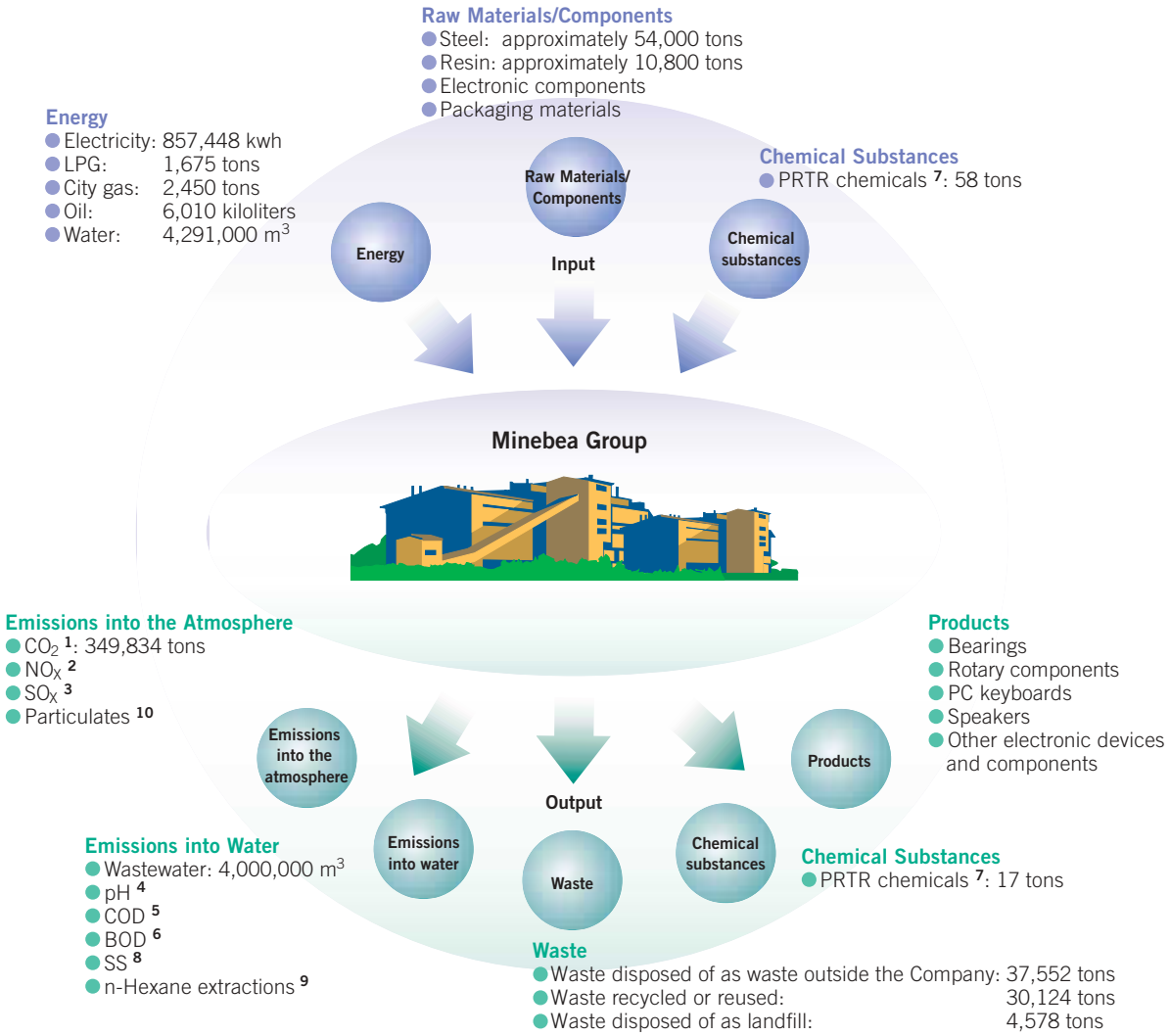
Minebea's global presence currently encompasses 27 plants in seven countries and 43 sales offices in 13 countries. Minebea acknowledges that these plants and sales offices exert a burden on the environment. This burden comprises "input," that is, the raw materials, energy and other materials the Company consumes for use in production, and "output," or the CO_2 emissions, industrial waste and products it discharges. The chart below depicts input and output from Minebea's plants in fiscal 2004.

