			b	$E_1=0.427V_1+178$
Refrigerator-Freezer	Cold air-forced convection type *2		c	$E_1=0.433V_1+320$
	Cold air-natural convection type	With specified technology	d	$E_1=0.507V_1+147$
		Without specified technology	e	$E_1=0.433V_1+340$

*1 The walls of the freezing room function as an evaporator, and foods are refrigerated by direct freezing. In the case of the two-door type, however, another evaporator is needed for the refrigeration room in addition to that for the freezing room.

*2 An evaporator is installed in the rear of the freezing room, and with use of a fan cold air is generated and distributed to the freezing room and refrigeration room.

Remarks

1. E_1 and V_1 express the following numerical values:
 E_1 : Standard energy consumption efficiency (unit: kWh per year)
 V_1 : Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.15 for three-star type, 1.85 for two-star type, or 1.55 for one-star type, and then by adding the result to the rated internal storage volume excluding the freezing compartment. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)
2. "Specified technology" refers to inverter or vacuum insulation technology.

2. FY 2010 and each fiscal after that

Product type	Cooling type	Category			Calculation formula of standard energy consumption efficiency
		Rated internal volume	Number of doors in chiller section	Category name	
Refrigerator or refrigerator-freezer	Cold air-natural convection type	Up to 300 liter		A	$E_2=0.844V_2+155$
				B	$E_2=0.774V_2+220$
	Cold air-forced circulation type	Over 300 liter	One	C	$E_2=0.302V_2+343$
			2 or more	D	$E_2=0.296V_2+374$

Remarks: E_2 and V_2 express the following numerical values.

- E_2 : Standard energy consumption efficiency (unit: kWh per year)
 V_2 : Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.20 for three-star type, 1.87 for two-star type, or 1.54 for one-star type, and then by adding the result to the rated internal storage volume excluding the freezing compartment. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

Target Fiscal Year

1. FY 2004 and each subsequent fiscal year (until FY 2009)
2. FY 2010 and each subsequent fiscal year



7.4 Electric Refrigerators (2)

Energy Saving Effects

1. Regarding electric refrigerators whose target fiscal year was FY 2004, annual energy consumption was improved by approximately 55.2% compared to that of FY 1998 (The initial expected improvement was approximately 30.5%).
2. Regarding electric refrigerators whose target fiscal year is FY 2010, an approximately 21.0% efficiency improvement is expected compared to that of FY 2005.

Display Items

Rated internal volume, annual energy consumption*, external dimensions, precautions for use, and name of manufacturer.

*Annual energy consumption measured by the method stipulated in JIS C9801 (2006), 15. Energy Consumption Measurement.

Place of Display

Location that can be readily seen by the consumer. Precautions for use shall be indicated on the body of the product and also in the instruction manual.

* Indications on electric refrigerators are based on the stipulations of the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962), and are not covered by the Energy Conservation Law.

Exemption

Manufacturers or importers that manufacture or import fewer than 2,000 units in total are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.5 Electric Freezers

Target Scope

Electric freezers, except the following:

- 1) ones using thermo-elements, 2) ones produced for industrial use, and 3) ones of absorption type.

Energy Consumption Efficiency

1. Electric freezers whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY 2009)
Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (1999), 15. Energy Consumption Measurement.
2. Electric freezers whose target fiscal year is FY 2010 and each subsequent fiscal year
Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (2006), 15. Energy Consumption Measurement.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

1. From FY 2004 to FY 2009

Category		Calculation formula of standard energy consumption efficiency
Cooling type	Category name	
Cold air-natural convection type *1	a	$E_1=0.281V_1+353$
Cold air-forced circulation type *2	b	$E_1=0.281V_1+353$

*1 The walls of the freezing room function as an evaporator, and foods are refrigerated by direct freezing. In the case of the two-door type, however, another evaporator is needed for the refrigeration room in addition to that for the freezing room.

*2 An evaporator is installed in the rear of the freezing room, and with use of fan cold air is generated and distributed to the freezing room and refrigeration room.

Remarks: E_1 and V_1 express the following numerical values.

E_1 : Standard energy consumption efficiency (unit: kWh per year)

V_1 : Adjusted internal volume (The figure is acquired by multiplying rated internal volume of freezing compartment by either 2.15 for three-star type, 1.85 for two-star type, or 1.55 for one-star type. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

2. FY 2010 and each fiscal after that

Category			Calculation formula of standard energy consumption efficiency
Cooling type	Rated internal volume	Category name	
Cold air-natural convection type		A	$E_2=0.844V_2+155$
Cold air-forced circulation type	Up to 300 liter	B	$E_2=0.774V_2+220$
	Over 300 liter	C	$E_2=0.302V_2+343$

Remarks: E_2 and V_2 express the following numerical values.

E_2 : Standard energy consumption efficiency (unit: kWh per year)

V_2 : Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.20 for three-star type, 1.87 for two-star type, or 1.54 for one-star type. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

Target Fiscal Year

1. FY 2004 and each subsequent fiscal year (until FY 2009)
2. FY 2010 and each subsequent fiscal year

Energy Saving Effects

1. Regarding electric freezers whose target fiscal year was FY 2004, annual energy consumption was improved by approximately 29.6% compared to that of FY 1998 (The initial expected improvement was approximately 22.9%).
2. Regarding electric freezers whose target fiscal year is FY 2010, an approximately 12.7% efficiency improvement is expected in FY 2010 compared to that of FY 2005.

Display Items

Name and type number, rated internal volume, annual energy consumption efficiency*, external dimensions, manufacturer's name

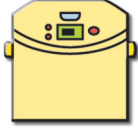
*Annual energy consumption measured by the method stipulated in JIS C9801 (2006), 15. Energy Consumption Measurement.

Place of Display

Body of the product

Exemption

Manufacturers or importers that manufacture or import fewer than 300 units in total are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.6 Electric Rice Cookers

Target Scope

Electric rice cookers, except the following:
 1) ones for industrial use, 2) ones without electronic circuit, and 3) ones whose maximum cooking capacity is less than 0.54 liters.

Energy Consumption Efficiency

Energy consumption efficiency is annual energy consumption efficiency (kWh/year) obtained as follows. Energy consumption is first measured for each of rice-cooking, keep-warm, timer and standby modes, and each value is multiplied by a coefficient based on the state of usage such as the number of cooking operation carried out per year, and then the resulting values are added together.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Heating method	Category		Calculation equation for standard energy consumption efficiency
	Maximum rice cooking capacity	Category name	
Electromagnetic induction heating products	0.54 liters or more, and less than 0.99 liters	A	$E_k = 0.209M + 48.5$
	0.99 liters or more, and less than 1.44 liters	B	$E_k = 0.244M + 83.2$
	1.44 liters or more, and less than 1.80 liters	C	$E_k = 0.280M + 132$
	1.80 liters or more	D	$E_k = 0.252M + 132$
Non-electromagnetic induction heating products	0.54 liters or more, and less than 0.99 liters	E	$E_k = 0.209M + 36.7$
	0.99 liters or more, and less than 1.44 liters	F	$E_k = 0.244M + 75.6$
	1.44 liters or more, and less than 1.80 liters	G	$E_k = 0.280M + 99.0$
	1.80 liters or more	H	$E_k = 0.252M + 122$

Remarks

- The maximum rice cooking capacity shall be determined by multiplying the volume of the measuring cup specified by the manufacturer (liter) by the maximum number of cups that the product is designed for.
- E_k and M represent the following numerical values.

