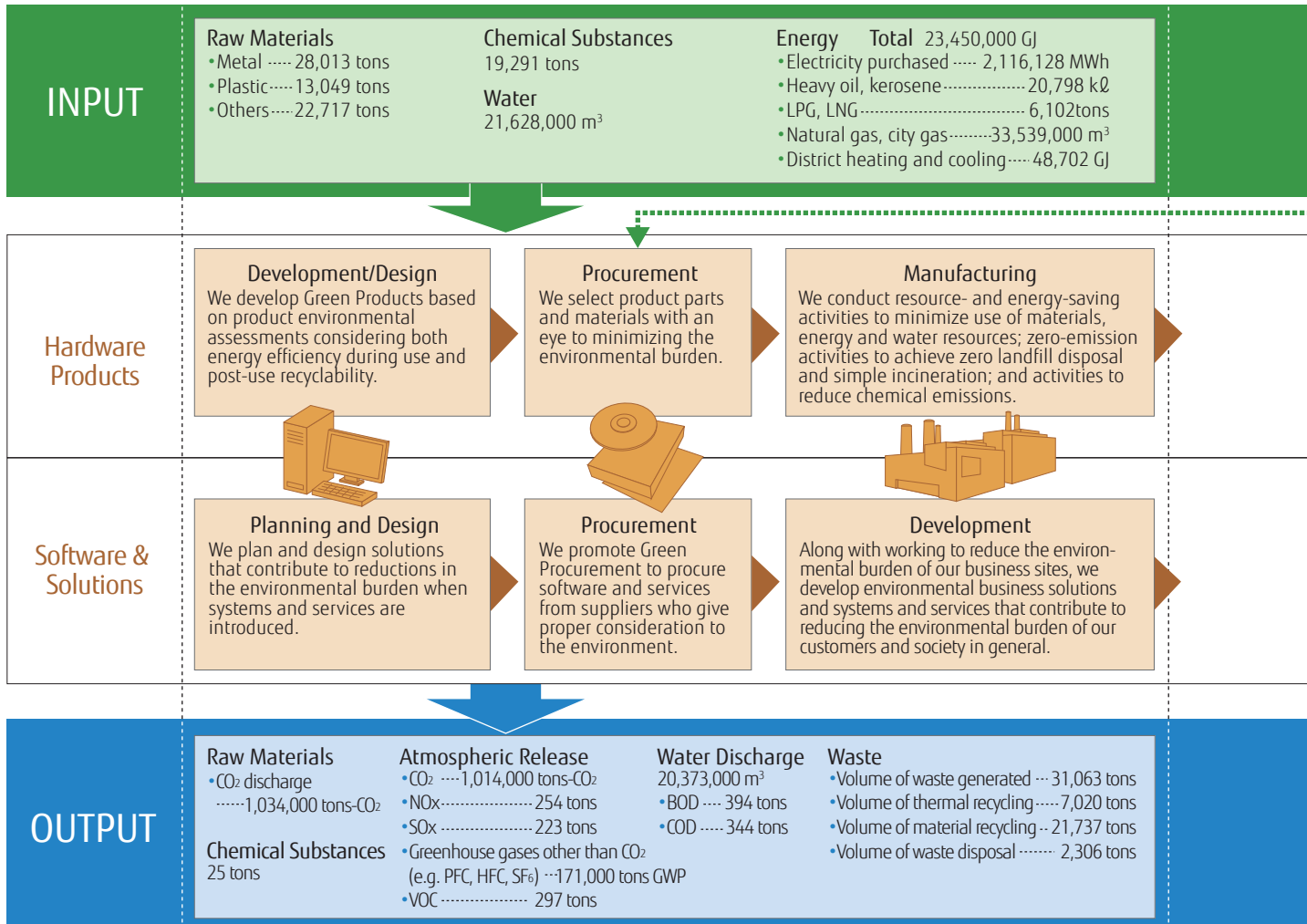# Operating Activities and Environmental Burden (Material Balance)

