

Panasonic Group Sustainability Data Book 2023
Standards for Calculating Main Environmental Performance Indicators

Reporting period

April 1, 2022 - March 31, 2023

Scope of this report

Product-related: All products developed in the reporting period.

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

(Not included: Ficosa International S.A., consolidated subsidiary since April 2017 respectively, and this consolidated subsidiaries.)

Others: Scope according to individual initiatives.

Standards

Item	Indicator	Calculation method
Energy · CO ₂	CO ₂ emissions from the use of main products	CO ₂ emissions during use of products: Sum of (1) and (2) below (1) CO ₂ emissions from energy consumption during use of products sold by Panasonic Annual energy consumption*2 of main products*1 whose respective energy usage is high × Sales quantity × Product life*3 × CO ₂ emission factor (2) Leakage of refrigerant during use of products sold by Panasonic Refrigerant filling amounts of target products*4 × Annual leakage rate*5 × Sales quantity × Product life × Global warming potential *1 Lighting equipment and lamps, household air conditioners, commercial air conditioners, household refrigerators, washing and drying machines, ventilation fans, bathroom ventilation driers, electric water heaters, electric fans, A2W (heat pump type water heating systems), EcoCute, rice cookers, dishwasher and dryers, LCD TVs, OLED TVs, microwave ovens, heat exchanger units, blowers, mounting machines, showcases, hair dryers, IH cooking heaters, dehumidifiers, range hoods, vacuum cleaners, irons, electric thermal pots, projectors, electric bidet toilet seats, freezing machines, commercial freezer and refrigerators, absorption freezing machines, pumps, telephones, air purifiers, fax machines, humidifiers, digital cameras, headphones, etc. *2 Set based on the data of a representative model. For each product category, the model that was sold in the largest quantity in each region was selected as a representative model. *3 Period of use. The number of years during which spare parts for the product are available as defined by Panasonic. *4 Household air conditioners, A2W (heat pump type hot water heating systems), EcoCute, commercial air conditioners, dehumidifiers, bathroom ventilation driers, commercial freezers and refrigerators, showcases, etc.
	Amount of reduced CO ₂ emissions that contributes to society	Amount obtained by Life cycle emissions on the assumption that our group's products and services are not introduced minus Emissions after introduction: Sum of (1) through (4) below (1) Electrification - (Lifetime CO ₂ emissions from the use of one gasoline vehicle - Lifetime CO ₂ emissions from the use of one EV) × The number of EVs converted from the number of current year's products*1 - (Annual gas consumption of comparison target products (gas equipment) × CO ₂ emission factor - Annual power consumption of current year's products*2 × CO ₂ emission factor) × Product life × Replacement rate from the comparison target products (gas equipment) × Sales quantity (2) Replacement - (Annual power consumption of comparison target products*3, *4 - Annual power consumption of current year's products*3) × Product life × Sales quantity × CO ₂ emission factor (3) Solution: - Energy consumption reduced by solution services*5 per unit quantity × Sales quantity × CO ₂ emission factor (4) Others: - Sales capacity of current year's products*6 × Lifetime power generation per unit capacity × CO ₂ emission factor *1: Accumulators for EVs *2: EcoCute, A2W (heat pump type water heating systems), etc. *3: Lighting equipment and lamps, household air conditioners, commercial air conditioners, household refrigerators, washing and drying machines, ventilation fans, showcases, electric water heaters, electric fans, mounting machines, LCD TVs, OLED TVs, projectors, microwave ovens, heat exchanger units, hair dryers, dehumidifiers, dishwasher and dryers, irons, electric thermal pots, telephones, air purifiers, humidifiers, digital cameras, headphones, commercial freezers and refrigerators, etc. *4: Products of fiscal year 2013 or later *5: Store controllers, HEMS, BEMS, etc.
	Amount of renewable energy adopted at our sites	Total amount of used renewable energy that were generated at own sites, including photovoltaic, wind, and biomass power.
	CO ₂ emissions in business 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 business activities (compared to FY2014)	CO ₂ emissions per basic unit in business activities (improvement rate of basic unit compared to FY2014) was calculated as follows: Basic unit improvement rate (%) for FY2024 = A2015 × A2016 × A2017 × A2018 × A2019 × A2020 × A2021 × A2022 × A2023 $A_n = \frac{\text{Panasonic group total CO}_2 \text{ emission in FYn} / \text{Panasonic group total sales volume in FYn}}{\text{Panasonic group total CO}_2 \text{ emission in FYn-1} / \text{Panasonic group total sales volume in FYn-1}}$ n = 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
	Energy used in business activities	Total amount of energy used (including electricity, town gas, and LPG) in each factory. For the calorific value, the conversion factor specified in "the Order for Enforcement of the Act on the Rational Use, etc. of Energy (Japan)", is used globally. For town gas, however, the conversion factor published by the gas service provider is used. For electricity, the conversion factor of electric energy unit is used.
	Emissions of GHGs other than CO ₂ in business activities	GHGs specified in the Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC) were calculated and converted into CO ₂ emissions using the Global Warming Potentials stated in the Report.
	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
	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 in which the Panasonic Group owns cargo) Energy consumption in international logistics is also tabulated by adopting the concept specified in the guidebook.
	CO ₂ emissions in logistics operations in Japan	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 4.9)" published by the Japanese Ministry of the Environment.

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 the amount of: shipped products + sub-materials + waste*. *The figure used for the amount of waste is that published in the Sustainability Data Book 2023 as waste or valuable items.
	Usage of recycled resin	Mass weight of recycled materials used in recycled resin, excluding new resin and newly mixed additives or fillers.
	Recycled weight 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.
	Factory waste recycling rate	Amount of resources recycled / (Amount of resources recycled + Amount of final disposal) (The recycled amount does not include thermal recycling. The final disposal amount takes account of residue left after incineration).
Water	Amount of water consumption	Total water consumed (total amount of consumed municipal water, industrial water, river/lake water, and groundwater).
Chemical Substances	Substances requiring management	Based on the Chemical Substances Management Rank Guidelines (for factories). Including all the substances in the Japanese Law of the Pollutant Release and Transfer Registers (PRTR Law).
	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 recycled amount. (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).
Compliance	Number of violations	Number of violations of laws and regulations caused by our factories and products