



Independent Assurance Report

To the Board of Directors of Panasonic Corporation

Purpose and Scope

We were engaged by Panasonic Corporation (the "Company") to provide limited assurance on its Sustainability Report 2013 posted in the Company's website (http://panasonic.net/sustainability/en/downloads/back_number/pdf/2013/sr2013e.pdf) (the "Report") for the fiscal year ended March 31, 2013. The purpose of our assurance engagement was to express our conclusion, based on our assurance procedures, on whether the environmental indicators listed in the table below included in the Report, for the period from April 1, 2012 to March 31, 2013 (the "Indicators") are prepared, in all material respects, in accordance with the Company's reporting criteria.

The content of the Report is the responsibility of the Company's management. Our responsibility is to carry out limited assurance engagement and to express our conclusion based on the work performed.

Table: The Indicators subject to independent assurance and corresponding page number in the Report

Indicators	Page	Indicators	Page
CO ₂ emissions from the use of major products	44	CO ₂ emissions from non-manufacturing sites	56
CO ₂ emissions in production activities	52	CO ₂ emissions from domestic transportation within Japan	58
Total GHG emissions (CO ₂ -equivalent) in production activities	55	Total wastes	76
Total GHG emissions (CO ₂ -equivalent) in production activities (Scope 1 emissions)	56	Amount of water consumption	79
Total GHG emissions (CO ₂ -equivalent) in production activities (Scope 2 emissions)	56	Release/Transfer of substances requiring management	88

Criteria

The Company applies its own reporting criteria as described in the Company's website (http://panasonic.net/sustainability/en/downloads/back_number/pdf/2013/review2013e.pdf). We used these criteria to evaluate the Indicators.

Procedures Performed

We conducted our engagement in accordance with 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information' issued by the International Auditing and Assurance Standards Board, and the 'Practical Guidelines for the assurance of Sustainability Information' of J-SUS. The limited assurance engagement on the Report consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviews with the Company's responsible personnel to obtain an understanding of its policy for the preparation of the Report.
- Reviews of the Company's reporting criteria.
- Inquiries about the design of the systems and methods used to collect and process the Indicators.
- Analytical reviews of the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and also a recalculation of the Indicators.
- Visits to factories and administrative offices of the Company and its affiliates selected on the basis of a risk analysis.
- Evaluating the overall statement in which the Indicators are expressed.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

We have no conflict of interest relationships with the Company that are specified in the Code of Ethics of J-SUS.

KPMG AZSA Sustainability Co., Ltd.

Panasonic Group Sustainability Report 2013
Standards for Calculating Main Environmental Performance Indicators

Reporting period

April 1, 2012- March 31, 2013

Scope of this report

Product-related: All products developed during the reporting period

Factory-related: Manufacturing sites in and outside Japan that have established Environmental Management Systems

Others: Scope according to individual initiatives.