We promote environmentally friendly business activities through overall quantitative assessment of our environmental burden from the life cycle and supply chain standpoints.
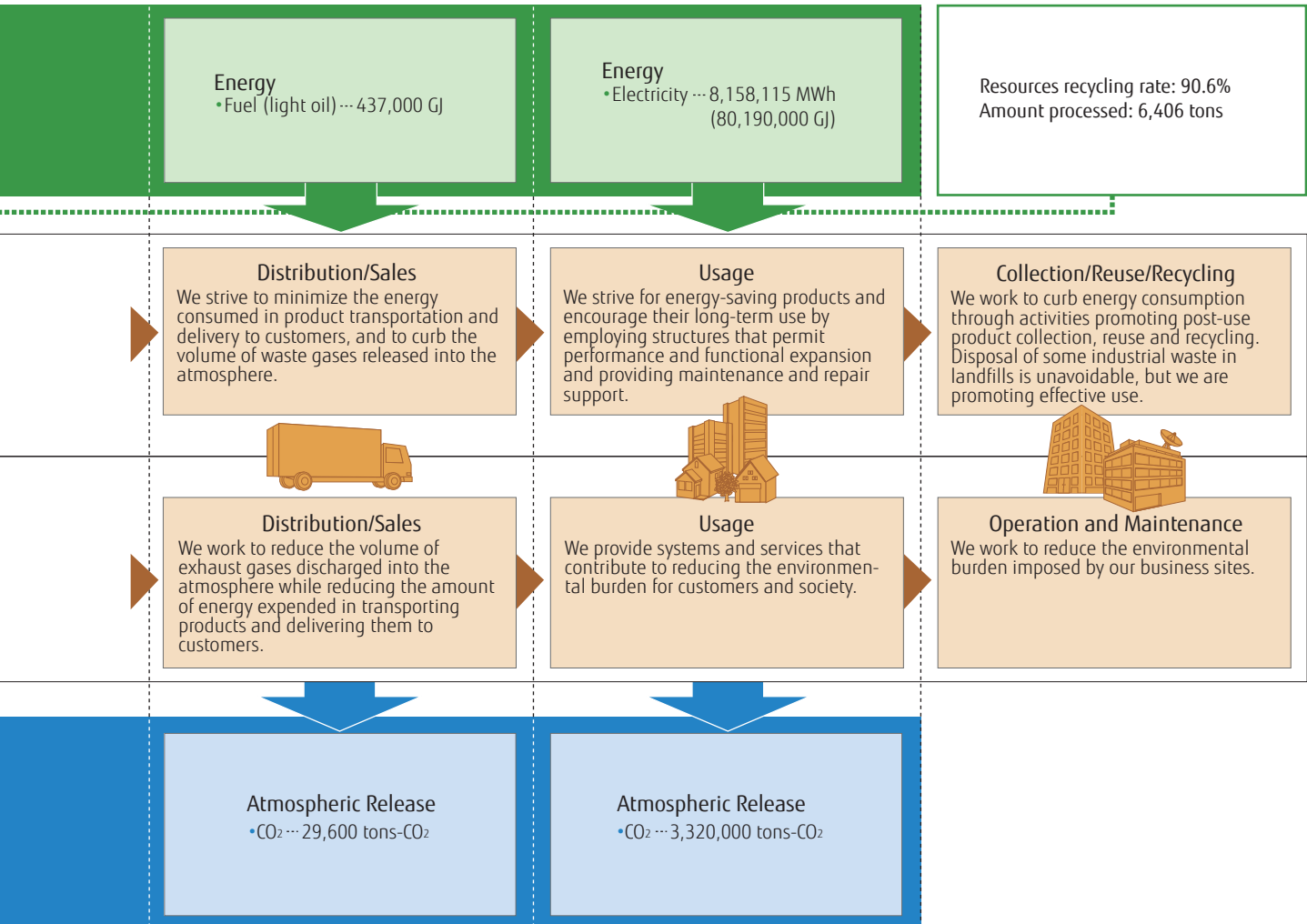
Material Balance

INPUT

Raw Materials
- Metal ····· 28,013 tons
- Plastic ····· 13,049 tons
- Others ····· 22,717 tons

Chemical Substances
19,291 tons

Water
21,628,000 m³

Energy   Total 23,450,000 GJ
- Electricity purchased ····· 2,116,128 MWh
- Heavy oil, kerosene ················· 20,798 kℓ
- LPG, LNG ································ 6,102tons
- Natural gas, city gas ········· 33,539,000 m³
- District heating and cooling ····· 48,702 GJ

Hardware Products

Development/Design
We develop Green Products based on product environmental assessments considering both energy efficiency during use and post-use recyclability.

Procurement
We select product parts and materials with an eye to minimizing the environmental burden.

Manufacturing
We conduct resource- and energy-saving activities to minimize use of materials, energy and water resources; zero-emission activities to achieve zero landfill disposal and simple incineration; and activities to reduce chemical emissions.

Software & Solutions

Planning and Design
We plan and design solutions that contribute to reductions in the environmental burden when systems and services are introduced.

Procurement
We promote Green Procurement to procure software and services from suppliers who give proper consideration to the environment.

Development
Along with working to reduce the environmental burden of our business sites, we develop environmental business solutions and systems and services that contribute to reducing the environmental burden of our customers and society in general.

