

MANAGEMENT REPORT OF THE BOARD OF DIRECTORS: THE GROUP

Environment and sustainability

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1. GENERAL ENVIRONMENTAL POLICY

1.1 Organization of the Group's environmental approach

1.1.1 Governance

For LVMH, protecting the environment is much more than an obligation: it is an imperative and a key driver for competitiveness. Having recognized the importance of action in this area 27 years ago, the Group formed an Environment Department in 1992 reporting directly to Executive Management. With a staff of ten, this department has the following objectives:

- roll out the LIFE (LVMH Initiatives for the Environment) program;
- guide Group companies' environmental policies, in compliance with the LVMH Environmental Charter;
- conduct internal audits to assess Maisons' environmental performance;
- monitor regulatory and technical developments;
- create management tools that address issues such as packaging design, supplier relations and regulatory monitoring;
- help the Group's companies safeguard against risks;
- train employees and raise environmental awareness at every level of the organization;
- define and consolidate environmental indicators;
- work with the various stakeholders involved (nonprofits, rating agencies, public authorities, etc.).

Each Maison also draws on its own in-house expertise in environmental matters. These experts make up a network of nearly 200 Environment Officers from Maisons, known as the Environment Committee, which meets several times a year, in particular to share and discuss best practices.

In addition, LVMH's ability to drive continuous improvement is closely tied to the Group's success at making sure that its 163,000 employees understand their role as active participants in its approach to environmental matters. The Environment Department thus works to inform, train and raise awareness among employees with regard to the conservation of natural resources and biodiversity, as well as climate change. In 2016, the Group established an in-house Environment Academy to serve this role. The Academy designs training programs based on the major objectives of the LIFE program, using a range of learning materials – including face-to-face training sessions, e-learning modules and virtual classes – covering a large number of subjects, from sustainable design to environmental audits. In addition, almost all Maisons continued with their employee environmental training and awareness programs. These programs totaled 21,225 hours.

1.1.2 Commitments

Signed in 2001 by the Group's Chairman, the Environmental Charter is the founding document for LVMH's five main aims with regard to the environment:

- striving for high environmental performance;
- encouraging collective commitment;
- managing environmental risks;
- designing products that factor in innovation and environmental creativity;
- making a commitment that goes beyond the Company.

The Environmental Charter also encourages all Maison Presidents to become directly involved in the approach through concrete actions, and requires each Maison to set up an effective environmental management system, create think tanks to assess the environmental impacts of its products, manage risks, and adopt environmental best practices.

In 2003, the Group joined the United Nations Global Compact, which aims to promote responsible corporate citizenship through business practices and policies based on ten universal principles, including the following three relating to the environment:

- support a precautionary approach to environmental challenges;
- undertake initiatives to promote greater environmental responsibility;
- encourage the development and diffusion of environmentally friendly technologies.

Launched in 2011, the LIFE (LVMH Initiatives for the Environment) program is designed to reinforce the incorporation of environmental concerns into brand strategy, facilitate the development of new coordination tools, and take into account developments and improvements arising from innovative practices at Maisons. The Maisons have incorporated the LIFE program into their strategic plans since 2014. The LIFE program was implemented by a Steering Committee at each Maison and is based on nine key aspects of environmental performance:

- environmental design;
- securing access to strategic raw materials and supply channels;
- traceability and compliance of materials;
- suppliers' environmental and social responsibility;
- preserving critical expertise;
- reducing greenhouse gas emissions;
- environmental excellence in manufacturing processes;
- product life span and reparability;
- keeping customers and key stakeholders informed.

In 2019, the Group was included in the main indices based on responsible investment criteria: FTSE4Good Global 100, Euronext Vigeo Eurozone 120 and ESI (Ethibel Sustainability Indices) Europe. LVMH also took part in the "Wake-Up Call on the Environment" student manifesto organized by several French schools.

Environmental expenses are recognized in accordance with the recommendations of the Autorité des Normes Comptables, France's accounting standards authority. Operating expenses and capital expenditure are recognized against each of the following items:

- air and climate protection;
- waste water management;
- waste management;
- protection and purification of soil, groundwater and surface water;
- noise and vibration reduction;
- biodiversity and landscape protection;

- radiation protection;
- research and development;
- other environmental protection measures.

In 2019, expenses related to environmental protection broke down as follows:

- operating expenses: 15.9 million euros;
- capital expenditure: 10.7 million euros.

Provisions for environmental risks amounted to 12.4 million euros as of December 31, 2019. This amount corresponds to the financial guarantees required by law for Seveso upper-tier establishments.

1.2 Identification of LIFE 2020 risks and targets

1.2.1 Methodology

The environmental indicator reporting process covered the following scope in 2019:

Production facilities, warehouses and administrative sites (number)	2019
Sites covered ^(a)	263
Sites not covered ^{(b)(c)}	134
Total number of sites	397

(a) Integration of new manufacturing sites (Thélios, Shangri-La vineyard and Louis Vuitton).

(b) Main components: certain regional administrative sites of Louis Vuitton and Moët Hennessy as well as administrative sites with fewer than 20 employees.

(c) The Belmond group is not included in the 2019 environmental reporting scope.

93% of production sites are covered. The manufacturing, logistics and administrative sites that are not covered by environmental reporting are essentially excluded for operational reasons and are not material. A plan to gradually include them is underway.

