

3.1.2 Environmental Management Goals

Latest progress on current management targets*

Item	Sustainable development target	2018 Result	2019 Result	2020 Result
Carbon emission and energy management targets	Carbon emission (Scope 1+2) per NTD million of revenue to decrease by 39.3% by 2025 compared to the base year 2014 ^{1,2,3}	-17.19%	-23.07%	-21.07%
	Energy conversion efficiency for power supply products to increase by 2% by 2023 compared to 2016	1.19%	1.80 %	4.56%
	UV-LED energy efficiency to increase by 60% by 2025 compared to 2018	-	21.15%	25%
	Power consumption to decrease by 6% on an absolute basis by 2020 compared to the base year 2017 ^{1,2,3}	+11.90%	+3.53%	+8.33%
Waste management targets	Waste to decrease by 6% on an absolute basis by 2020 compared to the base year 2017 ^{1,2}	-2.12%	-14.35%	-11.44%
	Waste to decrease by 3,300 tonnes on an absolute basis by 2025 compared to the base year 2017 ^{1,2}	-498 tonnes	-3,373 tonnes	-2,688 tonnes
	Plastics in packaging to decrease by 300 tonnes by 2025 compared to the base year 2018	-	31.79 tonnes	195.8 tonnes
Water resource management targets	Water consumption to decrease by 6% on an absolute basis by 2020 compared to the base year 2017 ^{1,2,3,4}	-1.37%	-2.71%	-0.72%

- Note:
- The Vietnam plant was added to the data in 2020. The data cover a total of 23 bases worldwide.
 - The Solid-State Drive (SSD) Business Unit completed transferring the business in the first half of 2020. For consistency in the calculation, the SSD Business Unit was removed from the 2018-2019 data, which were then recompiled accordingly.
 - LITEON's global power and water resource consumption did not meet the targets as a result of the addition of the Kaohsiung Operations Center and the India plant and the expansion of the Vietnam plant.
 - It was difficult to obtain accurate data on water resource consumption at the India plant given incomplete infrastructures. Therefore, consumption data on the India plant were not added here.
 - While spreading production capacity out across the globe and starting transferring production bases, LITEON will set new renewable energy targets that cover all offices worldwide. The Taiwan plant did not use any renewable energy in 2020.

3.2 Climate Change and Energy Management



3.2.1 Climate Change Policy

Climate Change and Energy Management is one of the material topics and key risks in LITEON's sustainable development. Therefore, this company monitors and analyzes developments in these areas on an ongoing basis and works on adaptation and mitigation to greenhouse gases. For climate change mitigation, we continue to follow the SBT approach for carbon reduction and analyze and manage internal energy consumption. Meanwhile, we rely on green design, green factory, energy management, and energy creation, conservation, and conversion products and solutions to meet aggressive GHG emission reduction targets. For climate change adaptation, we observe the 2 degrees Celsius scenario released by the International Energy Agency, and identify potential short-, medium-, and long-term risks arising from climate change based on international research, industry trends, and results of internal and external studies as well as our own decisions and judgments. We also construct countermeasures against potential risks in order to reduce the potential impact of climate risks.

3.2.2 Overall Impact and Challenges of Climate Change

Risks arising from climate change and natural disaster issues are one of LITEON's eight categories of sustainability risks. For the potential impact on business activities, LITEON has the internal climate change risk task force to handle the identification of physical and transition risks and opportunities, assessment of possibilities, and analysis of the influence. The task force is also responsible for devising appropriate countermeasures. In terms of climate risk issues, most major climate risks identified by LITEON came from the requirements of clients, investors and other important stakeholders for GHG reduction and compliance with product energy efficiency standards. The main climate opportunities are found in the wide range of green products and services that echo sustainability trends.

