Environmental Performance Data Calculation Standards

Subject Period: April 1, 2016 – March 31, 2017
Scope: Fujitsu and the Fujitsu Group (For details, refer to the List of Companies Covered by the Report on Environmental Activities.)

Chapter I Contribution to Society (Fujitsu Group Environmental Action Plan (Stage VIII) "Contribution to Society")

Target Item	Indicator	Unit	Calculation Method
Achieve top-level energy efficiency for 50% or more of the new products.	The percentage of new products that are top-level energy efficient	%	The percentage of top-level*1 energy efficient products with respect to the number of product series that are expected to be developed. *1 Top-level energy efficiency: Achieve an upper-level benchmark based on outside indicators, etc., in energy efficiency, on a par with "top-runner" products (first in the world or industry, top of the world or industry).
Promote eco design for resource saving and circulation and increase resource efficiency of newly developed products by 15% or more.	Rate of improvement of resource efficiency of new products	%	The average rate of improvement of resource efficiency*1 (versus FY 2014) of products. *1 Hardware products, under the Fujitsu brand, newly developed in FY 2016–18. Excludes products not designed by Fujitsu (OEM products) and products designed under customer specifications. *Refer to "Improving resource efficiency of new products" for the resource efficiency calculation method.
Maintain over 90% resource reuse rate of business ICT equipment at Fujitsu recycling centers.	Resource reuse rate of business ICT equipment	%	Based on the calculation method provided by JEITA, recycled components and resources as a percentage of the weight of used products processed in Japan. Excludes collected waste other than used electronic products.

Chapter II Pursuing Internal Reforms (Fujitsu Group Environmental Action Plan (Stage VIII) "Our Business")

Target Item	Indicator	Unit	Calculation Method
Reduce greenhouse gas emissions by 5% or more compared to FY 2013.	GHG emissions	Tons CO_2	CO_2 emissions: ∑{(Electricity, fuel oil, gas, and district heating and cooling annual usage) × CO_2 conversion factor for each type of energy*1} *1 CO_2 conversion factor: The factor is based on the Act on Promotion of Global Warming Countermeasures. In FY 2013, the conversion factor for electricity was 0.570 tons CO_2/MWh and in FY 2016 it was 0.534 tons CO_2/MWh.
			GHG emissions other than CO_2: Annual emissions of HFCs, PFCs, SF_6, and NF_3 at three semiconductor plants (Mie Fujitsu Semiconductor Limited, Aizu Fujitsu Semiconductor Wafer Solution Limited, and Aizu Fujitsu Semiconductor Manufacturing Limited). ∑{Annual emissions for each type of gas*1 × Global warming potential for each gas*2} *1 Based on the calculation method used by the industries of electrical and electronics: Amount of each gas used (or purchased) × Reactant consumption rate × Removal efficiency, etc. *2 Global Warming Potential (GWP): IPCC (Intergovernmental Panel on Climate Change) Fourth Assessment Report "Climate Change 2007."
	Percentage reduction in total greenhouse gas emissions	% reduction	(Total GHG emissions in FY 2013 – Total GHG emissions in the fiscal year) / Total GHG emissions in FY 2013 × 100
Improve PUE of our major data centers by 8% or more compared to FY2013.	Rate of improvement of PUE	%	PUE = Σ (Total DC energy consumption) ÷ Σ (Total IT device enegy consumption) Σ: Combined total energy of the 34 main sites Rate of improvement (%) = (Base year PUE – PUE for the current fiscal year) ÷Base year PUE x 100 Base year: FY 2013
Improve energy intensity by an average 1% or more each year.	Rate of improvement of energy intensity	%	The improvement rate, year on year, for each business site's energy rate index is a weighted average of the proportion to the site's overall energy usage. These values are added to calculate our total improvement rate. Σ(% improvement year-on-year in each business site's rate index x wt% proportion of overall energy usage) Target business sites: Japan (energy management plants specified under the Act on the Rational Use, etc. of Energy), UK and Australia offices
Increase the renewable energy usage rate to 6% or higher.	Renewable energy usage rate	%	Power generated by the company through renewable energy (solar, wind, hydraulic, biomass, geothermal, etc.) or purchased from an outside source ÷ total amount of electric power used
Reduce CO_2 emissions per sales from transport an average of 2% or more.	CO_2 emissions per sales from transport	Tons/100 million yen	Transport CO_2 emissions/sales (100 million yen) * Sales: Excluding the effects of the exchange rate
	Reduction rate of CO_2 emissions compared to the previous fiscal year	% reduction	(Previous fiscal year's transport CO_2 emissions per sales – Current fiscal year's transport CO_2 emissions per sales) / Previous fiscal year's transport CO_2 emissions per sales x 100
Reduce water consumption by 1% in total. (128,000 m^3)	Amount of reduction of water use	m^3	Build up the water use reduction impact of measures implemented at each business site (actual or estimated), and calculate the amound of reduction for the current fiscal year.
Reduce chemical pollutant (PRTR) release to less than the average level of FY 2012–2014. (20.7 t)	Volume of PRTR-targeted substances	Tons	For the substances covered by the PRTR law (Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof), released totals are provided for those substances handled in quantities exceeding 100 kg annually per business site.
Reduce the amount of waste to less than the average level of FY 2012–2014. (25,568 t)	Amount of Waste Generated	Tons	Total amount for industrial waste and general waste generated by factories and offices (Thermal recycling volume + Material recycling volume + Disposal volume)
	Effective utilization ratio (Japan only)	%	(Amount of effective use (thermal recycling & material recycling) / amount of waste generated) × 100

