CDP Climate Change and Water Report 2025 - Korea

March 2026

Korean partner to CDP and Report Author

kosif Korea Sustainability Investing Forum

Report Sponsor

신한금융그룹 KB금융그룹 K water

Korean Partner to CDP

kosif Korea Sustainability Investing Forum

Korean Partner to CDP — Korea Sustainability Investing Forum (KoSIF) www.kosif.org

The Korea Sustainability Investing Forum (KoSIF) is a non-profit organization founded in 2007 to help build a sustainable society by promoting socially responsible investing (SRI). Its activities span SRI research and development, public outreach and awareness, and policy development and legislative support. KoSIF also leads and organizes the CDP Korea Committee to broaden environmental action among Korean financial institutions and companies.

CDP

CDP Climate Change and Water Report 2025 - Korea

Contents

Foreword

Jee-in Jang, Chair, CDP Korea Committee

The international climate order is being shaken. Climate action has become an arena of industrial rivalry, and economic blocs are forming under the second Trump administration's anti-climate and anti-ESG policies. Even so, accelerating the climate crisis is clearly driving the world into a climate economy. This order is irreversible: without transitioning from a high-carbon to a low-carbon economy, survival is not possible.

Korea has made carbon neutrality a key national priority and, in November 2025, announced its 2035 NDC, raising the target from a 40% reduction against 2018 levels to a 53–61% reduction by 2035. This transition entails great hardship and vast capital. The Financial Services Commission (FSC) recently convened its Fourth Productive Finance Transformation and set out two policy directions to support the green transition (GX): institutionalizing ESG disclosure and scaling up climate finance.

Institutionalizing ESG disclosure is a welcome step, removing long-standing uncertainty. Even so, the FSC's draft mandatory ESG disclosure roadmap falls well short of what the green transition needs. Under it, KOSPI-listed companies with consolidated assets of KRW 30 trillion or more would begin climate disclosure via the exchange from 2028 (FY27), with a three-year Scope 3 deferral, far below what domestic and international investors, experts, and civil society have called for. Only 58 companies meet the KRW 30 trillion threshold. Reflecting the structure of Korea's manufacturing- and export-driven economy and concern that companies' disclosure capacity remains insufficient.

The CDP Korea Committee believes, however, that many Korean companies have already built climate disclosure capabilities by responding to CDP, an investor-led global initiative. The 2025 CDP data bear this out: 91% assign board-level responsibility for climate change, 93% integrate climate-related risks into organization-wide risk management, 166 companies have set net-zero targets, and 222 companies report Scope 3 emissions.

The FSC also announced that, to support the 2035 NDC, it will channel KRW 780 trillion in climate finance over 2026–2035, and introduce a Korea-specific transition finance scheme for the low-carbon transition of high-emitting sectors.

The CDP Korea Committee strongly supports scaling up climate finance, but raises two concerns about transition finance. First, it directs capital toward not yet green activities on the premise of a credible decarbonization pathway, so it carries a high risk of greenwashing. Second, capital concentrating in transition finance could crowd out existing green finance. Rigorous, climate-science-based conditions, thorough scrutiny of implementation plans, and careful design are therefore essential.

The global economy is in turmoil, and sustainability, including the climate response, faces formidable obstacles. At such moments, what is needed is steadfast, consistent policy and still more determined action. The CDP Korea Committee has confidence in the capabilities and potential of our government, companies, and financial institutions, and believes they will meet the climate crisis head-on and turn it into opportunity. The CDP Korea Committee will lend its full support to that effort.

Foreword

Sherry Madera, CDP Chief Executive Officer

The past year has tested the resilience of business strategy. In a context of geopolitical tensions and economic uncertainty, organizations are being forced to confront a simple reality: environmental disclosure is no longer a transparency exercise, it is critical business data.

True leadership today comes from the humility to recognize unknown gaps — or widen the aperture of insight — to encourage alternative thinking and action. That is what high-quality disclosure enables: better identification and navigation of risks, new opportunities surfaced that once were hidden, and the pathway to allocate capital more effectively in the transition to a resilient, Earth-positive economy. This is no longer optional.

The World Economic Forum reports that climate-hazard-driven fixed-asset losses for listed companies could reach US $560–610 billion per year by 2035, representing a 6–7% drop in earnings for the average company. Physical climate risks disrupt operations. Water insecurity threatens production continuity. Deforestation and biodiversity loss create supply chain vulnerabilities.

Environmental disclosure provides the data needed to identify, quantify and manage these factors systematically. Companies that measure and disclose environmental impacts through CDP gain visibility into material risks and opportunities across climate, water and forests. Disclosure informs capital allocation, risk management, operational planning and competitive positioning. Those that do not are operating without critical business intelligence in an increasingly volatile environment.

The market continues to demand comprehensive environmental information. In 2025, 640 investors with US$127 trillion in assets and more than 270 major buyers asked CDP to collect the data they need to make informed decisions. More than 23,100 companies, cities, states and regions responded, with Asia Pacific leading global participation at 37% of corporate disclosers. Nearly 700 South Korean organizations disclosed, reflecting sustained commitment to environmental transparency despite global uncertainty.

The leaders are already shaping the future — not by spectacle, but by consistent, action that aligns profit, people and planet. As CDP marks 25 years of driving corporate environmental transparency, the decade ahead will intensify pressure on natural resources and accelerate physical climate impacts. Organizations that embed environmental data into core decision-making will build the resilience needed to navigate complexity and sustain performance.

Today's disclosure decisions shape tomorrow's competitive advantage.

Climate Change

1

Climate Governance

Board-level oversight of climate change

91%
Board has oversight of climate change

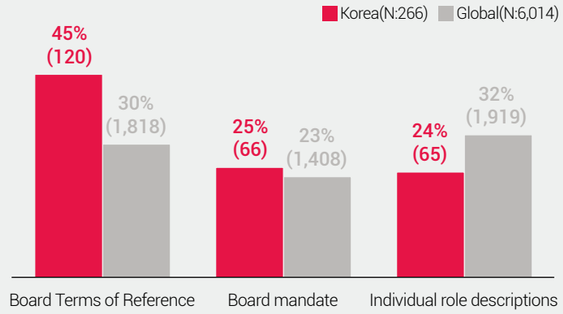
84%
Board climate accountability formally documented

82%
Board members hold climate-related competency

Of 292 responding companies, 273 (93%) have a board, and 266 (91%) assign board-level responsibility for climate change, on par with the global 91%. Korea's strength is formalisation: the rate through board charters is 45%, 15%p above the global 30%, drawing on diverse document types. By contrast, the board members hold climate-related expertise at 82%, 4%p below the global 86% and the only governance area where Korea lags. Only 89 companies reflect environmental expertise when nominating directors.

Types of documents formalising climate responsibility

Unit: % (companies)/ (multiple choices)



Scope of the board's climate management and oversight

(N=266, multiple choices)

Board climate management and oversight item	Companies	Share (%)
Oversight of corporate target setting	198	74%
Monitoring progress towards corporate targets	189	71%
Oversight of and guidance on the process for assessing climate DIRO	171	64%
Monitoring implementation of the climate transition plan	163	61%
Oversight of and guidance on developing the climate transition plan	151	57%
Approval and/or oversight of employee incentives	145	55%
Approval of corporate policies and/or commitments	122	46%

Management-level responsibility for climate change

94%
Management holds climate responsibility

65%
Climate issues reported directly to the board

33%
Alignment of climate oversight types between board and management

Management holds climate responsibility in 275 companies (94%), higher than at board level. The CEO holds it directly at 66%, far above the global 36%—a gap of 30%p. Direct reporting to the board (65%) is 2.4 times more common than via the CEO, and quarterly-or-more reporting (51%) shows climate issues are now continuously reflected in decision-making. However, alignment between board oversight and management execution is only 33%, a marked structural disconnect. The 'dependency and risk assessment' area stands at 0%, showing the board's oversight scope does not match management's operational response.

Frequency of Management reporting to the board

Unit: % (companies)/ (N:275)

Scope of management's climate management and oversight

(N=275, multiple choices)

Management climate management and oversight item	Companies	Share (%)
Setting corporate climate targets	194	71%
Assessing climate DIRO	182	66%
Implementing the climate transition plan	168	61%
Measuring progress towards corporate climate targets	166	60%
Developing the climate transition plan	156	57%
Managing climate DIRO	148	54%
Providing employee incentives linked to climate performance	140	51%
Implementing climate-related business strategy	127	46%

Board and management monetary incentives

65%
Climate-linked monetary incentives provided

39%
Climate incentives for the board and CEO

33%
Incentives linked to long-term climate performance

189 companies (65%) provide climate-linked monetary incentives, above the global 58%, and the average incentive proportion (19.9%) also exceeds the global 16.01%. Notably, 29% of adopters cluster in the 30–35% band, showing Korean companies set a meaningful proportion when they introduce incentives. The 113 companies granting incentives to the board and CEO mainly use GHG reduction (76%) and transition-plan implementation (60%) as principal indicators. Incentives linked to long-term performance remain at only 33%, a short-term-weighted structure with limited capacity to drive a long-term climate transition.

Distribution of climate incentives as a proportion of total board and management incentives

Unit: companies / (N:189)

19.88%
Average Incentive proportion

Performance indicators used to assess climate incentives

(N=189, multiple choices)

Climate incentive performance indicator	Companies	Share (%)
Reduction in absolute emissions	144	76%
Achievement of climate transition plan	113	60%
Energy efficiency improvement	93	49%
Implementation of an emissions reduction initiative	77	41%
Reduction in total energy consumption	75	40%
Absolute emission reduction for net-zero target	70	37%
Reduction in emissions intensity	61	32%
Renewable share increase in total energy consumption	59	31%

Climate Risk-Management Processes

Definition of substantive effect

98%
Have a definition of substantive effect

51%
Apply quantitative indicators to substantive-effect thresholds

30%
Apply revenue-based quantitative indicators

98% (287) of responding companies define the substantive effect of climate-related risks, and 51% use quantitative indicators. By type, revenue-based metrics (84 companies) are most common, followed by direct operating costs (57), asset value (34) and capital expenditure (34). The average direct-operating-cost threshold (KRW 1.2 billion) is the most stringent, while the asset-value threshold (KRW 26.9 billion) is relatively insensitive to asset-impairment risk. Profitability-based leading indicators such as EBITDA (7) and production capacity (5) remain early-stage.

Climate risk-management processes

93%
Have climate risk-management processes in place

85%
Conduct double materiality assessments

73%
Integrate climate risks into a multi-disciplinary organization-wide risk management process

87%
Assess risks at least once a year

64%
Assess risks across the entire value chain

9%
Assess risks in tier-2 and beyond supply chains

93% of the 292 responding companies have established climate risk-management processes, and their key indicators exceed global averages across the board: double materiality assessments (85%), integration into organization-wide risk management (73%) and regular assessment at least once a year (87%). Notably, annual-or more assessment (87%) is 12%p above the global 75%, and interconnections among environmental risks (87%) is 8%p above the global 79%, Korean companies' two most pronounced strengths. The 249 companies conducting double materiality assessments are 85% of respondents, having pre-emptively adopted the double materiality framework required by the EU CSRD.

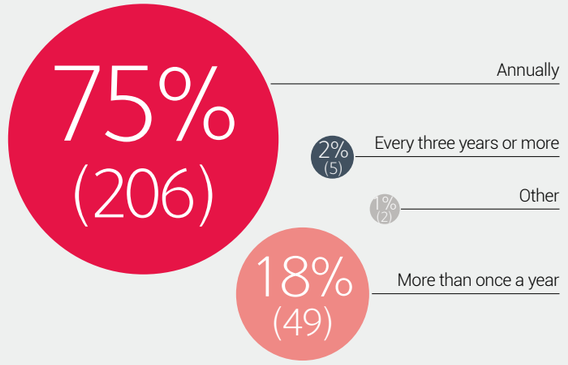
While 64% cover their entire value chain, only 9% (26) extend risk assessment to tier-2 and beyond, 3%p below the global 12%, and the only area of underperformance. 73% of supply-chain risk assessments are confined to tier-1 supply chain.

By risk type, transition risks (54.4%, 1,357 cases) outweigh physical risks (45.6%, 1,138 cases). Leading transition issues were shifts in market preferences, pressure to substitute lower-carbon products, and carbon pricing. Among physical risks (short- and long-term), flooding, typhoons and extreme precipitation ranked highest in that order, showing the Korean Peninsula's monsoon climate is specifically reflected in their risk-management systems.

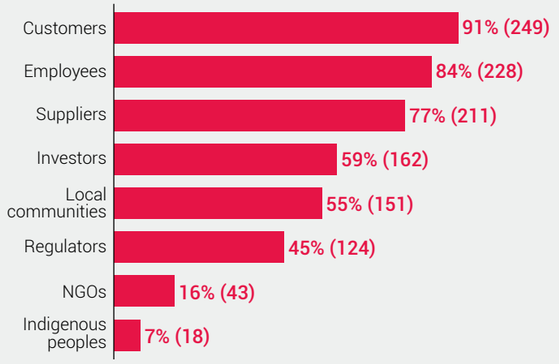
Key indicators and thresholds used to determine substantive effect (multiple choices)

Indicator	Total	Absolute value		Companies by threshold band (%)						
		Companies	Avg. threshold (KRW 100m)	Total	less than 1%	1-10	11-20	21-30	51-60	81-90
Revenue	84	14	171	70	9	49	6	3	1	2
Direct operating costs	57	14	12	43	3	34	6	-	-	-
Asset value	33	6	269	27	4	20	2	1	-	-
Capital expenditures	34	26	60	8	-	7	1	-	-	-
Indirect operating costs	19	4	241	15	2	11	2	-	-	-
EBITDA	7	0	-	7	3	3	1	-	-	-

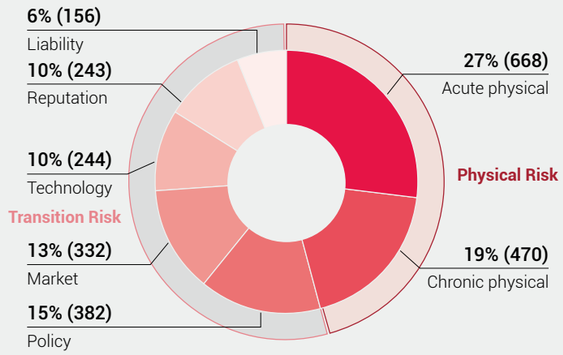
Frequency of risk assessment Unit: %(companies)/(N:273)



Stakeholders considered during risk assessment
Unit: %(companies) /(N:273, multiple choices)



Risk types included in risk assessment
Unit: %(companies)/ multiple choices



Detailed climate-related risk type (mutiple choices)

Risk types	Risk types and criteria considered	companies
Transition	Changing customer behavior	159
Transition	Transition to lower emissions technology and products	157
Transition	Carbon pricing mechanisms	146
Transition	Increased partner and stakeholder concern and partner and stakeholder negative feedback	137
Physical	Flood (coastal, fluvial, pluvial, ground water)	131
Transition	Changes to national legislation	123
Physical	Cyclones, hurricanes, typhoons	123
Transition	Non-compliance with regulations	103
Physical	Heavy precipitation (rain, hail, snow/ice)	103

Climate Risks

Climate risks

93%
Companies identifying and reporting substantive climate risks

2.4
Average number of risks reported per company

KRW 11.4 billion
Average financial impact per reported risk

93% (272) of responding companies identified and reported substantive climate risks, 642 in total (2.4 per company). This is about half the global 4.6, a relatively narrow scope. By type, transition risks account for 65.4% and physical risks 34.6%. Within transition risks, the order is policy and legal (31.9%; global 28.8%), market (16.0%; 14.4%), reputation (9.9%; 9.6%) and technology (7.6%; 9.7%); technology being the only category below global. Among physical risks, short-term (e.g. floods, typhoons) is 78.3% and long-term (e.g. sea-level rise) 21.7%.

Emissions trading and carbon taxes

36%
Companies subject to an ETS

5%
Companies subject to an overseas ETS

0.3%
Companies subject to a carbon tax

36% (106) of responding companies are subject to the K-ETS, only 15 (5%) to an overseas scheme and just 1 (0.3%) to a carbon tax. Among K-ETS participants, allowance supply and demand split between 50 companies in surplus (+17.17 MtCO2e) and 56 in deficit (–26.64 MtCO2e), a net deficit of 9.47 MtCO2e. The two largest surplus holders (POSCO +5.36 million tonnes; Samsung Electronics +3.56 million tonnes) hold 52% of total surplus, while 81.2% of the deficit is concentrated in four major power generators (Korea South-East, East-West, Midland and Western Power), polarised by Phase 3 (2021–2025).

Climate opportunities

90%
Companies identifying and reporting substantive climate opportunities

1.7
Average number of opportunities reported per company

KRW 19 billion
Average financial impact per reported opportunity

90% (263) of responding companies identified substantive climate opportunities, and the non-identification rate of 9.6% is half the global 19.7%. A total of 440 were reported, 1.7 per company. By type, renewable energy (66 companies) is most common, its long-term impact limited to KRW 5.8 trillion; new eco-friendly products/services (55) reach a maximum long-term KRW 1,297 trillion and consumption-trend responses (29) KRW 676 trillion. Realization costs are low for renewable energy at KRW 2.8 billion per company but high for new-product development at KRW 31.8 billion.

Financial effect by Climate-related risk type

Unit: KRW 100m / multiple choices

Climate-related Risk type	Com-panies	Companies quantifying financial effect	Average Financial Effect						
			Reporting year	(Est.) short-term		(Est.) medium-term		(Est.) long-term	
				Min	Max	Min	Max	Min	Max
(Transition) Carbon pricing mechanisms	131	115	369	19,421	50,435	44,568	86,426	167,636	402,719
(Transition) Changing customer behavior	69	47	5,026	18,175	41,269	162,441	284,732	310,742	768,280
(Physical) Cyclone, hurricane, typhoon	41	32	54	3,426	9,483	2,727	3,671	5,029	23,330
(Transition) Increased partner and stakeholder concern or negative partner and stakeholder feedback	40	31	6,115	18,545	49,867	16,756	67,015	8,956	40,202
(Transition) Changes to national legislation	34	22	12	46	53	1,368	8,455	10,784	15,528
(Transition) Transition to lower emissions technology and products	34	22	2,810	26,824	45,435	27,485	59,468	543,852	760,695
(Physical) Flooding (coastal, fluvial, pluvial, groundwater)	27	17	22	27,102	69,511	59,655	94,268	87,465	142,141
(Physical) Heat wave	27	24	314	4,956	18,132	1,192	5,354	1,598	7,254
(Physical) Changing temperature (air, freshwater, marine water)	22	19	8	10,459	10,882	8,903	9,800	25,141	32,330
(Transition) Changes to international law and bilateral agreements	19	13	-	117	342	3,826	8,761	16,626	23,244
(Physical) Heavy precipitation (rain, hail, snow/ice)	18	14	658	9,967	10,120	15,047	15,353	558	769
(Physical) Increased severity of extreme weather events	18	11	35	6,421	6,629	27,456	28,135	35,830	46,386
(Transition) Non-compliance with legislation	17	13	4	18,718	19,220	62	67	3,156	10,466
(Physical) Heat stress	12	10	10	2,064	2,404	1,250	1,526	17,478	31,114
(Physical) Temperature variability	11	9	4,130	620	627	1,313	1,453	1,828	2,697
(Transition) Changes to regulation of existing products and services	9	8	799	815	1,808	-	36,285	5,082	6,778
(Physical) Drought	8	4	-	-	-	2,616	4,919	351	659
(Physical) Changing precipitation patterns and types (rain, hail, snow/ice)	8	5	1	2	3	372	471	4,568	5,315
(Physical) Sea level rise	7	5	-	-	-	-	-	38,894	39,411

Financial effect by Climate-related opportunity type

Unit: KRW 100m / multiple choices

Climate-related Opportunity type	Companies	Companies quantifying financial effect	Average Financial Effect						
			Reporting year	(Est.) short-term		(Est.) medium-term		(Est.) long-term	
				Min	Max	Min	Max	Min	Max
Use of renewable energy sources	66	47	2	73	207	178,382	181,712	10,974	58,421
Development of new products or services through R&D and innovation	55	49	6,338	7,054	12,207	1,779,346	4,300,578	6,878,614	12,969,473
Expansion into new markets	34	25	22,254	361,570	383,718	745,963	843,738	616,901	863,943
Shift in consumer preferences	29	26	13,392	460,164	560,021	871,418	2,007,153	5,530,135	6,759,114
Increased sales of existing products and services	24	22	13,320	182,274	188,182	456,954	895,006	671,803	688,179
Cost savings	21	17	3	8,633	8,647	8,309	8,324	12,073	12,284

Climate transition plans

86%
Korean Top 100 companies with 1.5°C-aligned climate transition plans

59%
Global Top 100 companies with 1.5°C-aligned climate transition plans

95%
Japanese Top 100 companies with 1.5°C-aligned climate transition plans

Most of the 91 companies (31.2%) without a climate transition plan cited 'lack of resources' (80 cases), indicating the barrier lies in capability rather than will. At the same time, 139 companies do not consider environmental factors at all, so compliance and indifference coexist. The gap by size is pronounced: the 86% adoption rate among the Top 100 by revenue (global 59%) shows the K-ETS and ESG disclosure effect. Declarations to halt fossil-fuels use (18.8%) exceed Japan's (16.9%), and tabling transition plans for a shareholder vote (7.9%) far surpasses the global 3.8%, a regulatory front-runner profile.