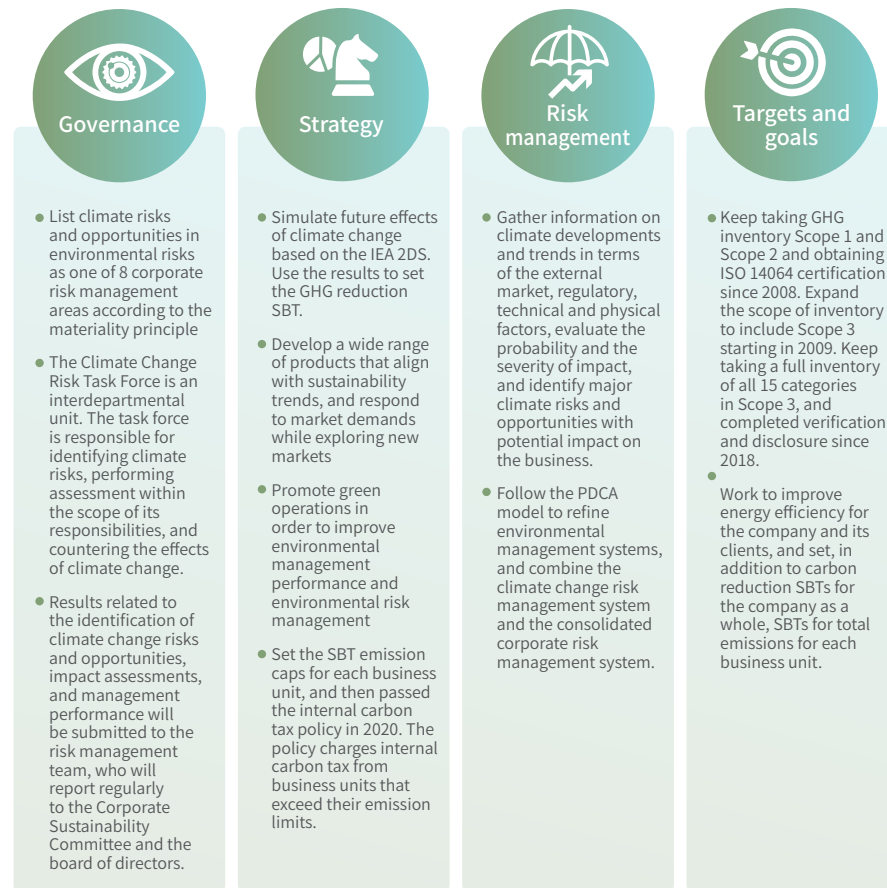
In 2020, LITEON assessed risks by probability and impact severity, then, identified that the company might be impacted by net-zero emissions commitments made by EU and Chinese economies and key clients. These commitments may prompt them to impose low carbon or even zero carbon emissions requirements on the company's operation and push up production costs. LITEON pays a lot of the attention to the potential financial implications of climate change risks. The company follows a risk management process (Section 2.3) and the PDCA cycle to monitor climate risks. Measurements are formulated to convert climate risks into financial data, and countermeasures are devised to reduce the probability and severity of these risks. The operation and results will be submitted to the risk management subcommittee to be reported to the Corporate Sustainability Committee and the Audit Committee. The chairman of the Audit Committee will in turn present a report to the board of directors. LITEON adopts a positive attitude to challenges in climate risks and opportunities. The company will perform climate scenario analysis specifically targeting higher climate risk factors and calculate potential financial impacts on an ongoing basis. The practice makes climate risk management part of the business operations.

LITEON strives to improve corporate governance mechanisms in the company for a better sustainable environment. Chaired by the head of manufacturing, the Environmental Sustainability Sub-committee is created to responsible for green operations to improve environmental management performance and environmental risk management. In addition, the internal carbon tax policy was approved in 2020.

Under the policy, all business units that exceed their emission caps will have to pay an internal carbon tax every year. The policy is intended to strengthen the business units' decision-making in carbon reduction measures and to meet clients' and other stakeholders' expectations.

LITEON's disclosure of climate risks and opportunities follows the TCFD framework as shown in the table below.

LITEON TCFD Reporting



3.2.3 Climate Change Response Measures

In terms of its climate change response strategy, LITEON continues to follow energy creation, conservation, and conversion as the means for mitigation, and focuses on renewable energies, energy management systems, process optimization, and plant operation improvement as key strategies. LITEON also adjusts the internal carbon pricing strategy and strengthens the carbon reduction investment decisions to fulfill LITEON's SBT commitments. Regarding climate change adaptation, LITEON starts by identifying climate risks and opportunities, and develops low carbon products and automated energy-saving technologies on an ongoing basis to stay alert to climate opportunities arising from global low carbon trends.

