MANAGEMENT REPORT OF THE BOARD OF DIRECTORS: THE GROUP

Environment and sustainability

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, a key driver for competitiveness. Having recognized the importance of action in this area more than 25 years ago, the Group formed an Environment Department in 1992 reporting directly to Executive Management. With a staff of 10 professionals, the objectives of this department are to:

- roll out the LIFE (LVMH Initiatives for the Environment) program;
- guide Maisons' 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 Maisons 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 (non-profits, rating agencies, public authorities, etc.).

Each Maison also draws on its own in-house expertise in environmental matters. These experts constitute a network of nearly 90 environmental representatives 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 156,000 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. In 2016, the Group established an Environment Academy to serve this role. The Academy designs courses in line with the objectives of the LIFE program, employing a range of educational methods and materials – face-to-face training sessions, e-learning modules, virtual classes, etc. – and covering a large number of subjects, from eco-design to environmental audits. In addition, almost all Maisons continued with their employee environmental training and awareness programs. These programs totaled 20,196 hours.

1.1.2 Commitments

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

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

The Environment 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 10 universal principles, including the following three relating to the environment:

- adopt a precautionary approach to all issues impacting the environment;
- promote greater environmental responsibility;
- favor the development and dissemination 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. Maisons have incorporated the LIFE program into their strategic plans since 2014. The LIFE program was implemented by a Steering Committee at each Group company 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;
- customer and key stakeholder information.

In 2018, 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.

Environmental expenses are recognized in accordance with the recommendations of the French Accounting Standards Authority (ANC). 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.

Environmental protection expenses in 2018 broke down as follows:

- operating expenses: 26.1 million euros;
- capital expenditure: 12.7 million euros.

Provisions for environmental risks amounted to 12.4 million euros as of December 31, 2018. 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 2018:

Production facilities, warehouses and administrative sites *(number)*	**2018**
Sites covered[(a)]	266
Sites not covered[(b)]	127
Total number of sites	**393**

(a) Integration of Rimowa and Louis Vuitton manufacturing sites.
(b) Main components: certain regional administrative sites of Louis Vuitton and Moët Hennessy as well as administrative sites with few employees.

97% 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 sales floor space used to calculate energy consumption, greenhouse gas emissions and water consumption is as follows, expressed as a percentage of the Group's total sales floor space:

	% of Group sales floor space taken into account in calculating energy consumption and greenhouse gas emissions[(a)]		**% of Group sales floor space taken into account in calculating water consumption[(a)]**	
	2018	**2017**	**2018**	**2017**
Group total	**70**	**69**	**19**	**19**

(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 sales floor space used to calculate energy consumption, greenhouse gas emissions and water consumption at major Maisons is as follows, expressed as a percentage of the total sales floor space of each Maison:

	% of Maison sales floor space taken into account in calculating energy consumption and greenhouse gas emissions		**% of Maison sales floor space taken into account in calculating water consumption**	
	2018	**2017**	**2018**	**2017**
DFS	77	87	52	54
Louis Vuitton	69	66	16	-
Sephora North America and Latin America	59	71	-	18
Sephora Europe and Asia	80	74	9	8
Le Bon Marché	100	-	100	-
Christian Dior Couture	74	-	22	-

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 and Pink Shirtmaker.

Calculations of water consumption also include certain stores operated by Berluti, Bvlgari, Chaumet, Fendi, Guerlain, Kenzo and Loewe. The 19% of Group sales floor space taken into account represents total water consumption of 543,000 m³.

For waste production, only stores operated by DFS, Le Bon Marché and certain Acqua di Parma, Berluti, Bvlgari, Christian Dior Couture, Givenchy, Louis Vuitton and Sephora Europe stores are included in the scope. The 17% of Group sales floor space taken into account represents waste production of 4,760 metric tons.