E_k : Standard energy consumption efficiency (kWh per year)

M : Mass of evaporated water (This is the mass of water expelled from the rice cooker when electric power consumption is measured for each rice cooking operation, and is the mean value of the mass of evaporated water obtained at every measurement of electric power consumption during cooking rice. The mass of water expelled from the rice cooker is calculated by subtracting the measured weight of the rice cooker within 1 minute after completion of cooking prior to opening the lid from the weight of the rice cooker containing water and rice prior to the start of cooking. It is expressed in grams and rounded off to 1 decimal place.)

Target Fiscal Year

FY 2008 and each subsequent fiscal year

Energy Saving Effects

An approximately 11.1% efficiency improvement is expected in the target fiscal year (FY 2008) compared to that of FY 2003.

Display Items

Maximum rice cooking quantity, category name, maximum rice cooking capacity, amount of evaporated water, energy consumption efficiency (annual electric power consumption), electric power consumption per rice cooking operation, electric power consumption per hour in the keep-warm mode, timer mode and standby mode, manufacturer's name, precautions for use

Place of Display

Location that can be readily seen by the consumer. Precautions for use shall be indicated on the body of the product or in the instruction manual.

* Indications on electric rice cookers are based on the stipulations of the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962), and are not covered by the Energy Conservation Law.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 6,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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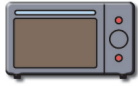
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7.7 Microwave Ovens

Target Scope

Microwave ovens, except the following:
 1) ones having gas oven, 2) ones for industrial use, 3) ones whose rated input voltage is exclusive to 200V, 4) ones whose internal height is less than 135 mm, and 5) ones that are incorporated into a system kitchen and the like.

Energy Consumption Efficiency

Energy consumption efficiency is annual energy consumption efficiency (kWh/year) obtained as follows. Energy consumption is first measured for each of microwave function, oven range function and standby mode, and each value is multiplied by a coefficient based on the state of usage such as the number of heating operation carried out per year, and then the resulting values are added together.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Function	Category		Standard energy consumption efficiency
	Heating method	Internal volume	
Microwave having no oven function (single-function microwave)	—	—	A 60.1
Microwave having oven function (oven ranges)	With an exposed heater (excluding those that employ a hot air circulation heating method)	Less than 30 liters	B 73.4
		30 liters or more	C 78.2
	Without an exposed heater (excluding those that employ a hot air circulation heating method)	Less than 30 liters	D 70.4
		30 liters or more	E 79.6
	Employing a hot air circulation heating method	—	F 73.5

Remarks

“Internal volume” refers to the numeric value calculated from the usable dimensions of the heating chamber defined by Electrical Machinery and Appliance Quality Labeling Regulations under the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962).

Target Fiscal Year

FY 2008 and each subsequent fiscal year

Energy Saving Effects

An approximately 8.5% efficiency improvement is expected in the target fiscal year (FY 2008) compared to that of FY 2004.

Display Items

External dimensions, usable dimensions of the heating chamber, category name, annual energy consumed by microwave function, annual energy consumed by oven function (limited to microwave ovens with oven function), annual standby energy consumption, energy consumption efficiency (annual electric power consumption), manufacturer’s name, precautions for use

Place of Display

Location that can be readily seen by the consumer. Precautions for use shall be indicated on the body of the product or in the instruction manual.

* Indications on electric rice cookers are based on the stipulations of the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962), and are not covered by the Energy Conservation Law.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 3,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.8 Fluorescent Lights

Target Scope

Lighting equipment using fluorescent light only as a main light source, except the following:
 1) ones of explosion-proof type, 2) ones of heat-resistant type, 3) ones of dust-proof type, 4) ones of anti-corrosion type, 5) ones designed for vehicles and other transports, and 6) ones using fluorescent lights of less than 40 watts (excluding pendant and built-in type fluorescent lighting equipments for household and fluorescent desk lamps).

Energy Consumption Efficiency

Energy consumption efficiency is a numeric value expressing total luminous flux measured in the manner stipulated by JIS C7601 and ballast lumen factor and temperature correction factor in lumens (*1) divided by power consumption (W) measured in the manner stipulated under the JISC 8105.

*1 The lumen is the SI unit of luminous flux. When a point light source emits one candela of luminous intensity uniformly and omnidirectionally, the amount of luminous flux in a cone having a solid angle of 1 sr (steradian) is defined as one lumen.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category

Category	Standard energy consumption efficiency
1 Equipment using 110-watt rapid-start fluorescent lamp	79.0
2 Equipment using dedicated 40 W fluorescent lamp for high frequency lighting	86.5
3 Equipment using 40 W rapid-start fluorescent lamp	71.0
4 Equipment using 40 W starter fluorescent lamp	60.5
5 Electronic ballast type using 20 W starter fluorescent lamp	77.0
6 Magnetic ballast type using 20 W starter fluorescent lamp	49.0
7 Equipment using circular fluorescent lamps with size category of over 72	81.0
8 Equipment using circular fluorescent lamps with size category of over 62 up to 72	82.0
9 Electronic ballast type among equipment using circular fluorescent lamps with size category of 62 or less	75.5
10 Magnetic ballast type among equipment using circular fluorescent lamps with size category of over 62	59.0
11 Desk top using compact fluorescent lamps	62.5
12 Desk top using fluorescent lamps	61.5

Remarks:

- Equipment using 110-watt rapid-start fluorescent lamps includes 96-watt compact fluorescent lamps and 105-watt compact fluorescent lamps for high-frequency lighting.
- Equipment using dedicated 40-watt fluorescent lamps for high frequency lighting includes equipment using dedicated 65-watt fluorescent lamps for high frequency lighting
- Equipment using 40-watt rapid-start fluorescent lamps includes 36-watt and 55-watt compact fluorescent lamps, as well as equipment using dedicated 32-watt, 42-watt, and 45-watt compact fluorescent lamps for high-frequency lighting.
- Size category refers to the size category specified under JIS C7601 appendix, table 1. For circular dedicated fluorescent lamps for high frequency lighting, the value should be the rated wattage value. However, for high-output fluorescent lamps, the value should be the lamp power value generated when the high-output fluorescent lamp are lit.

Target Fiscal Year

FY 2005 and each subsequent fiscal year

Energy Saving Effects

Regarding fluorescent lights whose target fiscal year was fulfilled in FY 2005, total luminous flux per watt (lm/W) was improved by approximately 35.7% from FY 1997. (It was initially assumed that the improvement rate was approximately 16.6%.)

Display Items

Product name and type, fluorescent lamp type, total number of luminous flux, power consumption, energy consumption efficiency, manufacturer's name

* Desk lamp display methods are specified in the enforcement ordinance of Household Goods Quality Labeling Law (1962 government ordinance No. 104), enforcement ordinances.

Place of Display

Catalogues

Exemption

Manufacturers or importers whose total shipment volume is fewer than 30,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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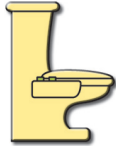
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7.9 Electric Toilet Seats

Target Scope

Warm-water-shower toilet seats and warm toilet seats except the followings:

- (1) Warm water is supplied from other hot-water supply equipment (centralized hot-water supply system)
- (2) Toilet seats equipped with a warm-water-shower function only
- (3) Electric toilet seats for caring use, among portable ones
- (4) Electric toilet seats for the exclusive use on railway cars

Energy Consumption Efficiency

Energy consumption efficiency is annual power consumption (kWh/year).