The total store floor space used to calculate energy consumption and greenhouse gas emissions is as follows, expressed as a percentage of the Group's total store floor space:

	% of Group's total store floor space taken into account in calculating energy consumption and greenhouse gas emissions ^(a)	
	2019	2018
Group total	65	70

(a) The reporting scope does not cover the stores operated under franchise by Fashion and Leather Goods, Perfumes and Cosmetics, and Watches and Jewelry.

The total store floor space of the main Maisons used to calculate energy consumption and greenhouse gas emissions is as follows, expressed as a percentage of the total store floor space of each Maison:

	% of Maison's total store floor space taken into account in calculating energy consumption and greenhouse gas emissions ^(a)	
	2019	2018
DFS	77	77
Louis Vuitton	69	69
Sephora (North America and Latin America)	63	59
Sephora (Europe, Asia and Middle East)	64	80
Le Bon Marché	100	100
Christian Dior	64	74

(a) The reporting scope does not cover the stores operated under franchise by Fashion and Leather Goods, Perfumes and Cosmetics, and Watches and Jewelry.

Calculations of energy consumption and greenhouse gas emissions also include all French stores operated by Berluti, Givenchy, Guerlain, Kenzo and Make Up For Ever, and certain stores operated by Acqua di Parma, Benefit, Bvlgari, Celine, Chaumet, Fendi, Fred, Hublot, Loewe, Loro Piana, Marc Jacobs, Parfums Christian Dior, Pucci, TAG Heuer, Pink Shirtmaker and Zenith.

Sephora's stores in China and Saudi Arabia are not included. Data for 2018 has been restated.

For waste production and water consumption, only certain stores operated by DFS (53% of floor areas in 2019 and 52% in 2018) and stores operated by the Le Bon Marché group are included. Data for 2018 has been restated.

1.2.2 Main risks

The main environmental risks identified at the Group level relate to the following topics:

1. impact on ecosystems;
2. depletion of natural resources;
3. setting up and maintaining responsible supply chains.

The policies implemented and their results are presented primarily in §3 "LIFE 2020 – 'Sourcing' target" below.

The full materiality matrix provides detailed information on the following environmental issues relating to the Group's business activities:

	Wines and Spirits	Fashion and Leather Goods	Perfume and Cosmetics	Watches and Jewelry	Selective Retailing
Depletion of energy resources and climate change	<ul style="list-style-type: none"> - Grape growing; - Packaging production; - Distillation; - Product transport. 	<ul style="list-style-type: none"> - Store lighting and air conditioning; - Product transport; - Production of resources needed to manufacture products: <ul style="list-style-type: none"> - Plant fibers used for textiles (cotton, etc.), - Leather, including exotic leather, - Fur, - Wool. 	<ul style="list-style-type: none"> - Packaging production; - Store lighting and air conditioning; - Product transport. 	<ul style="list-style-type: none"> - Store lighting and air conditioning. 	<ul style="list-style-type: none"> - Store lighting and air conditioning; - Product transport.
Impact on water resources	<ul style="list-style-type: none"> - Water consumption (vineyard irrigation in Australia, New Zealand, Argentina and California); - Production of effluents containing organic matter during winemaking and distillation. 	<ul style="list-style-type: none"> - Water consumption (crocodile farms and tanneries); - Production of effluents containing organic matter. 	<ul style="list-style-type: none"> - Protection and conservation of water resources. 		
Impact on ecosystems and depletion of natural resources	<ul style="list-style-type: none"> - Production of plant resources needed for other production processes (grape vines, barley, rye, etc.). 	<ul style="list-style-type: none"> - Production of resources needed to manufacture products: <ul style="list-style-type: none"> - Plant fibers used for textiles (cotton, etc.), - Leather, including exotic leather, - Fur, - Wool. 	<ul style="list-style-type: none"> - Production of plant resources needed to manufacture products (rose, jasmine, etc.). 	<ul style="list-style-type: none"> - Extraction of resources needed to manufacture products: <ul style="list-style-type: none"> - Gems and precious metals, - Exotic leather. 	
Waste recovery and the circular economy	<ul style="list-style-type: none"> - Residues from winemaking and distillation processes. 	<ul style="list-style-type: none"> - Recycling of raw materials and products at the end of their useful life. 	<ul style="list-style-type: none"> - Recycling of packaging. 	<ul style="list-style-type: none"> - WEEE (Waste Electrical and Electronic Equipment, such as batteries). 	<ul style="list-style-type: none"> - Recycling of point-of-sale advertising and packaging materials.

1.2.3 LIFE 2020 targets

After having conducted an in-depth analysis and mapping of its environmental risks (see above), the Group decided to give its Maisons – regardless of business sector – four shared targets resulting from the LIFE program to be achieved by 2020 (the reference year being 2013, with the level of each indicator in 2013 presented in the “Baseline” column of the tables below):

- sustainable product design: By 2020, the Group’s Maisons must make all their products more environmentally friendly. The Group’s Perfumes and Cosmetics Maisons, and Wines and Spirits Maisons undertake to improve their Environmental Performance Index (EPI) score by 10%. The Group’s Fashion and Leather Goods Maisons, and Watches and Jewelry Maisons are working to reduce their environmental impact arising from the sourcing of raw materials;
- suppliers and raw materials: Maisons must ensure that optimum standards are rolled out in their procurement of raw materials

supplies and among their suppliers across 70% of the supply chain by 2020 and 100% by 2025;

- cutting energy-related CO₂ emissions by 25% by raising the proportion of renewables in the Group’s energy mix to at least 30%, improving store energy efficiency by 15%, and ensuring that new stores achieve a minimum performance of 50% according to the LVMH Store Guidelines score chart;
- make all production sites and stores more environmentally friendly: Maisons undertake to reduce at least one of three indicators (water consumption, energy consumption and waste production) by 10% at each of their sites, and to have an effective environmental management system focused on continuous improvement.