1.2.2 Main risks

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

1. impacts 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	- Packaging production;
	- Distillation;
	- Transportation of products;
	- Grape growing.
		- Store lighting and air-conditioning;
		- Transportation of products;
		- Production of resources needed to manufacture products:
		  - Plant fibers used for textiles (cotton, etc.),
		  - Leather, including exotic leather,
		  - Fur,
		  - Wool.
			- Packaging production;
			- Store lighting and air-conditioning;
			- Transportation of products.
				- Store lighting and air-conditioning.	- Store lighting and air-conditioning;
					- Transportation of products.

Impact on water resources	- Water consumption (irrigation of vines in Australia, New Zealand, Argentina and California); - Production of effluents containing organic matter during wine-making and distillation.	- Water consumption (crocodile farms and tanneries); - Production of effluents containing organic matter and minerals (crocodile farms and tanneries).	- Protection and saving of water resources.		

Impacts on ecosystems and depletion of natural resources	- Production of plant resources essential to other production processes (grape vines, barley, rye, etc.).	- Production of resources needed to manufacture products:
		  - Plant fibers used for textiles (cotton, etc.),
		  - Leather, including exotic leather,
		  - Fur,
		  - Wool.
			- Production of plant resources needed to manufacture products.	- Extraction of resources needed to manufacture products:
				  - Stones and precious metals,
				  - Exotic leather.	

Waste recovery and the circular economy	- Residues from wine-making and distillation processes.	- Recycling of raw materials and products at the end of their useful life.	- Recycling of packaging.	- WEEE (waste from electrical and electronic equipment, such as batteries).	- Recycling of point-of-sale advertising materials.

1.2.3 LIFE 2020 objectives

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 values for its indicators presented in the "Baseline" column of the tables presented below):

- sustainable product design: by 2020, Maisons must make all their products more environmentally friendly. LVMH'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 CO_2 emissions by 25%;
- make all production sites and stores more environmentally friendly: Maisons undertake to reduce at least one of the following indicators – water consumption, energy consumption or waste production – by 10% at each of their sites, and to have an effective environmental management system focused on ongoing improvement. Stores must be made 15% more energy efficient and new stores will have to achieve a minimum performance of 50% according to the LVMH Store Guidelines score chart.

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 environmental impacts of the sourcing of raw materials, production, inbound and outbound transport, and sales, are addressed by the other LIFE 2020 targets. With respect to this objective, eco-design is the key priority for all LVMH 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.

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 companies and Watches and Jewelry companies are working to reduce their environmental impact arising from the sourcing of raw materials.

2.2 Analysis

The following items are covered by the calculation of EPIs for product packaging:

- 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 and boxes, etc.
- Selective Retailing: boutique bags, pouches, cases, etc.

Packaging used for transportation is not included in this analysis.

2.3 Tracking target achievement

Progress toward meeting the LIFE 2020 Products targets:

Indicators	Baseline	Performance in 2018	Target for 2020
Overall EPI score for Perfumes and Cosmetics packaging	8.32	8.55 (+4%)	+10%
Overall EPI score for Wines and Spirits packaging	Champagne 16.03 Cognac 10.60	16.88 (+5%) 11.90 (+12%)	+10%

The weight of packaging that reaches customers changed as follows between 2017 and 2018:

(in metric tons)	2018	2017	2018 pro forma[1]	Change[1] *(as %)*
Wines and Spirits	159,844	161,890	154,688	(4)
Fashion and Leather Goods	11,059	9,522	10,971	15[a]
Perfumes and Cosmetics	29,167	28,340	29,167	3
Watches and Jewelry	4,834	4,880	4,834	(1)
Selective Retailing	4,651	5,177	4,651	(10)
Total	**209,555**	**209,809**	**204,311**	**(3)**

(a) Change related to business activity and optimization of reporting process.