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

1. Electric toilet seats whose target fiscal year is FY 2006 and each subsequent fiscal year (until FY 2011)

Category		Standard Energy Consumption Efficiency or its Calculation Formula
Type of Toilet Seat	Category Name	
Warm toilet seat	a	162
Warm-water-shower toilet seat without warm water tank	b	189
Warm-water-shower toilet seat with warm water tank	c	$P=38.3 \times L+243$

Note

- 1 “Warm toilet seat” refers to toilet seats with a warming function only. Hereinafter the same applies.
- 2 “Warm-water-shower toilet seat” refers to warm toilet seats equipped with built-in warm-water-shower equipment. Hereinafter the same applies.
- 3 P and L express the following numeric values.
 P: Standard energy consumption efficiency (unit: kWh/year)
 L: Amount of hot water stored (Shall be the volume of the tank above the heater, so in terms of the relevant capacity, the hot water tank is to be set up level with the heater at the top and the volume below it shall be the numeric value measured.) (unit: liter)

2. Electric toilet seats whose target fiscal year is FY 2012 and each subsequent fiscal year

Category			Standard Energy Consumption Efficiency
Availability of the Shower Function	Availability of the Warm-Water Tank	Category Name	
Warm toilet seat (Without a shower function)	—	A	141
Warm-water-shower toilet seat (With a shower function)	Warm-water storage type (With a warm-water tank)	B	183
	Instantaneous type (Without a warm-water tank)	C	135

Target Fiscal Year

- (1) FY 2006 and each subsequent fiscal year (until FY 2011)
- (2) FY 2012 and each subsequent fiscal year

Energy Saving Effects

- (1) Regarding electric toilet seats whose target fiscal year was fulfilled in FY 2006, annual energy consumption was improved by approximately 14.6% from FY 2000 (Initially assumed improvement rate was approximately 10.0%).
- (2) Regarding electric toilet seats whose target fiscal year is FY 2012, energy consumption efficiency in FY 2012 is assumed to be improved by approximately 9.7% from FY 2006.

Display Items

- Product name and model name
 - Category name
 - Amount of warm water stored (Applicable only to warm-water-shower toilet seats incorporating warm water storage tanks) *1
 - Energy consumption efficiency (Annual energy consumption) *2
 - Manufacturer's name
- *1 Applicable only to those whose target fiscal year is FY 2006 and each subsequent fiscal year (FY 2011)
 *2 Annual energy consumption without using power-saving functions shall be displayed in parenthesis.
 Explanatory note shall also be appended.

Place of Display

Catalogues and instruction manuals

Exemption

Manufacturers or importers whose total shipment volume is fewer than 2,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.10 TV Sets(1)

Target Scope

Cathode ray tube TV sets, liquid crystal display TV sets, or plasma TV sets that run on alternating current, except the following:
 1) ones for industrial use, 2) cathode ray tube TV sets with a horizontal frequency exceeding 33.8 kHz supporting multi-scanning, 3) ones intended for visitors from overseas, 4) ones of rear projection type, 5) ones of 10 size, 10 V size or less, 6) ones of wireless type, 7) LCD TV sets without direct-view-type fluorescent-tube backlighting, 8) plasma TV sets having 1080 or more pixels in the vertical direction and 1920 or more pixels in the horizontal direction, and 9) computer displays having TV broadcast receiving function.

Energy Consumption Efficiency

Energy consumption efficiency is annual energy consumption (kWh/year) that is measured based on an assumption that a TV set operates for 4.5 hours per day and stays in standby mode for the rest.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Cathode ray tube TV (20 categories)

Category						Standard energy consumption efficiency	
Scanning method	Aspect ratio	Deflection angle	Shape of tube	Function	Category name		
Normal scanning method	4:3	Up to 100 degrees	Other than flat type	Other than those having built-in VCR (or DVD)	AA	E=2.5S+32	
				Those having built-in VCR (or DVD)	AB	E=2.5S+60	
			Flat type	Other than those having built-in VCR (or DVD)	AC	E=2.5S+42	
			Those having built-in VCR (or DVD)	AD	E=2.5S+70		
		Over 100 degrees	Other than flat type	Other than those having built-in VCR (or DVD)	AE	E=5.1S-4	
				Those having built-in VCR (or DVD)	AF	E=5.1S+24	
		Flat type	Other than those having built-in VCR (or DVD)	AG	E=5.1S+21		
			Those having built-in VCR (or DVD)	AH	E=5.1S+49		
	16:9			Other than flat type	Other than those having built-in VCR (or DVD), and having no additional function	AI	E=5.1S-11
					Those having built-in VCR (or DVD)	AJ	E=5.1S+17
					Other than those having built-in VCR (or DVD), and having 1 additional function	AK	E=5.1S+6
					Other than those having built-in VCR (or DVD), and having 2 additional functions	AL	E=5.1S+13
					Other than those having built-in VCR (or DVD), and having 3 additional functions	AM	E=5.1S+59
				Flat type	Other than those having built-in VCR (or DVD), and having no additional function	AN	E=5.1S-1
Those having built-in VCR (or DVD)					AO	E=5.1S+27	
Other than those having built-in VCR (or DVD), and having 1 additional function					AP	E=5.1S+16	
Other than those having built-in VCR (or DVD), and having 2 additional functions					AQ	E=5.1S+23	
Other than those having built-in VCR (or DVD), and having 3 additional functions					AR	E=5.1S+69	
Double speed scanning type				Those having analog high-vision TV	AS	E=5.5S+72	
				Other than those having analog high-vision TV	AT	E=5.5S+41	

Remarks

- 1 "Receiver size" is a numeric value that expresses the diagonal of the surface screen in centimeters divided by 2.54 and rounded off the nearest whole number.
 - 2 "Flat type" means a TV set whose percentage of the maximum gap value between the center and the peripheral portion on a cathode-ray-tube surface to the diagonal dimensions of a cathode-ray-tube is 0.5% or less (provided that the measurement position of the peripheral portion and the diagonal dimension shall be within the effective area plus 5 mm).
 - 3 "Analog high-vision TV" means a cathode-ray-tube TV with 1,125 scanning lines and a screen of 16:9 aspect ratio that also has a MUSE decoder and satellite broadcasting receiving function.
 - 4 "Additional function" refers to dual-tuner & split-screen function, text broadcast reception function, and MUSE-NTSC converter*.
- * Built-in converters that convert MUSE high-vision broadcast signals to current NTSC signals.
- 5 "E" and "S" represent the following numeric values.
 E: standard energy consumption efficiency (kWh per year)
 S: Television receiver size

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7.10 TV Sets(2)

Liquid crystal TV (38 categories)

Aspect ratio	Number of pixels	Television receiver size	Category			Standard energy consumption efficiency or calculation formula	
			Function	Additional function	Category name		
4:3	Vertical pixel count of less than 650	Below 15 V size	Other than those having DVD play function only	Other than the following	BA	E=44	
				With 1 additional function	BB	E=58	
			With 2 additional functions	BC	E=72		
		15 V size or larger	Other than those having DVD play function only	Other than the following	BD	E=58	
				With HDD	BE	E=72	
			Those having DVD play function only	Other than the following	BF	E=5.9S-45	
	With 1 additional function	BG		E=5.9S-31			
	Vertical pixel count of 650 or more	Below 15 V size	Other than those having DVD play function only	With 2 additional functions	BH	E=5.9S-16	
				Other than the following	BI	E=5.9S-31	
			Those having DVD play function only	With HDD	BJ	E=5.9S-16	
				Other than the following	BK	E=49	
				With 1 additional function	BL	E=64	
		15 V size or larger	Other than those having DVD play function only	With 2 additional functions	BM	E=78	
				Other than the following	BN	E=59	
			Those having DVD play function only	With HDD	BO	E=73	
				Other than the following	BP	E=5.4S-32	
With 1 additional function				BQ	E=5.4S-17		
16:9	Vertical pixel count of less than 650			With 2 additional functions	BR	E=5.4S-3	
				Other than the following	BS	E=5.4S-22	
				With HDD	BT	E=5.4S-8	
				Those capable of receiving analog broadcast signals only, and falling in a category other than the following	BU	E=8.1S-86	
				With 1 additional function	BV	E=8.1S-72	
				With 2 additional functions	BW	E=8.1S-58	
	Vertical pixel count of 650 or more, and less than 1080				Those capable of receiving digital broadcast signals, and falling in a category other than the following	BX	E=7.5S-45
					With 1 additional function	BY	E=7.5S-31
					With 2 additional functions	BZ	E=7.5S-17
					With 3 additional functions	BAA	E=7.5S-3
Those capable of receiving analog broadcast signals only, and falling in a category other than the following					BBB	E=8.1S-66	
With 1 additional function					BCC	E=8.1S-52	
With 2 additional functions					BDD	E=8.1S-38	
Vertical pixel count of 1080 or more					Those capable of receiving digital broadcast signals, and falling in a category other than the following	BEE	E=7.5S-40
					With 1 additional function	BFF	E=7.5S-25
					With 2 additional functions	BGG	E=7.5S-11
					With 3 additional functions	BHH	E=7.5S+3
					Other than the following	BII	E=8.9S-55
					With 1 additional function	BJJ	E=8.9S-41
					With 2 additional functions	BKK	E=8.9S-26
With 3 additional functions	BLL	E=8.9S-12					