Item	Indicator	Calculation method
Reducing CO ₂ Emissions	Size of contribution in reducing CO ₂ emissions through energy-creating products	Solar panel: (Total power-generating capacity of panels shipped during the current fiscal year (kW) - Total power-generating capacity of panels shipped in FY2006 (kW)) x 20 (years) x Power generation of model per unit (1,193 kWh/kW) x CO ₂ emission factor (0.3145 kg-CO ₂ /kWh) Fuel cell: Power generation of the current fiscal year model per unit (1,143.9 kWh/year) x 10 (years) x Total shipping quantity of the current fiscal year x CO ₂ emission factor (0.410 kg-CO ₂ /kWh)
	Size of contribution in reducing CO ₂ emissions through energy-saving products	(Annual power consumption of FY2006 base model - Annual power consumption of the current fiscal year model) x Product life x Shipping quantity of the current fiscal year x CO ₂ emission factor
	CO ₂ emissions from the use of major products	Lifetime CO ₂ emissions from major products*1 with large amounts of energy use. Lifetime CO ₂ emissions = Annual power consumption of a model sold*2 x Sales quantity x product life*3 x CO ₂ emission factor *1 Household air conditioners, commercial air conditioners, household fluorescent/silica lamps, LED lamps, LED lighting equipments, refrigerators, EcoCute, LCD TVs, plasma TVs, IH cooking heaters, dish washer and dryers, bathroom ventilator-driers, dehumidifiers, extractor fans, washing/drying machines, fully-automatic washing machines, electronic rice cookers, microwave ovens, warm-water bidets, irons, hair dryers, air purifiers, under-rug heaters, vacuum cleaners, BD recorders, electric thermal pots, clothes dryers, extractor hoods, household facsimiles, telephones, etc. *2 For each product category, the model that was sold in the largest quantity in the region was selected *3 Number of years during which spare parts for the product are available (defined by Panasonic).
	Size of contribution in reducing CO ₂ emissions through production activities	(FY2006 CO ₂ emissions per basic unit - CO ₂ emissions per basic unit of the current fiscal year) x Production of the current fiscal year
	CO ₂ emissions in production activities	CO ₂ emissions from the use of fuel + CO ₂ emissions associated with purchased electricity and heat
	CO ₂ emissions per basic unit in production activities	Calculated with the weighted average of the improvement rate for CO ₂ emissions per basic unit of nominal production (= CO ₂ emissions / nominal production) for each factory. The amount of CO ₂ emissions for each factory based on the assumption that there was no improvement is used for weighting.
	Emissions of GHGs other than CO ₂ in production activities	Emissions of each gas were converted into CO ₂ emissions using the Global Warming Potentials specified in the Second Assessment Report (1995) of the Intergovernmental Panel on Climate Change (IPCC).
	Scope 1 CO ₂ emissions	CO ₂ emissions from the use of fuel + Emissions of GHGs other than CO ₂
	Scope 2 CO ₂ emissions	CO ₂ emissions associated with purchased electricity and heat
	CO ₂ emissions from non-manufacturing sites	CO ₂ emissions from the use of fuel + CO ₂ emissions associated with purchased electricity and heat For sites that were included into the scope this fiscal year, figures of the past years are retroactively added under the assumption of reduction by 2% per annum.
	CO ₂ emissions from the use of fuel	Used CO ₂ emission factors provided in the Guideline for Calculation of Greenhouse Gas Emissions (version 2.2) published by the Japanese Ministry of the Environment.
	CO ₂ emission associated with purchased electricity and heat	<Japan> CO ₂ emission factor for electricity purchased every fiscal year in Japan is fixed at 0.410 (kg-CO ₂ /kWh). <Outside Japan> Used numerical values for respective countries listed in the Calculation Tools in the GHG Protocol website by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). The 2002 numerical values listed in the "Electricity-Heat SteamPurchase_tool1.0_final" are used as fixed values for all fiscal years.
	Energy consumption in transportation	Applied the concept specified in the Energy Conservation Law Guidebook for Consigners edited by the Agency for Natural Resources and Energy, Japan. (Applicable scope: transportation during which cargo is owned by the Panasonic Group) Energy consumption in international logistics is also tabulated by adopting the concept specified in the guidebook.

Item	Indicator	Calculation method
Reducing CO2 Emissions	CO ₂ emissions in transportation	Based on the energy consumption and other data calculated in the process specified above, the corresponding value was calculated in accordance with the Guideline for Calculation of Greenhouse Gas Emissions (version 2.2) published by the Japanese Ministry of the Environment.
	Year-on-year reduction rate of CO ₂ emissions in transportation per basic unit	$1 - (\text{CO}_2 \text{ emissions of the current fiscal year} / \text{Weight of products (components) transported during the current fiscal year}) / (\text{CO}_2 \text{ emissions of the previous fiscal year} / \text{Weight of products (components) transported during the previous fiscal year})$
Resources Recycling	Total resources used	Amount of resources directly used in production activities of a product. Total resources used is calculated in the following two methods: (1) Method of calculating by identifying the amount of purchased materials (including sub-materials). (2) Method of calculating by identifying amount of: shipped products + sub-materials + waste*. *The figure used for amount of waste is that disclosed in the Sustainability Report 2013 as waste or valuable items.
	Total recycled resources used	Sum of both intentionally and socially recycled resources - Intentionally recycled resources: Refer to: recycled resource materials where Panasonic independently manages the cycle of generation, collection, and recycling; recycled resource materials where Panasonic intentionally specifies and procures the resources; and biological materials such as controlled wood/bamboo and plant-oriented materials. - Socially recycled resources: Refer to: resources where its recycling system is generally present in the society regardless of Panasonic's intentions, for instance metals, paper and cardboards. For the purpose of calculation, the concentration of each recycled resources material is set according to a unique investigation by Panasonic.
	Recycled resource utilization ratio	Recycled resources used / Total resources used
	Recycled amount of four kinds of home appliances in Japan	Applies to the recycling defined in the Home Appliance Recycling Law in Japan, and refers to the weight of components and materials of separated products which can be used by oneself, or made into a state available for sale or free of charge.
	Amount of used products covered by the WEEE Directive collected in Europe	Weight of collected products per collection system x Panasonic's weight-based share of products put on the market within the applicable collection system.
	Amount of used electronic products collected in the USA	Amount of equipment collected in accordance with state laws and through voluntary measures.
	Amount of total wastes including revenue-generating waste from factories	Total amount of generated industrial and general waste and revenue-generating waste.
	Revenue-generating waste	Waste that can be sold to recycling or disposal companies for profit.
Water	Amount of water consumption in production activities	Total water consumed for production (total amount of consumed municipal water, industrial water river/lake water, and groundwater).
	Factory waste recycling rate	$\text{Amount of resources recycled} / (\text{Amount of resources recycled} + \text{Amount of final disposal})$ (The recycled amount does not include thermal recycling. The final disposal amount takes account of residue left after incineration).
Chemical Substances	Substances requiring management	Based on the Chemical Substances Management Rank Guidelines (for factories). Including the substances in the Pollutant Release and Transfer Registers.
	Release of substances requiring management	Release amount includes emissions to air, public water areas, and soil.
	Transfer of substances requiring management	Transfer amount includes transfer as waste and discharge into the sewage system. Recycling that is free of charge or recycling where Panasonic pays a fee for treatment under the Waste Management Law is included in "Transfer." (Different from the transferred amount reported under the PRTR Law.)
	Substances subject to calculation of Human Environmental Impact from factories	Chemical substances specified in the Chemical Substances Management Rank Guidelines (for factories).
	Human Environmental Impact	Human Environmental Impact = Hazard factor* x (Amount of covered substances released + Amount of covered substances transferred) *Hazard factors: Given by Panasonic, after classification according to the impact on human health and the environment. Factors are set as A: 10,000, B: 1,000, C: 100, D: 10, and E:1, according to the hazardous level. - Emission amount of covered substances: Includes emissions to the atmosphere, public waters, and soil. - Transfer amount of covered substances: Includes transfer as waste and discharge to the sewage system (not including those recycled free of charge or charged under the Waste Management and Public Cleansing Law).

