

EPEAT Disclosure Report

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The following report was prepared for conformance to the ANSI/NSF 457 Sustainability Leadership Standard.

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1. Reporting on key performance indicators (Criterion 11.2.1)

Tables consolidating the Corporate Key Performance Indicators (KPI) can be found below. For KPI applicable to modules manufactured globally, reference **Table 1**. For KPI applicable to Hanwha Solutions Corporation, which excludes Qcells operations in the United States, reference **Table 2**. Much of this data can be found directly in the Hanwha Solutions Corporation Sustainability Report, which Qcells contributes to. The boundaries associated with each indicator can be found in the referenced reports (page numbers noted where applicable). Information noted without reference to a Sustainability Report page has been identified with assumptions noted. For KPI applicable to modules manufactured in the United States under Hanwha Q Cells USA, Inc. (Dalton Factory) and Hanwha Q Cells Georgia, Inc. (Cartersville Factory), reference **Table 3** and **Table 4**, respectively. All assumptions standards, methodologies and calculation methods are noted under the data section. The 2025 Sustainability Report (English version) can be found at this link: [2025 Hanwha Solutions Corporation Sustainability Report](#)

Table 1. KPI Applicable Globally

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Solutions Corporation, Global)	
			2025 Sustainability Report	
	GRI	SASB	January 1 - December 31, 2023	January 1 - December 31, 2024
PV modules produced in MW in reporting period		RR-ST-000.A	Total Module Production: 7,338 MW	Total Module Production: 6,621 MW
Work-related injuries	403-9		Total work-related injuries: 22. Total working hours: 17,092,421 (employees + suppliers). Please see tables on page 154 in our 2025 Sustainability Report regarding serious accidents, fatalities, injury frequency rate and fatality rate per 10,000 persons for Hanwha Solutions (employees + suppliers).	Total work-related injuries: 14. Total working hours: 17,168,523 (employees + suppliers). Please see tables on page 154 in our 2025 Sustainability Report regarding serious accidents, fatalities, injury frequency rate and fatality rate per 10,000 persons for Hanwha Solutions (employees + suppliers).
Work related ill-health	403-10		Total work-related ill-health: 0. Total lost days: 1,048 (employees + suppliers). See table on page 154 in our 2025 Sustainability Report regarding occupational illness frequency rate (OIFR) for Hanwha Solutions (employees + suppliers).	Total work-related ill-health: 0. Total lost days: 197 (employees + suppliers). See table on page 154 in our 2025 Sustainability Report regarding occupational illness frequency rate (OIFR) for Hanwha Solutions (employees + suppliers).
Standards, methodologies, assumptions and/or calculation tools used			OIFR is noted as cases per 1,000,000 working hours. For total work-related injuries, ill-health cases, & lost days, Hanwha Solutions Corporation, Hanwha Q Cells USA, Inc., and Hanwha Q Cells Georgia, Inc. were included in the boundary scope. The number of employees includes contractors permanently stationed and working at our business sites. Please reference 2025 Sustainability Report (p.154) for 2023 and 2024 supplementary data.	