Remarks

- “Television receiver size” is a numeric value obtained from dividing the diagonal dimension of the driven display area of the display screen in centimeters by 2.54 and rounding off to the nearest whole number. The same applies to the following table.
- “Additional function” refers to a DVD device (limited to one having a recording function), HDD and double digital tuner. The same applies to the following table.
- “E” and “S” represent the following numerical values. The same applies to the following table.
E: Standard energy consumption efficiency (kWh per year)
S: Television receiver size



7.10 TV Sets(3)

Plasma TV (8 categories)

Television receiver size	Category		Standard energy consumption efficiency
	Additional function	Category name	
Below 43 V size	Other than the following	CA	E=7.9S+30
	With 1 additional function	CB	E=7.9S+44
	With 2 additional functions	CC	E=7.9S+58
	With 3 additional functions	CD	E=7.9S+73
43 V size or larger	Other than the following	CE	E=15.9S-314
	With 1 additional function	CF	E=15.9S-300
	With 2 additional functions	CG	E=15.9S-286
	With 3 additional functions	CH	E=15.9S-272

Target Fiscal Year

Cathode ray tube TV sets: FY 2003
Liquid crystal display and plasma TV sets: FY 2008

Energy Saving Effects

- Regarding cathode ray tube TV sets whose target fiscal year was FY 2003, energy consumption was improved by approximately 25.7% compared to that of FY 1997 (The initial expected improvement was approximately 16.4%).
- Regarding liquid crystal display TV sets and plasma TV sets, approximately 15.3% efficiency improvement compared to that of FY 2004 is expected in the target fiscal year (FY 2008).

Display Items and Place of Display

Display items: Category name, television receiver size, annual energy consumption, precautions for use, and manufacturer's name (Display of category name and television receiver size is limited to liquid crystal display TV sets and plasma TV sets.)

Place of display: A location that can be readily seen by the consumer. Precautions for use shall be indicated on the body of the product or in the instruction manual. Category name and television receiver size shall be limited to liquid crystal TV sets and plasma TV sets.

*Indications on TV sets are based on the stipulations of the Household Goods Quality Labeling Law (Law No. 104 enacted in 1962), and are not covered by the Energy Conservation Law.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 10,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.11 Video Cassette Recorders

Target Scope

Video cassette recorders that run on alternating current, except the following:

1) ones for industrial use, 2) ones that process electronic audio and video signals in digital form, 3) ones that process electronic signals with 1,125 or more scanning lines, 4) ones structurally equipped only with playback functions, and 5) ones having built-in digital broadcasting receivers.

Energy Consumption Efficiency

Energy consumption efficiency is a numeric value obtained as follows. First, the difference in standby power (W) between with (clock, etc.) display ON and OFF is multiplied by 0.2, and then the result is subtracted from standby power with (clock, etc.) display ON to obtain energy consumption efficiency.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Category	Standard energy consumption efficiency
1.VCRs with signal processing power for 400 or more lines of horizontal resolution that have satellite broadcasting receiving functions	2.5
2.VCRs with signal processing power for 400 or more lines of horizontal resolution that do not have satellite broadcasting receiving functions	2.0
3.VCRs without signal processing power for 400 or more lines of horizontal resolution that have satellite broadcasting receiving functions	2.2
4.VCRs without signal processing power for 400 or more lines of horizontal resolution that do not have satellite broadcasting receiving functions	1.7

*1. As for double cassette VCRs, the target standard values are obtained from the above values multiplied by 1.6 for each category.

Target Fiscal Year

FY 2003 and each subsequent fiscal year

Energy Saving Effects

Regarding VCRs whose target fiscal year was FY 2003, the standby power was improved by approximately 73.6% compared to that of FY 1997 (The initial expected improvement was approximately 58.7%).

Display Items

Product name and type, standby power consumption with (clock, etc.) display ON (limited to clock, etc. display functions which is ON/OFF selectable), standby power consumption with (clock, etc.) display OFF (limited to clock, etc. display functions which is ON/OFF selectable), energy consumption efficiency, manufacturer's name

Place of Display

Catalogues and manuals

Exemption

Manufacturers or importers whose total shipment volume is fewer than 5,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.12 DVD Recorders(1)

Target Scope

DVD recorders that run on alternating current, except the followings:
 1) ones for industrial use, 2) ones without video cassette recorder (VCR) or magnetic disk unit (HDD), 3) ones having game function, 4) ones having server function, and 5) ones whose laser beam used to write to or read from an optical disc has a wavelength of 600 nanometers or shorter (next generation recording equipment (Blue-ray disk recorders and HD DVD recorders)).

Energy Consumption Efficiency

Energy consumption efficiency is annual energy consumption (kWh/year) obtained as follows. First, each of standby power, power consumption when operating DVD, VCR or HDD, and power consumption when acquiring EPG (electronic program guide) is multiplied by respective annual standby/operation hours, and then the resulting values are added together to obtain annual energy consumption.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Non-DTB [Digital Terrestrial Broadcasting]-capable DVD recorders (Ones without built-in digital broadcasting receivers)

Category				Standard energy consumption efficiency or calculation formula
Attached recording device	Tuner and signal conversion function	Additional terminal	Category name	
Having HDD only	Basic specifications	Without digital network terminal	A	$E=0.02C+45$
		With digital network terminal	B	$E=0.02C+49$
	Having multiple tuners	Without digital network terminal	C	$E=0.02C+55$
		With digital network terminal	D	$E=0.02C+60$
	Having multiple MPEG encoders	Without digital network terminal	E	$E=0.02C+63$
		With digital network terminal	F	$E=0.02C+68$
Having VCR only	Basic specifications	Without digital network terminal	G	$E=39$
		With digital network terminal	H	$E=44$
	Having multiple tuners	Without digital network terminal	I	$E=39$
		With digital network terminal	J	$E=54$
Having both HDD and VCR	Basic specifications	Without digital network terminal	K	$E=0.02C+58$
		With digital network terminal	L	$E=0.02C+63$
	Having multiple tuners	Without digital network terminal	M	$E=0.02C+68$
		With digital network terminal	N	$E=0.02C+73$
	Having multiple MPEG encoders	Without digital network terminal	O	$E=0.02C+76$
		With digital network terminal	P	$E=0.02C+81$

Remarks

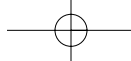
1. "Digital network terminal" means iLink, USB, LAN, and HDMI.
2. "E" and "C" represent the following numeric values.
 E: Standard energy consumption efficiency (kWh per year)
 C: HDD storage capacity (gigabytes)

DTB-Capable DVD Recorders (Ones with built-in digital broadcasting receivers)

Category				Standard energy consumption efficiency
Integrated Recording Device	HDD Recording Capacity	Additional Function(s)	Category name	
With HDD only	HDD recording capacity of below 500 GB	No additional function	a	58.1
		With one additional function	b	64.4
		With two or more additional functions	c	71.2
	HDD recording capacity of 500 GB or greater	No additional function	d	65.3
		With one additional function	e	71.7
		With two or more additional functions	f	78.4
With HDD and VCR	HDD recording capacity of below 500 GB	No additional function	g	65.0
		With one additional function	h	71.9
		With two or more additional functions	i	79.3
	HDD recording capacity of 500 GB or greater	No additional function	j	72.9
		With one additional function	k	79.8
		With two or more additional functions	l	87.2

Note : "Additional function" refers to simultaneous dual program recording function, iLink (DV terminal) or simultaneous encoding function.