In 2019, the Group held two Future LIFE events in Paris and New York, which offered a chance to share updates on progress made toward achieving LIFE 2020 targets as well as the new partnerships described in the following sections.

2. LIFE 2020 – “PRODUCTS” TARGET

2.1 Objectives

LVMH’s Maisons have always worked to limit the impact of their products on the natural environment. LIFE 2020 encourages them to do more by setting a new goal: improving the environmental performance of all their products, across their entire life cycle. The other LIFE 2020 targets cover the environmental impact of the steps involved in sourcing raw materials, production, transport and sales. With respect to the “Products” target, sustainable design is the key priority for all of the LVMH group’s Maisons. Two of its essential components are the guarantee of superior quality and a constant focus on innovation. In taking up this challenge, the Maisons have access to the range of tools developed with their input by the Environment Department. These tools include Edibox, a web-based tool that calculates environmental performance indices (EPIs) for product packaging as well as the carbon footprint of the materials used to manufacture this packaging. This calculation results in a score for each product’s packaging, depending on its weight and volume, the number of layers of packaging used, and the separability of the various components. Positive points (for rechargeable packaging, recycled materials, etc.) and negative points (for packaging features that hinder recycling, etc.) are also included in calculating scores.

LVMH’s Perfumes and Cosmetics Maisons, and Wines and Spirits Maisons undertake to improve their Environmental Performance Index (EPI) score for product packaging by 10% by 2020. The Group’s Fashion and Leather Goods Maisons, and Watches and Jewelry Maisons are working to reduce their environmental footprint arising from the sourcing of raw materials, which is the step that generates the most substantial environmental impact.

The quantities of packaging consolidated by the Maisons concern the following items:

- Wines and Spirits: Bottles, boxes, caps, etc.
- Fashion and Leather Goods: Boutique bags, pouches, cases, etc.
- Perfumes and Cosmetics: Bottles, cases, etc.
- Watches and Jewelry: Cases, boxes, etc.
- Selective Retailing: Boutique bags, pouches, cases, etc.

Packaging used for transport is not included in this breakdown.

2.2 Tracking target achievement

Progress toward meeting the LIFE 2020 “Products” targets:

Indicators	Baseline	Performance in 2019	Target for 2020
EPI score for Perfumes and Cosmetics packaging	8.32	9.3 (+12%)	+10%
EPI score for Wines and Spirits packaging	Champagne: 16.03 Cognac: 10.60	16.76 (+5%) 12.6 (+19%)	+10%

The weight of packaging that reaches customers changed as follows between 2018 and 2019:

<i>(in metric tons)</i>	2019	2018	2019 pro forma ⁽¹⁾	Change ⁽¹⁾ <i>(as %)</i>
Wines and Spirits	181,319	159,844	181,319	13 ^(a)
Fashion and Leather Goods	13,375	11,059	13,375	21 ^(a)
Perfumes and Cosmetics	31,115	29,167	31,115	7
Watches and Jewelry	4,416	4,834	4,416	(9) ^(b)
Selective Retailing	6,375	4,651	6,375	37 ^(a) -
Other activities	2		2	-
Total	236,602	209,555	236,602	13

(a) Change related to business activity.

(b) Change related to sustainable packaging design.

The total weight of packaging that reaches customers, by type of material, broke down as follows in 2019:

<i>(in metric tons)</i>	Glass	Paper/ cardboard	Plastic	Metal	Fabric	Other packaging materials
Wines and Spirits	159,247	16,816	1,821	1,640	86	1,709
Fashion and Leather Goods	324	10,937	303	68	1,711	32
Perfumes and Cosmetics	16,053	5,182	7,446	2,063	93	278
Watches and Jewelry	1,624	1,193	1,198	163	158	80
Selective Retailing	226	3,683	2,315	83	1	67
Other activities		2				
Total	177,474	37,813	13,083	4,017	2,049	2,166

3. LIFE 2020 – “SOURCING” TARGET

3.1 Joint actions and common goals

LVMH’s heavy dependence on natural resources, together with its strong values and commitments, prompted the Group to put in place a sustainable sourcing policy a number of years ago. LVMH pays very close attention to the traceability and compliance of the materials and substances used to manufacture its products. The Group promotes responsible purchasing practices and works to ensure that its supply chains are more environmentally sustainable, in close collaboration with its suppliers and subcontractors.

The LVMH group has a strategy in place for sourcing and preserving raw materials, governed by the LIFE 2020 targets, which commit Maisons, between now and 2020, to buying and producing at least 70% of their core raw materials in accordance with optimum environmental standards for raw material sourcing and production sites. Choosing which components to use is an essential part of preserving the environment, especially rare resources that are vital for product manufacturing. To reinforce this approach, a number of projects are underway to develop new, responsible supply channels for the Perfumes and Cosmetics, Fashion and Leather Goods, and Watches and Jewelry business groups.

Furthermore, the Maisons have implemented procedures to ensure that all of their products comply with CITES, a convention on international trade in endangered species. Through a system of import-export permits, this convention was set up to prevent overexploitation of certain species of endangered fauna and flora.