3.2.3.1 Climate Change Mitigation

Renewable energy and energy management

LITEON strengthens renewable energy and energy management on an ongoing basis to enhance energy utilization efficiency. In 2020, production facilities at LITEON (Dongguan) and LITEON Power Technology (Dongguan) received ISO 50001 energy management system certification, giving LITEON a total of six ISO 50001 certified production facilities. Regarding renewable energy, LITEON keeps raising the volume and percentage of renewable energy consumption every year by our rooftop solar panel systems and International Renewable Energy Certificate purchased. Furthermore, as part of the effort to achieve low carbon manufacturing, the company seeks suitable renewable energy suppliers, and enters into green power purchase agreements or promotes public providers of renewable energy. In 2020, consumption of self-generated renewable energy and those purchased by the International Renewable Energy Certificate reached 57,097MWh, or 16.53% of total electricity consumption.

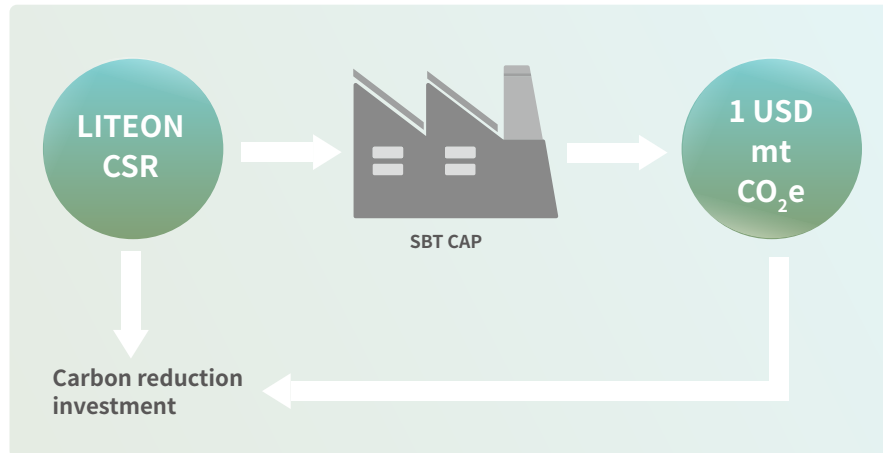
Enforcing GHG emissions reduction

As part of process optimization and plant operation improvement, LITEON achieves energy-saving and improved efficiency of the office and the plant through ongoing upgrade and improved management of the lighting system, improvement of production equipment, upgrade of air conditioning units, refinement of management systems and other energy-saving measures. In particular, the Burn-In ERS Saving Energy Program introduces energy recycling systems (ERS) into LITEON (Dongguan), LITEON (Guangzhou), and LITEON (Changzhou). The systems recycle and reuse power consumed by burn-in processing. The saving in power consumption is estimated to be 5.8 GWh per year, which is the equivalent of reducing 4,853 tonnes of carbon emissions per year¹. Furthermore, a payback period policy for investment in new energy-efficient measures was approved at LITEON in 2020. The policy is intended to step up the execution of medium- and long-term energy-efficient measures. It is expected that 75 energy-efficient measures will be installed in 2021 to allow the company to reach the electricity-saving target of 16.83 GWh per year compared to 2020.

Note: 1. Based on the 2017 baseline emission factors for Mainland China's regional power grids (0.8367 kg CO₂e /kWh for Southern Mainland China).

Strengthening internal carbon pricing strategies

Taking into account the carbon trading regulations in Taiwan and the market prices in Mainland China, LITEON adopted the shadow carbon pricing methodology to determine internal carbon prices for key offices in Taiwan and Mainland China in 2018. The internal carbon price was set at USD 50/tonnes CO₂e and USD 8/tonnes CO₂e for key Taiwan and Mainland China offices, respectively. To reinforce the energy efficiency and carbon reduction measures and policies in the company, LITEON sets the business unit's specific SBT emissions targets to align with the overall carbon reduction SBT target. The internal carbon pricing policy was approved in 2020. Under the policy, the company starts to charge the internal carbon tax at USD 1/tonnes CO₂e from business units this year that exceed their annual emission cap to reinforce carbon reduction investment decisions made by individual business units. LITEON also expects to raise the rate gradually in the future and invest the funds in carbon reduction technologies or renewable energies.