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7.12 DVD Recorders(2)

Target Fiscal Year

- (1) Non DTB-capable DVD recorders: FY 2008 and each subsequent fiscal year
(2) DTB-capable DVD recorders: FY 2010 and each subsequent fiscal year

Energy Saving Effects

- (1) As for non DTB-capable DVD recorders, energy efficiency in the target fiscal year (FY 2008) is assumed to be improved by approximately 22.4 % from FY 2004.
(2) As for DTB-capable DVD recorders, energy efficiency in the target fiscal year (FY 2010) is assumed to be improved by approximately 20.5 % from FY 2006.

Display Items

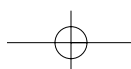
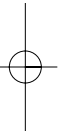
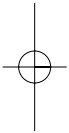
Product name and type, category name, HDD storage capacity, energy consumption efficiency, manufacturer's name

Place of Display

Catalog and instruction manual

Exemption

Manufacturers or importers whose total shipment volume is fewer than 4,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.





7.13 Computers

Target Scope

Digital central processing units (CPUs) and personal computers (PCs) stipulated by the Japan Standard Commodity Classification, except the following:

1) ones whose processing units, main memory units, input/output controllers and power supplies are structurally multiplexed, 2) ones whose theoretical operation* is 50,000 MTOPS or more, 3) ones capable of computation using a processing unit composed of over 256 processors, 4) ones with 512 or more input/output signal transmission channels (limited to those whose maximum data transfer rate is 100 megabit or more per second), 5) ones whose theoretical operation is less than 100 MTOPS, 6) ones mainly used with built-in power supply instead of being connected to power line and having built-in magnetic disk units.

* As for computers listed in the left column of Appendix Table 4, Enforcement Regulation of Law Concerning the Rational Use of Energy, their theoretical operation is presented in the right column of the same table.

Energy Consumption Efficiency

Value obtained by driving average power consumption (W) in idle state and in low power mode, by theoretical operation (MTOPS).

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Type of Computer	Category			Standard energy consumption efficiency
	Number of input/output signal transmission channels	Main memory capacity	Category name	
Server-type computer	64 or more		a	3.1
	8 or more, and less than 64		b	0.079
			c	0.071
	4 or more, and less than 8	16 GB or more	d	0.068
		Less than 16 GB	e	0.053
		16 GB or more	f	0.039
		4 GB or more, and less than 16 GB	g	0.024
	Less than 4	2 GB or more, and less than 4 GB	h	0.016
Less than 2 GB		i	0.027	
Client-type computers (other than those of battery driven type)	2 or more, and less than 4	Less than 6 GB	j	0.0048
	Less than 2	2 GB or more, and less than 6 GB	k	0.0038
		Less than 2 GB	l	0.0026
Client-type computers (battery driven type)		1 GB or more, and less than 6 GB	m	0.0022
		Less than 1 GB		

Remarks:

1. "Server-type computer" refers to ones other than client-type computers.
2. "Client-type computer" refers to ones with a graphic display port and a keyboard port (including ones with a built-in display unit instead of a graphic display port, and ones with a built-in keyboard instead of a keyboard port), and having main memory capacity of below 6 GB as well as less than 4 input/output signal transmission lines.
3. "Number of input/output signal transmission lines" refers to numbers of signal transmission lines with 100 Mbps or more, among those that split directly from signal transmission channels (including other signal transmission channels capable of the same transfer ability) connecting processing units and main memory units or among those that split directly from signal channel splitters connected to the signal channel in question; however, those that are connected to outer elements only through graphic display ports or keyboard ports are excluded.
4. "Battery-driven type" refers to ones capable of run on built-in batteries, without power supplied from power line.

Target Fiscal Year

FY 2007 and each subsequent fiscal year

Energy Saving Effects

Energy efficiency in the target year (FY 2007) is assumed to be improved by approximately 69.0% from FY 2001.

Display Items

Product name or type, category name, energy consumption efficiency, manufacturer's name, description of energy consumption efficiency

Place of Display

Catalogs and also documents provided by the manufacturer or the like for selecting equipment

Exemption

Manufacturers or importers whose total shipment volume is fewer than 200 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.14 Magnetic Disk Units

Target Scope

Magnetic disk units stipulated by the Japan Standard Commodity Classification, except the following:
 1) ones whose memory capacity is less than 1 GB, 2) ones whose disks size is less than 40 mm in diameter, and 3) ones whose maximum data transfer rate is over 70 GB/second.

Energy Consumption Efficiency

Energy consumption efficiency is a numeric value obtained by dividing power consumption (W) by memory capacity (GB).

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Category			Calculation equation for standard energy consumption efficiency
Type of magnetic disk unit	Shape and performance of magnetic disk unit	Category name	
Single unit disk	Disk size exceeding 75 mm; 1 disk	a	$E = \exp(2.98 \times \ln(N) - 28.6)$
	Disk size exceeding 75 mm; 2 or 3 disks	b	$E = \exp(2.98 \times \ln(N) - 29.3)$
	Disk size exceeding 75 mm; 4 or more disks	c	$E = \exp(2.98 \times \ln(N) - 29.5)$
	Disk size exceeding 50 mm and no more than 75 mm; 1 disk	d	$E = \exp(2.98 \times \ln(N) - 28.6)$
	Disk size exceeding 50 mm, and no more than 75 mm; 2 or 3 disks	e	$E = \exp(2.98 \times \ln(N) - 29.4)$
	Disk size exceeding 50 mm, and no more than 75 mm; 4 or more disks	f	$E = \exp(2.98 \times \ln(N) - 29.8)$
	Disk size exceeding 40 mm, and no more than 50 mm; 1 disk	g	$E = \exp(2.98 \times \ln(N) - 27.2)$
	Disk size exceeding 40 mm, and no more than 50 mm; 2 or more disks	h	$E = \exp(2.98 \times \ln(N) - 28.8)$
Sub-system		i	$E = \exp(2.00 \times \ln(N) - 19.7)$

Remarks

- 1.E and N express the following numerical values:
 E: Standard energy consumption efficiency
 N: number of rotations (unit: rpm)
2. "ln" refers to logarithm that expresses the base as "e".

Target Fiscal Year

FY 2007 and each subsequent fiscal year

Energy Saving Effects

Energy efficiency in the target year (FY 2007) is assumed to be improved by approximately 71.0% from FY 2001.