Item	Indicator	Calculation method
No.1 eco-conscious products	Eco-conscious Products	<p>The basic concept is given below. Details are specified in the FY2013 Panasonic Group Green Product (GP) certification criteria. Meets at least one of the following requirements of (1) to (6):</p> <ol style="list-style-type: none"> 1. Global warming prevention: The product is superior to former models and comparative evaluations with competitors' models showed that the product is ranked in the industry's top 30% (Energy-creating devices such as solar panels and fuel cells are considered as GP). 2. Chemical substance management: A is a mandatory criterion; product must meet any of the requirements of B to E; and B to E must have appealing points. <ol style="list-style-type: none"> A. PVC resin substitution has been completed for the internal wiring of all products for markets both in and outside Japan (excluding exempted products). B. PVC substitution for items other than internal wiring (only products that used PVC in FY2006). C. Substitution of components/materials that are exempted in the RoHS Directive and specified in the Chemical Substances Management Rank Guidelines (e.g. mercury-free back lights). D. Substitution of unspecified brominated flame retardants (only products that used PVC in FY2006). (e.g. Housings/cabinets and printed circuit boards of set products) E. Non-use of chemicals subject to authorization selected from SVHCs under the REACH Regulation (e.g. phthalates). 3. Efficient use of resources: Must Meet any of the following criteria A to D. C to D must have appealing points. <ol style="list-style-type: none"> A. Product mass is ranked in the industry's top 30% (Batteries may be evaluated by mass/volume). B. Volume of consumable material resources (e.g. detergent) is ranked in the industry's top 30%. C. Intentionally uses any one of the following: recycled resources or reused parts such as recycled metal, recycled glass, and recycled plastics; plant-oriented resin; or biological resources (bamboo, etc.) use of only one is acceptable. D. Reduction of rare metal use from the previous model (METI-specified 31 metal types). 4. Water: Water consumption is ranked in the industry's top 30% (e.g. Washing machines with little water consumption). 5. Biodiversity: Must have socially-accepted and reasonable grounds regarding the following Products that are conscious of "Species Conservation," "Gene Conservation," and "Ecosystems Conservation." 6. Other: Must reduce the environmental impact that is difficult to evaluate in the above features 1 to 5 and is superior to products by competitors (Products such as NOx-removing equipment. Certified only at the time of business launch).
	Number of Superior GP models	<p>Eco-conscious products that also satisfy the following Superior GP certification criteria: The product must have an environmental performance that can be externally claimed as being the industry's top within a designated period of time (most superior in the industry). If a popular zone is set, then make assessments within the zone.</p>
	Percentage of sales for No. 1 eco-conscious products	Sales of Superior GP / Panasonic consolidated sales
Collaboration with Stakeholders	Number of environmental education program participants	Total number of participants of education programs provided at schools and through extracurricular activities, visits to showrooms and factories, eco picture diary programs, etc. (Cumulative figure from fiscal 2010)
	Number of trees planted	Total number of trees planted being linked to sales activities and through tree planting initiatives on the company's premises and in local communities (Cumulative figure from fiscal 2008).
	CO ₂ emissions from suppliers	CO ₂ emissions of 101 suppliers in their production activities. As for fuels, CO ₂ emission factors provided in the Guideline for Calculation of Greenhouse Gas Emissions (version 2.2) published by the Japanese Ministry of the Environment were used. CO ₂ emission factor for electricity purchased in Japan is fixed at 0.410 (kg-CO ₂ /kWh) for electricity purchased every fiscal year.