3.2.3.2 Climate Change Adaptation

Develop low carbon products

The LITEON CSR code of conduct is based on life cycle thinking. With the 3Rs rule added to the product development process, the company engages in green product design, and develops nontoxic, easy to assemble/disassemble, and environmentally friendly products. In particular, AC metering IC integration technology is used in server power products to reduce the use of resistors, multilayer ceramic capacitors, metal-oxide-semiconductor field-effect transistors and other active/passive components. The technology also reduces power consumption by 0.034W while metering IC is working, and reduces 53.68 tonnes of carbon emissions during the acquisition of raw materials and the use of products.

Development of automated energy-saving technologies

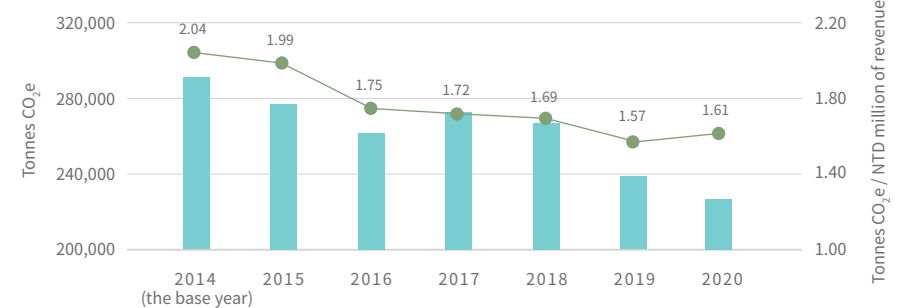
LITEON reconstructs quality manufacturing through automation and digital transformation. In 2015, the company was the first Taiwanese manufacturer to introduce the first unmanned LED lighting production line. In 2017, it started implementing big data and IoT remote monitoring, and installed a large number of smart manufacturing systems. The shift toward the use of family materials, family molds, and family jigs in production also helps to reduce the energy and resource input per unit product. To accelerate the development of production equipment and recyclability and reusability of key machine parts, LITEON has established standards for equipment design and data collection, including structuration of standard modules, standardization of machine testing procedures, and automated switching. Moreover, LITEON is capable of simultaneous operation with products, processes and equipment installed on the same platform in terms of automated production. The structure is equipped with difficult, high precision automatic assembly, testing, and visual/mechanical inspection for complete control and data collection. The company has developed the capability to create differentiated design and production processes for manufacturing facilities as part of the progress towards high-speed unmanned operations.



3.2.4 Greenhouse Gas Inventory (GHG Scope 1 and Scope 2)

In 2020, LITEON removed the previously transferred Solid-State Drive Business Unit, and added the Vietnam plant to the ISO 14064-1:2006 GHG verification before recalibrating the base year emissions. LITEON's Scope 1 and Scope 2 GHG emissions were 225,739.15 tonnes CO₂e (market-based). The CO₂ emission reduction was 10,864.81 tonnes CO₂e (4.59%) compared to 2019 or 61,216.12 tonnes CO₂e (21.33%) compared to 2014 (base year). The carbon intensity was 1.61 tonnes CO₂e /NTD million of revenue, 2.60% lower than in 2019 and 21.07% lower than the base year 2014. The emission aligned with the SBT reduction target pathway at 20.6% for 2020.