Display Items

Product name or type, category name, energy consumption efficiency, manufacturer's name, description of energy consumption efficiency

Place of Display

Catalogs and also documents provided by the manufacturer or the like for selecting equipment

Exemption

Manufacturers or importers whose total shipment volume is fewer than 5,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.15 Copying Machines

Target Scope

Dry process, indirect electrostatic copying machines mainly used at offices, except the following:
 1) ones capable of color copying, 2) ones capable of copying onto A2 or larger paper, 3) ones capable of copying 86 sheets or more per minute, 4) ones structurally combined with printing device, and 5) ones structurally combined with facsimile device.

Energy Consumption Efficiency

Energy consumption efficiency E (Wh) is a numeric value calculated with the following formula:
 $E = (A+7_B) / 8.$

Here, "A" indicates energy consumption (Wh), which is measured for one hour after the machine is turned on. "B" indicates energy consumption (Wh), which is measured for another one hour after the measurement of "A".

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Category Copying speed	Standard energy consumption efficiency			
	A4 machines	B4 machines	A3 machines	A3Y machines
Up to 10 sheets per minute	11	17	19	27
11~20 sheets per minute	17	20	55	77
21~30 sheets per minute	69	85	99	139
31~40 sheets per minute	88	108	125	175
41~50 sheets per minute	123	151	176	246
51~60 sheets per minute	144	176	205	287
61~70 sheets per minute	180	221	257	383
71~80 sheets per minute	200	246	286	433
81~85 sheets per minute	258	317	369	483

Remarks

- "A4 machines," "B4 machines," "A3 machines," and "A3Y machines," refer to copies whose maximum input width is A4 width, B4 width, A3 width and length respectively.
- "Copying speed" refers to the maximum number of plain A4 paper sheets copied per minute continuously.

Target Fiscal Year

FY 2006 and each subsequent fiscal year

Energy Saving Effects

Approximately 30% efficiency improvement compared to that of FY 1997 is expected in the target fiscal year (FY 2006).

Display Items

Product name or type, copying speed, energy consumption efficiency, manufacturer's name

Place of Display

Catalogues and manuals

Exemption

Manufacturers or importers whose total shipment volume is fewer than 500 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.16 Space Heaters

Target Scope

Space heaters using gas or oil for fuel, except the following:

1) ones of unvented type, 2) ones using gases other than either those of City Gas 13A group or liquefied petroleum gas for fuel, 3) vented gas space heaters, 4) vented oil space heaters with maximum fuel consumption of over 4.0L/h, and 5) direct vent type oil space heaters with maximum fuel consumption of over 2.75L/h.

Energy Consumption Efficiency

Energy consumption efficiency is heat efficiency (%) measured in the manner stipulated by JIS S2122 or S3031.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Gas space heaters

Category	Standard energy consumption efficiency
Direct vent type	82.0

Oil space heaters

Category			Standard energy consumption efficiency or its calculation formula
Air supply and exhaust type	Heat transfer type	Category name	
Direct vent type	Natural convection type	A	83.5
	Forced convection type	B	86.0
Vented type	Radiating type	C	69.0
	Other than radiating types with maximum fuel consumption of 1.5 liters per hour or less	D	67.0
	Other than radiating types with maximum fuel consumption of more than 1.5 liters per hour	E	$E = -3.0L + 71.5$

Remarks E and L shall express the following numeric values.

E: Standard energy consumption efficiency (unit: percent)

L: Maximum fuel consumption (unit: liters per hours)

Target Fiscal Year

FY 2006 and each subsequent fiscal year

Energy Saving Effects

Energy efficiency in the target fiscal year (FY 2006) is assumed to be improved by approximately 1.4% for the gas type and approximately 3.8% for the oil type from FY 2000.

Display Items

Product name or type, category (limited to oil space heaters), maximum fuel consumption (limited to non-radiation type vented oil space heaters whose maximum fuel consumption is over 1.5L/h), energy consumption efficiency, manufacturer's name

Place of Display

Catalogues and product bodies that provide performance data.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 300 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.17 Gas Cooking Appliances(1)

Target Scope

Gas cooking appliances, except the following:
 1) gas rice cookers, 2) ones for industrial use, 3) ones using gases other than either those of City Gas 13A group or liquefied petroleum gas for fuel, 4) gas grills, 5) gas cooking tables, and 6) portable gas stoves.

Energy Consumption Efficiency

For gas burner sections, energy consumption efficiency is heat efficiency (%) measured as specified by JIS S2103. For grill sections and oven sections, energy consumption efficiency is gas consumption (Wh) per cooking.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, the energy consumption efficiency of the burner section in each category shall be at or greater than the target standard value.

Burner Section

Category				Standard energy consumption efficiency
Gas cooking appliance type	Installation type	Number of burners	Category name	
Gas burners	Tabletop type		A	51.0
	Built-in type		B	48.5
Gas burners with grill	Tabletop type	Less than 2	C	56.3
		3 or more	D	52.4
	Built-in type	Less than 2	E	53.0
		3 or more	F	55.6
Gas range	Cabinet/stationary type		G	49.7
			H	48.4

Remarks:

1. "Gas range" is a combination of gas oven and gas burners.
2. "Tabletop type" is an appliance placed on a table when used.
3. "Built-in type" is an appliance built in a wall or a table.
4. "Cabinet type" is an appliance installed in a specially-built cabinet.
5. "Stationary type" is an appliance installed on a table or floor.

In the target fiscal year and each subsequent fiscal year, the energy consumption efficiency of the grill section and oven section in each category shall be at or lower than the target standard value.

Grill Section

Category			Grill Section Standard Energy Consumption Efficiency Calculation Formulas
Combustion type	Cooking Method	Category name	
Single Sided	With water	I	$E=25.1Vg+123$
	Without water	J	$E=25.1Vg+16.4$
Double Sided	With water	K	$E=12.5Vg+172$
	Without water	L	$E=12.5Vg+101$

Remarks:

1. E and Vg express the following numeric values.
 E: grill section standard energy consumption efficiency (unit: Wh)
 Vg: internal volume (unit: l)
2. Internal volume is obtained by the formula: grill area _ height from the bottom of the grill plate to the top of the inlet.

Oven Section

Category		Oven Section Standard Energy Consumption Efficiency Calculation Formulas
Installation Type	Category name	
Tabletop type or stationary type	M	$E=18.6Vo+306$
Built-in type	N	$E=18.6Vo+83.3$

Remarks:

1. E and Vo express the following numeric values.
 E: oven section standard energy consumption efficiency (unit: Wh)
 Vo: internal volume (unit: l)
2. Internal volume is obtained by the formula: internal bottom area _ internal height

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7.17 Gas Cooking Appliances(2)

Target Fiscal Year

Burner Section: FY 2006

Grill Section: FY 2008

Oven Section: FY 2008

Energy Saving Effects

Burner section: approximately 13.9% efficiency improvement compared to that of FY 2000 is expected in the target fiscal year.

Grill section: approximately 27.4% efficiency improvement compared to that of FY 2002 is expected in the target fiscal year.

Oven section: approximately 20.3% efficiency improvement compared to that of FY 2002 is expected in the target fiscal year.

Display Items

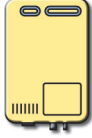
Product name or type, category name, burner section energy consumption efficiency (limited to those having burner section) / grill section energy consumption efficiency (limited to those having grill section) / oven section energy consumption efficiency (limited to those having oven section), manufacturer's name

Place of Display

Catalogues and product bodies in which data on performance is shown.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 5,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.18 Gas Water Heaters(1)

Target Scope

Gas water heaters, except the following:
 1) ones of water storage type, 2) ones for industrial use, 3) ones using gases other than either those of City Gas 13A group or liquefied petroleum gas for fuel, 4) bathtub water heaters installed inside of a bathroom, having an oxygen depletion safety shut-off device, 5) direct vent type bathtub gas water heaters whose air supply/exhaust outlet is connected to a duct.