The “Sourcing” target concerns the following raw materials in particular:

- grapes;
- leathers, raw lamb and calf skins, exotic leathers and furs;
- cotton;
- gems and precious metals;
- palm oil and its derivatives;
- regulated chemicals. All the Maisons have incorporated the requirements of international regulations, including REACH, into their contractual documents so as to engage all suppliers in this undertaking.

(1) Value and change at constant scope.

LVMH takes a long-term, global approach to its actions in this area alongside many partners working to conserve biodiversity. LVMH was the first private-sector entity to join the eight public research bodies on the Board of Directors of the French Foundation for Research on Biodiversity (FRB). The Group is now an official member of the FRB, with which it has been working for more than seven years. Sylvie Bénard, LVMH's Environment Director, has also served as Vice-President of the Foundation's Strategic Orientation Committee for four years. As part of this committee – which brings together more than 160 stakeholders to jointly design research programs that promote biodiversity – the Group has focused in particular on the issue of access to genetic resources

and sharing the benefits resulting from their use. In 2019, LVMH stepped up its involvement by signing a five-year partnership with UNESCO to support its intergovernmental scientific program, “Man and the Biosphere” (MAB). This tool for international cooperation is aimed at protecting global biodiversity. Both partners will appear side by side at international events. For example, the Group's Maisons will draw on UNESCO's scientific expertise and its network of 686 biosphere reserves to develop their sustainable sourcing policies.

LVMH has also implemented many tools to improve and monitor the use of chemicals in products. These are described in §5.3 “Unrelenting focus on quality and safety”.

3.2 Wines and Spirits

For historical and strategic reasons, the Wines and Spirits business group is actively committed to sustainable and/or organic winegrowing, both of which are helping to considerably reduce its environmental impact, in particular by limiting the use of plant protection products.

Stepping up the roll-out of sustainable and/or organic winegrowing at the Maisons' vineyards and among independent grape suppliers has thus been adopted as a LIFE 2020 target. Various certification systems have been established across winegrowing regions: Viticulture Durable en Champagne for champagne houses, Haute Valeur Environnementale (HVE) 3 for cognac, organic farming for certain vineyards, Napa Green in California, etc.

3.3 Fashion and Leather Goods

The Fashion and Leather Goods business group has adopted five major targets for 2020:

- at least 70% of leather purchased from LWG-certified tanneries. LWG certification is a standard created by the Leather Working Group to improve the environmental performance of tanneries (energy, water, waste, traceability);
- at least 70% of cotton purchased from sustainable cotton sources. The Group has joined the Better Cotton Initiative (BCI), which has developed a standard to encourage measurable improvements in the main environmental impacts of growing cotton on a global scale;
- certification for all crocodile farms supplying the Group's tannery;
- at least 80% of pelts supplied by certified fur farms by the end of 2019, in particular by rolling out FurMark certification;

- integration of the Animal Sourcing Principles – developed with the Business for Social Responsibility (BSR) nonprofit – into supplier contracts. LVMH shares civil society's aim of improving animal welfare, which is connected to many raw materials such as leather, wool and fur. In 2019, the Group unveiled its Animal-Based Raw Materials Sourcing Charter. This undertaking is the result of a long process of scientific research and collaboration between LVMH's environmental experts, its Maisons and its suppliers. The exhaustive charter covers the full range of issues concerning the sourcing of fur, leather, exotic leather, wool and feathers. It allows the Group to make commitments to achieving progress by 2020 and 2025 in three areas: full traceability in supply chains; animal farming and trapping conditions; and respect for local communities, the environment and biodiversity.

3.4 Perfumes and Cosmetics

The Perfumes and Cosmetics business group has set LIFE 2020 targets relating to its suppliers and supply chains, in particular by developing a system to assess their environmental and social performance. Initial performance targets have been set for suppliers of packaging and ingredients. The business group also takes part in specific initiatives related to the sourcing of palm oil (RSPO) and mica (RMI). The Group's Research & Development Department and Maisons have been carrying out ethnobotanical studies for a number of years. They seek to identify plant species with a particular interest as components of cosmetic products

while contributing to the preservation of these species and to local economic development. This partnership can take a variety of forms such as financial support, technical or scientific assistance, or skills sponsorship, sharing the expertise of LVMH's staff with its partners. As part of this initiative, Parfums Christian Dior's Dior Gardens are plots dedicated to cultivating plant species chosen for their exceptional properties. Guerlain has also launched a number of partnerships focused on orchids in China, vetiver in India, honey in Ouessant in France, sandalwood in Asia and lavender from the south of France.

3.5 Watches and Jewelry

As part of the LIFE 2020 targets, all of the Watches and Jewelry Maisons have received certification under the Responsible Jewellery Council (RJC) system. In line with this certification, which has been extended to their gold and diamond supply chains, they are expanding their responsible sourcing efforts. Bvlgari is particularly active in this area, and has become the

first company in its market to obtain the RJC Chain of Custody (CoC) certification for gold. The Group and its Maisons are also involved in the Coloured Gemstones Working Group run by The Dragonfly Initiative, which aims to promote environmental and social best practices in the sourcing of colored gemstones. Several audits have already been carried out.