2020 LITEON Greenhouse Gas Emission Inventories¹



GHG emissions in 2020

	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	Total
Scope 1 and Scope 2 emissions - by gas type	216,682.00	5,825.89	4.63	3,226.63	0.00	0.00	0.00	225,739.15

GHG emissions 2014-2020¹²³⁴⁵

	2014(base year)	2015	2016	2017	2018	2019	2020
Greenhouse gas emission (Scope 1), Tonnes CO ₂ e ²	11,241	14,841	13,488	13,485	11,693	9,119	11,947.73
Greenhouse gas emission (Scope 2), Tonnes CO ₂ e ³	275,714	258,313	245,479	256,020	252,098	227,485	213,791.42
Greenhouse gas emission (Scope 1+2), Tonnes CO ₂ e	286,955.26	273,155.18	258,967.07	269,504.95	263,790.19	236,603.96	225,739.15
Greenhouse gas emission intensity, Tonnes CO ₂ e /NTD million of revenue	2.04	1.99	1.75	1.72	1.69	1.57	1.61

- Note: 1. The Solid-State Drive (SSD) Business Unit completed transferring the business in the first half of 2020. For consistency in the calculation, the SSD Business Unit was removed from the 2014-2020 data, which were then recompiled accordingly.
2. Direct greenhouse gas emissions (Scope 1): fuel combustion in fixed equipment, production activities, fuel combustion in transportation equipment, and diffusion (e.g. fire extinguishers and refrigerants).
3. Direct greenhouse gas emissions from energy use (Scope 2): purchased electricity and steam.
4. GHG emissions by sources were calculated using emission factors. Preference was given to factors derived by a quantitative or material balance approach, followed by locally or internationally published factors. Scope 1 emission factors included the Mainland China Energy Statistical Yearbook, Provincial Guidelines for GHG Emissions Inventory, national standards of the Mainland China, Thailand energy factors (based on factors published by the Carbon Label & Carbon Footprint for Organization), Taiwan EPA Table of GHG Emission Factors 6.0.4, and Taiwan Bureau of Energy Recommended Emission Factors by Fuel (based on the IPCC2006 emission factor database). Scope 2 emission factors included the power emission factor published by Taiwan Bureau of Energy 2019 (0.509 kg CO₂e /kWh), 2019 baseline emission factors for Mainland China's regional power grids (0.9419 kg CO₂e /kWh for Northern Mainland China, 0.7921 kg CO₂e /kWh for Eastern Mainland China, and 0.8042 kg CO₂e /kWh for Southern Mainland China), factor published by the Energy Policy and Planning Office of Thailand Ministry of Energy (0.497 kg CO₂e /kWh), electricity emission factor published by India Ministry of Environment (0.92 kg CO₂e /kWh), and factor published by Vietnam Ministry of Natural Resources and Environment (0.913 kg CO₂e /kWh).
5. The global warming potential (GWP) adopts the factor in the IPCC Fifth Assessment Report (AR5).

3.2.5 Greenhouse Gas Value Chain Inventory (GHG Scope 3)

To maximize the value of the LITEON value chain and to identify key factors to mitigating climate change, LITEON not only takes inventories of emissions from its own business activities, but has started performing full inventory-taking, verification, and disclosure of emissions from 15 categories in Scope 3 every year since 2018. The practice allows LITEON to follow emission hot spots along the value chain and extend carbon management to business partners on the value chain. In terms of Scope 3 emissions, LITEON sets 2018 as the base year, and aims to reduce cumulative value chain emissions (Scope 3) by 2 million tonnes by 2030. Meanwhile, the company continues to deploy green product design and other strategies and work with value chain partners to develop low carbon products (Section 3.5) and combat climate change and global warming together.

Scope 3 Categories	Category	Source identification	Scope of verification	Emissions (tonnes CO ₂ e)
01	Purchased goods and services	✓	Carbon emissions from raw materials purchased by the Power Division and the Imaging Division	10,838,793
02	Capital goods	✓	Office computer equipment purchased for the LITEON Building in Neihu	9
03	Excluding Scope 1 or 2 fuel- and energy-related activities	✓	Fuels burned by contractors at key offices around the world	3,760
04	Upstream transportation and distribution	✓	Miles in upstream transportation and distribution of raw materials for LITEON (Guangzhou) - Enclosure Division	43
05	Waste generated in operations	✓	Carbon emissions from processing waste generated in operations at key offices around the world	8,933
06	Business travel	✓	Air miles flown on business trips taken by employees at LITEON's Taiwan offices in a year	325
07	Employee commuting	✓	Miles of commuting by all employees at key offices around the world in a year	4,245
08	Upstream leased assets	-	All fuel consumption and emissions by leased facilities and vehicles	Note 1
09	Downstream transportation and distribution	✓	Carbon emissions from miles of transportation and distribution of products for LITEON (Guangzhou) - Enclosure Division	31,815
10	Processing of sold products:	✓	Carbon emissions from power consumed by outsourced processing service providers of LITEON Li Shin (Huizhou)	316
11	Use of sold products:	✓	Server power supply, power supply units (laptop power)	1,714,383
12	End-of-life treatment of sold products	✓	Server power supply products, power supply units, chargers	89
13	Downstream leased assets	✓	Carbon emissions from power consumed by tenants in the LITEON Building	1,379
14	Franchises	-	LITEON Group	Note 2
15	Investment	✓	Carbon emissions from subsidiaries beyond LITEON's operational control	505
Total				12,604,594

