

Samsung SDI 2025 Sustainability Report: ESG Overview

Scope 1+2 emissions down 22% in two years, 37% renewable energy, ZWTL Platinum all sites, all-solid-state battery A-samples delivered — Samsung SDI's 2025 sustainability report covering 2024 performance data.

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Samsung SDI — 2025 Sustainability Report Overview (KRX: 006400) — Data year: 2024

Net-zero target	2050 (operations); 2030 interim: 1,003,446 tCO ₂ e
RE100 target	90% by 2030, 100% by 2050
Renewable energy share	37% (2024), up from 27% (2023)
Zero Waste to Landfill	Platinum — all 12 sites
Frameworks	GRI 2021, CSRD/ESRS, SASB, TCFD, UN SDGs
Verification	KSA (GHG); BSI (AA1000 AS Type 2)

Key Highlights

- Total Scope 1+2 emissions fell **22% over two years** to 1,291,974 tCO₂e in 2024, driven primarily by a 29% reduction in Scope 2 emissions as renewable energy procurement expanded.
- Renewable energy share reached **37%** (1,064,643 MWh), up from 27% in 2023, on a pathway to the 90% by 2030 RE100 interim target.
- All **12 production sites** achieved **ZWTL Platinum certification**, with a 95.2% waste recycling rate and near-zero landfill (78 tonnes total).
- Water reuse rate nearly doubled in two years to **42.0%** (6.2 million tonnes reused), while total water withdrawal fell 7.5% year-on-year.
- Samsung SDI supplied **all-solid-state battery A-samples** to major customers in H2 2024, with mass production targeted for 2027. Next-gen ESS product (SBB 1.5) delivers 5.26 MWh in a 20ft container.
- The board maintained **57% independent director representation** (4 of 7), with a dedicated Sustainability Management Committee meeting 4 times at 100% attendance.

1. Environmental

1.1 Climate and Emissions

Samsung SDI's combined Scope 1+2 emissions declined to 1,291,974 tCO₂e in 2024, an 11.4% year-on-year reduction and 22.2% below 2022 levels. Scope 2 fell 15% to 1,009,866 tCO₂e as the company expanded renewable energy procurement. Scope 1 rose modestly to 282,108 tCO₂e from 272,196 tCO₂e.

By segment, Mobile and Power Battery: 598,370 tCO₂e (46%); Automotive and ESS Battery: 392,307 tCO₂e (30%); Electronic Materials: 173,017 tCO₂e (13%); R&D and others: 128,279 tCO₂e (10%). Scope 3 totaled 2,051,175 tCO₂e. The 2030 interim target is 1,003,446 tCO₂e for Scope 1+2.

METRIC	UNIT	2024	2023	2022
Total Scope 1+2	tCO ₂ e	1,291,974	1,458,880	1,661,250
Scope 1 (direct)	tCO ₂ e	282,108	272,196	242,116
Scope 2 (indirect)	tCO ₂ e	1,009,866	1,186,684	1,419,134
Scope 3 (value chain)	tCO ₂ e	2,051,175	2,208,938	1,203,935
GHG intensity	tCO ₂ e/KRW 100M	8	6	8
Automotive & ESS Battery	tCO ₂ e	392,307	479,262	516,853

1.2 Energy

Total energy consumption rose 1.8% to 34,131 TJ. Electricity accounted for 81% (27,682 TJ). Overseas subsidiaries consumed 65% of the total (22,313 TJ). Renewable energy share increased to 37%, up from 27% in 2023. RE100 target: 90% by 2030, 100% by 2050.

METRIC	UNIT	2024	2023	2022
Total energy	TJ	34,131	33,543	32,810
Electricity	TJ	27,682	27,263	26,977
LNG	TJ	5,197	5,002	4,422
Energy intensity	TJ/KRW 100M	0.21	0.15	0.16
Renewable share	%	37	27	—

1.3 Water and Waste

Water withdrawal declined 7.5% to 8,621,244 tonnes. Water reuse reached 42.0% (6,237,361 tonnes), up from 30.9% in 2023 and 23.0% in 2022. Total waste fell 9% to 159,442 tonnes; recycling rate: 95.2%. Waste to landfill dropped to just 78 tonnes. All 12 sites hold ZWTL Platinum certification.

METRIC	UNIT	2024	2023	2022
Water withdrawal	ton	8,621,244	9,319,084	9,551,318
Water reused	ton	6,237,361	4,176,332	2,848,852
Water reuse rate	%	42.0	30.9	23.0
Total waste	ton	159,442	175,116	175,061
Hazardous waste	ton	75,996	90,266	84,514
Recycling rate	%	95.2	94.7	93.0
Landfill (total)	ton	78	958	3,988

2. Social

2.1 Workforce

Total headcount: 30,664 (down 3.3% from 31,704). Gender: 75.8% male, 24.2% female. By region: Korea 42%, Asia (excl. Korea) 33%, Europe 21%, Americas 4%. European headcount fell from 7,875 to 6,430. Female managers: 15.1% (up from 14.3%). Training: 91 hours/employee, KRW 1.62M/employee. Total turnover: 12.6%; voluntary: 7.2%.