3.6 Tracking target achievement

Progress toward meeting the LIFE 2020 “Sourcing” targets:

Indicators	Baseline (2013)	Performance in 2019	Target for 2020
Wines and Spirits			
Sustainable winegrowing certification (certified grapes by weight, as %)	LVMH vineyards: French vineyards: 100%	LVMH vineyards: French vineyards: 100% Rest of the world: 58%	LVMH vineyards: French vineyards: 100% Rest of the world: 100%
	Independent grape suppliers: Champagne: 7%	Independent grape suppliers: Champagne: 15%	
Fashion and Leather Goods			
LWG-certified tanneries (leather from certified tanneries by weight, as %)	25%	66%	70%
Certified cotton (GOTS- or Better Cotton-certified cotton by weight, as %)	2%	54% ^(a)	70%
Perfumes and Cosmetics			
Perfume ingredient supplier performance	64	89	90
Cosmetics ingredient supplier performance	56	84	80
Palm oil derivatives (RSPO-certified Mass Balance or Segregated palm oil derivatives by weight, as %)	0%	86%	70%
Watches and Jewelry			
Diamonds: RJC COP certification (carats of diamonds from COP-certified direct suppliers, as %)	90%	98%	100%
Gold: RJC COP certification	94%	82%	100%
RJC CoC certification <i>For Maisons without CoC certification, gold is included within the reported indicator if it is sourced from CoC-certified precious metal refiners, regardless of any intermediate subcontractors (between the precious metal refiner and the Maison)</i>	-	79%	100%

(a) Change related to improvements in Maison practices and reporting.

4. LIFE 2020 – “CLIMATE CHANGE” TARGET

4.1 Common goal

Combating climate change is a major focus of LVMH’s environmental policy. The Group has often played a pioneering role in this area. In the early 2000s, for example, it took part in testing the carbon assessment method that would later become the Bilan Carbone®. In 2015 it was also the first luxury company to set up an internal carbon fund. From energy consumption to manufacturing, transport and logistics to work habits, LVMH is looking at all possible ways to reduce the climate impact of its activities. In 2019, LVMH announced a partnership with Bertrand Piccard’s Solar Impulse Foundation, aimed at identifying innovative solutions to reduce the environmental impact of human activities, in particular as part of the effort to combat climate change.

As part of LIFE 2020, the Group is aiming to cut Scope 1 and 2 greenhouse gas emissions by 25%, in absolute values, between 2013 (baseline year) and 2020. The performance of production, logistics and administrative sites is calculated by comparing data for each site between 2013 and the reporting year. Store CO₂ performance is calculated by multiplying CO₂ efficiency for the

reporting year (in metric tons of CO₂ equivalent per square meter) by the baseline floor area (total floor area of stores reported in 2013). The CO₂ value generated for the reporting year covers 65% of total emissions in 2019. Actions are being pursued on three fronts: improving monitoring and reporting processes; increasing the energy efficiency of operations, particularly at the Group’s stores; and expanding the use of renewable energy.

In 2016, a specific study was carried out assessing the environmental impact of the Group’s raw material production and supply chain. Across the Group’s entire value chain, 50% of emissions are generated by the production of raw materials and 30% by inbound and outbound transport. Next come emissions generated by the Maisons’ production sites, logistics centers, offices and stores (20%), either direct (Scope 1) or indirect (Scope 2). Downstream emissions generated by using products (washing of fashion products, rinsing certain cosmetic products, etc.) or when products come to the end of their useful life will be refined in 2021.

4.2 The LVMH Carbon Fund

Created in 2016, the LVMH Carbon Fund is a key element of LIFE 2020’s strategy to address climate change. Each Maison’s expected annual contribution is calculated by multiplying the greenhouse gas emissions resulting from its business activities by the carbon price set by LVMH, which went from 15 to 30 euros

per metric ton in 2018. The amount thus obtained must be invested the following year in projects aimed at reducing emissions. The LVMH Carbon Fund reached its target in 2019, with 16.5 million euros in financing for 138 projects that could help avoid 5,658 metric tons of greenhouse gas emissions per year.

4.3 Energy efficiency and renewable energy

Improving energy efficiency and expanding the use of renewable energy are the main thrusts of LVMH’s strategy to limit its carbon

footprint, an approach that also entails better energy management, which is vital to help reduce overall energy consumption.

4.3.1 Energy consumption

Total energy consumption amounted to 1,059,892 MWh in 2019 for the Group’s subsidiaries included in the reporting scope. This corresponds to primary energy sources (such as fuel oil, butane, propane and natural gas) added to secondary energy

sources (such as electricity, steam and ice water) mainly used for the implementation of manufacturing processes in addition to buildings and stores’ air conditioning and heating systems.

Energy consumption by business group changed as follows between 2018 and 2019:

(in MWh)	2019	2018	2019 pro forma ⁽¹⁾	Change ⁽¹⁾ (as %)
Wines and Spirits	223,395	220,454	222,785	1
Fashion and Leather Goods	394,620	393,598	385,516	(2)
Perfumes and Cosmetics	93,923	94,044	94,021	-
Watches and Jewelry	40,726	40,935	38,773	(5)
Selective Retailing	286,142	286,514	306,319	7
Other activities	21,086	22,006	21,086	(4)
Total	1,059,892	1,057,551	1,068,500	1

Energy consumption by business group and by energy source was as follows in 2019:

(in MWh)	Electricity	Natural gas	Heavy fuel oil	Fuel oil	Butane/ Propane	Steam	Ice water	Renewable energies
Wines and Spirits	22,842	80,479	117	43,921	3,253	-	-	72,784
Fashion and Leather Goods	158,241	110,816	-	9,114	5,851	2,182	2,238	106,179
Perfumes and Cosmetics	7,871	31,564	-	2,532	-	1,234	378	50,345
Watches and Jewelry	11,822	5,783	-	907	144	285	-	21,785
Selective Retailing	124,270	14,383	-	662	13	5,878	8,611	132,323
Other activities	5,750	4,634	-	1,231	-	1,445	2,979	5,046
Total	330,796	247,659	117	58,367	9,261	11,024	14,206	388,462

4.3.2 Direct emissions (Scope 1) and indirect emissions (Scope 2)

Scope 1 emissions are those generated directly by sites, mainly through the combustion of fuel oil and natural gas. Scope 2 emissions are those generated indirectly from energy use, mainly electricity used on-site. Measures to reduce these emissions have been in place for a number of years at Maisons' production sites. The Maisons are also working hard to improve energy efficiency at stores, the main source of LVMH's greenhouse gas emissions.