Scenario analysis

70%
Companies conducting scenario analysis

55%
Companies applying 1.5°C transition scenarios

51%
Companies applying 3.0°C or higher physical scenarios

In methodology, a combined qualitative-and-quantitative approach predominates at 94.6%, while reliance on qualitative analysis alone (3.7%) is rare. Physical scenarios concentrate heavily on RCP 8.5 (53.2%) and transition scenarios on the IEA NZE 2050 (40.5%). By time horizons, 2050 (502 cases) is most common, clustering around net-zero target years; on temperature, responses cluster at the two extremes of 1.5°C (206 cases) and 4.0°C or higher (143 cases). Intermediate pathways (RCP 4.5, the IEA APS and the 2.0–3.0°C range) are markedly underused, making the multi-scenario assessment required by IFRS S2 an urgent task.

Integration into financial planning and internal carbon pricing

22%
Companies integrating climate risks into financial planning

48%
Companies using an internal carbon price

KRW60,394
Average internal carbon price (KRW/tCO2e)

The internal-carbon-price adoption rate among Korean companies is 48% (137 companies), more than double the global 23.2%; yet the price level averages KRW 60,394 (about US$42/tCO2e), only 22% of the global KRW 270,770. The most common price point is KRW 12,164 (about US$8.52/tCO2e), effectively the K-ETS market price. By type, shadow price dominates at 82.4%, followed by implicit price at 10.1% and internal fee at 4.7%. This concentration on shadow pricing means carbon costs remain at the 'notional price' stage, not yet reflected in actual cash flows or profit-and-loss.

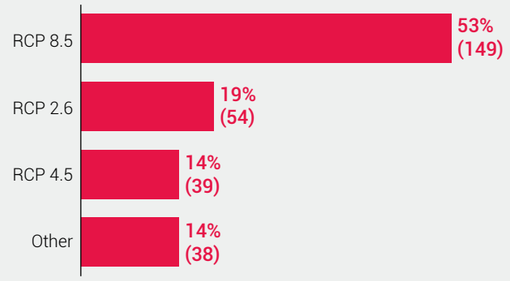
1. Shadow Price
2. Implicit Price
3. Internal Fee

Climate transition plan details of Korean companies (N:292)

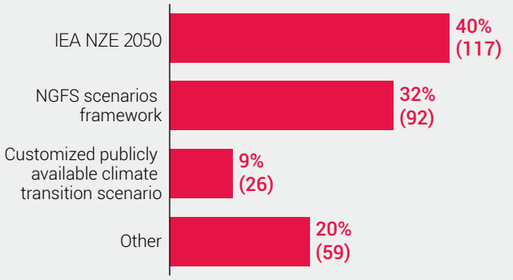
Temperature alignment	Transition Plan		Publicly available		Fossil Fuel Commitment		Shareholder Feedback Mechanism	
	Share(%)	Companies	Share(%)	Companies	Share(%)	Companies	Share(%)	Companies
1.5℃	59%	171	54%	158	15%	44	8%	23
Well-below 2℃	2%	7	2%	7	0%	-	0%	-
2℃	2%	7	2%	6	0%	-	0%	-
Other	5%	16	5%	16	4%	11	0%	-
Total	**69%**	**201**	**64%**	**187**	**19%**	**55**	**8%**	**23**

Types of Scenarios Used

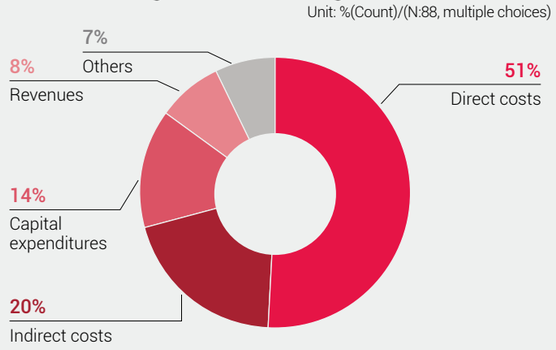
Physical climate Scenarios Unit: %(Count)/(N:280, multiple choices)



Transition climate scenarios Unit: %(Count)/(N:294, multiple choices)



Financial Planning Elements Reflecting Climate Risks
Unit: %(Count)/(N:88, multiple choices)



Internal carbon price (shadow price) by country Unit: KRW /tCO2e
1 USD = KRW 1,427.5

Country	Average internal carbon price			Most-frequent price point
	Min	Max	Median	
Korea	97	969,272	60,394	12,164
Global	2	97,444,121	270,770	89,933
Japan	9	2,248,313	118,725	89,933
China	1,513	583,277	37,089	19,443
USA	157	428,250	104,430	71,375
EU	345	19,985,000	228,876	146,933

Engagement

Policy engagement

45%
Conducting public policy engagement

39%
Publicly committed to engagement in line with the Paris Agreement

45%
Have processes to maintain consistency in engagement

The policy-engagement rate among responding companies is 45% (132 companies), about 20%p above the global 25%, reflecting a proactive response to domestic climate policy. The leading policy issue for direct engagement is the emissions trading scheme (35 cases), a clear contrast with the global lead issue (renewable-power generation). By contrast, only 39% (114) have publicly committed to engagement in line with the Paris Agreement, 11%p below the global figure of 50%. Companies are also passive where their climate position differs from that of a trade association: of 76 respondents, only 2 took substantive action.

Supply-chain engagement

81%
Conducting supply-chain engagement

69%
Average share of tier-1 suppliers engaged (by procurement spend)

24
Average number of tier-2-and-beyond suppliers engaged

81% (236) of responding companies conduct supply-chain engagement. The average share of tier-1 suppliers engaged, by procurement spend is high at 69%, but for tier-2 and beyond it is only 24 suppliers, so in-depth management is still early-stage. The most common requirements placed on tier-1 suppliers were Scope 1&2 emissions disclosure (40%, 66) and regular environmental risk assessments (26%, 43), followed by compliance with environmental certifications (19%, 32). By contrast, only 4% (7) required suppliers to set science-based targets (SBTs) or implement climate transition plans — a stark contrast with global trends.

Integration of climate issues into purchasing contracts

69%
Korean Top 100[1] companies

61%
Global Top 100[1] companies

54%
Japanese Top 100[1] companies

Climate issues integrated into purchasing contracts

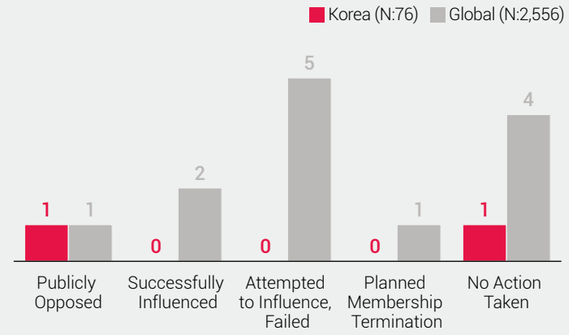
69% of the Top 100 Korean companies by revenue integrate climate issues into their purchasing contracts, 8%p above the global Top 100 (61%) and 15%p above the Japanese Top 100 (54%), a globally leading position in imposing climate-related conditions on their supply chains. However, full (100%) compliance with supplier environmental requirements is lowest in Korea (39%) versus the global 46% and Japan (49%). More serious is the response to non-compliance: 51% of Korean companies take no action, versus just 1.6% globally; 61% globally retain suppliers and require improvement, against only 20% in Korea.

1. Top 100 companies by revenue (regional)

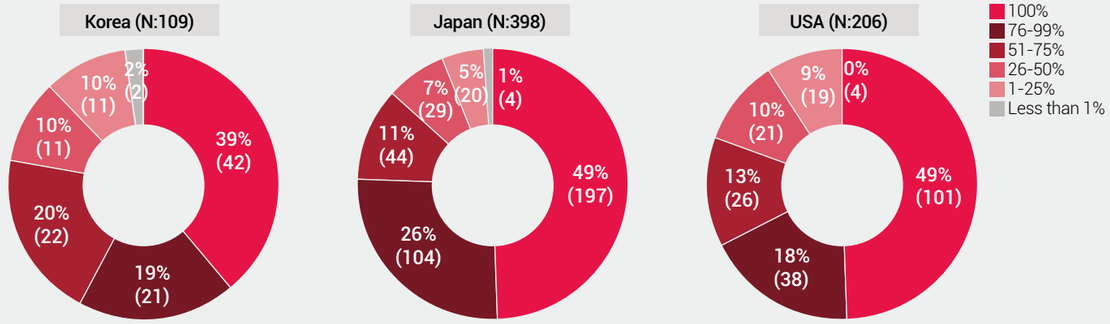
Ranking of Policy Areas for Direct Engagement

Korea	Rank	Global
Emissions trading schemes	1	Renewable energy generation
Renewable energy generation	2	Emissions trading schemes
Green tariffs/renewable PPAs	3	Alternative fuels
Mandatory environmental reporting	4	Energy efficiency requirements
Low-carbon, non-renewable energy generation	5	Climate transition plans
Subsidies for low-carbon, non-renewable energy projects	6	Circular economy
Climate transition plans	7	Electricity grid access for renewables
Corporate environmental reporting	8	Carbon taxes

Actions Taken on Association-Company Position Misalignment (Indirect Engagement via Trade Associations)



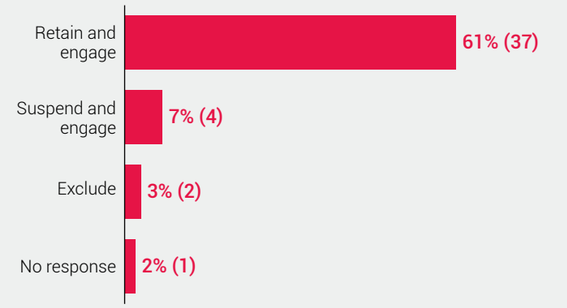
Tier 1 Supplier Compliance Rate with Climate Requirements (Based on Scope 3 emissions)



Top 100 Global : Supplier Environmental Requirements
(N:61, Multiple choices)

Environmental requirement	Companies	Share (%)
Setting a science-based emissions reduction target	22	36%
Implementation of emissions reduction initiatives	22	36%
Disclosure of GHG emissions to your organization (S1,2,3)	13	21%
Environmental disclosure through a public platform	13	21%
Environmental disclosure through a non-public platform	11	18%
Compliance with an environmental certification	10	16%
Measuring product-level emissions	9	15%
Waste and resource reduction and material circularity	9	15%

Global Top 100: Responses to Supplier Environmental Non-Compliance
Unit: %(Count)/(N:61)



GHG Emissions

Emissions accounting methodology

78%
Organizational boundary: consolidation approach

90%
Organizational boundary: operational control

14%
Accounting: latest GWP (AR6) applied

90% (262) of responding companies apply the operational control approach — 20 percentage points higher than the global figure (70%). By contrast, 75% of Japanese companies adopt the financial control approach, a stark difference, which is attributed to Korean companies' familiarity with the domestic emissions trading scheme (K-ETS), which requires facility-level reporting. The consolidation approach is applied by 78%, while the equity-share approach (2%) and others are used by very few. In addition, only 14% of companies apply IPCC AR6, the latest Global Warming Potential (GWP) standard, with most still calculating emissions on earlier generations (SAR, AR4, AR5).

Verification of climate information

92%
Companies verifying Scope 1+2 emissions

96%
Share of total Scope 1+2 emissions that are verified

67%
Companies verifying Scope 3 emissions

65%
Share of total Scope 3 emissions that are verified

73%
Korean companies verifying non-GHG climate information

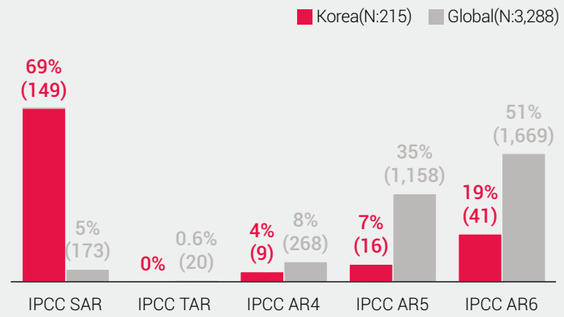
52%
Global companies verifying non-GHG climate information

The Scope 1+2 verification rate is 92% (Scope 1: 91.8%; Scope 2: 92.5%), the highest level globally, far above the global (67%/66%), Japan (57%/55%) and the US (60%/58%). Verified emissions reach 96% of total Scope 1+2, so almost all reported emissions undergo third-party verification. The Scope 3 verification rate is 67%, above the global 64%, and verified emissions are 65% of total Scope 3. This reflects Korea's mandatory verification framework under the Greenhouse Gas Target Management System and the K-ETS spreading into a culture of voluntary verification.

By category, emissions (35%) and energy (20%) verification predominate in Korea, while risk and opportunity management verification reaches 11%, 2.4 times the global 5%, extending verification into non-emissions areas. Qualitative information is also higher than global: governance (6%), business strategy (8%) and integrated approaches (7%) versus 3–4% each. Japan contrasts sharply: energy verification is 52%, 2.5 times Korea's (20%), a structure specialised in energy data, while its governance, risk and strategy verification is only 0.2–0.4%. For emissions-target verification, Korea (7%) trails the global 9%, a future task. Overall, 73% of Korean companies verify non-GHG climate information, 21%p above the global 52%, leading in both quantitative and qualitative scope.

Global Warming Potential (GWP, 100-Year) Applied for Emissions Calculation

Unit:% (companies)



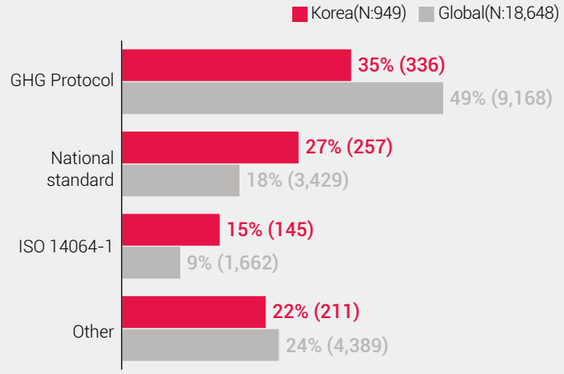
Consolidation Approaches Used by Country

Unit:% (companies)

Country	Reporting companies	Operational control	Financial control	Equity share	Other
Korea	290	90% (262)	7% (19)	2% (5)	1% (4)
Global	6,258	70% (4,560)	25% (1,613)	2% (138)	3% (217)
Japan	1,146	20% (225)	75% (835)	3% (32)	5% (54)
USA	976	85% (289)	9% (90)	3% (25)	3% (32)
China	568	78% (444)	15% (86)	2% (9)	5% (29)
EU	1,858	73% (1,356)	24% (441)	2% (28)	2% (33)

Methodology Applied for Emissions Calculation

Unit:% (companies)/ multiple choices

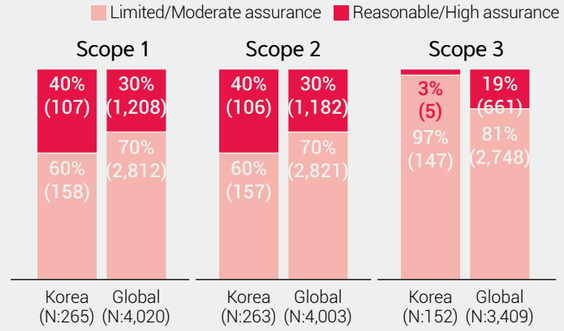


Verification rate by scope among emissions-calculating companies

Category		Korea	Global	Japan	USA
Scope 1	Reported(companies)	282	6,268	1,110	926
	Verified (companies)	259	4,199	632	552
	Rate (%)	**92%**	**67%**	**57%**	**60%**
Scope 2	Reported(companies)	283	6,307	1,140	946
	Verified (companies)	260	4,172	629	548
	Rate (%)	**92%**	**66%**	**55%**	**58%**
Scope 3	Reported(companies)	222	5,564	1,036	811
	Verified (companies)	149	3,542	545	434
	Rate (%)	**67%**	**64%**	**53%**	**54%**

Type of Verification or Assurance by Scope

Unit:% (companies)



Verification Rate by Climate Disclosure Module

Unit: % (companies) / multiple choices

Category	Korea (N:1,265)	Global (N:20,457)	Japan (N:1,264)	USA (N: 1,435)
Governance	6% (73)	2% (494)	0.3% (4)	1% (11)
Risks/opportunities management	11% (140)	5% (930)	0.3% (4)	1% (15)
Business strategy	8% (96)	4% (837)	0.2% (3)	0.4% (6)
Consolidation approach	7% (92)	3% (586)	0.4% (5)	1% (18)
Emissions	35% (444)	38% (7,714)	41% (516)	39% (560)
Energy	20% (250)	31% (6,367)	52% (658)	43% (624)
Reduction targets	7% (83)	9% (1,849)	3% (40)	8% (119)

Scope 1&2 GHG Emissions

Scope 1&2 emissions[1]

98%
Companies calculating and reporting Scope 1+2 emissions

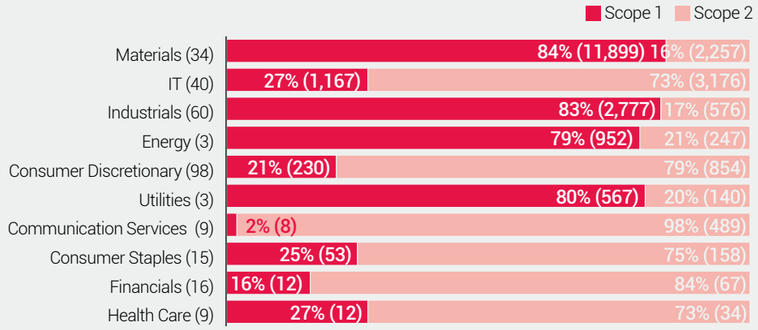
38%
Companies with a year-on-year fall in absolute Scope 1+2 emissions

60%
Companies with a year-on-year fall in Scope 1+2 emissions intensity (by revenue)

Based on the 287 companies excluding the five power generators, 98% report Scope 1+2 emissions, effectively universal coverage. Against the previous year (N = 269), 38% recorded a fall in absolute emissions and 60% a fall in revenue-based emissions intensity, so reductions are occurring at a majority of companies. A 98% reporting rate even after excluding the power generators reflects Korea's Greenhouse Gas Target Management System and the K-ETS spreading even to voluntary reporters, With the quantitative build-out now complete, the next task is to raise data quality and verification.