*1 **Four electrical and electronic industry associations:** The Japan Electrical Manufactures' Association (JEMA), Japan Electronics and Information Technology Industries Association (JEITA), Communications and Information Network Association of Japan (CIAJ), and Japan Business Machine and Information System Industries Association (JBMIA)

Environmental Liabilities

Indicator	Unit	Calculation Method
Cost for environmental liabilities	Yen	1. Asset retirement obligation (Only asbestos removal cost related to facility disposal) 2. Cost for soil contamination measures 3. Disposal processing cost for waste with high concentrations of PCB (polychlorinated biphenyl)

GHG Emissions Report Based on GHG Protocol Standards

Indicator		Unit	Calculation Method
Upstream (Scope 3)	Purchased goods and services	Tons	Components purchased during the fiscal year × Emissions per unit of purchases (Source: Embodied Energy and Emission Intensity Data (3EID) published by the National Institute for Environ mental Studies Center for Global Environmental Research)
	Capital goods	Tons	Monetary value of capital × Emissions value per unit of capital value (Source: Embodied Energy and Emission Intensity Data (3EID) published by the National Institute for Environmental Studies Center for Global Environmental Research)
	Fuel and energy – related items not included in Scopes 1 and 2	Tons	Annual amounts of fuel oil and gas, electricity and heat purchased (consumed) mainly at business sites owned by Fujitsu × Emissions per unit (Source: Basic Guidelines for Calculating Greenhouse Gas Emissions Via Supply Chains and the Carbon Footprint Communication Program Basic Database Ver. 1 published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry)
	Transportation and distribution (upstream)	Tons	Transportation of goods within Japan: CO_2 emissions related to the transportation of goods within Japan by the Fujitsu Group. CO_2 emissions related to domestic transportation by the Fujitsu Group, based on the Act on the Rational Use, etc. of Energy. The fuel economy method (for some vehicles) or the improved ton-kilometer method (vehicle, rail, air, ship).
		Tons	International transport/overseas local transport: transportation ton-kilometers × emission per unit (source: GHG protocol emissions coefficient database)
	Waste generated in operations	Tons	Annual amounts of waste (discharged mainly by business sites owned by Fujitsu) processed or recycled, by type and processing method × Emissions per unit of annual amount of waste processed or recycled (Source: Basic Guidelines for Calculating Greenhouse Gas Emissions Via Supply Chains published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry)
	Business travel	Tons	(By means of transport) Σ (Transportation expense payment × Emissions per unit) (Source: Basic Guidelines for Calculating Greenhouse Gas Emissions Via Supply Chains Ver. 2.1 and Emissions per Unit Database Ver. 2.1 published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry)
	Employee commuting	Tons	For portions of commute by public transportation: (By means of transport) Σ (Transportation expense payment x Emissions per unit) (Source: As above) For portions of commute by private automobile: Σ (Transported persons-kilometer × Emissions per unit) (Source: As above) Transported persons-kilometer is calculated from transportation expense payment, price of gasoline, and fuel efficiency.
	Leased assets (Upstream)	Tons	Annual amounts of fuel oil, gas, electricity, and heat consumed mainly at leased business sites × Emissions per unit of fuel oil, gas, electricity, and heat consumed (Sources - Japan: Act on Promotion of Global Warming Countermeasures - GHG Emissions Accounting, Reporting, and Disclosure System; Overseas: IEA CO_2 Emissions from Fuel Combustion Highlights 2013)
Reporting company (Scopes 1, 2)	Direct emissions	Tons	Amount of CO_2 emissions from the consumption of fuel oil and gas (burning of fuel), and GHG emissions, other than CO_2 mainly at business sites owned by Fujitsu *For the calculation method, see "Greenhouse gas emissions (CO_2 emissions, greenhouse gas emissions other than CO_2) from business sites" in the Environmental Action Plan (Stage VIII).
	Indirect emissions from energy sources	Tons	CO_2 emissions from the consumption (purchase) of electricity and heat mainly at business sites owned by Fujitsu *For the calculation method, see "Greenhouse gas emissions (CO_2 emissions) at business sites" in the Environmental Action Plan (Stage VIII). Use IEA CO_2 Emissions from Fuel Combustion Highlights 2013 for some overseas business sites.
Downstream (Scope 3)	Processing of sold products	Tons	Intermediate product sales volume x Emissions per unit of processing volume Intermediate product sales volume is Fujitsu's device solution sales. Emissions per unit of processing volume is calculated from Fujitsu's FY2015 assembly plant data.
	Use of sold products	Tons	Electricity consumption during product use × Emissions per unit of electricity (Source: Actual emission factor for each electricity utility based on ministerial ordinances on calculation and adjusted emission factor for each electricity utility based on reporting orders, announced for each fiscal year from FY 2011 to FY 2015) Electricity consumption during product use is calculated as electricity usage for the anticipated usage time per product unit × Units shipped for the subject fiscal year. Electricity usage for the anticipated usage time per product unit is calculated as electricity consumed (kW) × Time used (h) / Days × Number of days used / Year × Number of years used. Time used (h), number of days used per year, and number of years used are set according to Fujitsu's internal scenarios.
	End-of-life treatment of sold products	Tons	(Weight of all sold products / Weight of products processed at Fujitsu's recycling centers during the year) × Electricity used at Fujitsu's recycling centers during the year × Emissions per unit of electricity (Source: Actual emission factor for each electricity utility based on ministerial ordinances on calculation and adjusted emission factor for each electricity utility based on reporting orders, announced for each fiscal year from FY 2011 to FY 2015)