Table 2. Hanwha Solutions Corporation KPI

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Solutions Corporation, Korea)	
			2025 Sustainability Report	
	GRI	SASB	January 1 - December 31, 2023	January 1 - December 31, 2024
Recycled input materials used	301-2		Minimum: 12.7% by weight Maximum: 18.8% by weight	Minimum: 18.1% by weight Maximum: 27% by weight
Standards, methodologies, assumptions and/or calculation tools used			Based on data provided by primary glass and polysilicon providers' preconsumer recycled content declarations. Depending on product and supplier mix, conservative range of recycled input by weight for primary products noted. Total module input weight assumed the same as manufactured weight. Production volume mix and weight changes assumed negligible difference between 2023 and 2024.	
Energy consumption within the organization	302-1	RR-ST-130a.1	26,533,123 GJ (2025 Sustainability Report, p. 149)	24,888,381 GJ (p. 149)
Total fuel consumption from non-renewable sources	302-1		4,529,553 GJ (p. 149)	4,514,043 GJ (p. 149)
Gasoline	302-1		9,410 GJ (p. 149)	10,935 GJ (p. 149)
Diesel	302-1		26,255 GJ (p. 149)	16,308 GJ (p. 149)
Kerosene	302-1		8,236 GJ (p. 149)	7,891 GJ (p. 149)
LNG	302-1		2,363,771 GJ (p. 149)	2,388,324 GJ (p. 149)
LPG	302-1		604,479 GJ (p. 149)	580,967 GJ (p. 149)
Other	302-1		1,517,402 GJ (p. 149)	1,509,619 GJ (p. 149)
Total fuel consumption from renewable energy	302-1		14,995 GJ (p. 149)	20,717 GJ (p. 149)
Total Power and Steam Consumed	302-1		22,003,571 GJ (p. 149)	20,374,338 GJ (p. 149)
Steam sold	302-1		0 GJ (p. 149)	0 GJ (p. 149)
Standards, methodologies, assumptions and/or calculation tools used			Standards, Methodologies, and assumptions all comply with ISO14064-1. Conversion factors and methodologies are from the IPCC. Energy data is based on energy bills, but on-site solar is directly measured. There is no electricity, steam, heating, or cooling sold from the Qcells subsidiaries.	
Energy consumption in manufacturing		RR ST130a.1.1	2,697,061 GJ	2,345,545 GJ
Grid electricity consumed (%)		RR ST130a.1.1	58.3% (p. 163)	57.2% (p. 163)
Renewable energy consumed (onsite solar) (%)		RR ST130a.1.1	1.2% (p. 163)	0.7% (p. 163)
Standards, methodologies, assumptions and/or calculation tools used			Energy consumption in manufacturing is Qcells portion of Hanwha Solutions number, excluding office-only spaces, research centers, cafeterias, and corporate vehicles. Grid and renewable energy consumption percentages are assumed to be the same as Hanwha Solutions and all other subsidiaries.	
Energy Consumption Intensity	302-3		363 GJ / KRW 100 million (p. 149)	406 GJ / KRW 100 million (p. 149)
Standards, methodologies, assumptions and/or calculation tools used			Energy Consumption Intensity denominator is based on total revenue of Hanwha Solutions, expressed as 100 million Korean Won (KRW).	
Total water withdrawal from all sources		RR-ST 140a.1.1	18,388.46 thousand m³ (p. 163)	19,637.15 thousand m³ (p. 163)
Surface water		RR-ST 140a.1.1	0 thousand m³ (p. 150)	131.22 thousand m³ (pg. 150)
Groundwater		RR-ST 140a.1.1	11.88 thousand m³ (p. 150)	359.63 thousand m³ (p. 150)
Municipal water supplies (third-party water)		RR-ST 140a.1.1	18,376.59 thousand m³ (p. 150)	19,146.3 thousand m³ (p. 150)
Total water consumed; % in regions with High or Extremely High Baseline Water Stress		RR-ST 140a.1.1	14,924.36 thousand m³; 81.2% in high stress areas (p. 163)	15,722.44 thousand m³; 80.1% in high stress areas (p. 163)
Standards, methodologies, assumptions and/or calculation tools used			Water withdrawn data is based on water bills. WRI's Aqueduct Water Risk Atlas was used as a risk filter to evaluate high-risk areas. Water stressed areas were defined as areas evaluated equal to/greater than "High (40~80%)."	

Table 2. Hanwha Solutions Corporation KPI (continued)

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Solutions Corporation, Korea)	
			2025 Sustainability Report	
			January 1 - December 31, 2023	January 1 - December 31, 2024
Direct GHG emissions (Scope 1)	305-1		486,793 tCO₂eq (p. 149)	502,889 tCO₂eq (p. 149)
Energy indirect GHG emissions (Scope 2)	305-2		2,472,932 tCO₂eq (p. 149)	2,426,089 tCO₂eq (p. 149)
Standards, methodologies, assumptions and/or calculation tools used			Boundary considered is operational control. Data consolidated for annual Sustainability Reports in Q2 of every year, consolidating the prior year of collected data (January – December). Data includes all greenhouse gases emitted (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆). We do not emit HFCs/PFCs/SF ₆ . Calculations are based on ISO14064-1 and emission factors (GWP rates from IPCC second Assessment Report, AR2), international standards. Biogenic emissions are not applicable.	
Waste Generated	306-3		101,232 tons (p. 151). Reference table on p. 151 for breakdown of landfill, incineration, recycling and other waste disposal methods.	98,605 tons (p. 151). Reference table on p. 151 for breakdown of landfill, incineration, recycling and other waste disposal methods.
Designated non-hazardous	306-3		41,691 tons (p. 151)	52,014 tons (p. 151)
Designated hazardous	306-3		49,217 tons (p. 151)	56,915 tons (p. 151)
Waste diverted from disposal (Waste Recycling)	306-4		42,039 tons (p. 151), Reference table on p. 151 for breakdown of waste recycling (both non-hazardous and hazardous waste) by type and method.	31,366 tons (p. 151), Reference table on p. 151 for breakdown of waste recycling (both non-hazardous and hazardous waste) by type and method.
Waste directed to disposal (Waste Disposal)	306-5		59,193 tons (p. 151). Reference table on p. 151 for breakdown of waste disposal (both non-hazardous and hazardous waste) by type and method. 5,045 tons of hazardous waste incinerated without energy recovery, including research centers and factories (p. 151).	67,239 tons (p. 151). Reference table on p. 151 for breakdown of waste disposal (both non-hazardous and hazardous waste) by type and method. 4,464 tons of hazardous waste incinerated without energy recovery, including research centers and factories (pg. 151).
Standards, methodologies, assumptions and/or calculation tools used			Qcells does not utilize incineration with energy recovery.	