Note: 1. Included in Scope 1 and Scope 2 emissions.
2. No relevant business

3.2.6 Direct and Indirect Energy Consumption

95% or more of the total energy consumption at LITEON was indirect energy consumption that was primarily provided by purchased electricity, and followed by steam. Fossil fuels under direct energy consumption include diesel, petrol, natural gas, LPG, acetylene, and alcohol liquids that were used mainly in emergency power generators, forklifts, company cars, restaurants, and boilers in dormitories. In 2020, LITEON consumed a total of 1,298,532 GJ in energy. It was up by 60,005 GJ compared to 2019. The consumption intensity was 9.28 GJ/NTD million of revenue, up by 12.75% compared to 2019. The increase was mainly attributed to the implementation of automated production.

Energy consumption 2014-2020¹

	2014		2015		2016		2017		2018		2019		2020	
	GJ	MWh	GJ	MWh	GJ	MWh	GJ	MWh	GJ	MWh	GJ	MWh	GJ	MWh
Diesel	9,167	2,546	7,293	2,025	4,521	1,255	4,557	1,266	5,341	1,483	3,193	887	10,743	2,983
Gasoline	14,839	4,121	15,471	4,296	13,312	3,697	13,371	3,713	11,143	3,095	11,512	3,197	10,691	2,969
Natural gas	36,170	10,044	22,606	6,278	22,235	6,175	26,353	7,318	23,533	6,535	19,398	5,387	20,648	5,734
Liquefied petroleum gas (LPG)	653	181	527	146	521	145	730	203	369	103	300	83	943	262
Acetylene	1	0	1	0	2	1	14	4	1	0	2	0	1	0
Alcohol liquids	1,985	551	2,822	784	4,572	1,270	4,266	1,185	3,798	1,055	1,776	493	0	0
Total direct energy consumption	62,814	17,443	48,720	13,530	45,163	12,542	49,292	13,688	44,185	12,270	36,181	10,047	43,025	11,948
Renewable energy (RE) consumption (including consumption of self-generated RE and green power certificates)	0	0	24,063	6,684	53,011	14,725	55,388	15,385	73,611	20,447	162,228	45,062	205,557	57,098
Purchased electricity (non-RE)	11,532,35	320,334	1,081,342	300,364	1,024,877	284,680	1,087,283	302,015	1,210,207	336,159	1,028,250	285,617	1,037,710	288,245
Purchased steam	15,243	4,233	206,67	5,739	16,157	4,487	15,172	4,213	13,295	3,692	11,868	3,296	12,241	3,399
Total indirect energy consumption	1,168,479	324,567	1,126,072	312,788	1,094,045	303,892	1,157,842	321,613	1,297,113	360,298	1,202,346	333,975	1,255,507	348,741
Total energy consumption (non-RE)	1,231,293	342,011	1,150,730	319,633	1,086,197	301,709	1,151,746	319,916	1,267,688	352,122	1,076,299	298,960	1,092,976	303,592
Total energy consumption	1,231,293	342,011	1,174,793	326,317	1,139,208	316,434	1,207,134	335,301	1,341,299	372,569	1,238,527	344,022	1,298,532	360,689
Total energy consumption intensity (GJ/ NTD million of revenue)	8.77		8.57		7.68		7.69		8.61		8.23		9.28	