Thanks to their efforts, one of the LIFE 2020 targets has already been achieved: a 15% improvement in the average energy efficiency of existing stores, in particular by installing the advanced lighting systems offered by the LVMH Lighting program and by rolling out the LVMH Store Guidelines (see §5 "LIFE 2020 – 'Sites' Target").

CO₂ emissions by business group changed as follows between 2018 and 2019:

(in metric tons of CO ₂ equivalent)	CO ₂ emissions in 2019	Of which:		CO ₂ emissions in 2018	CO ₂ emissions in 2019 pro forma ⁽¹⁾	Change ⁽¹⁾ (as %)
		Direct CO ₂ emissions (as %)	Indirect CO ₂ emissions (as %)			
Wines and Spirits	40,893	71	29	40,845	40,442	(1)
Fashion and Leather Goods	113,314	23	77	113,783	108,692	(4)
Perfumes and Cosmetics	12,971	56	45	12,807	12,832	-
Watches and Jewelry	7,257	20	80	7,027	6,332	(10) ^(a)
Selective Retailing	72,643	4	96	88,089	70,764	(20) ^(a)
Other activities	3,340	38	62	3,319	3,340	1
Total	250,418	27	73	265,870	242,402	(9)

(a) Change related to the switch to renewable energy and the rollout of energy-saving technologies.

(1) Value and change at constant scope.

4.3.3 Raw materials and transport (Scope 3)

The study carried out in 2016 on the environmental impact of producing the raw materials needed to manufacture the Maisons' products was updated in 2018. It showed that over 70% of emissions come from leather, grapes and glass for packaging. With the help of its partners, the Group is continuing to work on quantifying these emissions, as well as fine-tuning how it assesses the impact of raw materials like leather, gold and cotton:

- production of raw materials: The main sources of greenhouse gas emissions are leather production (432,000 tCO₂e), winegrowing (172,000 tCO₂e, which includes vineyards belonging to the Group's Maisons as well as independent grape suppliers) and glass for packaging (158,000 tCO₂e);
- inbound transport: Movement of raw materials and product components to production sites. Only the main raw materials and components are taken into account;
- outbound transport: Movement of finished products from production sites to distribution platforms.

In 2019, greenhouse gas emissions generated by inbound transport broke down as follows:

<i>(in metric tons of CO₂ equivalent)</i>	Road	Air	Ship	Total
Wines and Spirits	16,254	1,457	898	18,609
Fashion and Leather Goods	1,048	12,510	45	13,603
Perfumes and Cosmetics	1,029	40,903	470	42,402
Watches and Jewelry	3	1,715	-	1,718
Selective Retailing	-	-	-	-
Total	18,334	56,585	1,413	76,332

In 2019, greenhouse gas emissions generated by outbound transport broke down as follows:

<i>(in metric tons of CO₂ equivalent)</i>	Road	Rail	Air	Ship	Inland barge	Electric vehicle	Liquid natural gas	Total
Wines and Spirits	22,086	690	41,674	20,176	149	2	117	84,894
Fashion and Leather Goods	3,240	51	218,402	106	-	-	171	221,970
Perfumes and Cosmetics	3,111	-	323,136	2,109	-	-	-	328,356
Watches and Jewelry	221	-	37,484	70	-	-	-	37,775
Selective Retailing	3,875	-	9,724	205	-	79	-	13,883
Total	32,533	741	630,420	22,666	149	81	288	686,878

Rimowa, Le Bon Marché, Château d'Yquem, DFS, Fred, Rossimoda and Les Echos did not report their data for this indicator.

4.3.4 Renewable energies

Alongside actions to reduce its fossil fuel consumption, LVMH is rapidly expanding its use of renewable energy. Between 2013 and 2019, the proportion of renewables in the Group's energy mix rose from 1% to more than 36%. Framework agreements

signed with energy suppliers have been one of the main drivers of the Group's progress in this area. The first of these dates back to 2015 and supplies green electricity to more than 90% of LVMH's sites in France, belonging to 23 of its Maisons. A similar agreement was signed in 2016 for the supply of electricity to several Maisons in Italy and a third is in preparation for sites in Spain. Many sites have also installed solar panels or geothermal systems. As of 2019, all of Sephora's sites in the United States are powered by green electricity.

4.4 Prospects for adapting to climate change

To accompany its initiatives, the Group is also conducting a review of the various issues involved in adapting to climate change. In the medium term, changing winegrowing practices is the main component of the Group's adaptation strategy. Several solutions are available for European vineyards depending on the extent of climate change, from altering harvest dates to

developing different methods of vineyard management (such as widening rows, increasing the size of grapevine stocks and employing irrigation in certain countries) and testing new grape varieties. For vineyards in Argentina and California, the main issue is the availability of water (see §5.3 "Water consumption and preventing pollution").