Table 3. Hanwha Q Cells USA, Inc. KPI – Dalton Factory, Dalton, Georgia

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Q Cells USA, Inc.)	
	GRI	SASB	January 1 - December 31, 2023	January 1 - December 31, 2024
Recycled input materials used	301-2		Minimum: 11.7% by weight Maximum: 17.3% by weight	Minimum: 16.1% by weight Maximum: 23.9% by weight
Standards, methodologies, assumptions and/or calculation tools used			Based on data provided by primary glass and polysilicon providers' preconsumer recycled content declarations. Depending on product and supplier mix, both the minimum and maximum recycled input by weight for primary, publicly sold products are noted. Total module input weight assumed the same as manufactured weight. For 2023 and 2024, the respective year's annual production volume data was used to calculate.	
Energy consumption within the organization	302-1	RR-ST-130a.1	195,190.03 GJ	306,383.52 GJ
Total fuel consumption from non-renewable sources	302-1		6,642.81 GJ	15,088.32 GJ
Gasoline	302-1		616.0 GJ	439.1 GJ
Diesel	302-1		19.89 GJ	7.32 GJ
Natural Gas	302-1		2,301.98 GJ	9,233.19 GJ
LPG	302-1		3,704.94 GJ	5,408.71 GJ
Total fuel consumption from renewable energy	302-1		3,060.59 GJ	2,963.84 GJ
Total Power Consumed	302-1		188,547.22 GJ	291,295.21 GJ
Standards, methodologies, assumptions and/or calculation tools used			Standards, methodologies, and assumptions all comply with ISO14064-1. Conversion factors and methodologies are from IPCC AR4. Energy data is based on energy bills, but on-site solar is directly measured. There is no fuel consumption from renewable energy. There is no electricity, steam, heating, or cooling sold from Qcells subsidiaries.	
Energy consumption in manufacturing		RR-ST-130a.1.1	194,574.03 GJ	305,944.43 GJ
Grid electricity consumed (%)		RR-ST-130a.1.1	95.03%	94.11%
Renewable energy consumed (onsite solar) (%)		RR-ST-130a.1.1	1.57%	0.97%
Standards, methodologies, assumptions and/or calculation tools used			Energy consumption in manufacturing excludes corporate vehicles. On-site solar is directly measured.	
Energy Consumption Intensity	302-3		83.48 GJ / MW	75.59 GJ / MW
Standards, methodologies, assumptions and/or calculation tools used			Energy Consumption Intensity numerator is the total energy consumption within the organization (GJ); denominator is total PV modules produced in reporting period of Hanwha Q Cells USA, Inc., expressed in MW.	
Total water withdrawal from all sources		RR-ST-140a.1.1	74.84 thousand m³	72.29 thousand m³
Total water consumed; % in regions with High or Extremely High Baseline Water Stress		RR-ST-140a.1.1	74.84 thousand m³; 0% in high stress areas	72.29 thousand m³; 0% in high stress areas
Standards, methodologies, assumptions and/or calculation tools used			Water withdrawn identified through water utility bills. Due to lack of on-site wastewater management, wastewater volume is not measured. Therefore, water consumed is assumed to be the same as water withdrawn. WRI's Aqueduct Water Risk Atlas was used as a risk filter to evaluate high-risk areas (not applicable).	
Direct GHG emissions (Scope 1)	305-1		387 tCO₂-eq	805 tCO₂-eq
Energy indirect GHG emissions (Scope 2)	305-2		21,936 tCO₂-eq	34,098 tCO₂-eq
Standards, methodologies, assumptions and/or calculation tools used			Boundary considered is operational control within defined business entity. Data includes all greenhouse gases emitted (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆). We do not emit HFCs/PFCs/SF ₆ . Calculations are based on ISO14064-1 and emission factors (GWP rates from IPCC fourth Assessment Report, AR4), international standards. Biogenic emissions are not applicable. Location-based emissions used.	

Table 3. Hanwha Q Cells USA, Inc. KPI – Dalton Factory, Dalton, Georgia (continued)

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Q Cells USA, Inc.)	
	GRI	SASB	January 1 - December 31, 2023	January 1 - December 31, 2024
Waste generated	306-3		11,178 tons	29,756 tons
Waste diverted from disposal (Waste Recycling)	306-4		1,693 tons (all non-hazardous, all by third party)	4,789 tons (all non-hazardous, all by third party)
Waste directed to disposal (Waste Disposal)	306-5		9,484 tons (all but 0.91 tons to landfill, all by third party)	24,967 tons (all but 2.79 tons to landfill, all by third party)
Standards, methodologies, assumptions and/or calculation tools used			Tracked by weight and PO to third parties. No incineration or internal methods are utilized. Waste disposal not directed to landfill is hazardous waste.	