Share of Scope 1+2 emissions by Industry

Unit: %(10,000 CO2e)



Scope 1 & Scope 2(location-based) emissions by operational site location of Korean companies

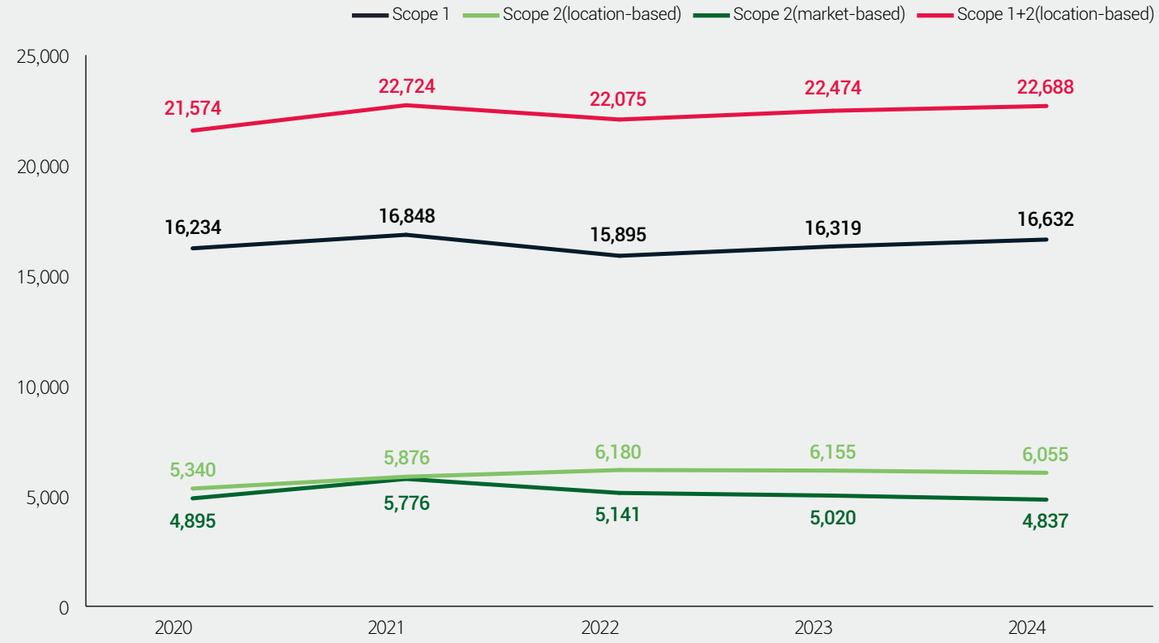
Unit: 10,000 tCO2e / multiple responses

Operational Site	Reporting companies	Scope 1+2	Scope 1	Scope 2
Total	988	27,506	17,545	9,961
Korea	246	24,267	16,332	7,935
Overseas	742	3,239	1,214	2,026
China	94	1,295	225	1,070
USA	70	532	373	159
Vietnam	58	418	61	357
Malaysia	16	215	137	77
India	45	110	26	84
Indonesia	32	100	27	73
Poland	21	90	18	72
Mexico	40	48	11	37
Hungary	11	43	16	28

1. The emissions analysis uses data from 287 companies, excluding Korea Electric Power Corporation and four power generators (South-East, East-West, Midland, Western).

Trend Analysis of Scope 1+2 Emissions of Korean Companies (N=87, 5 Consecutive Years of Responses)

Unit: 10,000 tCO2e



Scope 1+2 (Location-Based) Emissions Trend Analysis by Key Industry (5-Year Consecutive Respondents)

Unit: 10,000 tCO2e

Materials (N:15)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	12,874	11,506	1,368
2021	13,396	11,770	1,625
2022	12,481	10,886	1,594
2023	13,046	11,354	1,691
2024	12,866	11,233	1,633

IT (N:13)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	3,560	1,096	2,464
2021	3,952	1,275	2,677
2022	3,984	1,051	2,933
2023	3,537	760	2,777
2024	3,737	1,023	2,714

Industrials (N:24)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	2,148	1,910	238
2021	2,314	2,068	246
2022	2,530	2,183	347
2023	2,823	2,474	349
2024	3,020	2,658	363

Energy (N:2)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	1,213	973	240
2021	1,167	911	255
2022	1,130	924	206
2023	1,169	940	229
2024	1,172	945	227

Consumer Discretionary (N:l13)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	752	195	557
2021	735	189	546
2022	735	182	552
2023	710	168	541
2024	730	174	556

Utilities (N:2)

Reporting year	Scope 1+2	Scope 1	Scope 2
2020	581	529	52
2021	659	605	54
2022	698	637	61
2023	647	587	60
2024	626	567	60

Scope 3 GHG Emissions

Scope 3 emissions[1]

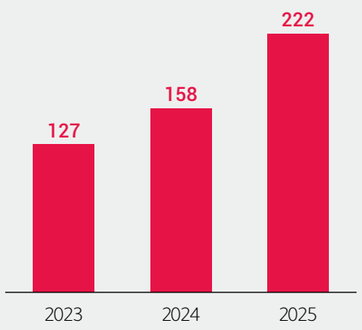
77%
Companies reporting Scope 3 emissions

90%
Scope 3 as a share of total emissions (Scope 1+2+3)

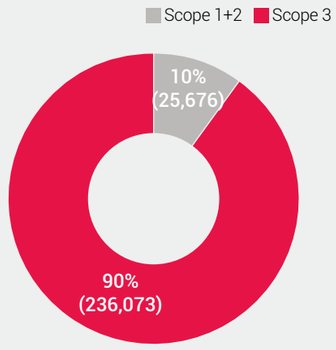
8
Average number of Scope 3 categories reported per company

Of the 287 companies (excluding the five power generators), 77% (222) report Scope 3 emissions, and Scope 3 is 90% of total emissions, so supply-chain emissions dominate. The most reported categories are waste generated in operations (196 companies), purchased goods and services (189) and business travel (174), concentrating on categories where data are relatively easy to calculate. By contrast, reporting is markedly lower for categories of limited relevance to an industry or hard to quantify, such as franchises (20) and processing of sold products (40).

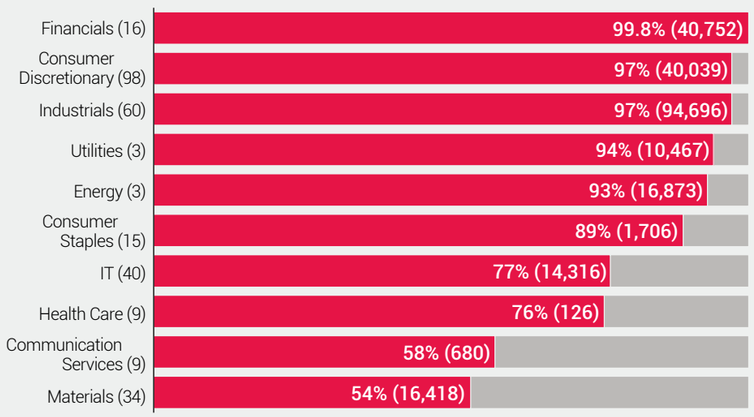
Number of Companies reporting Scope 3 emissions
Unit: companies



Share of Scope 3 Emissions in Total Emissions
Unit: % (10,000 tCO2e)



Share of Scope 3 Emissions in Total Emissions by Industry
Unit: % (10,000 tCO2e)



1. The emissions analysis uses data from 287 companies, excluding Korea Electric Power Corporation and four power generators (South-East, East-West, Midland, Western).

Scope 3 Reporting Status by Category

Unit: tCO2e

Category		Total	Sector									
			Financials	Consumer Discretionary	Industrials	Utilities	Energy	Consumer Staples	IT	Health Care	Communication Services	Materials
Purchased Goods & Services	No. of Companies	189	16	42	44	2	3	14	28	7	8	25
	Average Emissions	19,688,881	861	1,768,354	1,019,248	2,855,002	9,545,200	849,752	800,165	123,839	454,591	2,271,870
Capital Goods	No. of Companies	149	12	29	37	2	2	12	19	6	9	21
	Average Emissions	453,940	4,740	31,231	53,190	44	10,632	13,765	159,518	12,609	119,542	48,668
Fuel-and-energy -related activities (not included in Scope 1 or 2)	No. of Companies	168	10	40	40	2	3	14	21	4	9	25
	Average Emissions	2,949,525	5,885	37,876	130,968	2,025,764	202,840	19,863	245,275	12,660	59,029	209,365
Upstream transportation and distribution	No. of Companies	151	7	32	40	2	3	12	20	4	6	25
	Average Emissions	1,970,023	277	98,282	378,555	370,372	471,455	50,263	361,199	3,199	8,062	228,359
Waste generated in operations	No. of Companies	196	15	53	45	2	3	14	24	7	8	25
	Average Emissions	139,156	530	32,070	7,540	7,911	13,384	5,676	26,158	1,226	1,488	43,173
Business travel	No. of Companies	174	14	41	40	2	3	14	22	6	8	24
	Average Emissions	38,474	1,359	6,197	4,382	988	2,428	1,219	16,574	1,599	2,576	1,152
Employee commuting	No. of Companies	162	11	36	41	2	3	15	21	6	8	19
	Average Emissions	40,609	1,730	7,058	4,276	988	2,428	1,137	17,364	1,599	2,576	1,455
Upstream leased assets	No. of Companies	55	5	12	7	-	2	5	12	2	2	8
	Average Emissions	202,598	19,098	50,822	27,607	-	13,295	7,489	34,441	4,967	36,969	7,910
Downstream transportation and distribution	No. of Companies	98	-	26	18	1	2	8	16	4	2	21
	Average Emissions	1,732,106	-	145,720	316,936	942,514	195,119	19,250	10,738	29,086	306	72,438
Processing of sold products	No. of Companies	40	-	15	1	-	2	2	8	2	-	10
	Average Emissions	2,359,419	-	176,232	7,114	-	1,128,657	65,228	641,896	25,208	-	315,085
Use of sold products	No. of Companies	81	8	17	26	1	3	4	11	-	6	5
	Average Emissions	209,697,603	7,729	18,988,908	32,653,064	92,592,450	41,960,765	470,706	8,616,922	-	66,659	14,340,399
End of life treatment of sold products	No. of Companies	99	7	19	26	-	3	12	12	3	5	12
	Average Emissions	4,212,347	157	309,825	174,033	-	2,630,649	40,362	171,716	320	494	884,791
Downstream leased assets	No. of Companies	62	5	13	9	-	2	8	8	3	5	9
	Average Emissions	488,031	127,557	3,230	79,316	-	1,413	2,364	9,464	607	46,717	217,365
Franchises	No. of Companies	20	-	7	2	-	1	5	1	-	4	-
	Average Emissions	276,471	-	4,442	1,595	-	-	253,178	-	-	17,256	-
Investments	No. of Companies	95	17	16	21	2	2	5	8	4	5	15
	Average Emissions	27,036,861	23,914,122	527,775	775,516	303,592	775,460	59,949	209,106	14,989	98,103	358,250

Reduction Targets and Carbon Credits

Net-zero targets

57%
Companies with a net-zero target

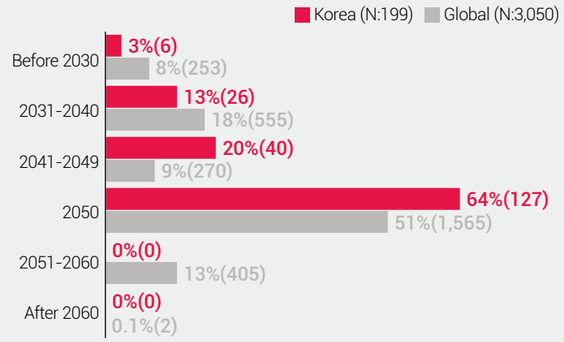
9%
Companies that have committed to SBTi targets

7%
Companies with SBTi-approved targets

57% (166) of responding companies have set a net-zero target, but only 38% include Scope 3, about half the global 65%. The 11%p gap with Japan (49%) matters because a target's coverage determines its credibility as a genuine decarbonisation pathway. Only 26 companies (9%) have committed to SBTi science-based targets and just 21 (7%) have approval, so science-based credibility relative to global peers is a key task. The ratio of SBTi approvals (21) to net-zero targets set (199) is 10.6%, a clear gap between declared and verified targets.

Distribution of Net-Zero Target Years

Unit: % (Companies)



Share of Net-Zero Targets Including Scope 3 Emissions

Category	No. of Net-Zero Targets Set	Including Scope 3	
		No. of Targets	Share (%)
Korea	199	76	38%
Global	3,064	1,980	65%
Japan	663	323	49%

Scope 1+2 near-term reduction targets

55%
Companies with a target

9%
Companies with SBTi-approved targets

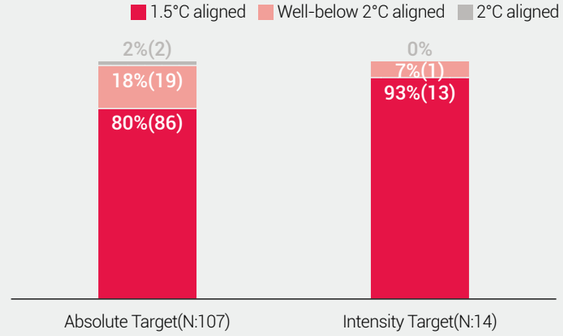
45%
Average achievement rate

55% (161) of responding companies have set near-term Scope 1+2 reduction targets, and 27 (9%) have SBTi approval. For absolute targets (183), the average reduction rate is 32% and the achievement rate 45%, just past the halfway. Intensity targets (18) show a 62% achievement rate, but this is likely a denominator effect from revenue growth and should be read separately from real emissions cuts. Average base-year emissions are 2.43 MtCO2e for absolute targets and 582 tCO2e for intensity targets, so absolute targets concentrate among large emitters.

1. target levels are as stated by the companies themselves.

Short-Term Scope 1+2 Emission Reduction Target ambition[1]

Unit: % (Companies)



Avg. Achievement Level of Short-Term Scope 1+2 Emission Reduction Targets

Unit: tCO2e (Absolute) / tCO2e/unit (Intensity)

Category	Absolute Reduction Target	Intensity Reduction Target
No. of Reported Targets	183	18
Avg. Base Year Emissions	2,431,450	582
Avg. Target Year Emissions	1,645,612	194
Avg. Target Reduction (%)	32	67
Avg. Reporting Year Emissions	2,080,388	341
Avg. Target Achievement (%)	45%	62%

Scope 1+2 long-term reduction targets

44%
Companies with a target

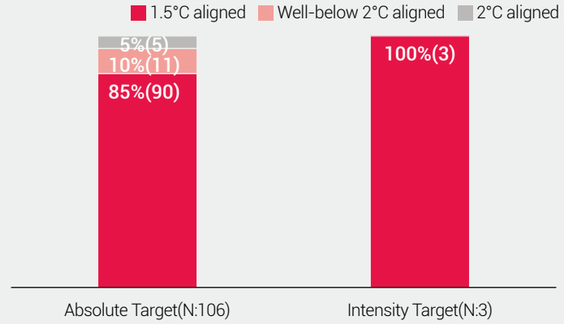
5%
Companies with SBTi-approved targets

−1%
Average achievement rate

44% (128) of responding companies have set long-term Scope 1+2 reduction targets, and 16 (5%) are SBTi-approved. The average absolute reduction rate is highly ambitious at 84%, but the achievement rate is −1%, as reporting-year emissions (5.39 MtCO2e) exceed base-year (5.34 MtCO2e). Intensity targets show a−26% achievement rate, a reversal. This extreme gap between the 84% target and the -1% achievement rate reveals a serious disconnect between ambitious target-setting and actual reduction, making stronger long-term execution urgent.

Long-Term Scope 1+2 Emission Reduction Target ambition[1]

Unit: % (Companies)



Avg. Achievement Level of Long-Term Scope 1+2 Emission Reduction Targets

Unit: tCO2e (Absolute) / tCO2e/unit (Intensity)

Category	Absolute Reduction Target	Intensity Reduction Target
No. of Reported Targets	161	15
Avg. Base Year Emissions	5,344,745	38
Avg. Target Year Emissions	2,994,132	0
Avg. Target Reduction (%)	84	67
Avg. Reporting Year Emissions	5,393,371	44
Avg. Target Achievement (%)	-1%	-26%

Reduction Targets and Carbon Credits

Scope 3 near-term reduction targets

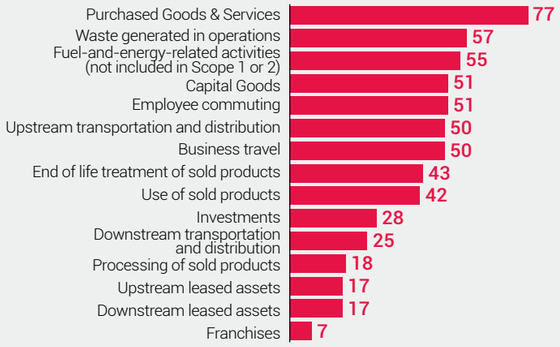
13%
Companies with a target

47%
Share of total Scope 3 emissions covered by targets

5%
Companies with SBTi-approved targets

Only 13% (38) of companies have set Scope 3 reduction targets, the lowest of any Scope. Near-term targets (35) have −14% achievement rate and long-term targets (45) −6%, both in reverse. The average long-term reduction rate is highly ambitious at 87%, yet reporting-year emissions (39.08 MtCO2e) exceed base-year (37.18 MtCO2e) by 5%, a stark gap between target and reality. Since Scope 3 (value-chain) emissions make up the bulk of Korean respondents' total, both the target-setting rate (13%) and the achievement rates (-14%) rank lowest, making a value-chain-wide decarbonisation strategy urgent.

No. of Companies with Scope 3 Targets by Category Unit: companies



Avg. Achievement of Short- & Long-Term Absolute Scope 3 Reduction Targets
Unit: tCO2e

Category	Short-term target	Long-term target
No. of Reported Targets	35	45
Avg. Base Year Emissions	810,723	37,189,609
Avg. Target Year Emissions	647,740	4,983,778
Avg. Target Reduction (%)	20	87
Avg. Reporting Year Emissions	832,918	39,087,534
Avg. Target Achievement (%)	-14%	-6%

GHG emissions-reduction activities

88%
Companies reporting reduction activities

31.58MtCO2e
Total estimated annual reduction

6years
Average payback period

88% of responding companies reported GHG reduction activities, totaling an estimated 31.58 MtCO2e per year. Non-energy industrial process reductions(19) are largest in scale, at 780,000 tCO2e each, while energy efficiency in production processes (327) has the most cases. Energy efficiency in buildings (173; average 24,000 t) and low-carbon energy consumption (115; average 40,000 t) follow. The average payback is 6 years, but transport (10.4 years) and low-carbon energy generation (11.2 years) involve long paybacks and heavy upfront investment. Fugitive emissions reductions have the fastest payback at 1.3 years but very few cases (3).