4.5 Tracking target achievement

Progress toward meeting the LIFE 2020 “Climate change” targets:

Indicators	Baseline	Performance in 2019	Target for 2020
CO ₂ emissions	220,480 tCO ₂ e	-25%	Cut energy-related CO ₂ emissions by 25% (Scope 1 and 2 at constant scope)
Proportion of renewable energy in the Group's energy mix	1%	36%	Raise the proportion of renewables in the Group's energy mix to at least 30%
Store energy efficiency (electricity consumption in kWh/m ²)	460 kWh/m ²	-21%	Improve store energy efficiency by 15% (electricity consumption in kWh/m ²) (target met as of 2017)

5. LIFE 2020 – “SITES” TARGET

5.1 Objectives

Since it was launched in 2012, the LIFE program has focused on ensuring that the Group's sites are environmentally friendly. LIFE 2020 further strengthens these commitments. As a major player in the luxury industry, LVMH aims to ensure that its 397 manufacturing and administrative sites as well as its 4,915 stores are exemplary in this area. The Group has asked its Maisons to put in place environmental management systems at all of their production sites, and at their administrative sites with more than 50 employees.

The Maisons must also commit to a focus on continuous improvement. Taking 2013 as the baseline, LVMH is asking them to reduce at least one of the following indicators by at least 10%: water consumption, energy consumption, or waste production. Specific targets have also been set for their stores. Stores must

achieve a score of at least 50 out of 100 for their environmental performance on the LIFE in Stores Guidelines scale, which was developed in 2016 on the basis of the most stringent international standards (including LEED, BREEAM, Green Star, HQE, WELL and BEAM). It identifies the ten most important factors contributing to a store's environmental performance, from the building's insulation and lighting density to heating and air conditioning. This checklist was drawn up as part of the LVMH LIFE in Stores program. Its aim is to encourage the integration of environmental issues at an early stage in the development of store projects, preferably from the design phase. A LIFE in Stores event held this year in New York was an opportunity to present architects with the best technologies to reduce energy consumption at the Maisons' stores and sites.

5.2 Environmental management and certification systems

The Group has decided to extend the implementation of environmental certification programs to all its sites, because this can serve as a dynamic, unifying and motivating tool to promote continuous improvement. This approach to certification is not new for the Maisons: the LVMH Environmental Charter already requires that they put in place an environmental management system reporting to Executive Management. Many of them

have opted for ISO 14001 certification. Hennessy has played a pioneering role in this regard, becoming the world's first wines and spirits company to obtain ISO 14001 certification in 1998. At the end of 2019, 60% of the Group's manufacturing, logistics and administrative sites (and 71% of its manufacturing sites alone) were ISO 14001-certified.

5.3 Water consumption and preventing pollution

5.3.1 Breakdown of water consumption

Water consumption is broken down into the following requirements:

- process requirements: Use of water for cleaning purposes (tanks, products, equipment, floors), air conditioning, employees, product manufacturing, etc. Such water consumption generates waste water;

- agricultural requirements: Water used for vineyard irrigation outside France, as irrigation is not used for the Group's vineyards in France. Water is taken directly from the natural environment for irrigation purposes, with water use from year to year closely linked to changes in weather conditions. However, it should be noted that water consumption for agricultural requirements is assessed by sites with a higher level of uncertainty than water consumption for process requirements.

Water consumption changed as follows between 2018 and 2019:

(in m ³)	2019	2018	2019 pro forma ⁽¹⁾	Change ⁽¹⁾ (as %)
Process requirements	3,927,034	3,985,070	3,930,956	1
Agricultural requirements (vineyard irrigation)	7,018,856	5,568,770	6,946,556	25 ^(a)

(a) Change mainly related to increased irrigation requirements in Argentina and New Zealand.

Water consumption for process requirements broke down as follows by business group:

(process requirements in m ³)	2019	2018	2019 pro forma ⁽¹⁾	Change ⁽¹⁾ (as %)
Wines and Spirits	1,247,673	1,193,364	1,247,673	5
Fashion and Leather Goods	1,918,215	1,840,355	1,911,342	4
Perfumes and Cosmetics	194,720	204,089	195,700	(4)
Watches and Jewelry	75,955	80,566	80,516	-
Selective Retailing	306,062	401,708	311,317	(23) ^(a)
Other activities	184,408	264,989	184,408	(30) ^(b)
Total	3,927,034	3,985,070	3,930,956	(1)

(a) Change related to the installation of equipment at a site.

(b) Change related to exceptional construction work in 2018 and improvements in reporting processes.

An in-depth analysis of sensitivity to local constraints was carried out at each of the Group's Maisons using Pfister's 2009 water scarcity index and the 2012 Aquastat database. This analysis was based on measurements of each geographic area's sensitivity, obtained by comparing water consumption to available resources at the local level. Four Maisons whose water consumption is significant relative to the Group as a whole are located in areas where water stress is close to 100%, meaning that water requirements in these areas are close to the level of available resources:

- the Domaine Chandon Argentina vineyards (Agrelo and Terrazas), which represent 80% of the Group's agricultural water requirements;

- the Domaine Chandon California and Newton vineyards, which represent 6% of the Group's agricultural water requirements.

Vineyard irrigation requires authorization and is regulated in California and Argentina due to the climate. Such irrigation is necessary for winegrowing. Nevertheless, the Group has taken the following measures to limit water consumption: harvesting rainwater; implementing protocols to measure and specify water requirements; standardizing drip irrigation practices in California; using weather forecasts to optimize irrigation; and adopting the "regulated deficit irrigation" technique, which reduces water consumption and improves grape quality and grapevine size, yielding an enhanced concentration of aroma and color.