Input–Output Flow and Material Balance [11]



Glossary

1. **CO_2: Carbon dioxide**
2. **NO_X: Nitrogen oxides**
3. **SO_X: Sulfur oxides**
   Emissions of CO_2, NO_X and SO_X result from the burning of coal, oil, gasoline and other fuels by, among others, thermal power generation, plant boilers and exhaust emissions from cars and trucks.
4. **pH:** A solution's pH reading indicates whether it is alkaline or acidic. The pH range is from 0 to 14, with 7.0 being neutral. Anything above 7.0 is alkaline, anything below 7.0 is acidic.
5. **COD: Chemical oxygen demand**
   The amount of oxygen required for oxidation of organic solids in water to CO_2. COD readings can be obtained more quickly than BOD readings, but they are less reliable. COD is commonly used to monitor pollution in effluent discharged into oceans and lakes.
6. **BOD: Biological oxygen demand**
   The amount of oxygen required for the biological oxidation of organic solids in water. The higher the BOD reading, the greater the level of pollution. BOC ratings usually take five days. BOD is commonly used to monitor pollution in effluent discharged into rivers.
7. **PRTR substances: Substances included in a Pollutant Release and Transfer Register (PRTR)**
   In Japan, the Law Concerning the Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management requires companies to register and monitor the release and transfer of designated PRTR substances.
8. **SS: Suspended solids**
   This term refers to matter suspended or dissolved in water or wastewater. The higher the percentage, the greater the water's turbidity.
9. **n-Hexane extractions**
   This term refers to the volume of oils and cleaning fluids extracted from water using the chemical n-Hexane. As used in this report, it denotes the volume of mineral oil extracted using n-Hexane.
10. **Particulates**
    Particulates are microscopic solid matter contained in exhaust gas generated as a result of combustion, heating or chemical reaction.
11. **Material balance**
    The net of "input" and "output."

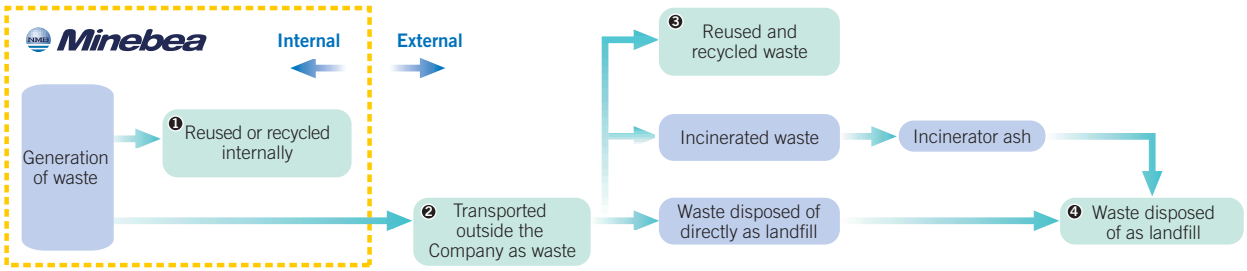
Energy Consumption and Resulting CO_2 Emissions (Fiscal 2003)

Energy	Unit	Japan	Thailand	China	Singapore	United Kingdom	Germany	United States	**Total**
Electricity	1,000 kWh	58,017	557,230	110,110	69,170	19,811	1,515	41,595	**857,448**
Kerosene	Kiloliters	69	2,566	—	—	—	—	6	**2,641**
Fuel oil	Kiloliters	1,507	—	—	—	—	—	169	**1,676**
Fuel oil	Kiloliters	10	950	288	—	—	5	—	**1,253**
Gasoline	Kiloliters	18	417	—	—	—	2	3	**440**
LPG	Tons	248	1,199	177	—	—	—	51	**1,675**
City gas	1,000 m^3	539	—	—	—	1,596	59	256	**2,450**
Water	1,000 m^3	328	3,143	421	219	84	4	91	**4,290**
CO_2 emissions	Tons	30,004	221,078	43,574	26,561	10,785	717	17,115	**349,834**

Waste [1]

(Tons)