Details of Key Emission Reduction Initiatives (Multiple choices)

Initiative Category	No. of Reports	Total Reduction (tCO2e)	Avg. Reduction (tCO2e)	Avg. Investment (KRW million)	Avg. Payback Period
Energy Efficiency in Production Processes	327	3,486,627	10,662	364,568	4.5
Energy Efficiency in Buildings	173	4,100,929	23,705	58,852,435	5.3
Low-Carbon Energy Consumption	115	4,548,823	39,555	72,982	8.3
Transportation	53	2,666,884	50,319	43,818	10.4
Low-Carbon Energy Generation	46	1,354,361	29,443	38,010,237	11.2
Non-Energy Industrial Process Emissions Reductions	19	14,826,062	780,319	25,343	4.3
Company Policy or Behavioral Change	15	31,640	2,109	273,233	4.5
Waste Reduction and Material Circularity	12	427,269	35,606	10	5.5

Carbon credits

2
Companies using carbon credits

12,582 tCO2e
Total carbon credits used

35%
Companies reporting an intention to use carbon credits

Only 2 companies (12,582 tCO2e) actually used carbon credits, an extreme gap with the global 836. Korea holds only CDM-based wind projects (4; 1,309 tCO2e) and 'other' (1; 11,273 tCO2e), with no use of the voluntary-carbon-market registries most common globally, such as VCS/Verra and Gold Standard. 35% (87) reported an intention to use credits, so latent demand exists, but it has not translated into actual purchase and retirement. The result is a structural limitation: experience of the K-ETS-centred compliance market has not extended into the voluntary carbon market.

Key Carbon Credit Project Types (Multiple choices)

Project Type	Korea (N:2)		Global (N:836)	
	No. of Projects	Credits Retired (tCO2e)	No. of Projects	Credits Retired (tCO2e)
Hydropower	0	0	106	12,592,836
Other	1	11,273	324	10,293,618
Wind	4	1,309	257	7,187,617
Forest ecosystem restoration	0	0	155	4,229,142
Solar	0	0	161	3,691,953
Energy efficiency: households	0	0	69	3,444,116

Type of Carbon Credit Registry

Registry Name	Korea (N:2)		Global (N:836)	
	No. of Projects	Credits Retired (tCO2e)	No. of Projects	Credits Retired (tCO2e)
VCS/Verra[1]	0	0	846	29,939,509
Gold Standard	0	0	372	9,019,659
CDM[2]	4	1,309	164	5,055,562
Other regulatory carbon crediting program	1	11,273	105	4,066,007
ACR[3]	0	0	132	3,491,270
REDD+	0	0	41	1,963,958

1. VCS/Verra (Verified Carbon Standard)
2. CDM (Clean Development Mechanism)
3. ACR (American Carbon Registry)
4. CAR (The Climate Action Reserve)

Energy

2

Energy

Total energy consumption

763TWh
Total energy consumption

26%
Electricity as a share of total energy consumption

3.94%
Renewable energy as a share of total energy consumption

Excluding power generators and companies with anomalous entries, 280 of the 292 CDP respondents have a total energy consumption of 763,519 GWh. By source, fuel consumption (excluding feedstock) is 69.9% (533,652 GWh), while purchased electricity and steam/cooling are 25.8% (196,577 GWh) and 4.0% (30,585 GWh). Renewable energy is just 3.94% (30,117 GWh) of the total. The renewable share of fuel is 0.2% (880 GWh), whereas for purchased electricity it is 13.6% (26,698 GWh), more than three times the overall average, showing that electricity-purchasing channels are the main route for the renewable transition.

1. Companies that entered energy data in TJ by mistake or miscalculated figures were excluded from the analysis.

Energy generation and consumption

117TWh
Total energy generation (excluding power plants)

3TWh
Self-generated renewable energy

90%
Self-consumed share of renewable generation

Total energy generation by the 280 Korean companies is 116,842 GWh (about 117 TWh), of which 96.8% (113,104 GWh) is self-consumed. By carrier, steam is largest at 57,143 GWh (49%), as steam-intensive industries such as petrochemicals and semiconductors dominate. Renewable self-generation is only 3,038 GWh (2.6% of the total), concentrated in electricity (2,330 GWh). Renewable heat and steam generation (708 GWh) is just 0.6%, so decarbonising industrial heat is still early-stage.

Energy consumption is overwhelmingly domestic (342,379 GWh, 83.5%). Overseas consumption (67,776 GWh) is 83% concentrated in China (29,259 GWh, 43%), Vietnam (13,879 GWh, 20%) and the US (13,335 GWh, 20%). Mature PPA and REC markets make RE100 delivery easier in the US, whereas in China renewable procurement is structurally constrained by grid monopolies and PPA restrictions.

Energy Generation and Consumption: Korean Companies

Unit:GWh

Energy carrier	Total Gross Generation	Self-Consumed	Renewable Generation	Renewable Self-Consumed
Electricity	39,270	37,457	2,330	2,168
Heat	20,408	20,276	355	225
Steam	57,143	55,350	352	333
Cooling	21	21	-	-
Total	**116,842**	**113,104**	**3,038**	**2,725**

Energy Consumption by Source: Korean Companies

Unit:GWh

Energy Source		Total Energy Consumption	Renewable Energy Consumption	Non-Renewable Energy Consumption	Renewable Energy Share in Total (%)
Fuel Consumption (Excl. Feedstock)		533,652	880	532,772	0.2%
Purchased/ Acquired Consumption	Electricity	196,577	26,698	169,880	13.6%
	Heat	504	-	504	0.0%
	Steam	30,585	386	30,199	1.3%
	Cooling	47	-	47	0%
Self-Generated Energy Consumption		2,154	2,154	-	100%
Total Energy Consumption		**763,519**	**30,117**	**733,402**	**3.94%**

Energy Consumption by Country: Korean Companies' Global Operations[1]

Unit:GWh

Country/Region	Total Energy Consumption	Purchased Electricity	Self-Generated Electricity	Purchased Heat/ Steam/Cooling	Self-Generated Heat/ Steam/Cooling
Total	410,155	196,438	35,384	51,118	127,215
Korea	342,379	147,108	35,230	48,077	111,963
Overseas	67,776	49,329	154	3,041	15,252
China	29,259	23,311	78	1,825	4,045
Vietnam	13,879	13,033	25	236	585
USA	13,335	3,712	0	936	8,687
Indonesia	1,366	1,000	7	-	360
Poland	1,815	1,236	-	-	580
Guatemala	12	8	-	-	3
India	1,437	1,319	33	8	77
Malaysia	1,312	1,309	3	-	0
Hungary	1,290	1,082	-	0	208
Mexico	1,033	868	-	0	164
Philippines	873	860	-	-	14
Czechia	452	326	0	1	125
Slovakia	421	244	-	27	150
Brazil	339	333	-	3	3
Turkey	145	131	-	-	14
Nicaragua	15	7	1	-	6
Japan	116	32	-	0	84
Thailand	103	94	-	-	9
Other	575	426	7	4	139

1. Discrepancies in figures arise from missing country-level energy data for some companies.

Electricity and Renewable Energy Use (CDP Responding companies)

Electricity consumption

248TWh
Korean companies' domestic + overseas electricity use

197TWh
Korean companies' domestic electricity use

57TWh
Overseas companies' domestic (in-Korea) electricity use

Total electricity use by 286 Korean companies (including power generators' own consumption) is about 248 TWh, domestic sites accounting for 80%. The in-Korea electricity use of 735 overseas companies with Korean operations is 57 TWh. Korean companies' renewable share is 12% overall but only 6% domestically, so procurement at overseas sites drives the figure. The in-Korea renewable share for overseas companies is just 0.98%, a shared infrastructure-access challenge for domestic and foreign-invested firms alike. Of renewable energy consumed (30 TWh), purchases (27 TWh) make up 92% and self-generation (2 TWh) only 8%.

Renewable energy use by source

12%
Korean companies' domestic + overseas renewable share

6.22%
Korean companies' domestic renewable share

0.98%
Overseas companies' domestic renewable share

Korean companies' renewable use is markedly asymmetric between domestic and overseas sites. Domestically, solar dominates at 70%, while wind is just 0.68% (84 GWh), a heavy concentration on one source. Overseas sites spread more evenly across an RE mix (5,711 GWh, 33%), hydropower (5,029 GWh, 29%) and wind (3,413 GWh, 19%). 'RE mix' refers to cases where the technology type is hard to classify, or a blended renewable purchasing instrument is used. In particular, 'RE mix — self-generation' (302 GWh) is reported on a combined domestic/overseas basis as the CDP questionnaire does not distinguish the two, and is included in the domestic total.

Renewable energy use by procurement type

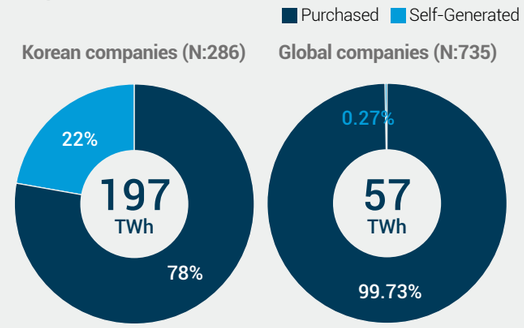
3.74%
Korean companies' domestic + overseas PPA share

2.08%
Korean companies' domestic PPA share

33%
Korean companies' domestic Green Premium (green tariff) share

Korean companies' PPA share of renewable use is 3.74%, falling to just 2.08% domestically. By procurement type, REC purchases are largest at 55% (16,306 GWh), but 99% are overseas, so their domestic impact is minimal. Korean companies instead rely on Green Tariff (33%, 9,845 GWh) and self-generation (7.91%, 2,357 GWh) as primary renewable sourcing methods. The domestic Green Tariff (9,596 GWh) accounts for 78% of domestic renewable consumption, the dominant procurement instrument. Of the 2,357 GWh self-generated, 74% is hydropower by K-water (Korea Water Resources Corporation); excluding it leaves only 621 GWh.

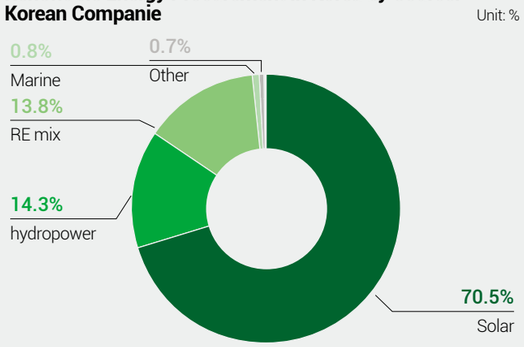
Electricity Consumption in Korea: Korean vs. Global Companies Unit: %



Detailed Analysis of Electricity Consumption in Korea: Korean vs. Global Companies Unit: GWh

Category		Korean Companies(N:286) Total	Domestic sites	Overseas sites	Global companies' Korean sites (excl. Korean cos.) (N:735)
Total Electricity Consumption		247,791	197,149	50,641	57,143
Renewable Energy	Share(%)	12.02%	6.22%	34.61%	0.98%
	Consumption	29,786	12,261	17,525	560
	Purchased	27,429	9,948	17,481	554
	Self-Generated	2,357	2,313	44	6.20

Renewable Energy Procurement in Korea by Source: Korean Companie Unit: %

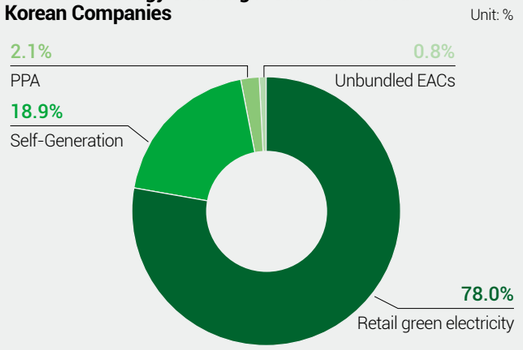


Renewable Energy Analysis by Source: Korean Companies Unit: GWh

Category	Korean Companies(N:286) Total	Domestic sites	Overseas sites	Global companies' Korean sites (excl. Korean cos.) (N:735)
Solar	11,774	8,639	3,135	336
RE Mix - Procurement[1]	7,101	1,389	5,711	134
Hydropower	6,776	1,747	5,029	39
Wind	3,497	84	3,413	41
RE Mix - Self-Generated[1]	302	302		-
Geothermal	175	0.47	174	-
Marine	99	99	-	-
Sustainable Biomass	63.7	1.28	62	11

1. Where technical separation is impossible, or electricity is procured from mixed renewable sources, it is entered as 'RE mix'.

Renewable Energy Sourcing Methods in Korea: Korean Companies Unit: %



Renewable Energy Analysis by Sourcing Method Unit: GWh

Sourcing Method	Korean Companies(N:286) Total	Domestic sites	Overseas sites	Global companies' Korean sites (excl. Korean cos.) (N:735)
Total	29,786	12,261	17,525	560
Unbundled EACs	16,306	97	16,208	270
Retail green electricity	9,845	9,596	249	141
Self-Generation	2,357	2,313	44[1]	6
PPA	1,115	256	860	144[2]
Default Electricity	164	-	164	-

1. Non-RE100 companies cannot isolate overseas self-generation; only distinguishable RE100 figures are shown.
2. Figures reported as PPA by global companies with operations in Korea; actual PPA contract status unverifiable

Electricity and Renewable Energy Use (RE100 Companies)

Electricity consumption — RE100 companies

91 TWh
Korean RE100 companies' domestic + overseas electricity use

69 TWh
Korean RE100 companies' domestic electricity use

2 TWh
Overseas RE100 companies' domestic (in-Korea) electricity use

Korea's 37 RE100 members are only 13% of respondents but account for 37% of electricity use, a dominant share. Their renewable share is 26%, more than double the average Korean respondents, yet falls to just 12.9% at domestic sites, 13.3%p below their overall rate. The gap between overseas sites (67.08%, 15,032 GWh) and domestic sites (12.90%, 8,864 GWh) reaches 54%p, so the renewable transition is heavily concentrated overseas. This makes Korea's electricity market structure the single biggest bottleneck to RE100 delivery.

Renewable energy use by source — RE100 companies

26.2%
Korean RE100 companies' renewable share

12.9%
Korean RE100 companies' domestic renewable share

6.04%
Overseas RE100 companies' domestic renewable share

The renewable source mix of RE100 members closely mirrors that of all CDP respondents; though hydropower is relatively higher at 27% versus 23% among all Korean respondents, largely from K-water's self-generated hydropower. Among Korean RE100 companies, solar dominates domestically at 66% of renewable consumption. Meanwhile, the 153 non-Korean RE100 companies with Korean operations reach just 6%. That companies achieving RE100 globally face significant procurement challenges specifically in Korea confirms the barrier lies not in corporate will but in Korea's rigid electricity market structure.

Renewable energy use by procurement type — RE100 companies

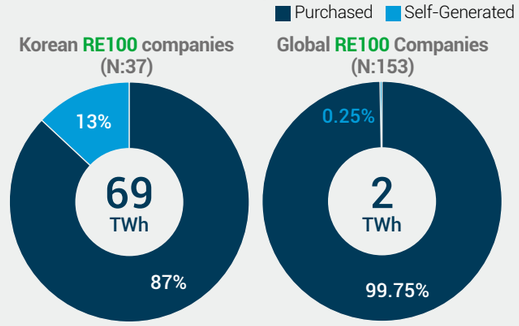
2.94%
Korean RE100 companies' PPA share

1.51%
Korean RE100 companies' domestic PPA share

1.50%
Overseas RE100 companies' domestic PPA share

Korean RE100 members' PPA share (2.94%) is below the domestic corporate average (3.74%). The domestic PPA share is only 1.51%, as domestic PPA supply cannot meet the enormous demand of companies such as semiconductor manufacturers. Samsung Electronics' domestic electricity use (25 TWh) is about 98 times the domestic PPA volume reported to CDP (0.256 TWh), so the market cannot meet even one large company's demand. Procurement is also imbalanced: 99.6% of REC purchases (14,260 GWh) occur overseas, while domestic REC procurement is a negligible 61 GWh (0.4%).

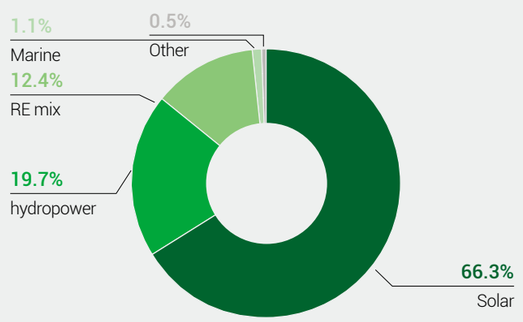
Electricity Consumption in Korea: Korean vs. Global RE100 Companies Unit: %



Detailed Analysis of Electricity Consumption in Korea: Korean vs. Global RE100 Companies Unit: GWh

Category		Korean RE100 Companies (N:37)			Global RE100 Companies' Korean sites (excl. Korean cos.) (N:153)
		Total	Domestic sites	Overseas sites	
Total Electricity Consumption		91,133	68,722	22,411	2,426
Renewable Energy	Share(%)	26.22%	12.90%	67.08%	6.04%
	Consumption	23,896	8,864	15,032	147
	Purchased	21,841	6,853	14,988	140
	Self-Generated	2,055	2,011	44	6.2

Renewable Energy Procurement in Korea by Source: Korean RE100 Companie Unit: %

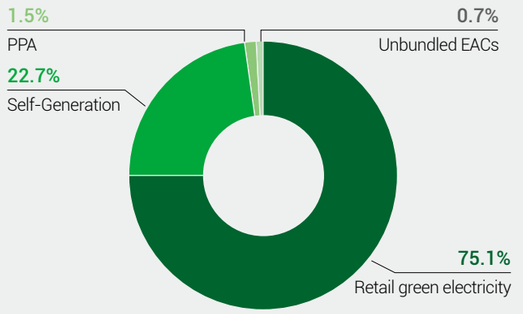


Renewable Energy Analysis by Source: Korean RE100 Companie Unit: GWh

Category	Korean RE100 Companies (N:37)			Global RE100 Companies' Korean sites (excl. Korean cos.)(N:153)
	Total	Domestic sites	Overseas sites	
Solar	8,585	5,876	2,709	84
Hydropower	6,545	1,747	4,798	9
RE Mix[1]	5,528	1,097	4,431	44
Wind	3,016	44	2,972	9
Marine	99	99	-	-
Sustainable Biomass	63	0.33	62	-
Geothermal	60	0.47	60	-

1. Where technical separation is impossible, or electricity is procured from mixed renewable sources, it is entered as 'RE mix'.