Energy Consumption Efficiency

For hot water supply sections and bath tub gas water heaters, energy consumption efficiency is heat efficiency (%) measured as specified by JIS S2109.
 For space heating sections, energy consumption efficiency is heat efficiency (%) when water temperature difference between outward flow and inward flow in a hot water circulation becomes the specified level.
 For bathtub gas water heaters (with hot water supply functions), energy consumption efficiency is the weighted average value obtained by a 1:3.3 ratio (1 for bath section heat efficiency, 3.3 for hot water supply section heat efficiency).
 For gas water heaters for space heating (with hot water supply functions), energy consumption efficiency is the weighted average value obtained by a 1:3 ratio (1 for space heating section heat efficiency, 3 for hot water supply section heat efficiency).

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Gas water heater type	Ventilation type	Circulation type	Category		Standard energy consumption efficiency	
			Exhaust type	Category name		
Gas instant water heaters	Natural ventilation type		Unvented type	A	83.5	
			Other than unvented types	B	78.0	
	Forced ventilation type		Other than outdoor type	C	80.0	
			Outdoor type	D	82.0	
Bath tub gas water heaters (with no hot water supply functions)	Natural ventilation type	Natural circulation type	Vented type or direct vent type (the height where the air supply and exhaust part penetrates external wall is as high as vented types)	E	75.5	
			Direct vent type (other than types of the height where the air supply and exhaust part penetrates external wall is as high as vented types)	F	71.0	
			Outdoor type	G	76.4	
	Forced ventilation type	Natural circulation type		H	70.8	
			Forced circulation type		I	77.0
Bath tub gas water heaters (with hot water supply functions)	Natural ventilation type	Natural circulation type	Vented type or direct vent type (the height where the air supply and exhaust part penetrates external wall is as high as vented types)	J	78.0	
			Direct vent type (other than types of the height where the air supply and exhaust part penetrates external wall is as high as vented types)	K	77.0	
			Outdoor type	L	78.9	
	Forced ventilation type	Natural circulation type		M	76.1	
			Forced circulation type	Other than outdoor types	N	78.8
				Outdoor types	O	80.4
Gas water heater for space heating (with no hot water supply functions)				P	83.4	
Gas water heater for space heating (with hot water supply functions)				Q	83.0	

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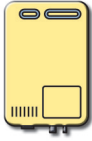
Process of Establishing Top Runner Standards

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7.18 Gas Water Heaters(2)

Target Fiscal Year

Gas instant water heaters and bathtub gas water heaters: FY 2006 and each subsequent fiscal year
Gas water heaters for space heating: FY 2008 and each subsequent fiscal year

Energy Saving Effects

Gas instant water heaters and bath tub gas water heaters: approximately 4.1% efficiency improvement compared to that of FY 2000 is expected in the target fiscal year (FY 2006).
Gas water heaters for space heating (with no hot water supply functions): approximately 3.3% efficiency improvement compared to that of FY 2002 is expected in the target fiscal year (FY 2008).
Gas water heaters for space heating (with hot water supply functions): approximately 1.1% efficiency improvement compared to that of FY 2002 is expected in the target fiscal year (FY 2008).

Display Items

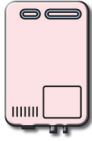
Product name or type, category name, energy consumption efficiency, manufacturer's name

Place of Display

Product body and catalogues in which data on performance is shown.
For bathtub gas water heaters (with hot water supply functions), in addition to the energy consumption efficiency specified above, energy efficiency of bath section and hot water supply section measured respectively should be displayed in catalogues that describe performance.
For gas water heaters for space heating (with hot water supply functions), in addition to the energy consumption efficiency specified above, energy efficiency of space heating section and hot water supply section measured respectively should be displayed in a catalogues that describe performance.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 3,000 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.



7.19 Oil Water Heaters

Target Scope

Oil water heaters, except the following,
 1) bathtub gas water heaters with pot-type burners, 2) ones for industrial use, 3) ones having a structure for burning firewood, and 4) hot water boilers whose gauge pressure exceeds 0.1 MPa.

Energy Consumption Efficiency

Energy consumption efficiency is heat efficiency (%) measured as specified by JIS S3031.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Category				Standard energy consumption efficiency
Purpose	Heating type	Air supply and exhaust type or control method	Category name	
For hot water supply	Instantaneous type		A	86.0
	Storage type with rapid heating system		B	87.0
	Storage types other than rapid heating system		C	85.0
For heaters	Instantaneous type	Unvented type	D	85.3
		Vented type	E	79.4
		Direct vent type	F	82.1
	Storage type with rapid heating system	On/off control	G	87.0
		Other than on/off control	H	82.0
	Storage types other than rapid heating system		I	84.0
For baths	Water heaters with a center flue heat exchanger		J	75.0
	Water heaters without a center flue heat exchanger		K	61.0

Remarks:

1. "For hot water supply" refers to equipment mainly used to supply hot water, including equipment featuring heating or bathing functions.
2. "For heaters" refers to equipment mainly used for heating, including equipment that has hot water supply or bathing functions.
3. "For baths" refers to equipment used mainly for bath use, including equipment that has hot water supply or heating functions.
4. "Rapid heating system" refers to equipment of which heating time (as measured by the heating speed measurement method described in JIS S3031) is within 200 seconds.
5. "Center flue heat exchanger" refers to the air flue that penetrates the hot water supply section.
6. "On/off control" refers to those that control by only ignition and extinction.

Target Fiscal Year

FY 2006 and each subsequent fiscal year

Energy Saving Effects

Approximately 3.5% efficiency improvement compared to that of FY 2000 is expected in the target fiscal year (FY 2006).

Display Items

Product name or type, category name, energy consumption efficiency, manufacturer's name

Place of Display

Product bodies and catalogues that show performance data.

Exemption

Manufacturers or importers whose total shipment volume is fewer than 600 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.20 Vending Machines(1)

Target Scope

Vending machines for canned/bottled beverages, beverages in paper containers, and beverages served in cups, all of which are specified in JIS B8561.

However, the following products shall be excluded.

1) ones intended to be used only on ships, 2) ones intended to be used only on railway cars, 3) cup type beverage vending machines that cool beverages (raw materials) by means of electronic cooling (e.g., Peltier cooling), 4) ones of the countertop type, and 5) ones for alcoholic beverages other than beer (including low-malt beer).

Energy Consumption Efficiency

(1) Vending machines whose target fiscal year is FY 2005 and each subsequent fiscal year (until FY 2011): Annual energy consumption (kWh/year) measured in accordance with the method specified in JIS B8561 (2000).

(2) Vending machines whose target fiscal year is FY 2012 and each subsequent fiscal year: Annual energy consumption (kWh/year) measured in accordance with the method specified in JIS B8561 (2007).

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Beverages to be Sold	Target Fiscal Year and Target Standards
Canned/bottled beverages	FY 2005 and subsequent fiscal year (until FY 2011): Target standards (1) shall be complied with. FY 2012 and each subsequent fiscal year: Target standards (2) shall be complied with.
Beverages in paper containers	FY 2012 and each subsequent fiscal year: Target standards (2) shall be complied with.
Beverages served in cups	FY 2012 and each subsequent fiscal year: Target standards (2) shall be complied with.