OUTPUT

Raw Materials
- CO_2 discharge
  ······ 1,034,000 tons-CO_2

Chemical Substances
25 tons

Atmospheric Release
- CO_2 ·····1,014,000 tons-CO_2
- NOx ···················· 254 tons
- SOx ···················· 223 tons
- Greenhouse gases other than CO_2 (e.g. PFC, HFC, SF_6) ···171,000 tons GWP
- VOC ··················· 297 tons

Water Discharge
20,373,000 m³
- BOD ····· 394 tons
- COD ····· 344 tons

Waste
- Volume of waste generated ··· 31,063 tons
- Volume of thermal recycling ····· 7,020 tons
- Volume of material recycling ·· 21,737 tons
- Volume of waste disposal ········· 2,306 tons

Calculation Methods

INPUT		
Development / Planning & Design	Raw Materials	Material inputs to our major products* shipped in FY 2010 (raw materials per unit for each product times the number of units shipped in FY 2010)
	Chemical Substances	Volume of PRTR Law target chemicals handled by plants/sites in FY 2010
Procurement	Water	Volume used by plants/sites in FY 2010
Manufacturing / Development	Energy	Electricity, oil and gas consumed by plants/sites in FY 2010
Distribution / Sales	Energy	Energy consumption in transportation in FY 2010
Usage	Energy	Electricity consumption by major products* shipped in FY 2010 (Assumed hours of use per product x age-based electricity consumption x the number of units shipped in FY 2010)
Collection/Reuse/Recycling		The weight ratio of recycled parts and resources with respect to the processing volume of post-use products is calculated according to the method of the Japan Electronics and Information Technology Industries Association. It excludes collected waste other than post-use electronic products.

* 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.

Energy •Fuel (light oil) ⋯ 437,000 GJ	**Energy** •Electricity ⋯ 8,158,115 MWh (80,190,000 GJ)	Resources recycling rate: 90.6% Amount processed: 6,406 tons

Distribution/Sales
We strive to minimize the energy consumed in product transportation and delivery to customers, and to curb the volume of waste gases released into the atmosphere.

Usage
We strive for energy-saving products and encourage their long-term use by employing structures that permit performance and functional expansion and providing maintenance and repair support.

Collection/Reuse/Recycling
We work to curb energy consumption through activities promoting post-use product collection, reuse and recycling. Disposal of some industrial waste in landfills is unavoidable, but we are promoting effective use.

Distribution/Sales
We work to reduce the volume of exhaust gases discharged into the atmosphere while reducing the amount of energy expended in transporting products and delivering them to customers.

Usage
We provide systems and services that contribute to reducing the environmental burden for customers and society.

Operation and Maintenance
We work to reduce the environmental burden imposed by our business sites.

Atmospheric Release
•CO_2 ⋯ 29,600 tons-CO_2

Atmospheric Release
•CO_2 ⋯ 3,320,000 tons-CO_2

Calculation Methods

OUTPUT		
Development / Planning & Design Procurement Manufacturing / Development	Raw Materials	Material inputs to our major products* shipped in FY 2010 (per-unit volume of CO_2 emitted from mining the resource until it becomes a raw material for each product times the number of units shipped in FY 2010) In FY 2010, we improved our grasp of the number of electronic devices used in our products with very high accuracy.
	Chemical Substances	Measuring the concentrations of PRTR Law target chemicals discharged through plants' drains and exhaust ports in FY 2010 and multiplying the total volume discharged (nickel compounds, manganese compounds, etc.) or total volume emitted (xylene, toluene, etc.), or calculating based on the chemical substance balance (xylene and toluene).
	Atmospheric Release	CO_2: CO_2 discharge volume associated with energy consumption by plants/sites in FY 2010 (Energy consumption times CO_2 conversion factor) NOx, SOx: Calculated from concentrations in gases discharged from vents (boilers, etc.) by plants/offices in FY 2010 Greenhouse gases other than CO_2: Discharge volume of process gases used in four semiconductor plants in FY 2010. (Calculated by formulas such as <volume of gas used> x <ratio consumed in reactions> x <detoxification ratio>) VOC: Emission amounts of the substances subject to emissions restrictions stipulated by the four electric and electronics associations for factories and business sites for FY 2010
	Water Discharge	Wastewater volume discharged by plants/sites into sewerage or rivers in FY 2010 BOD: A measure of the emission volume of organic pollution of water discharged by businesses employing the volume of oxygen consumed when organic matter in water is removed by microbial activity. COD: A measure of the emission volume of organic pollution of water discharged by businesses employing the volume of oxygen consumed when organic matter in water is removed chemically by oxidation.
	Waste	Quantity of Waste Generated: amount of waste generated by plants/sites in FY 2010 Volume of Waste Disposal: The volume of landfill disposal and simple incineration by plants/sites in FY 2010 (including waste which is not a zero emission target)
Distribution / Sales	Atmospheric Release	The total volume of CO_2 emissions in FY 2010, including both fuel consumption by our shipping business in Japan when measurable, and shipping distance x freight weight x coefficient when the freight of companies other than Fujitsu is included, as in mixed load transportation
Usage	Atmospheric Release	The volume of CO_2 emissions during use of major products* shipped in FY 2010 (Amount of energy consumed x CO_2 conversion coefficient. The amount of energy consumed is calculated by multiplying the quantity of electricity used during the estimated time of use of each product unit by the number of units shipped in FY 2010)

* **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.