3.3 Water Resource Management

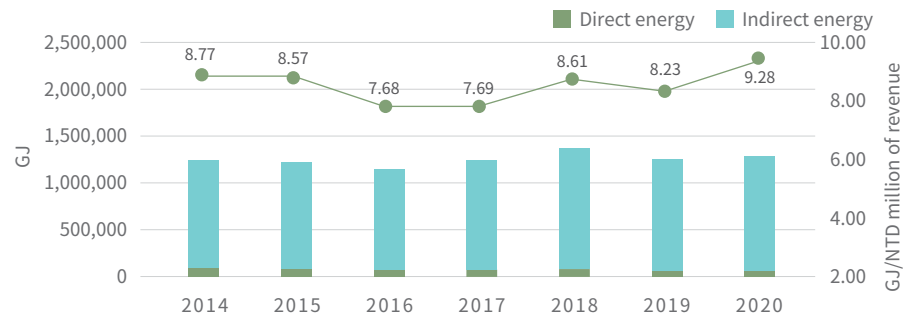
3.3.1 Water Resource Conservation

LITEON builds its water resource management system on ISO 14001 standards. A central control system monitors factory data in real-time, and tracks water management performance at main operation sites around the world. LITEON is constantly trying to implement more water resource conservation measures. These measures include replacement and update of old water pipes, spot check of water outlets, routine inspection of water usage, and implement water recycling and reuse projects. LITEON also strengthens daily management practices, such as implementing internal training to influence employees' behavior of water use and put the water cost into an internal management system, to reduce water consumption in-plant facilities. In 2020, the total water consumption was 2,981,414 tonnes^{1,2}, and the intensity of water consumption was 21.56 m³ per NTD million of revenue, decreased 21,592 tonnes (0.72%) comparing to 2017 base year; the total volume of wastewater discharged, based on the actual discharged volume of the site in Vietnam and Mainland China's Code for urban wastewater and stormwater engineering planning, is estimated at 2,532,743 tonnes.

3.3.2 Wastewater Treatment and Resourcization

Water consumption at LITEON plants was sourced 100% from the local water system (i.e. tap water) and used primarily for employees' life-sustaining needs and for plant equipment. All wastewater produced is either properly treated or discharged into water treatment plants as required by law; a small amount of industrial wastewater is treated by the wastewater treatment facilities inside the plants (by methods such as sedimentation or chemical coagulation,) and discharged when the treated wastewater meets the local regulatory requirements. The discharge of water should have no significant impact on the water body. To ensure effective wastewater treatment and resuscitation, LITEON has been adding facilities for recycling and reuse of air conditioning condensation water and RO wastewater, and recycling and reuse of pure water from facilities. The total volume of water recycled in 2020 was 170,997 tonnes, which was 1.35 times more than in 2019.

Energy consumption and intensity 2014-2020



Note: 1. The Solid-State Drive (SSD) Business Unit completed transferring the business in the first half of 2020. For consistency in the calculation, the SSD Business Unit was removed from the 2014-2020 data, which were then recompiled accordingly.

3.2.7 Air Pollution Prevention

Volatile organic compounds at LITEON come mainly from organic solvents used during production, such as soldering flux and isopropanol vapors. NO_x and SO_x emissions from generators used for emergency or testing in the plants and from hot water boilers in the living area are considered trace amounts. LITEON manages volatile organic compound (VOC) emissions through management styles, procedure improvement, training, and regular third-party inspection. In addition, LITEON started implementing stronger outdoor air pollution emission controls at its plants in Mainland China in 2017. Inspection data from the plants, actual factory conditions and local environmental policies were considered in the design of comprehensive and reasonable emission treatment systems with two levels or more (e.g., precipitators, UV photocatalysis, and activated carbon-based absorption). These systems were built to fulfill a comprehensive purpose including removing VOC pollutants, optimizing control, reducing consumption, and ensuring safety. VOC emissions at LITEON are calculated according to the third-party environmental compliance inspection reports and hours of operation. The total emissions reported by LITEON's main manufacturing bases worldwide (excluding Thailand and India) were 24.96 tonnes in 2020.