(1) Value and change at constant scope.

5.3.2 Preventing pollution

The only significant, relevant indicator related to preventing water pollution is the release of substances into water by Wines and Spirits, Fashion and Leather Goods, and Perfumes and Cosmetics operations contributing to eutrophication. The Group's other activities have only a very limited impact on water quality. Eutrophication is the excessive buildup of algae and aquatic plants caused by excess nutrients in the water (particularly

phosphorus), which reduces water oxygenation and adversely affects the environment. The parameter used is the Chemical Oxygen Demand (COD) calculated after treatment of effluents from the Group's own plants or external plants with which the Group has agreements. The following operations are considered treatment: city and county wastewater collection and treatment, independent collection and treatment (aeration basin), and land application.

COD after treatment changed as follows between 2018 and 2019:

COD after treatment (metric tons/year)	2019	2018	2019 pro forma ⁽¹⁾	Change ⁽¹⁾ (as %)
Wines and Spirits	967	1,066	967	(9) ^(a)
Fashion and Leather Goods	37	64	37	(42) ^(b)
Perfumes and Cosmetics	26	40	26	(35) ^(c)
Total	1,030	1,170	1,030	(11)

(a) Change related to measurement method.

(b) Change related to improvements in reporting processes and changes in business activity.

(c) Change related to improvements in reporting processes (2018 data restated).

Measurement frequencies at the highest-contributing Maisons are compliant with local regulations but remain limited with regard to the changes observed in quantities discharged.

Volatile Organic Compound (VOC) emissions are addressed through specific action plans, notably for Perfumes and Cosmetics operations and the tanneries.

5.4 Reducing and recovering waste

5.4.1 Waste produced and recovered

In 2019, 91% of waste was recovered (91% in 2018). Recovered waste is waste for which the final use corresponds to one of the following channels, listed in descending order of interest in accordance with European and French laws:

- re-use, i.e. using the waste for the same purpose as the one for which the product was initially intended;

- recovery of materials, i.e. recycling (direct reintroduction of waste into its original manufacturing cycle resulting in the total or partial replacement of an unused raw material) or controlled composting or land treatment of organic waste to be used as fertilizer;
- incineration for energy production, i.e. recovery of energy in the form of electricity or heat by burning the waste.

The weight of waste generated changed as follows between 2018 and 2019:

(in metric tons)	Waste produced in 2019	Of which: hazardous waste produced in 2019 ^(a)	Waste produced in 2018	Waste produced in 2019 pro forma ⁽¹⁾	Change in waste produced ⁽¹⁾ (as %)
Wines and Spirits	62,667	502	65,423	62,667	(4)
Fashion and Leather Goods	16,327	2,421	15,888	15,963	1
Perfumes and Cosmetics	9,112	1,764	10,186	9,118	(10) ^(b)
Watches and Jewelry	992	311	869	988	14 ^(b)
Selective Retailing	4,806	9	4,895	4,806	(2)
Other activities	1,716	129	2,234	1,716	(23) ^(c)
Total	95,620	5,136	99,495	95,258	(4)

(a) Waste that must be sorted and processed separately from non-hazardous waste (such as cardboard, plastic and paper).

(b) Change related to business activity.

(c) Change related to exceptional construction work at one site in 2018.

(1) Value and change at constant scope.

Waste was recovered as follows in 2019:

<i>(as % of waste produced)</i>	Re-used	Recovery of materials	Waste-to-energy recovery	Total recovery
Wines and Spirits	35	59	3	97
Fashion and Leather Goods	3	40	29	72
Perfumes and Cosmetics	2	69	26	97
Watches and Jewelry	18	24	30	72
Selective Retailing	4	47	28	79
Other activities	6	39	44	89
Total	24	56	12	91

In France, the Perfumes and Cosmetics Maisons, as well as Sephora since 2010 and Louis Vuitton since 2011, have used the CEDRE (*Centre Environnemental de Déconditionnement, Recyclage Écologique*) recovery and recycling facility to handle all the waste generated by the manufacturing, packaging, distribution, and sale of cosmetic products. CEDRE accepts several types of articles: obsolete packaging, alcohol-based products, advertising materials, store testers, and empty packaging returned to stores by customers. In 2014, the service was expanded to accept textiles. In 2019, around 2,447 metric tons of waste were processed. The various materials (glass, cardboard, wood, metal, plastic, alcohol and cellophane) are resold to a network of specialized recyclers.

5.4.2 Actions to combat food waste

La Grande Épicerie de Paris, which has a number of fresh food production facilities, has developed a reliable system for predicting sales in order to adapt production to sales volumes on a daily basis.

The store has signed a partnership with the French Red Cross, which collects any unsold prepared food each day. Another partnership was launched in 2018 with Too Good To Go, an app that lets stores give their unsold items to its users.

Both La Grande Épicerie Rive Droite and La Grande Épicerie Rive Gauche are looking into setting up new partnerships with organizations and companies active in this field, and plan to extend the selection of products offered under these partnerships.

In light of the Group's business activities, food insecurity and actions promoting responsible, fair and sustainable food use do not constitute key risks.

5.5 Tracking target achievement

Progress toward meeting the LIFE 2020 "Sites" targets:

Indicators	Baseline	Performance in 2019	Target for 2020
Presence of environmental management systems (ISO 14001, EMAS, etc.) at manufacturing sites	60%	71%	Rollout of an environmental management system (ISO 14001, EMAS, etc.) at all manufacturing sites