Supplementary Data

Indicator	Unit	Calculation Method
Measured value of groundwater pollution	mg/L	The highest value in the fiscal year for substances detected at levels exceeding regulated levels set in the Soil Contamination Countermeasures Act etc. at monitoring wells at the boundaries of sites where past business activities have resulted in soil contamination.

Operating Activities and Environmental Load (Material Balance)

Indicator			Unit	Calculation Method
INPUT				
Design/ Procurement/ Manufacturing/ Development	Raw Materials		ktons	Material inputs to our major products*1 shipped in the fiscal year (raw materials per unit for each product x the number of units shipped in the fiscal year)
	Chemical Substances	Volume of substances subject to VOC emissions restrictions	Tons	For the 20 VOCs (Volatile Organic Compounds) specified in the environmental voluntary action plans of the four electrical and electronic industry associations*2, total amounts handled are provided for those substances handled in quantities exceeding 100 kg annually at individual business sites, including overseas sites. Substances subject to VOC emissions controls that are also covered by the PRTR law are included in the section on substances subject to VOC emissions controls
		Volume of PRTR-targeted substances	Tons	For the substances covered by the PRTR law (Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof), totals are provided for those substances handled in quantities exceeding 100 kg annually per business site, including overseas sites.
	Water usage		m^3	Annual use of clean water, industrial water, and groundwater (Not including groundwater extracted for purification or used for melting snow)
	Amount of recycled water		m^3	Annual amount of water used for manufacturing and other purposes, then recovered, processed, and used again for manufacturing and other processes
	Energy consumption (calorie basis)		GJ	∑{(Electricity, fuel oil, gas, and district heating and cooling annual usage) × Thermal conversion factor for each type of energy*1} *1 Thermal conversion factor (Heating value unit): According to the "Act on the Rational Use, etc. of Energy" For town gas, conversion factors from each supplier or 44.8 GJ/1,000m^3 were used.
		Purchased electricity	MWh	Annual electricity usage
		Bunker A, fuel oil, light oil, benzine, gasoline	kL	Annual fuel oil usage (or purchases)
		Natural gas	m^3	Annual natural gas usage (or purchases)
		Town gas	m^3	Annual town gas usage (or purchases)
		LPG	Tons	Annual LPG usage (or purchases)
		LNG	Tons	Annual LNG usage (or purchases)
		District heating and cooling	GJ	Annual district heating and cooling (cold and hot water for cooling and heating) usage (or purchases)
Distribution/ Sales	Energy consumed for transport		GJ	Total value of transport energy consumption for Fujitsu*1 and Fujitsu Group companies*2 *1 Fujitsu (domestic transport): Energy consumption related to domestic transport by the Fujitsu Group, based on the Act on the Rational Use of Energy "Logistics." *2 Fujitsu Group Companies: Calculated from the transport CO_2 emissions from OUTPUT (distribution and sales) using the ratio of Fujitsu (domestic transport) transport energy consumption to transport CO_2 emissions.
Usage	Energy	Electricity	GWh	Electricity consumed in connection with major products*1 shipped during the fiscal year (Amount of electricity used for time estimated per product unit × units shipped in the fiscal year)
			GJ	
Recycling of resources	Resource recycling rate		%	Based on the calculation method provided by JEITA, recycled components and resources as a percentage of the weight of used products processed in Japan. Excludes collected waste other than used electronic products.
	Processed volume		Tons	