Renewable Energy Sourcing Methods in Korea: Korean RE100 Companie Unit: %



Renewable Energy Analysis by Sourcing Method: Korean RE100 Companie Unit: GWh

Sourcing Method	Korean RE100 Companies (N:37)			Global RE100 Companies' Korean sites (excl. Korean cos.)(N:153)
	Total	Domestic sites	Overseas sites	
Total	23,896	8,864	15,032	147
Unbundled EACs	14,260	61	14,199	108
Retail green electricity	6,814	6,658	156	31
Self-Generation	2,055	2,011	44	6
PPA	703	134	569	2
Default Electricity[1]	63	-	63	-

1. Includes a default claim not meeting RE100 technical criteria (SK Specialty: 63.4 GWh).

RE100 Target Implementation Status of Korean RE100 Companies

Korean RE100 Companies' Target Implementation Status

	Company	RE100 Joining Date	Target Year	Electricity Consumption (GWh)			Renewable Energy Consumption (GWh)			RE Achievement Rate (Self-Reported) (%)		
				Total	Domestic	Overseas	Total	Domestic	Overseas	Total	Domestic	Overseas
Total				91,133	68,722	22,411	23,896	8,864	15,032	26%	13%	67%
1	SKC	2020/12	2040	480	480	-	-	-	-	0%	0%	Not applicable
2	SK specialty Co., Ltd.	2020/12	2050	574	505	69	63	-	63	11%	0%	92%
3	SK Siltron Co., Ltd.	2020/12	2040	858	858	-	215	215	-	25%	25%	Not applicable
4	SK Inc.	2020/12	2040	294	294	-	72	72	-	24%	24%	Not applicable
5	SK Telecom	2020/12	2050	2,337	2,337	-	237	237	-	10.2%	10.2%	Not applicable
6	SK hynix	2020/12	2050	11,161	8,625	2,536	3,779	1,242	2,536	34%	14%	100%
7	AmorePacific Corporation	2021/3	2025	87	79	8	61	53	7	70%	67%	96%
8	LG Energy Solution	2021/4	2030	3,712	730	2,982	2,086	171	1,915	56%	23%	64%
9	K-water	2021/4	2050	1,833	1,833	-	1,854	1,854	-	100%	100%	Not applicable
10	KB Financial Group	2021/9	2040	272	246	26	3	3	-	0.92%	1.02%	0%
11	SK ie Technology	2021/9	2030	278	111	167	158	44	114	57%	40%	68%
12	Korea Zinc Co Ltd	2021/9	2050	3,891	3,891	-	0.07	0.07	-	0%	0%	Not applicable
13	Mirae Asset Securities	2021/9	2025	44	43	0.4	22	22	-	50%	50%	0%
14	Lotte Chilsung Beverage Co., Ltd.	2021/12	2040	179	179	-	21	21	-	12%	12%	Not applicable
15	Incheon International Airport Corporation	2022/2	2040	416	416	-	29	29	-	6.99%	6.99%	Not applicable
16	Kia Corporation	2022/4	2040	1,825	1,030	795	215	5	211	12%	0.45%	26%
17	Hyundai Mobis Co Ltd	2022/4	2040	820	425	395	107	15	92	13%	3.57%	23%
18	HYUNDAI WIA CORPORATION	2022/4	2045	556	281	274	31	0.4	31	5.57%	0.14%	11%
19	Hyundai Motor Co	2022/4	2045	3,681	2,319	1,362	617	2	614	17%	0.10%	45%
20	KT Corporation	2022/6	2050	3,377	3,348	29	50	50	-	1.48%	1.49%	0%
21	LG Innotek	2022/7	2030	1,078	883	195	638	491	147	59%	56%	75%
22	Naver	2022/8	2040	290	285	5	14	14	-	4.96%	5.05%	0%
23	Samsung Electronics	2022/9	2050	32,084	25,111	6,973	10,061	3,302	6,759	31%	13%	97%
24	Samsung SDS	2022/9	2050	382	375	7	7	1	6	1.84%	0.37%	83%
25	Samsung SDI	2022/10	2050	2,893	1,115	1,779	1,065	46	1,019	37%	4.13%	57%
26	Samsung Display Co.,Ltd	2022/10	2050	7,226	6,115	1,111	1,874	768	1,106	26%	13%	100%
27	Samsung Biologics Co Ltd	2022/11	2050	362	362	0	101	101	-	28%	28%	0%
28	Samsung Electro-Mechanics Co., Ltd.	2022/11	2050	2,343	895	1,449	240	-	240	10.2%	0%	17%
29	Samsung Life Insurance	2023/3	2040	63	63	-	6	6	-	10.1%	10.1%	Not applicable
30	Samsung Fire & Marine Insurance	2023/3	2040	65	65	-	5	5	-	7.75%	7.75%	Not applicable
31	LOTTE WELLFOOD CO.,LTD.	2023/4	2040	310	310	-	4	4	-	1.33%	1.33%	Not applicable
32	Shinhan Financial Group	2023/5	2040	229	229	-	56	56	-	24%	24%	Not applicable
33	KAKAO CORP	2023/5	2040	229	229	-	11	11	-	4.75%	4.75%	Not applicable
34	LG Electronics	2023/6	2050	1,300	489	811	161	4	157	12%	0.83%	19%
35	Lotte Chemical Corp	2023/7	2050	5,210	3,851	1,359	9	8	1	0.17%	0.20%	0%
36	HD Hyundai XiteSolution Co., Ltd.	2023/11	2040	242	189	53	16	3	13	6.56%	1.33%	25%
37	LS Electric Co Ltd	2023/12	2040	151	126	25	8	7	1	5.19%	5.51%	4%

Not applicable: responded 'No overseas site electricity consumption'

Plastics & Biodiversity

3

Plastics value-chain mapping

24% Korea | 40% Global | 35% Japan

Share of companies performing value-chain mapping.

Of the 292 climate-change respondents, 70 companies (24%) carried out plastics value-chain mapping and reported on plastics, a wide gap with the global 40% and Japan (35%). By stage, upstream concentration (67%) is similar to the global level, but end-of-life management (37%) is 8%p below the global 45%, a weak circular-economy approach. Mapping of direct operations (20%) is also lower than the global and Japanese levels, so few companies extend plastics issues into their own operations. Overall, Korean companies' plastics response falls short of global standards both in quantity and in the depth of scope.

Plastics-related business activities

25% Korea | 41% Global | 36% Japan

Share of companies reporting plastics-related business activities.

72 companies (25%) reported plastics-related business activities, below the global figure (2,702 companies, 41%) and Japan (421, 36%). By type, use of durable plastic products (31%) is most common but 7%p below the global 38%. In packaging, plastic packaging production (6%) is half the global 11% and production of goods with plastic packaging (25%) about half the global 43%, both notable gaps. Provision/commercialization of services using plastic packaging (6%) is also far below the global 15% and Japanese 19%, so the share of Korean companies reporting plastic-packaging activities as business activities is only 40–60% of the global level.

Plastics-related targets

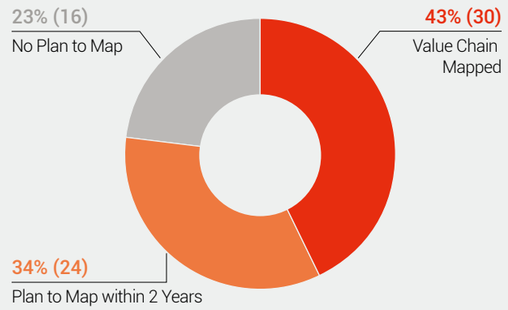
25% Korea | 41% Global | 37% Japan

Share of companies setting plastics-related targets.

72 companies (25%) set plastics-related targets, almost identical to value-chain mapping (24%) and business-activity reporting (25%). These consistently low rates, all in the 24–25% range, show that Korean companies' awareness and response remain at an early stage. There is a 16-percentage-point gap with the global 41% and a 12-percentage-point gap with Japan (37%). Given the Global Plastics Treaty (UNEA) negotiations and the strengthening of the EU Packaging and Packaging Waste Regulation (PPWR), building a plastics-response framework is an urgent task for Korean companies.

Plastics Value Chain Mapping Status: Korean Companies

Unit: %(companies)



Company Distribution by Plastics Value Chain Stage (Multiple Choices)

Category	Korea (N:30)		Global (N:1,213)		Japan (N: 174)	
	No. of companies	Share(%)	No. of companies	Share(%)	No. of companies	Share(%)
Upstream	20	67%	774	64%	117	67%
Downstream	15	50%	624	51%	90	52%
End-of-life management	11	37%	551	45%	79	45%
Direct operations	6	20%	320	26%	44	25%

Reporting Companies by Plastics-Related Activity Type (Multiple Choices)

Category	Korea (N:72)		Global (N:2,702)		Japan (N:421)	
	No. of companies	Share(%)	No. of companies	Share(%)	No. of companies	Share(%)
Production/commercialization of plastic polymers (including plastic converters)	6	8%	249	9%	37	9%
Production/commercialization of durable plastic goods and/or components (including mixed materials)	14	19%	558	21%	105	25%
Usage of durable plastics goods and/or components (including mixed materials)	22	31%	1,021	38%	160	38%
Production/commercialization of plastic packaging	4	6%	293	11%	54	13%
Production/commercialization of goods/products packaged in plastics	18	25%	1,167	43%	206	49%
Provision/commercialization of services that use plastic packaging (e.g., food services)	4	6%	417	15%	82	19%
Provision of waste management and/or water management services	14	19%	451	17%	52	12%

Companies with Plastics-Related Targets by Target Type (Multiple Choices)

Target type	Korea (N=72)		Global (N=2,726)		Japan (N=422)	
	Companies	Share (%)	Companies	Share (%)	Companies	Share (%)
Increase the proportion of post-consumer recycled content in plastic polymers produced and/or sold	8	11%	222	8%	14	3%
Reduce the total weight of plastic packaging used and/or produced	7	10%	426	16%	50	12%
Reduce the total weight of virgin content in plastic polymers produced and/or sold	6	8%	199	7%	18	4%
Increase the proportion of post-consumer recycled content in plastic goods/products	5	7%	173	6%	23	5%
Ensure compliance with EPR policies and schemes	5	7%	226	8%	7	2%
Increase the proportion of post-consumer recycled content in plastic packaging	4	6%	327	12%	33	8%
Increase the proportion of recyclable plastic waste that is collected, sorted, and recycled	4	6%	249	9%	23	5%

Plastics

Production / sale of polymers

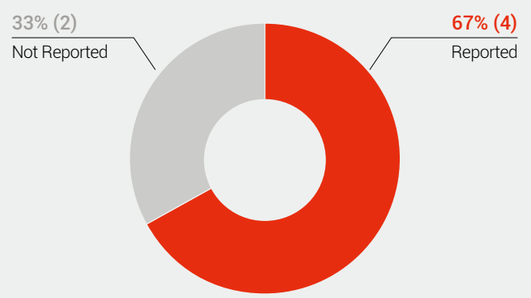
1%	3%	1%
Korea	**Global**	**Japan**

Share of renewable-material-based polymer production.

Of the 6 companies reporting polymer production or sale, 4 disclosed detailed data. Korea's renewable-material-based polymer share is 1%, 2%p below the global 3% and equal to Japan, so the feedstock transition in the East Asian chemical industry is still early. Fossil-based materials make up an overwhelming 99% of total polymer weight (about 3.12 million tonnes). Renewable materials are just 1% (34,000 tonnes), while recycled content is 0.05% post-consumer recycled (PCR) and 0% pre-consumer recycled (PIR). The sector has yet to move away from a fossil-feedstock-dominated structure.

Detailed Data Reporting Rate among Plastic Polymer Producers/Sellers

Unit: %(companies)



Total Weight and Raw Material Content of Plastic Polymers Sold (N:4)

Unit: Metric tons

Category	Weight	Share (%)
Total Weight	3,123,845	
Virgin Fossil-Based content	3,088,385	99%
Virgin Renewable Content	34,000	1%
Pre-Consumer Recycled Content	-	0%
Post-Consumer Recycled Content	1,459	0.05%

Sale / use of durable plastic products

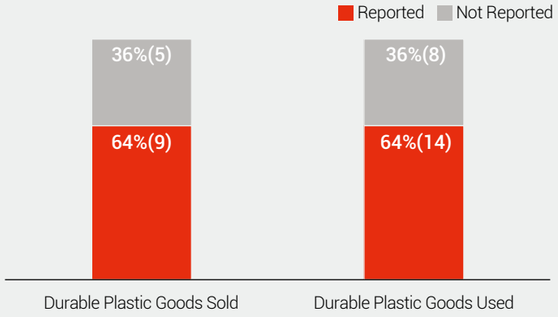
27%	26%	14%
Korea	**Global**	**Japan**

Share of renewable materials in durable plastics.

Korea's renewable-material share in durable plastic products is 27% — the only area where it exceeds the global 26% and Japan (14%). The share is high at both the sale (33%) and use (27%) stages, far above packaging (3%), so durable-goods makers are more proactive in shifting to bio-based materials. Fossil-based materials still hold around 40%, but pre-consumer recycled content reaches 16–17%, showing feedstock diversification. Post-consumer recycled materials, however, remain at 1% for sale and 10% for use, higher use at the use stage.

Detailed Data Reporting Rate among Durable Plastic Goods Sellers/Users

Unit: %(companies)



Total Weight and Raw Material Content of Durable Plastic Goods

Unit: Metric tons

Category	Sold (N:9)		Used (N:14)	
	Weight	Share (%)	Weight	Share (%)
Total Weight	217,368		167,831	
Virgin Fossil-Based content	106,511	49%	79,609	47%
Virgin Renewable Content	70,648	33%	45,244	27%
Pre-Consumer Recycled Content	37,971	17%	26,741	16%
Post-Consumer Recycled Content	2,238	1%	16,238	10%

Sale / use of plastic packaging

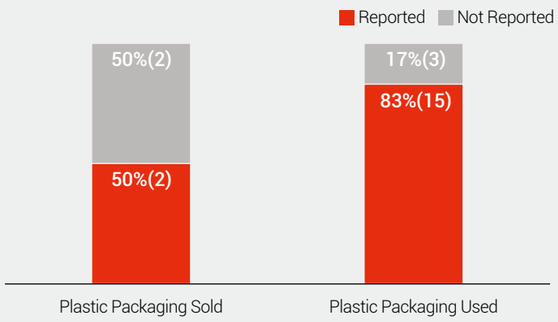
39%	1%	10%
Korea	**Global**	**Japan**

Share of renewable materials in plastic packaging.

Korea's renewable-material share in plastic packaging is 39%, an outlier far above the global 1% and Japan (10%). This reflects a few large companies adopting bio-based packaging, with diffusion across the wider corporate base still limited. Substitution with renewable materials is active, but use of pre- and post-consumer recycled materials is close to 0%, a highly skewed structure. Substitution is occurring through specific instruments, but a genuine resource-circulation system including recycling is still underdeveloped.

Actual Data Reporting Rate among Plastic Packaging Sellers/ Users

Unit: %(companies)



Total Weight and Raw Material Content of Plastic Packaging

Unit: Metric tons

Category	Sold (N:2)		Used (N:15)	
	Weight	Share (%)	Weight	Share (%)
Total Weight	79,059		80,644	
Virgin Fossil-Based content	76,801	97%	48,962	61%
Virgin Renewable Content	2,258	3%	31,682	39%
Pre-Consumer Recycled Content	-	0%	1	0.001%
Post-Consumer Recycled Content	-	0%	-	0%

Plastics

Circularity of plastic packaging

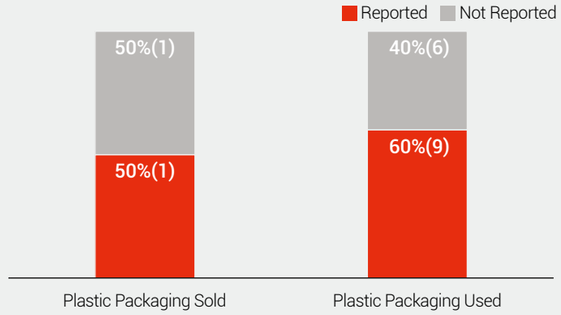
87%	77%	29%
Korea	**Global**	**Japan**

Share of recyclable plastic packaging used.

Korea's share of recyclable plastic packaging is 87% — 10%p above the global 77% and 58%p above Japan (29%). Among circular packaging types, the technically recyclable share is high at 100% for sale (N:1) and 87% for use (N:9), but the share recycled in practice is only 0% for sale and 10% for use, a clear gap between potential and reality. Reusable packaging is just 3% at use and 0% at sale. Korea's high technical-recyclability is positive, but weak links to recycling infrastructure and collection systems mean the foundations for a circular economy need strengthening.

Circularity Data Reporting Rate among Plastic Packaging Sellers/Users

Unit: %(companies)



Weight of Plastic Packaging by Circularity Potential

Unit: Metric tons

Category	Sold (N:1)		Used (N:9)	
	Weight	Share (%)	Weight	Share (%)
Total Weight	76,801		69,003	
Reusable Plastic Packaging	-	0%	2,120	3%
Technically Recyclable Plastic Packaging	76,801	100%	60,247	87%
Recyclable in Practice Plastic Packaging	-	0%	6,636	10%

Plastic waste treatment

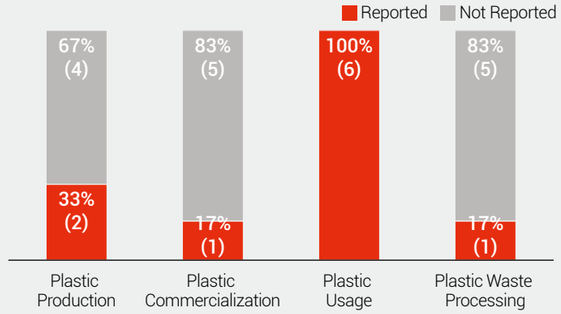
79%	61%	50%
Korea	**Global**	**Japan**

Share of waste recycled from plastic use.

Korean companies show strength in plastic waste treatment. The share of waste recycled from plastic use is 79%, well above the global 61% and Japan (50%). By activity, the use stage generates the most waste at 26,814 tonnes, of which 79% (21,294 tonnes) is recycled. Hard-to-recycle waste is entirely converted via energy recovery (5,488 tonnes) at the use stage. At production, an estimated 12% goes to landfill or incineration, but at the commercialisation and waste-management stages the entire volume is recycled, an overall strong resource-circulation system.

Waste Management Data Reporting Rate among Companies with Plastics Activities

Unit: %(companies)

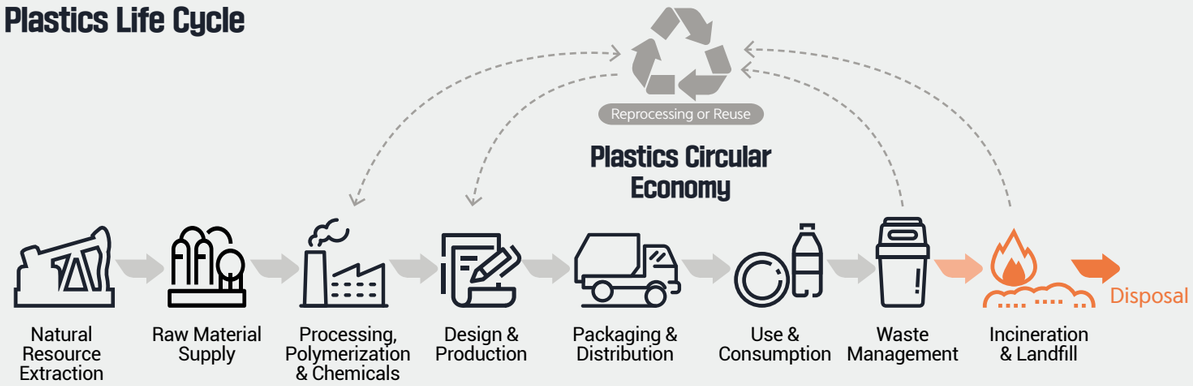


Weight of Plastic Waste by End-of-Life Management Pathway: Korean Companies

Unit: Metric tons

Activity	Plastic Production (N:2)	Plastic Commercialization (1)	Plastic Usage (6)	Plastic Waste Processing (1)
Total Waste Generated	2,009	1,771	26,814	246
Prepared for Reuse	-	-	31	-
Recycling	1,771	1,771	21,294	246
Waste to Energy	-	-	5,488	-
Other	238	-	-	-

Plastics Life Cycle



Biodiversity

Board-level oversight of biodiversity

36%
Board/management holds biodiversity responsibility

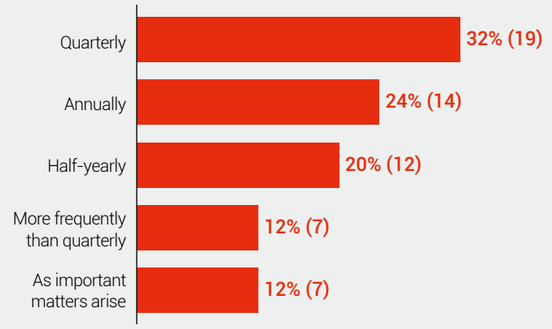
20%
Biodiversity issues reported directly to the board

0%
Provide biodiversity-linked monetary incentives

36% (106) of companies assign biodiversity responsibility to the board or management, about a third of the climate-governance level (91%), so biodiversity governance is at an early stage. Only 20% (59) report directly to the board and 0% provide monetary incentives, in stark contrast to climate (65%). Among the 87 companies with such responsibility, oversight of assessing environmental dependencies, impacts, risks and opportunities (63%) and of target-setting (60%) rank highest, while scenario-analysis oversight (32%) is low, so the blind spot seen in climate governance recurs in biodiversity.