Table 4. Hanwha Q Cells Georgia, Inc. KPI – Cartersville Factory, Georgia

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Q Cells Georgia, Inc.)
	GRI	SASB	January 1 - December 31, 2024
Recycled input materials used	301-2		Minimum: 16.7% by weight; Maximum: 24.9% by weight
Standards, methodologies, assumptions and/or calculation tools used			Based on data provided by primary glass and polysilicon providers' preconsumer recycled content declarations. Depending on product and supplier mix, both the minimum and maximum recycled input by weight for primary, publicly sold products are noted. Total module input weight assumed the same as manufactured weight. Primary product production volume was determined from 2024 production volume data.
Energy consumption within the organization	302-1	RR-ST-130a.1	141,336.31 GJ
Total fuel consumption from non-renewable sources	302-1		11,508.68 GJ
Gasoline	302-1		Data Not Available
Diesel	302-1		0 GJ
Natural Gas	302-1		11,508.68 GJ
LPG	302-1		0 GJ
Total fuel consumption from renewable energy	302-1		0 GJ
Total Power Consumed	302-1		129,827.63 GJ
Standards, methodologies, assumptions and/or calculation tools used			Standards, Methodologies, and assumptions all comply with ISO14064-1. Conversion factors and methodologies are from the IPCC AR4. Energy data is based on energy bills, but on-site solar is directly measured. There was no fuel consumption from renewable energy in 2024. Gasoline fuel consumption in 2024 was not collected/data is not available due to factory ramp-up and thereby lack of reporting. Gasoline consumption will be reported and tracked for future years' reporting. Total fuel consumption from renewable energy is electricity produced from on-site solar. There is no electricity, steam, heating, or cooling sold from the Qcells subsidiaries.
Energy consumption in manufacturing		RR-ST-130a.1.1	141,336.31 GJ
Grid electricity consumed (%)		RR-ST-130a.1.1	91.86%
Renewable energy consumed (onsite solar) (%)		RR-ST-130a.1.1	0%
Standards, methodologies, assumptions and/or calculation tools used			Energy consumption in manufacturing excludes corporate vehicles. On-site solar installation was not online in 2024. 2025 on-site solar will be directly measured.
Energy Consumption Intensity	302-3		80.51 GJ / MW
Standards, methodologies, assumptions and/or calculation tools used			Energy Consumption Intensity numerator is the total energy consumption within the organization (GJ); denominator is total PV modules produced in reporting period of Hanwha Q Cells Georgia, Inc., expressed in MW.
Total water withdrawal from all sources		RR-ST-140a.1.1	.0364 thousand m³
Total water consumed; % in regions with High or Extremely High Baseline Water Stress		RR-ST-140a.1.1	.0364 thousand m³; 0% in high stress areas
Standards, methodologies, assumptions and/or calculation tools used			Water withdrawn identified through water utility bills. Due to lack of on-site wastewater management, wastewater volume is not measured. Therefore, water consumed is assumed to be the same as water withdrawn. WRI's Aqueduct Water Risk Atlas was used as a risk filter to evaluate high-risk areas (not applicable).
Direct GHG emissions (Scope 1)	305-1		589 tCO₂-eq

Table 4. Hanwha Q Cells Georgia, Inc. KPI – Cartersville Factory, Georgia (continued)

Key Performance Indicators (KPI)	KPI Reference Standard		Corporate KPI Reporting Periods (Hanwha Q Cells Georgia, Inc.)
	GRI	SASB	January 1 - December 31, 2024
Energy indirect GHG emissions (Scope 2)	305-2		11,122 tCO₂-eq
Standards, methodologies, assumptions and/or calculation tools used			Boundary considered is operational control within defined business entity. Data includes all greenhouse gases emitted (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆). We do not emit HFCs/PFCs/SF ₆ . Calculations are based on ISO14064-1 and emission factors (GWP rates from IPCC fourth Assessment Report, AR4), international standards. Biogenic emissions are not applicable. Location-based emissions used.
Waste generated	306-3		12,590 tons
Waste diverted from disposal (Waste Recycling)	306-4		3,451 tons (all non-hazardous, all by third party)
Waste directed to disposal (Waste Disposal)	306-5		9,139 tons (all non-hazardous, all by third party)
Standards, methodologies, assumptions and/or calculation tools used			Tracked by weight and PO to third parties. No incineration or internal methods are utilized.