METRIC	UNIT	2024	2023	2022
Total employees	Persons	30,664	31,704	30,716
Female share	%	24.2	23.6	24.9
Female managers	%	15.1	14.3	13.0
Korea	Persons	12,872	11,860	11,412
Europe	Persons	6,430	7,875	6,691
Americas	Persons	1,223	1,129	625
Turnover (total)	%	12.6	9.9	12.9
Overseas turnover	%	21.1	15.3	19.4
Training hours/employee	Hours	91	86	93

2.2 Health and Safety

All workplaces (100%) ISO 45001 certified. Work-related injuries: 5 cases (unchanged). Fatalities: 0 employees, 0 partners (vs 1 employee fatality in 2023). Accident rate: 0.016%. Illness rate: 0% across all three years.

METRIC	UNIT	2024	2023	2022
Work-related injuries	Cases	5	5	2
Fatalities (employees)	Persons	0	1	0
Accident rate	%	0.016	0.016	0.007
ISO 45001 certified	%	100	100	100

2.3 Supply Chain

538 Tier 1 partners; 287 key partners (90% of procurement). ESG on-site audits: 70 companies (20 domestic, 50 overseas). 13 received corrective guidance; 0 terminated. Responsible minerals policy covers 3TG + cobalt, nickel, lithium, manganese, graphite, mica. 3TG smelters: 100% RMAP-conformant. Cobalt smelters: 23/25 RMI-conformant. Zero-tolerance on child labor and forced labor.

3. Governance

3.1 Board and Oversight

Board: 7 directors (3 executive + 4 independent, 57% independence). 2 female independent directors. Average tenure: 3.2 years. 7 meetings in 2024, 99% attendance. 6 subcommittees. Sustainability Management Committee: 4 independent directors, chaired by Mee Kyung Lee, met 4 times, 100% attendance.

3.2 Ethics and Compliance

6 persons disciplined for corruption (down from 25 in 2023). 3 partner companies terminated for corruption (down from 11). 22 compliance audits. Anti-corruption training: 100% HQ, 99.9% overseas (~29,621 employees). Zero data privacy incidents across all three years. Zero environmental fines.

METRIC	UNIT	2024	2023	2022
Persons disciplined (corruption)	Persons	6	25	4
Partners terminated (corruption)	Companies	3	11	4
Data privacy incidents	Cases	0	0	0
Environmental fines	KRW	0	0	0

4. Innovation

SBB 1.5 (next-gen ESS): High-nickel NCA cells, 5.26 MWh in 20ft container (+37% energy density). EDI thermal management. UPS variant: 40% higher output, 33% less space, 15-year life. ESS fire suppression: Direct Discharge system with NOVEC, BMS monitoring, Active Venting.

All-solid-state battery: Anode-free, sulfide-based electrolyte. Proto samples Dec 2023; A-samples H2 2024 (~80% cell volume increase, doubled capacity, ~25% energy density improvement). Mass production: 2027.

Circular economy: Recycled metal usage: 14% (2024), 12% (2023), 8% (2022); target 2030: 26%. 4 products Carbon Trust certified. ESS production: 22.2M cells (2024).

METRIC	UNIT	2024	2023	2022
ESS production volume	Million cells	22.2	20.6	20.8
Customer satisfaction (Auto & ESS)	Points	86.0	82.5	81.6

METRIC	UNIT	2024	2023	2022
Recycled metal usage	%	14	12	8

5. What to Watch

Scope 1+2 on a downward trajectory, but 2030 target requires acceleration. At 1,291,974 tCO₂e in 2024, Samsung SDI needs to reach 1,003,446 tCO₂e by 2030 — a further 22% reduction over six years. The primary lever has been Scope 2 via renewables; Scope 1 has been flat or slightly rising.

Renewable energy reached 37% but RE100 target is 90% by 2030. The 10-percentage-point jump from 27% in 2023 represents continued strong progress. 65% of energy is consumed at overseas subsidiaries where renewable procurement may face different market conditions.

Overseas workforce turnover rose to 21.1%. European headcount fell 18% (7,875 to 6,430). Domestic turnover remained stable at 2.5%. Total headcount declined 3.3% — the first reduction in the three-year data series.

Water reuse rate nearly doubled (23% to 42%). Rapid improvement coincides with declining absolute withdrawal. No quantified water reduction target disclosed.

All-solid-state battery: 2027 mass production target. A-samples with doubled capacity supplied in H2 2024. No disclosure on initial application (EV vs ESS) or production capacity.

6. Sources

All data sourced from Samsung SDI's 2025 Sustainability Report (reporting period: January 1 to December 31, 2024). GHG data verified by Korean Standards Association (Reasonable Assurance for parent Scope 1+2). Report verified by BSI (AA1000 AS Type 2, Moderate level).

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Samsung SDI manufacturer profile: bessmanufacturers.com/samsung-sdi/

Data sourced from public filings and official documentation