Frequency of Management reporting to the board

Unit: % (companies) / (N:59)



Scope of the board's biodiversity-related management and oversight (N:87, multiple choices)

Board biodiversity-related management and oversight item	Com-panies	Share (%)
Reviewing and guiding the assessment process for DIRO	55	63%
Overseeing the setting of corporate targets	52	60%
Monitoring progress towards corporate targets	49	56%
Approving corporate policies and/or commitments	44	51%
Overseeing and guiding business strategy development	36	41%
Monitoring business strategy implementation	34	39%
Monitoring compliance with corporate policies/commitments	33	38%

Biodiversity risk-management processes

15%
Have biodiversity risk-management processes

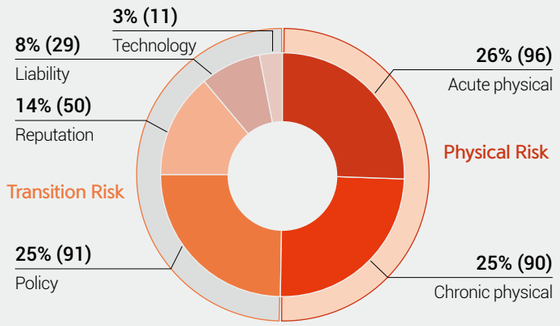
11%
Integrate biodiversity risks into a multi-disciplinary organization-wide risk management process

8%
Assess risks across the entire value chain

15% of companies have established biodiversity risk-management processes, a 78-percentage-point gap with climate (93%). 11% have integrated biodiversity risks into company-wide risk management, and only 8% assess risks across the entire value chain. Against the climate figures of 78% company-wide integration and 69% value-chain assessment, most companies are not managing biodiversity risks systematically. Given the Kunming-Montreal Global Biodiversity Framework (GBF) and the spread of the TNFD recommendations, biodiversity risk management is an urgent task.

Risk types included in risk assessment

Unit: % (companies) / (mutiple choices)



Detailed biodiversity-related risk type (mutiple choices)

Risk types	Risk types and criteria considered	companies
Physical	Water stress	23
Transition	Changes to national legislation	20
Transition	Negative press coverage of projects/ activities with negative environmental impact	18
Transition	Non-compliance with regulations	18
Transition	Changing customer behavior	17
Physical	Flood (coastal, fluvial, pluvial, ground water)	16
Transition	Increased partner/ stakeholder concern and negative feedback	15
Physical	Changing temperature (air, freshwater, marine water)	14

Biodiversity risks

0
Korean companies identifying biodiversity risks

44
Global companies identifying biodiversity risks

0 /13
Companies quantifying financial impact (Korea / Global)

No Korean companies (0) identified and reported biodiversity risks, a fundamental gap with the global 44. The number quantifying financial impact is also 0 in Korea versus 13 globally, so Korea has not even reached the identification stage. Among the risk types identified globally, increased stakeholder concern (5 cases; maximum long-term US$1.99 billion) had the largest financial impact, followed by changes in international environmental agreements (2 cases; maximum long-term US$950 million) and carbon pricing mechanisms (1 case; long-term US$670 million).

Financial effect by global biodiversity-related risk type

Unit: USD / multiple choices

Biodiversity-related Risk type	Com-panies	Quantifying Financial Effect	Report year	Average Financial Effect					
				(Est.) short-term		(Est.) medium-term		(Est.) long-term	
				Min	Max	Min	Max	Min	Max
(Transition) Increased partner and stakeholder concern or negative feedback	5	3	-	477,670,825	1,910,683,300	477,670,825	1,910,683,300	537,670,825	1,990,683,300
(Transition) Changes to international law and bilateral agreements	2	1	-	477,670,825	955,351,500	-	955,351,500	-	955,351,500
(Transition) Carbon pricing mechanisms	1	1	-	-	-	-	-	674,160,000	674,160,000
(Transition) Changes to national legislation	2	1	-	477,670,825	1,910,683,300	0	955,341,650	0	477,670,825
(Transition) Increased stakeholder concern/negative feedback	2	1	-	-	-	-	-	30,000,000	40,000,000

Biodiversity

Biodiversity response activities

Korea	Global	Japan
37%	43%	41%

Share of companies with biodiversity commitments and actions.

Korea's biodiversity-commitment implementation rate is 37% (108), below the global 43% and Japan (41%). By action type, species management (57%) is far above the global 38%, a focus on species conservation. Law & policy (36%) also exceeds the global 27%, a regulation-centred approach. By contrast, education and awareness-raising (55%) is below the global 64%, pointing to weaker stakeholder outreach. In particular, livelihood and economic incentives are just 5%, a third of the global 14%, so linking conservation to community economic benefit is markedly underdeveloped.

Performance monitoring indicators

Korea	Global	Japan
27%	26%	23%

Share of companies using biodiversity performance-monitoring indicators.

Of the 238 Korean companies that responded on biodiversity, those using performance-monitoring indicators are 27% (64) in Korea, 26% (1,491) globally and 23% (229) in Japan. By type, Korea's state indicators (58%) are 15%p above the global 43%, a focus on assessing current ecosystem conditions. Response indicators (42%) and pressure indicators (30%) are 3 and 5%p below the global 45% and 35%, so capacity to analyse causes of biodiversity loss and measure effectiveness is weaker. Monitoring needs to move beyond status assessment towards action and cause-analysis indicators.

Areas important to biodiversity

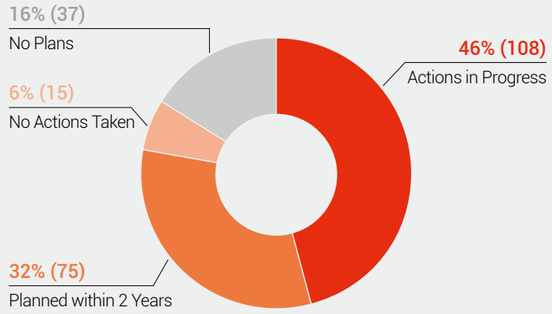
Korea	Global	Japan
34%	28%	28%

Share of companies operating in areas important to biodiversity.

More companies operate in areas important to biodiversity in Korea (34%) than globally (28%) or in Japan (27%). However, the actual rate of mitigation action is far below global: every category shows gaps of 30–50%p or more, including operational management (17% vs 70%) and physical controls (12% vs 57%). Restoration (15%) and pollution reduction (14%) are relatively high domestically but still short of the global level (around 30%). Biodiversity offsets (4%) and process planning (1%) are effectively unimplemented, so sweeping strengthening of the framework for mitigating business impacts in key areas is urgently needed.

Implementation Status of Biodiversity Commitment Actions

Unit: % (companies)



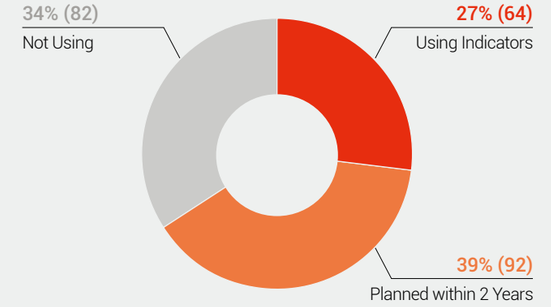
Types of Actions Taken to Progress Biodiversity Commitments

(Multiple choices)

Activity type	Korea (N:108)		Global (N:2,862)	
	No. of Companies	Share (%)	No. of Companies	Share (%)
Species Management	62	57%	1,097	38%
Education and Awareness	59	55%	1,830	64%
Land and Water Management	53	49%	1,541	54%
Land and Water Protection	45	42%	1,462	51%
Law and Policy	39	36%	773	27%
Livelihood and Economic Incentives	5	5%	397	14%

Use of Indicators to Monitor Biodiversity Performance

Unit: % (companies)



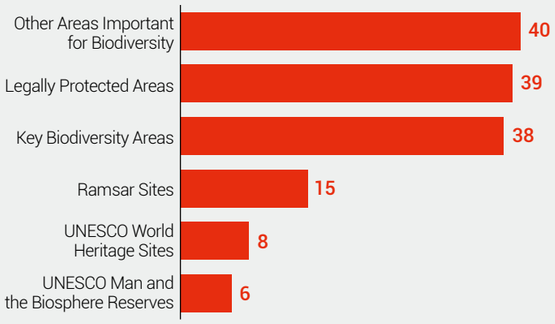
Types of Indicators Used to Monitor Biodiversity Performance

(Multiple choices)

Indicator Type	Korea (N:64)		Global (N:1,491)	
	No. of Companies	Share (%)	No. of Companies	Share (%)
State Indicators	37	58%	642	43%
Response Indicators	27	42%	676	45%
Pressure Indicators	19	30%	519	35%

Companies Operating in Areas Important for Biodiversity

Unit: companies / (N:82, multiple choices)



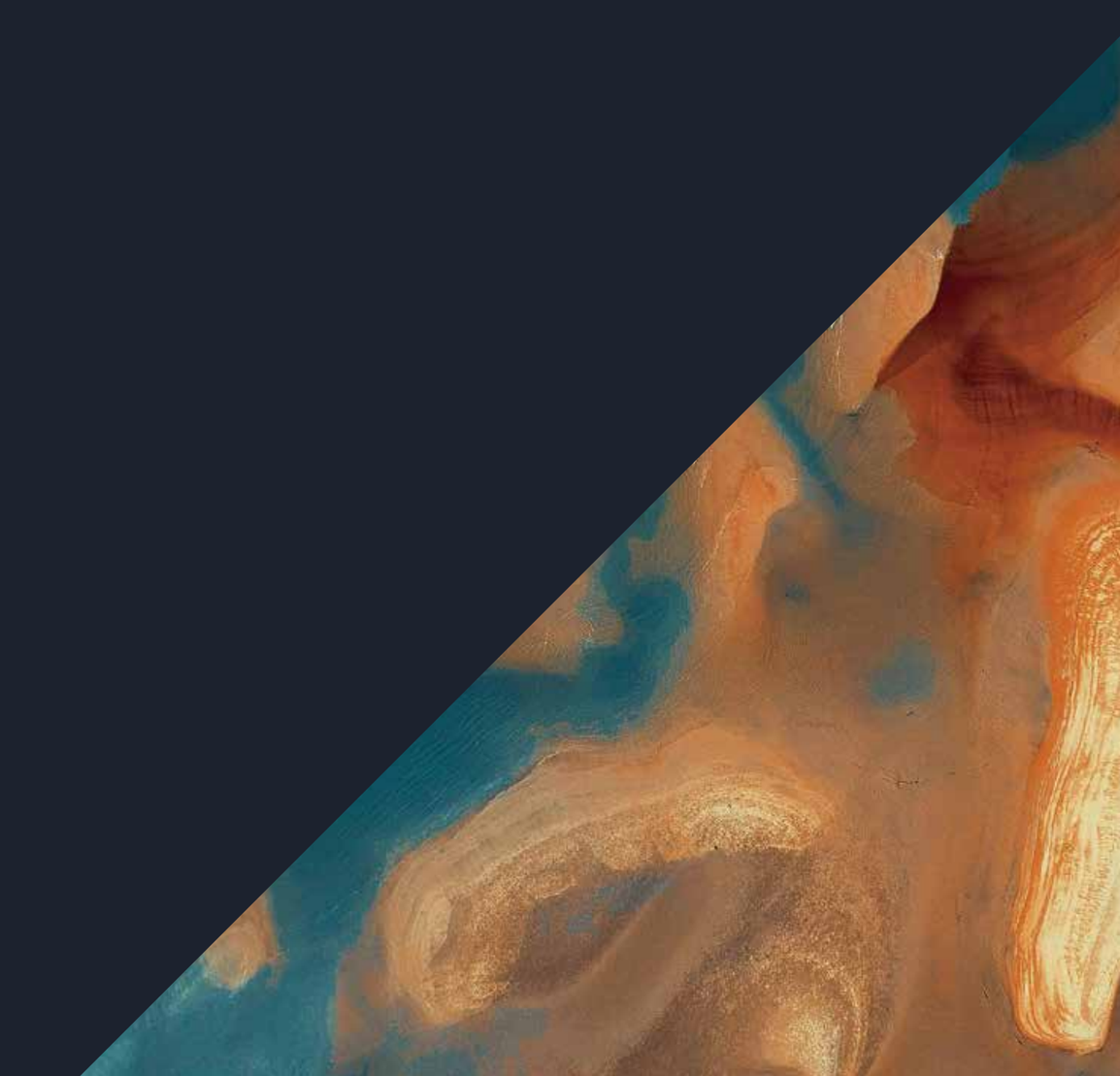
Types of Mitigation Measures Implemented in Biodiversity-Important Areas

(Multiple choices)

Mitigation Measures	Korea (N: 81)		Global (N:2,739)	
	No. of Companies	Share (%)	No. of Companies	Share (%)
Operational controls	14	17%	1,906	70%
Restoration	12	15%	949	35%
Abatement controls	11	14%	913	33%
Physical controls	10	12%	1,562	57%
Project design	9	11%	1,168	43%
Site selection	5	6%	720	26%
Biodiversity offsets	3	4%	485	18%

Water Security

4



Water Governance

Board-level oversight of water

77%
Board has oversight of water

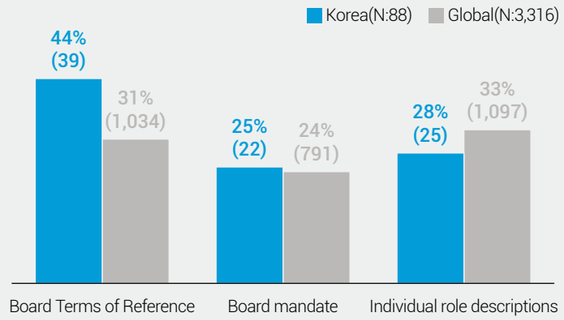
92%
Companies with an environmental policy

65%
Board members with water-related competency

The share of companies whose board holds water responsibility is 77%, 14%p below climate-change governance (91%). Although 92% have an environmental policy, only 65% of boards include members with water-related expertise, 17%p below climate expertise (82%). Among board water-oversight items, monitoring progress towards corporate targets (63 companies, 72%) is highest, followed by target-setting oversight (61 companies, 69%). By contrast, scenario analysis oversight (33, 38%) and business-strategy oversight (34, 39%) are below 40%, so the strategic-oversight blind spot seen in climate governance recurs in water.

Type of Documents formalising water responsibility

Unit: %(companies)/(multiple choices)



Scope of the board's water-related management and oversight

(N:88, multiple choices)

Board water-related management and oversight item	Com-panies	Share (%)
Monitoring progress towards corporate targets	63	72%
Overseeing the setting of corporate targets	61	69%
Reviewing and guiding the assessment process for DIRO	53	60%
Approving and/or overseeing employee incentives	44	50%
Overseeing and guiding major capital expenditures	44	50%
Approving corporate policies and/or commitments	38	43%
Monitoring the implementation of the business strategy	38	43%

Management-level water responsibility

86%
Management holds water responsibility

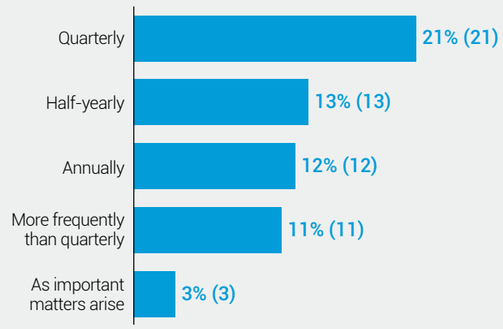
61%
Water issues reported directly to the board

11%
Alignment of water oversight types between board and management

Management holds water responsibility at 86% of companies, 8%p below climate (94%) but 9 above the board (77%), showing water management is led in practice at management level. The share where a Chief Sustainability Officer (CSO) holds it is 61%, and direct reporting of water issues to the board is at the same level. Among management oversight items, assessment of water dependencies, impacts, risks and opportunities (67%) and corporate water target-setting (67%) tie for first. Alignment between board and management water-oversight types is 11%, 22%p below climate (33%), so the oversight-execution disconnect is more severe for water.

Frequency of Management reporting to the board

Unit: % (companies) / (N:99)



Scope of the management's water-related management and oversight

(N:99, multiple choices)

Management water-related management and oversight item	Com-panies	Share (%)
Assessing environmental DIRO	66	67%
Setting corporate environmental targets	66	67%
Measuring progress towards environmental corporate targets	53	54%
Managing environmental DIRO	48	48%
Providing employee incentives related to environmental performance	47	47%
Monitoring compliance with corporate environmental policies and/or commitments	44	44%
Setting corporate environmental policies and/or commitments	41	41%
Implementing the business strategy related to environmental issues	40	40%

Board and management monetary incentives

50%
Water-linked monetary incentives provided

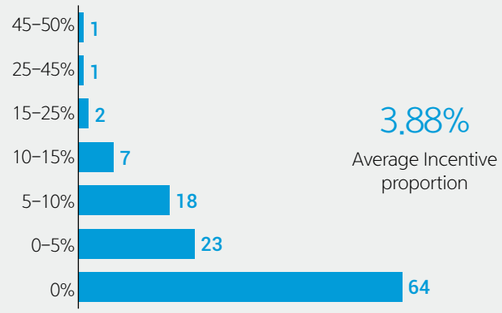
19%
Water incentives for the board and CEO

19%
Incentives linked to long-term water performance

50% of companies provide water-linked monetary incentives, 15%p below climate (65%). The average incentive proportion is 3.88%, about a fifth of the climate incentive average (19.88%), and both board/CEO water incentives and long-term water-performance incentives are just 19%. Among performance indicators, achievement of environmental targets (38 companies, 67%) ranks first, with progress towards environmental targets (21, 37%) and reduction of water-pollution incidents (21, 37%) tied for second. Unlike climate incentives, which concentrate on absolute emissions reduction (76%), water incentives are spread across varied indicators.