	Japan	Thailand	China	Singapore	United Kingdom	Germany	United States	**Total**
❶ Reused or recycled internally	815	153	1,338	388	6	0	27	**2,727**
❷ Transported outside the Company as waste	1,582	17,354	8,217	5,844	1,869	45	2,641	**37,552**
❸ Reused or recycled externally	470	15,960	6,204	4,685	598	35	2,172	**30,124**
❹ Disposed of as landfill	280	1,394	0	1,084	1,361	10	449	**4,578**



Handling and Transfer of PRTR Chemicals (Japan)

(Tons)

PRTR Number	Chemical	Volume Handled	Emissions			Transfer	Plant
			Released into the Atmosphere	Released into Water	Landfill	Waste	
69	Hexavalent chromium compounds	1.1	0	0	0	0.1	Fujisawa Manufacturing Unit
144	Dichloropentafluoropane (HCFC-225)	10.8	10.6	0	0	0.2	Karuizawa Manufacturing Unit
232	Nickel compounds	0.8	0	0	0	0.3	Fujisawa Manufacturing Unit
232	Nickel compounds	4.4	0	0	0	1.6	Hamamatsu Manufacturing Unit
311	Manganese and manganese compounds	41.3	0	0	0	15.0	Hamamatsu Manufacturing Unit

Glossary

1. **Waste**
   As used in this report, waste refers to industrial waste, that is, unwanted materials from industrial operations, and includes materials with negotiable value and materials to be recycled.

Minimizing Water and Air Pollution

Concentrations in Water

Karuizawa Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8~8.6	6.0~8.0	8.0	7.8
COD	40	30	7.9	4.4
BOD	40	30	6.9	2.7
SS	60	55	49.0	22.9
n-Hexane extractions	5	5	<1.0	<1.0

Fujisawa Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8~8.6	6.6~7.8	7.5	7.2
COD	60	30	19.0	10.0
BOD	60	30	20.0	11.3
SS	90	10	4.0	2.0
n-Hexane extractions	5	2	2.0	<1.0

Bang Pa-in Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.5~9.0	6.5~8.5	8.5	8.0
COD	120	80	65.0	33.8
BOD	20	18	5.0	3.1
SS	50	20	8.0	3.4
n-Hexane extractions	5	5	3.0	1.3

Ayutthaya Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.5~9.0	6.5~8.5	8.0	7.7
COD	120	80	32.0	17.3
BOD	20	18	3.0	3.0
SS	50	20	4.5	1.8
n-Hexane extractions	5	5	0.8	0.7

Hamamatsu Manufacturing Unit (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.8~8.6	6.0~8.0	7.4	7.0
COD	40	20	8.5	5.3
BOD	25	20	2.4	1.4
SS	40	25	7.0	2.6
n-Hexane extractions	5	5	—	<1.0

Shanghai Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	6~9	7~8	8.0	7.8
COD	60	20	17.4	11.4
BOD	15	5	3.5	1.4
SS	70	10	9.0	4.0
n-Hexane extractions	3	1	1.0	0.6

Xicen Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	6~9	7~8	8.0	7.8
COD	60	20	18.9	11.0
BOD	15	5	3.0	1.0
SS	70	10	8.0	3.0
n-Hexane extractions	3	1	1.0	0.6

Lop Buri Plant (Mg/liter)

	Legal Limit	Voluntary Limit	Maximum	Average
pH	5.5~9.0	6.5~8.5	7.8	7.6
COD	120	80	38.0	33.1
BOD	20	18	9.1	7.0
SS	50	20	11.2	6.4
n-Hexane extractions	5	5	2.7	2.3

Wastewater treatment facility, Bang Pa-in Plant (Thailand)

Wastewater treatment facility, Shanghai Factory (China)

Concentrations in Air

Karuizawa Manufacturing Unit (Absorption 600-ton boiler)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m^{3}N	0.3	0.25	0.014	0.011
NOx	ppm	180	150	85	74
SOx	m^{3}N/h	1.2	1.0	0.45	0.37

Fujisawa Manufacturing Unit (Sectional hot water boiler)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m^{3}N	0.3	0.15	—	<0.01
NOx	ppm	150	80	65	61
SOx	m^{3}N/h	0.525	0.250	—	—

Hamamatsu Manufacturing Unit (Absorption chiller heater)

	Unit	National Limit	Voluntary Limit	Maximum	Average
Particulates	g/m^{3}N	0.3	0.2	—	<0.01
NOx	ppm	180	100	65	62
SOx	m^{3}N/h	—	—	—	—