Indicator			Unit	Calculation Method
OUTPUT				
Design/ Procurement/ Manufacturing/ Development	Raw Materials	CO_2 emissions	Tons CO_2	CO_2 emissions related to all stages from resource extraction through processing into raw materials (CO_2 emissions equivalent for raw materials used per product unit × Units shipped in the fiscal year) for the raw materials used in major products*1 shipped in the fiscal year.
	Chemical Substances	Volume of substances subject to VOC emissions restrictions	Tons	For the 20 VOCs (Volatile Organic Compounds) specified in the environmental voluntary action plans of the four electrical and electronic industry associations,*2 total amounts released are provided for those substances handled in quantities exceeding 100 kg annually at individual business sites, including overseas sites. Substances subject to VOC emissions controls that are also covered by the PRTR law are included in the section on substances subject to VOC emissions controls
		Volume of PRTR-targeted substances	Tons	For the substances covered by the PRTR law (Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof), released totals are provided for those substances handled in quantities exceeding 100 kg annually per business site, including overseas sites.
	Atmospheric Release	CO_2 emissions	Tons CO_2	* For the calculation method, see "Greenhouse gas emissions (CO_2 emissions) from business sites" in the Environmental Action Plan (Stage VIII).
		GHG emissions other than CO_2	Tons	* For the calculation method, see "Greenhouse gas emissions (GHG emissions other than CO_2) at business sites" in the Environmental Action Plan (Stage VIII).
		NOx emissions	Tons	NOx concentration (ppm) × 10^{-6} × Dry gas emissions (m^3N/hr) × Operating time (hr/yr) × 46/22.4 × 10^{-3}
		SOx emissions	Tons	SOx concentration (ppm) × 10^{-6} × Dry gas emissions (m^3N/hr) × Operating time (hr/yr) × 64/22.4 × 10^{-3}
	Water Discharge	Wastewater discharges	m^3	Annual water discharges into public waterways and sewers (Not including groundwater used for melting snow, but including groundwater extracted for purification when the amount of water is known)
		BOD emissions	Tons	BOD concentration (mg/l) × Water discharges (m^3/yr) × 10^{-6}
		COD emissions	Tons	COD concentration (mg/l) × Water discharges (m^3/yr) × 10^{-6}
	Waste	Amount of Waste Generated	Tons	* For the calculation method, see "Waste generated" in the Environmental Action Plan (Stage VIII).
		Thermal recycling volume	Tons	Among all types of waste put to effective use, the total volume used in thermal recycling * Thermal recycling: Recovery and use of the heat energy generated by incinerating waste.
		Material recycling volume	Tons	Among all types of waste put to effective use, the total volume used in material recycling * Material recycling: Processing of waste to facilitate its re-use, and re-use of processed waste as material or raw materials for new products.
		Disposal volume	Tons	Volume of industrial and general waste processed by, for example, landfilling or simple incineration
Distribution / Sales	Atmospheric Release		Tons CO_2	* For the calculation method, see "Transportation and distribution (upstream)" in the GHG Emissions Report based on GHG Protocol Standards.
Usage	Atmospheric Release		Tons CO_2	Emission intensity per electricity has changed since FY2014. For the calculation method, see "Use of sold products" in the GHG Emissions Report based on GHG Protocol Standards.

*1 **Major products:** Personal computers, mobile phones, servers, workstations, storage systems, printers, scanners, financial terminals, retail terminals, routers, LAN access equipment, access network products, mobile phone base stations, and electronic devices.

*2 **Four electrical and electronic industry associations:** The Japan Electrical Manufactures' Association (JEMA), Japan Electronics and Information Technology Industries Association (JEITA), Communications and Information Network Association of Japan (CIAJ), and Japan Business Machine and Information System Industries Association (JBMIA).