Distribution of water incentives as a proportion of total board and management incentives

Unit: companies



Performance indicators used to assess water incentives

(N:57, multiple choices)

Water incentive performance indicator	Com-panies	Share (%)
Achievement of environmental targets	38	67%
Progress towards environmental targets	21	37%
Reduction of water pollution incidents	21	37%
Reduction/elimination of environmental incidents/ notices of violation	16	28%
Reduction or phase out of hazardous substances	15	26%
Strategy and financial planning	14	25%
Employee awareness campaign or training on environmental issues	11	19%
Performance against an environmental sustainability index	9	16%

Water Risks

Water risk-management processes

66%
Companies with water risk-management processes

49%
Integrate water risks into a multi-disciplinary organization-wide risk management process

37%
Assess risks across the entire value chain

66% of respondents have water risk-management processes, 27%p below climate (93%). 49% have integrated water risks into a multi-disciplinary organization-wide process, 29 points below climate (78%), and only 37% assess water risks across the entire value chain, half the climate level (69%). Water risk management is generally less mature than climate, with the largest gaps in value-chain coverage and company-wide integration. Raising it to the level of the climate framework is a key task for Korean companies.

Substantive water risks

77%
Companies identifying and reporting substantive water risks

2.5
Average water risks reported per company

KRW30million
Average financial impact per reported risk

77% of respondents identified and reported substantive water risks, 88 in total (an average of 2.5 per company). Both the identification rate and the number reported are below climate risks (93%, 642 risks), so awareness of water risks is at an earlier stage. The average financial impact per reported risk is KRW 30 million, a tiny fraction of climate risks (KRW 11.4 billion), suggesting water risks financial impact is not yet sufficiently quantified. Among physical risk types, flooding (51) and water stress (48) are high, while among transition risks, changes to domestic legislation (43) is highest.

Substantive water opportunities

63%
Companies identifying and reporting substantive water opportunities

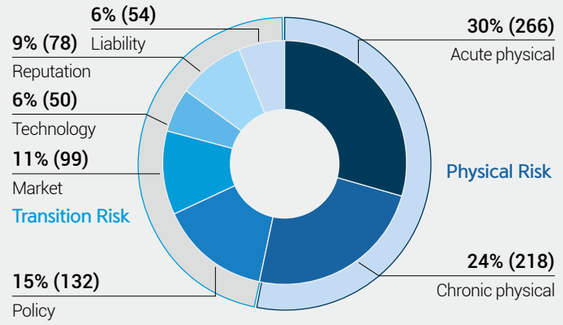
2.3
Average water opportunities reported per company

KRW4.2billion
Average financial impact per reported opportunity

63% (73) of respondents identified substantive water opportunities, 165 in total (an average of 2.3 per company). The identification rate is 27%p below climate opportunities (90%, 440), but the average financial impact per opportunity is KRW 4.2 billion, 140 times that of water risks (KRW 30 million). By type, reduced water use/consumption (27) is most common, followed by recycling use (12) and cost savings (11). Recycling use is largest at a long-term maximum of KRW 2.7226 trillion, while new product/service development through R&D (3) holds a medium-term maximum of KRW 121.5 billion.

Risk types included in risk assessment

Unit: %(companies)/ multiple choices



Detailed water-related risk type

(multiple choices)

Risk types	Risk types and criteria considered	companies
Physical	Flood (coastal, fluvial, pluvial, ground water)	51
Physical	Water stress	48
Transition	Changes to national legislation	43
Physical	Drought	39
Transition	Changing customer behavior	39
Physical	Heavy precipitation (rain, hail, snow/ice)	38
Transition	Non-compliance with regulations	35
Physical	Heat waves	33

Financial effect by water-related risk type

Unit: KRW 100m / multiple choices

Water-related Risk type	Companies	Companies quantifying financial effect	Reporting year	(Est.) short-term		(Est.) medium-term		(Est.) long-term	
				Min	Max	Min	Max	Min	Max
(Physical) Water stress	20	14	-	23	28	351	9,789	105	1,039
(Physical) Drought	12	10	-	94	241	3,024	5,797	7,812	9,208
(Transition) Non-compliance with legislation	10	7	-	3.4	1,748	8,382	13,857	0.33	0.36
(Physical) Flooding (coastal, fluvial, pluvial, groundwater)	10	6	-	25	76	42	129	97	283
(Transition) Increased pricing of water	6	5	-	105	142	130	320	332	572
(Transition) Changes to national legislation	5	3	-	0.60	1.05	32	32	0.10	0.50

Financial effect by water-related opportunity type

Unit: KRW 100m / multiple choices

Water-related Opportunity type	Companies	Companies quantifying financial effect	Average Financial Effect						
			Reporting year	(Est.) short-term		(Est.) medium-term		(Est.) long-term	
				Min	Max	Min	Max	Min	Max
Reduced water usage and consumption	27	18	2,366	112	114	238	241	43	45
Use of recycling	12	10	1.38	1,655	2,753	3,360	5,572	6,822	27,226
Cost savings	11	10	24	290	322	853	1,032	2,972	3,723
Water recovery from sewage treatment	4	4	7.95	4.63	97	285	331	-	-
Development of new products or services through R&D and innovation	3	3	0.13	111	131	834	1,215	168	168
Increased sales of existing products and services	3	2	4,452	-	166	-	-	-	-

Water-related Business Impact

Water-related regulatory violations and investment

10%
Companies reporting substantive water-related regulatory violations

KRW 20 million
Average fine per violation

52%
Average year-on-year growth in water-related capital expenditure

Companies reporting substantive water-related regulatory violations are low at 10%, and the average fine per violation is KRW 20 million. The average year-on-year(YoY) growth in water-related capital expenditure (CAPEX) is 52%, with Korean companies' YoY CAPEX growth (94.98%) above the global 56%. The expected five-year average change in CAPEX is 51.99% for Korea, 74% globally and 132.75% for Japan, so Japan's long-term investment plans are 2.6 times Korea's. YoY growth in operating expenditure (OPEX) is 6.16% for Korea, 22% globally and 28.83% for Japan; Korea is lowest.

Transition plans and scenario analysis

57%
Companies integrating water risks into business strategy

26%
Companies including water issues in transition plans

43
Companies conducting water scenario analysis

57% of companies integrate water risks into business strategy, but only 26% include water issues in their transition plans, a 31-percentage-point gap between strategy and execution. 43 companies conduct water scenario analysis; of 55 water scenarios used, WRI Aqueduct (37, 67%) is the overwhelming first choice, followed by the WWF Water Risk Filter (16, 29%). Of 25 physical scenarios, RCP 8.5 (18, 72%) is mainstream and RCP 2.6 (3, 12%) the minority. Participation in water scenario analysis is far below climate scenario analysis (70%, 205 companies).

Internal water price

22%
Korea

9%
Global

4%
Japan

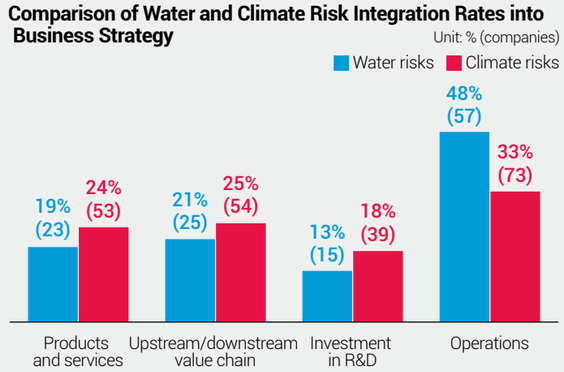
Share of companies using an internal water price

25 Korean companies (22%) use an internal water price, far above the global (378 companies, 9%) and Japan (29 companies, 4%), a proactive pattern in adopting pricing mechanisms, similar to internal carbon pricing for climate (48%). By price type, shadow price is most common at 16 companies (55%), followed by implicit price at 10 (34%) and internal fee at 3 (10%). Korea's median internal water price is KRW 936/m³, roughly a third of the global median (KRW 2,661/m³). At the most-frequent price point, Korea (KRW 734) is similar to China (KRW 914).

Water-Related CAPEX/OPEX Growth Rate

Category		Korea		Global		Japan	
		No. of Companies	Avg. Rate (%)	No. of Companies	Avg. Rate (%)	No. of Companies	Avg. Rate (%)
CAPEX	Year-on-Year Growth Rate	36	94.98	1242	55.77	184	110.40
	Expected Avg. Annual Change Rate over Next 5 Years	53	51.99	1364	73.69	178	132.75
OPEX	Year-on-Year Growth Rate	49	6.16	1425	21.74	197	28.83
	Expected Avg. Annual Change Rate over Next 5 Years	52	3.14	1416	14.66	169	20.14

Comparison of Water and Climate Risk Integration Rates into Business Strategy



Types of Scenario Analysis Used

Scenarios Used	No. of Companies	Share (%)
Water Scenario	55	
WRI Aqueduct	37	67%
WWF Water Risk Filter	16	29%
Other	2	4%
Physical Scenario	25	
RCP 8.5	18	72%
RCP 2.6	3	12%
Other	4	16%

Types of Internal Water Pricing Unit: KRW/m3

Category	Shadow Price	Implicit price	Internal fee
No. of Companies	16	10	3
Share (%)	55%	34%	10%
Avg. Minimum	1,346	1,174	500
Avg. Maximum	2,439	1,379	820
Avg. Mean	1,893	1,277	660

Internal water price (shadow price) by country Unit: KRW/m³
Exchange rate: KRW 1,427.5

Country	Average internal water price			Most-frequent price point
	Min	Max	Median	
Korea	148	6,501	936	734
Global	0.07	176,079,270	2,661	132
Japan	54	311,436	2,057	54
China	19	7,580	787	914
USA	57	176,079,270	1,398	57
EU	49	142,750,000	730,898	1,381

Withdrawal and discharge

112,159 GL — Total withdrawal

9,621 GL — Total discharge

KRW 9 million/ML — Average withdrawal efficiency (KRW 9 million per ML)

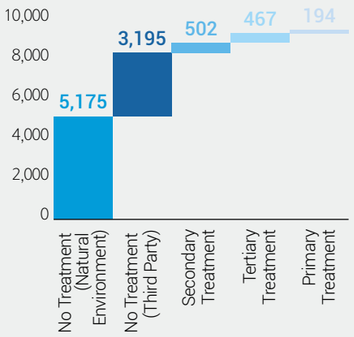
For 2024, total withdrawal by Korean respondents is 112,159 GL and total discharge 9,621 GL. Excluding unclassified withdrawal-source data, third-party sources account for an overwhelming 93% share, followed by brackish water/seawater at 6% and fresh surface water at 1%. By destination: brackish water/seawater (5,273 GL, 55%), third-party (3,871 GL, 40%) and fresh surface water (467 GL, 5%). By industry, Materials (103,483 GL) is 92%, followed by Utilities (5,195 GL), Consumer Discretionary (1,417 GL) and IT (1,141 GL). Untreated discharge is largest (5,175 GL, 54%), mostly Utilities' cooling water, while tertiary (467 GL) and secondary (502 GL) treatment expand.

Water Flow (Withdrawal → Discharge)

Category	Source	Total Volume (GL)	Share (%)
Withdrawal Source	Third-Party Sources	85,889	93%
	Brackish/Seawater	5,160	6%
	Fresh Surface Water	587	1%
	Groundwater (Renewable)	537	1%
	Groundwater (Non-Renewable)	10	0.01%
Discharge Destination	Brackish/Seawater	5,273	55%
	Third-Party Destinations	3,871	40%
	Fresh Surface Water	467	5%
	Groundwater	8	0.09%

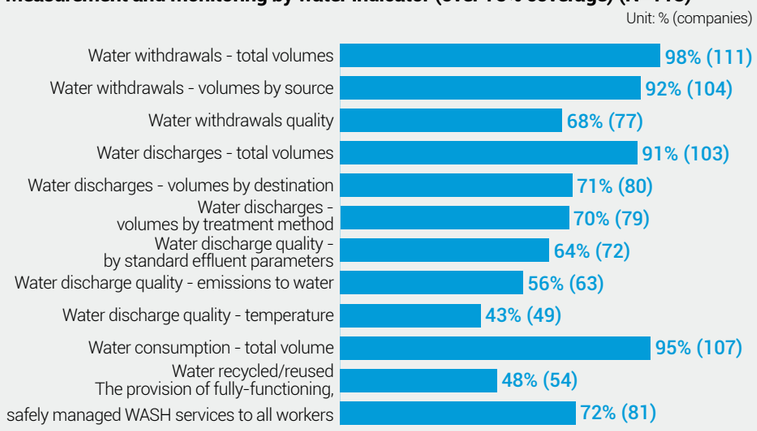
Water Discharge Volume by Treatment Level

Unit: GL



Measurement and monitoring by water indicator (over 75% coverage) (N=113)

Unit: % (companies)



Water Withdrawal Volume by Industry and Source

Unit: ML

Industry	Total Water Withdrawal	Third Party Sources	Brackish/ Seawater	Fresh Surface Water	Groundwater (Renewable)	Groundwater (Non-Renewable)	Produced/ Entrained Water	Not Disaggregated
Materials (14)	103,482,666	83,643,585	316	189,417	415,680	31	-	19,233,637
Consumer Discretionary (43)	1,417,183	872,302	8	244,504	74,667	10,163	5,433	210,105
IT (25)	1,140,921	681,532	7,114	36,416	6,505	-	1,406	407,948
Health Care (3)	537,286	512,883	-	-	24,403	-	-	-
Industrials (11)	270,397	146,101	-	46,667	9,385	1	-	68,243
Utilities (4)	5,195,289	17,228	5,152,779	24,765	517	-	-	-
Consumer Staples (9)	67,964	12,402	-	828	5,714	2	1,898	47,121
Energy (2)	46,871	2,489	-	44,360	21	-	-	-
Communication Services (2)	577	577	-	-	-	-	-	-
Total	112,159,154	85,889,100	5,160,217	586,956	536,893	10,198	8,737	19,967,053

Water Discharge Volume by Industry and Destination

Unit: ML

Industry	Total Water Discharge	Fresh Surface Water	Brackish/Seawater	Groundwater	Third-Party
Utilities (4)	5,162,257	1,365	5,160,368	-	523
Materials (14)	3,087,087	12,969	95,376	-	2,978,743
IT (25)	485,188	169,089	-	-	316,099
Health Care (3)	381,200	20,340	-	-	360,860
Consumer Discretionary (43)	401,769	200,888	2,248	8,461	190,173
Industrials (11)	68,680	57,383	-	-	11,297
Energy (2)	20,766	-	14,984	-	5,783
Consumer Staples (9)	11,739	4,984	-	16	6,739
Communication Services (2)	2,679	1,597	43	75	964
Total	9,621,366	468,614	5,273,019	8,552	3,871,181

Water Discharge Volume by Industry and Treatment Level

Unit: ML

Industry	Total Water Discharge	No Treatment (Natural)	No Treatment (Natural)	Secondary Treatment	Tertiary Treatment	Primary Treatment Only	Other
Utilities (4)	5,163,154	5,152,779	164	8,868	1,314	28	-
Materials (14)	3,086,958	23	2,946,572	60,210	47,048	33,105	-
IT (25)	615,977	3	49,699	155,531	261,536	23,517	125,692
Health Care (3)	381,200	20,340	103,430	254,253	3,178	-	-
Consumer Discretionary (43)	310,779	925	83,478	14,353	75,800	136,222	-
Industrials (11)	68,563	17	10,386	9	57,446	704	-
Energy (2)	20,767	-	37	3,111	17,460	159	-
Consumer Staples (9)	11,858	817	1,087	5,695	3,698	561	-
Communication Services (2)	326	-	191	135	-	-	-
Total	9,659,582	5,174,906	3,195,043	502,166	467,479	194,296	125,692

Water Risks and Targets

Water stress

49%
Companies withdrawing from water-stressed areas

19%
Share of total withdrawals from stressed areas

33%
Companies reducing withdrawals year-on-year

49% of respondents withdraw water from water-stressed areas, and stressed-area withdrawals are 19% of total. 33% of companies reduced withdrawals year-on-year — 27 of 83 cutting withdrawals from stressed areas. Among withdrawal-change drivers, increases/decreases in business activity (5,526 GL, 93.37%) dominate. Investment in water-smart technology/processes (11 GL, 0.19%) is a tiny share, so technology-driven withdrawal reduction is still early. Within business-activity factors, 'low'-level changes (4,810 GL) predominate and 'very high' (3 GL) is marginal, indicating gradual rather than abrupt structural change.

Water-related targets

60%
Companies with water-related targets

50%
Companies with withdrawal targets

47%
Companies with company-wide targets for direct operations

2029
Average target year

54%
Average achievement rate against base year

37%
Companies classifying low-water-impact products/services

60% of companies have set water-related targets, similar to climate reduction-target rates (55% near-term, 44% long-term), though with gaps in specificity and ambition. 50% have withdrawal targets and 47% company-wide targets for direct operations. By coverage, company-wide (direct operations) is most common at 53 targets. Company-wide targets including the supply chain are effectively non-existent (0.10 GL, 0% achievement), unlike the Scope 3 supply-chain emphasis in climate. Water targets concentrate on companies' own direct operations and need extending to the supply chain and product-use stages. The average target year is 2029, a shorter horizon than climate reduction targets (the 2030s), focusing on relatively short-term performance.

Analysing achievement by company-wide (direct-operations) indicator, reduction of withdrawals per revenue (11 companies) reached 279%, 2.8 times the target. By contrast, increasing the recycling/reuse rate (8 companies) had the lowest rate at 16%, showing structural difficulty in realising circular-water targets, attributed to technical barriers in meeting water-quality standards and of investing in industrial-water recycling infrastructure. Absolute reduction of total withdrawals (6 companies) and water-pollution recycling/reuse (5 companies) also achieved around 50%, confirming that absolute-reduction targets are harder to meet than intensity-based targets.