(1) Vending machines for canned/bottled beverages whose target fiscal year is FY 2005 and each subsequent fiscal year (until FY 2011)

Category Type of Vending Machine	Category Name	Formula for Standard Energy Consumption Efficiency
Machines serving cold only, or Machines serving hot or cold	1	$E=0.346V+465$
Machines serving hot and cold(Internal depth is below 400 mm)	2	$E=2.18V_a-214$
Machines serving hot and cold(Internal depth is 400 mm or greater)	3	$E=0.876V_a+527$

Remarks

- “Machines serving cold only” refers to vending machines that refrigerate the products sold.
- “Machines serving hot or cold” refers to vending machines that refrigerate or warm the products sold.
- “Machines serving hot and cold” refers to vending machines which have warm section and cold section separated by internal partitions, so that the products sold are kept refrigerated or warmed respectively.
- E, V, and V_a express the following numeric values.
 - E: Standard energy consumption efficiency (unit: kWh per year)
 - V: Actual internal volume (indicates the numeric value calculated from the internal dimensions of the goods storage area) (unit: liter)
 - V_a : Adjusted internal volume (indicates numeric value acquired first by multiplying the actual internal volume of the hot storage compartment by 40, which is divided by 11, and then by adding the result to the actual internal volume of the cold storage compartment) (unit: liter)



7.20 Vending Machines(2)

(2) Vending machines whose target fiscal year is FY 2012 and each subsequent fiscal year

Beverages to be Sold	Category		Category Name	Formula for Standard Energy Consumption Efficiency
	Type of Vending Machine			
Canned or bottled beverages	Machines serving cold only, or Machines serving hot or cold		I	$E=0.218V+401$
	Machines serving hot and cold (Internal depth is below 400 mm)		II	$E=0.798Vb+414$
	Machines serving hot and cold (Internal depth is 400 mm or greater)	Without electronic money processing device	III	$E=0.482Vb+350$
		With electronic money processing device	IV	$E=0.482Vb+500$
Beverages in paper container	Type A (Dummy samples are used for selling goods)	Machines serving cold only	V	$E=0.948V+373$
		Machines serving hot and cold (having two internal compartments)	VI	$E=0.306Vb+954$
	Type B (Actual goods are used for visual display and selling goods)	Machines serving hot and cold (having three internal compartments)	VII	$E=0.63Vb+1474$
		Machines serving cold only	VIII	$E=0.477V+750$
		Machines serving hot and cold	IX	$E=0.401Vb+1261$
		—	X	$E=1020 \text{ (} T \leq 1500 \text{)}$ $E=0.293T+580 \text{ (} 1500 < T \text{)}$

Note :

- 1) Va: Adjusted internal volume (numeric value acquired first by multiplying the actual internal volume of the hot storage compartment by 40, which is divided by 10, and then by adding the result to the actual internal volume of the cold storage compartment) (Unit: L)
- 2) T: Adjusted heat capacity (numeric value obtained by totaling the hot-water tank capacity multiplied by 80, the cold-water tank capacity multiplied by 15, and the ice storage capacity multiplied by 95 and then divided by 0.917, and then multiplying the total sum by 4.19. (Unit: kJ)

Target Fiscal Year

Vending machines for canned/bottled beverages:

- (1) FY 2005 and each subsequent fiscal year (until FY 2011)
- (2) FY 2012 and each subsequent fiscal year

Vending machines for beverages in paper containers, vending machines for beverages served in cups: FY 2012 and each subsequent fiscal year

Energy Saving Effects

- (1) As for vending machines for canned/bottled beverages whose target fiscal year was fulfilled in FY 2005, annual energy consumption was improved by approximately 37.3% from FY 2000 (initial expectation was approximately 33.9%).
- (2) As for vending machines whose target fiscal year will be fulfilled in FY 2012, efficiency in FY 2012 is assumed to be improved by approximately 33.9% from FY 2005.

Display Items

- Product name and type, ●Category, ●Actual internal volume (limited to machines serving cold only, or machines serving hot or cold), ●Adjusted internal volume (limited to machines for hot and cold), ●Adjusted heat capacity (limited to machines serving beverages in cups), ●Energy consumption efficiency, ●Manufacturer's name

Place of Display

Product bodies and catalogues that show performance data

Exemption

Manufacturers or importers whose total shipment volume is fewer than 300 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.

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7.21 Transformers

Target Scope

Transformers that run on alternating current and whose rated primary voltage is over 600V up to 7,000V, except the following:
 1) ones using gas for insulation, 2) ones using H type insulation material, 3) ones with Scott connection, 4) ones having 3 or more windings, 5) ones installed on utility poles, 6) single-phase transformers whose rated capacity is up to 5 kVA or over 500 kVA, 7) triple-phase transformers whose rated capacity is up to 10 kVA or over 2,000 kVA, 8) triple-phase transformers using resinous insulation material and intended to transform triple-phase AC to single-phase AC and triple-phase AC, 9) ones whose rated secondary voltage is less than 100 V or over 600 V, and 10) ones of air-cooling type or water-cooling type.

Energy Consumption Efficiency

Energy consumption efficiency is the total loss (W) acquired through the no-load loss and load loss measured using the method stipulated by JIS C4304 and C4306.

Category, Target Values

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or lower than the target standard value.

Transformer type	Category			Standard energy consumption efficiency calculation formula
	Number of phases	Rated frequency	Rated capacity	
Oil-filled transformer	Single phase	50Hz		$E=15.3S^{0.696}$
		60Hz		$E=14.4S^{0.698}$
	Triple phase	50Hz	Up to 500 kVA	$E=23.8S^{0.653}$
			Over 500 kVA	$E=9.84S^{0.842}$
		60Hz	Up to 500 kVA	$E=22.6S^{0.651}$
			Over 500 kVA	$E=18.6S^{0.745}$
Molded transformer	Single phase	50Hz		$E=22.9S^{0.647}$
		60Hz		$E=23.4S^{0.643}$
	Triple phase	50Hz	Up to 500 kVA	$E=33.6S^{0.626}$
			Over 500 kVA	$E=24.0S^{0.727}$
		60Hz	Up to 500 kVA	$E=32.0S^{0.641}$
			Over 500 kVA	$E=26.1S^{0.716}$

*For transformers that are not used under standard conditions described by JISC4304 and C4306, as well as JEMA standards 1474 and 1475, the target standard value is obtained by multiplying 1.10 for oil-filled transformers and 1.05 for molded transformers to the respective formulas specified in above category.

Remarks

- Oil-filled transformers are transformers that use insulating oil as insulating materials.
- Molded transformers are transformers that use resin insulating materials.
- E and S express the following numeric values.
 E: Standard energy consumption efficiency (unit: Watt)
 S: Rated capacity (unit: kVA)

Target Fiscal Year

Oil-filled transformers: FY 2006
 Molded transformers: FY 2007

Energy Saving Effects

Approximately 30.3% efficiency improvement of efficiency compared to that of FY 1999 is expected in the target fiscal year.

Display Items

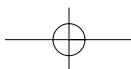
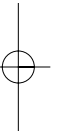
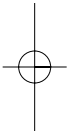
Product name and type, transformer type, rated capacity, number of phases, rated frequency, rated primary and secondary voltage, energy consumption efficiency, standard load factor, name of standard, manufacturer's name

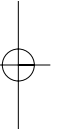
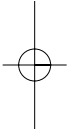
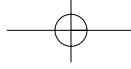
Place of Display

Catalogues showing performance data and documents provided by the manufacturer or the like for selecting equipment

Exemption

Manufacturers or importers whose total shipment volume is fewer than 100 units are exempted. Note, however, that the display obligations must be met regardless of the number of units shipped.





Ministry of Economy, Trade and Industry (METI)
Agency for Natural Resources and Energy
Energy Efficiency and Conservation Division
<http://www.meti.go.jp/english/index.html>

The Energy Conservation Center, Japan
Energy Conservation Equipment Promotion Department
http://www.eccj.or.jp/index_e.html