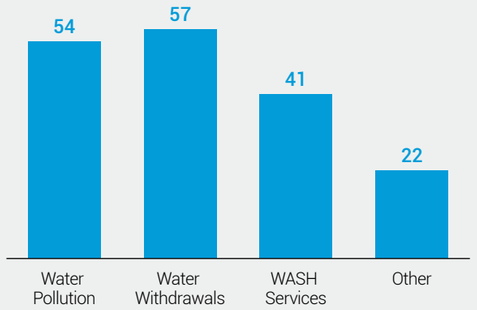
Drivers of Water Withdrawal Changes in Water-Stressed Areas

Unit: ML

Driver	Withdrawal Volume (ML)	Share (%)	Year-on-Year Change					
			Much Lower	Lower	About the same	Higher	Much Higher	First Year of Measurement
Increase/decrease in business activity	5,526,110	93.37%	-	4,810,875	107,466	603,861	3,605	303
Unknown	241,902	4.09%	-	-	241,902	-	-	-
Maximum potential volume reduction already achieved	101,975	1.72%	-	-	101,975	-	-	-
Increase/decrease in efficiency	21,914	0.37%	363	5,133	16,244	175	-	-
Investment in water-smart technology/process	11,262	0.19%	2,230	-	2,105	-	6,927	-
Other	10,280	0.17%	-	-	10,280	-	-	-
Facility expansion	3,576	0.06%	-	-	3,354	-	222	-
Change in accounting methodology	1,568	0.03%	-	-	1,568	-	-	-
Total	5,918,586		2,593	4,816,008	484,893	604,035	10,754	303

Water Target Setting Status by Category

Unit: companies



Water Target Achievement Rate by Coverage

Unit: ML

Target Coverage	Avg. Volume (GL)			% Achieved vs. Base Yea
	Base Year	Reporting Year	Target Year	
Org-wide (Direct Operations)	1,522	1,556	1,585	54%
Site/facility	4	8	9	80%
Country/area/region	0	10	10	101%
Business division	76,854,464	74,204,426	80,837,530	-67%
Org-wide (incl. Suppliers)	0	0	0	0%
Business activity	5,947	4,900	4,500	72%
Total	76,861,938	74,210,899	80,843,633	-67%

Achievement Rate by Indicator: Organization-Wide (Direct Operations) Targets

Target Indicator	No. of Companies	Share (%)	Avg. Volume (GL)			% of Target Achieved Relative to Base Year
			Base Year	Reporting Year	Target Year	
Water pollution : Reduction in concentration of pollutants	16	16%	1,817	1,564	1,488	77%
Water, Sanitation, and Hygiene (WASH) services : Increase in the proportion of employees using safely managed drinking water services	13	13%	3,541	2,439	2,616	119%
Water withdrawals: Reduction in withdrawals per revenue	11	11%	17,728	10,104	14,995	279%
Water withdrawals: Increase in water use met through recycling/reuse	8	8%	132	251	882	16%
Water withdrawals: Reduction in total water withdrawals	6	6%	25,808,723	26,176,652	26,526,305	51%
Water withdrawals: Reduction in withdrawals per unit of production	6	6%	4	3	3	68%
Water pollution : Increase in water use met through recycling/reuse	5	5%	14,336	40,521	70,175	47%
Water pollution : Increase in the proportion of wastewater that is safely treated	4	4%	623	254	110	72%
Water pollution : Reduction in water discharge volumes	3	3%	35,743	35,600	32,936	5%

Five-Year Water-Data Tracking
(Reporting Years 2020–2024)

Withdrawals and discharges

4.84% — **Withdrawals**

4.02% — **Discharges**

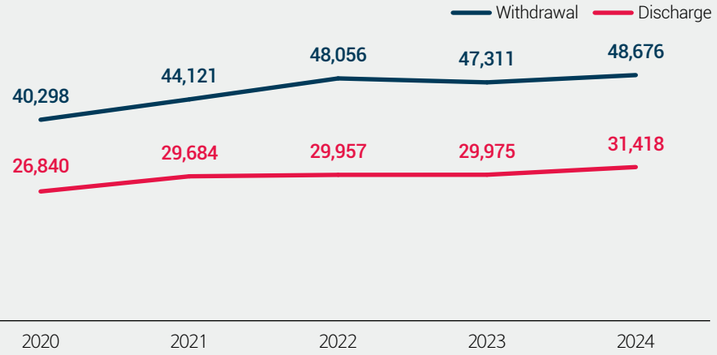
–0.78% — **Discharge/ withdrawal ratio**

4-year (2020–2024) average annual rate of change

In the five-year (reporting years 2020–2024) tracking of domestic companies' water data, discharges (+4.02%) grew more slowly than withdrawals (+4.84%), so the discharge-to-withdrawal ratio fell by an annual average of 0.78%. Over four years, withdrawals rose 21% (725,367 ML → 876,167 ML) and discharges 17% (483,125 ML → 565,517 ML). By year, after a surge in both (+9% / +11%) in 2021, there was a temporary dip in 2023 (–2%) and a renewed rise in 2024 (+3%). This is attributed to fluctuations in domestic semiconductor and materials production feeding directly through to water use.

Trend Analysis of Avg. Water Withdrawal and Discharge by Year (N=18, 5-Year Consecutive Respondents)

Unit: ML



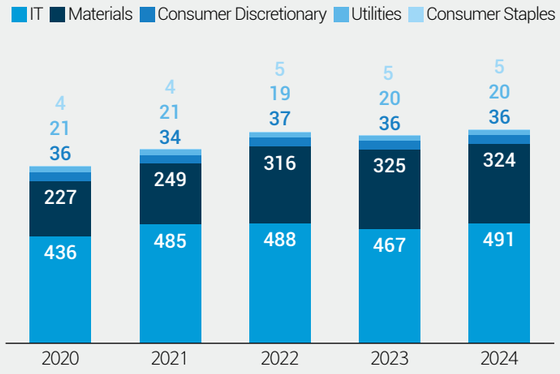
Annual Trend of Withdrawal and Discharge Change Rate

Unit: ML

Reporting Year	Withdrawal		Discharge	
	Total Volume	Change (%)	Total Volume	Change (%)
2020	725,367	-	483,125	-
2021	794,181	3,823(9%)	534,309	2,844(11%)
2022	865,006	3,935(9%)	539,219	273(1%)
2023	851,607	-744(-2%)	539,546	18(0.1%)
2024	876,167	1,364(3%)	565,517	1443(5%)

Water Withdrawal Trend by Industry

Unit: ML



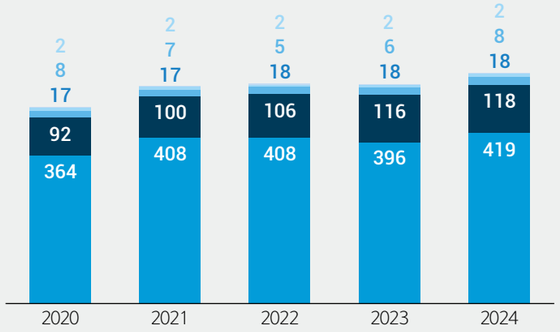
Top 5 Companies: Water Withdrawal Comparison

Unit: ML

Rank	Company	Withdrawal Volume (GL)		YoY Change (%)
		2020	2024	
1	POSCO	136	209	53%
2	Samsung Electronics	142	189	33%
3	SK Hynix	93	113	21%
4	LG Display	94	99	5%
5	LG Chem Ltd	52	72	40%

Water Discharge Trend by Industry

Unit: ML



Top 5 Companies: Water Discharge Comparison

Unit: ML

Rank	Company	Discharge Volume (GL)		YoY Change (%)
		2020	2024	
1	Samsung Electronics	109	152	39%
2	LG Display	84	94	12%
3	SK Hynix	81	93	16%
4	POSCO	63	84	33%
5	Samsung Display Co.,Ltd	53	37	-30%

Water Discharge-to-Withdrawal Ratio Trend by Industry

Industry	2020	2021	2022	2023	2024	CAGR (%)
IT	83%	84%	84%	85%	85%	1%
Materials	41%	40%	33%	36%	36%	-3%
Consumer Discretionary	48%	51%	49%	50%	51%	1%
Utilities	37%	31%	27%	34%	41%	3%
Consumer Staples	41%	46%	45%	46%	48%	4%

Top 5 Companies: Discharge-to-Withdrawal Ratio Comparison

Rank	Company	Discharge-to-Withdrawal Ratio (%)		CAGR (%)
		2020	2024	
1	Lotte Chemical Corp	34%	26%	-6.0%
2	POSCO	46%	40%	-3.4%
3	Kia Corporation	71%	63%	-2.8%
4	SK Hynix	87%	83%	-1.2%
5	KT&G	25%	25%	-0.5%

Integrated 5-Year Withdrawal and Discharge Table for All 18 Companies (2020-2024)

Unit: ML

Company	Industry	Withdrawal (GL)					
		2020	2021	2022	2023	2024	% Change from 2020
Total		725,367	794,181	865,006	851,607	876,167	21%
POSCO	Materials	136,377	135,828	197,407	208,818	208,517	53%
Samsung Electronics	IT	142,294	166,662	172,811	177,361	188,541	33%
SK Hynix	IT	93,077	104,044	111,639	106,548	112,981	21%
LG Display	IT	94,140	108,122	106,813	95,778	99,082	5%
LG Chem Ltd	Materials	51,539	66,882	74,781	73,423	72,189	40%
Lotte Chemical Corp	Materials	39,398	46,642	43,920	42,692	43,745	11%
Samsung Display Co.,Ltd	IT	62,515	59,020	49,232	38,920	40,569	-35%
Samsung Electro-Mechanics Co., Ltd.	IT	19,708	20,834	19,700	20,919	22,324	13%
Hyundai Motor Co	Consumer Discretionary	20,535	17,834	19,940	20,583	19,092	-7%
SK Siltron Co., Ltd.	IT	14,928	16,275	16,608	15,881	15,694	5%
LG Innotek	IT	9,593	9,715	11,376	11,593	11,951	25%
Kia Corporation	Consumer Discretionary	9,551	10,293	10,776	9,980	10,824	13%
Korea East-West Power	Utilities	12,545	12,489	11,062	10,295	10,173	-19%
Korea Western Power	Utilities	8,601	8,977	8,257	8,334	10,107	18%
Hankook Tire & Technology Co., Ltd.	Consumer Discretionary	5,993	6,155	5,980	5,706	5,585	-7%
LG Household & Health Care	Consumer Staples	3,726	3,573	3,884	3,971	4,031	8%
KT&G	Consumer Staples	766	743	733	699	648	-15%
Coway Co., Ltd.	Consumer Discretionary	82	92	86	105	113	39%

Company	Industry	Discharge (GL)					
		2020	2021	2022	2023	2024	% Change from 2020
Total		483,125	534,309	539,219	539,546	565,517	17%
POSCO	Materials	63,383	65,117	71,740	81,229	84,224	33%
Samsung Electronics	IT	109,201	130,955	136,118	142,995	152,109	39%
SK Hynix	IT	80,742	87,602	90,789	87,350	93,358	16%
LG Display	IT	83,713	102,163	99,427	88,403	93,679	12%
LG Chem Ltd	Materials	15,414	21,573	21,190	22,543	21,918	42%
Lotte Chemical Corp	Materials	13,274	13,105	12,802	12,524	11,494	-13%
Samsung Display Co.,Ltd	IT	53,004	49,150	42,428	36,539	37,095	-30%
Samsung Electro-Mechanics Co., Ltd.	IT	15,157	15,300	15,256	16,952	17,291	14%
Hyundai Motor Co	Consumer Discretionary	9,102	8,387	9,149	9,522	9,307	2%
SK Siltron Co., Ltd.	IT	14,371	15,504	15,241	14,561	15,569	8%
LG Innotek	IT	7,799	7,751	9,057	9,612	10,087	29%
Kia Corporation	Consumer Discretionary	6,744	7,178	6,893	6,834	6,833	1%
Korea East-West Power	Utilities	2,432	2,197	1,406	1,522	1,232	-49%
Korea Western Power	Utilities	5,318	4,528	3,851	4,875	7,123	34%
Hankook Tire & Technology Co., Ltd.	Consumer Discretionary	1,545	1,736	1,720	1,810	1,829	18%
LG Household & Health Care	Consumer Staples	1,652	1,793	1,882	1,998	2,096	27%
KT&G	Consumer Staples	194	179	183	171	161	-17%
Coway Co., Ltd.	Consumer Discretionary	82	92	86	105	113	39%

Korea Leaders

5

2025 Korea Leaders
Climate Change

A–List (Climate Change)[1]

Kaon Group
Kia
Lock&Lock
Mirae Asset Securities
Samsung C&T
Samsung E&A
Samsung Electro-Mechanics
Samyang
Shinhan Financial Group
SOLiD
AmorePacific
Ilji Tech
Chang Shin
KT&G
Kolon Industries
Hankook Tire & Technology
Hanwha
Hyundai E&C
Hyundai Glovis
Hyundai Mobis
Hyundai Department Store
Hyundai Wia
Hyundai Motor
HD Hyundai Construction Equipment
HD Hyundai Infracore

1. In Korean alphabetical order
2. By induction year, then Korean alphabetical order
3. By grade, then Korean alphabetical order

CDP Korea Hall of Fame

Award Category	Company[2]	Year Inducted
Platinum Club	SK hynix	2013
	Samsung Electro-Mechanics	2014
	Samsung C&T	2016
	Shinhan Financial Group	2018
	Hyundai E&C	2018

CDP Korea Awards — Climate Change Winners

Award Category		Company[3]
Carbon Management Honors Club		KT&G
		Hyundai Wia
		Hyundai Motor
		IBK (Industrial Bank of Korea)
		LG Uplus
Carbon Management Sector Honors	Financials	IBK (Industrial Bank of Korea)
		KB Financial Group
		IM Financial Holdings
	Industrials	Samsung E&A
		Hanwha
		Hyundai Glovis
		HD Hyundai Construction Equipment
	Consumer Discretionary	Kia
		Hyundai Wia
		Hyundai Motor
		LG Electronics
	Energy & Utilities	Korea Gas Corp
	Materials	Kolon Industries
		Hyundai Steel
	Communication Services	LG Uplus
	Consumer Staples	KT&G
		EMART
	IT	LG Innotek
		LG Display
Carbon Management Special Award	New / voluntary participation	Shinsegae
		Moorim P&P
		HL D&I Halla

A–List (Climate Change)[1]

IBK (Industrial Bank of Korea)
JB Financial Group
KB Financial Group
LG H&H
LG Uplus
LG Innotek
NH Investment & Securities
SK Gas
SK Networks
SK Discovery
SK Square
SK Siltron
SK chemicals

1. In Korean alphabetical order
2. By grade, then Korean alphabetical order
3. The CDP Korea Awards select winners based on assessment scores calculated by CDP's global headquarters; the program applies only in Korea.
4. CDP Korea Awards winners are determined fairly through review by the CDP Korea Committee (see the list at the back of the report).

CDP Korea Awards — Selection Criteria[3,4]

Climate Change

Hall of Fame

- Minimum: Leadership A– or above
- Mandatory: third-party verified by CDP
- Companies in the Carbon Management Honors Club for 5 consecutive years
  - Platinum Club: Hall of Fame status for 4+ years
  - Gold Club: Hall of Fame status for 1–3 years

Carbon Management Honors Club

- Top 5 companies with Leadership A and CDP third-party verification (ties → joint award)

Carbon Management Sector Honors

- The top 3 companies per sector with Leadership A– or above and CDP third-party verification
  (Top 2 for sectors with <5 respondents; top 4 for sectors with ≥15)

Carbon Management Special Award[3]

- Selection principle: Annual award theme determined based on global climate policy trends and industry response status
  (May be omitted if no eligible company)
- 2025 Theme: Expanding domestic climate disclosure and encouraging voluntary participation.
  - Eligible: Companies not among CDP's requested companies but voluntarily disclosing via CDP, and first-time responders among requested companies
  - Criteria: Top 3 companies among the above with Management B or above

2025 Korea Leaders

Water Security

A–List (Climate Change)[1]

Kia
Lotte Fine Chemical
Samsung SDI
Samsung Biologics
Samsung Electro-Mechanics
Samsung Electronics
AmorePacific
KT&G
Cosmax
Korea South-East Power
Korea Midland Power
Hyundai Rotem
Hyundai Motor
LG Display
SK Discovery
SK Siltron
SK chemicals
SK hynix

CDP Korea Awards — Water Security Winners

Award Category		Company[2]
Grand Prize		Hyundai Motor
Best Excellence Award		AmorePacific
		SK hynix
Sector Excellence Award	Industrials	Hyundai Rotem
		HL D&I Halla
	Consumer Discretionary	Kia
		Kumho Tire
	Energy & Utilities	SK Discovery
	Materials	Lotte Fine Chemical
		SK chemicals
	Health Care	Samsung Biologics
	Consumer Staples	KT&G
		Cosmax
	IT	Samsung Electro-Mechanics
		Samsung Electronics
		SK Siltron
Special Award	Award of Merit	K-water

CDP Korea Awards — Selection Criteria[3,4]

Water Security

Grand Prize

- Top 1 company with Leadership A or above (ties broken by highest score in lower band)

Best Excellence Award

- Top 2 companies with Leadership A or above (excl. Grand Prize winner)

Sector Excellence Award

- Top 2 companies per sector with Leadership A– or above
  (Top 1 for sectors with <10 respondents; top 3 for sectors with ≥20)

Special Award

- Selected separately by CDP Korea Committee review, for contributions to water management performance and Korea's water ecosystem
  (may be omitted if no eligible company)

1. In Korean alphabetical order
2. By grade, then Korean alphabetical order
3. The CDP Korea Awards select winners based on assessment scores calculated by CDP's global headquarters; the program applies only in Korea.
4. CDP Korea Awards winners are determined fairly through review by the CDP Korea Committee (see the list at the back of the report).

CDP Scoring System

Overview

The CDP scoring system is designed to evaluate companies' environmental disclosures systematically, to provide a roadmap towards best practice, and to give investors a comparable indicator of environmental stewardship across companies. Scores are based solely on the response data a company submits to CDP; external information and a company's own website or sustainability report are not taken into account. From 2024, the climate change, forests and water security questionnaires were combined into a 13-module Integrated Corporate Questionnaire: a single disclosure covers multiple environmental issues, while separate scores are produced for climate change, forests and water security. Financial-services companies receive an additional Module 12 and, in 2025, will be given forests and water-security disclosure scores for the first time.

Four-tier scoring structure

CDP assesses responses across four levels:
- Disclosure : completeness of the response.
- Awareness: the company's awareness of environmental issues, risks and their business impact.
- Management: the company's activities, policies and strategies to address environmental issues.
- Leadership: environmental management and the identification, sharing and spread of best practice, plus leadership.

A company must meet a minimum threshold at a lower level before progressing to a higher one — a design that prevents a high rating on the strength of isolated excellence and encourages balanced improvement. Unanswered questions score zero, with a larger penalty for unanswered Key Data Points.

Rating Determination

CDP assigns one of eight grades from D– to A for each environmental issue. Each question is scored against a predefined scoring matrix and methodology, from which a score percentage is calculated for each of the four bands (Disclosure, Awareness, Management, Leadership). Disclosure and Awareness use a simple ratio (points scored / points available); Management and Leadership apply weights according to each question's importance. A percentage-based score is computed per category and summed to determine the final grade. Moving to a higher band requires meeting the minimum threshold; otherwise, the higher-band score is not awarded.

Essential Criteria

Beyond minimum score thresholds, CDP operates an Essential Criteria system: conditions that must be satisfied for points to be recognized at a given band. Even if a score exceeds the threshold, points are withheld unless all essential criteria for that band are met. For instance, Awareness entry requires 80%+ in Disclosure plus all Awareness essential criteria.
Previously applied only to A List entry, essential criteria expanded in 2024 to cover all bands (Awareness, Management, Leadership) within Climate Change, with new A List requirement added.

Non-evaluation handling and disclaimer

This establishes a consistent reporting baseline per band, ensuring disclosure of core data and key response elements—prioritizing consistently robust environmental management over isolated best practices.
For Forests and Water Security, essential criteria currently apply only at Leadership and A List, with expansion to lower bands planned.

A company that is asked to disclose to CDP but does not is marked 'Did not disclose', indicating it provided insufficient information to be scored. A company that submits after the scoring deadline, or is otherwise ineligible, is marked 'Not Scored' and excluded from evaluation. A CDP score reflects the activities and positions a company disclosed in its CDP response. It is not a comprehensive measure of a company's sustainability or 'greenness', nor a specific measure of environmental footprint; it indicates the level of action the company took during the reporting year to assess and manage its environmental impacts. CDP publishes its methodology to show companies how scores are derived but reserves the right to adjust criteria or weightings throughout the scoring period based on emerging risk-management strategies, best practice, response-data quality and scoring outcomes.

Stage thresholds

The provisional thresholds applied to each CDP scoring stage and environmental issue are set out in the source. They applied to scoring for the 2025 disclosure cycle, and CDP may adjust them up to the point of score release after reviewing the distribution of responses (final bands of the CDP scoring system).

CDP Scoring System — Final Bands

Climate Change	Water Security	
70% 이상		A
1–69%		A-
45–75%		B
1–44%		B-
45–80%		C
1–44%		C-
50–80%		D
1–49%		D-

CDP Media Contacts
media@cdp.net

CDP Worldwide
4th Floor,
60 Great Tower Street,
London EC3R 5AD
United Kingdom

Tel: +44 (0)20 3818 3900
www.cdp.net
info@cdp.net