The total weight of packaging that reaches customers, by type of material, broke down as follows in 2018:

(in metric tons)	Glass	Paper-cardboard	Plastic	Metal	Fabric	Other packaging material
Wines and Spirits	138,968	15,650	1,809	1,807	75	1,535
Fashion and Leather Goods	-	9,355	130	25	1,530	19
Perfumes and Cosmetics	15,094	4,886	6,914	1,935	97	241
Watches and Jewelry	1,936	1,248	1,234	184	152	80
Selective Retailing	99	3,152	1,323	68	1	8
Total	**156,097**	**34,291**	**11,410**	**4,019**	**1,855**	**1,833**

3. LIFE 2020 – "SOURCING" TARGET

3.1 Objectives and joint actions

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 components for product manufacturing 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.

(1) Value and change at constant scope.

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.

LIFE 2020 Sourcing targets relate in particular to the following raw materials:

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

LVMH takes a long-term and 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). LVMH 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 favor biodiversity, the Group has mainly focused on accessing genetic resources and sharing the benefits resulting from their use.

3.2 Wines and Spirits

For historical and strategic reasons, the companies of the Wines and Spirits business group are actively committed to sustainable and/or organic winegrowing, both of which are helping to considerably reduce their 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 business group's vineyards and among grape suppliers (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 targets to be met by 2020:

- leather from LWG-certified tanneries purchased for at least 70% of volumes used. The LWG certification is a very ambitious standard created by the Leather Working Group to improve the environmental performance of tanneries (energy, water, waste, traceability);
- sustainable cotton purchased for at least 70% of volumes used. The Group has notably 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 worldwide scale;
- certification for all crocodile farms supplying the Group's exotic leather tannery;
- pelts supplied by certified fur farms for 80% of volumes used by the end of 2019, in particular by rolling out the FurMark certification;
- integration of supplier contracts under Animal Sourcing Principles, developed in association with the nonprofit organization Business for Social Responsibility (BSR). Along with civil society, LVMH aims to protect and improve the welfare of animals providing many of its raw materials, from leather and wool to fur. The Group has drafted formal rules that its Maisons and their suppliers must follow by implementing the best practices in favor of animal well-being.

3.4 Perfumes and Cosmetics

The Perfumes and Cosmetics business group has embraced 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. Furthermore, the business group is taking part in specific initiatives with regard to the sourcing of palm oil (Roundtable on Sustainable Palm Oil, or RSPO) and mica (Responsible Mica Initiative, or RMI).

The Research and 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 cosmetics 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 companies are also taking part in an initiative 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 2018	Target for 2020
Wines and Spirits			
Sustainable winegrowing certification *(percentage of certified grapes by weight)*	LVMH vineyards: French vineyards: 100% Grape suppliers: Champagne (7%)	LVMH vineyards: French vineyards: 100% Rest of the world: 44% Grape suppliers: Champagne (10%)	LVMH vineyards: French vineyards: 100% Rest of the world: 100%
Fashion and Leather Goods			
LWG-certified tanneries *(percentage of leather supplied by certified tanneries by weight)*	25%	48%	70%
Certified cotton (BCI, organic, etc.)	2%	15%	70%
Perfumes and Cosmetics			
Perfume ingredient supplier performance	64	85	90
Cosmetics ingredient supplier performance	56	75	80
Palm oil derivatives *(percentage of RSPO-certified Mass Balance or Segregated palm oil derivatives by weight)*	0%	79%	70%
Watches and Jewelry			
Diamonds: RJC COP certification	90%	99%	100%
Gold: RJC COP certification	94%	84%	100%
RJC CoC certification	-	77%	100%

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 its activities' climate impact.

As part of its LIFE 2020 targets, the Group has set itself a new goal to speed up its progress: it now aims to cut energy-related CO_2 emissions by 25% between 2013 levels and 2020. Actions are being pursued on three fronts: improvements in monitoring and reporting, increasing the energy efficiency of operations, particularly in 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 entire value chain quantified, 50% of emissions are generated by the production of raw materials and 30% by inbound and outbound transport. Next come emissions generated by production plants, logistics centers, offices and stores (20%), whether direct (Scope 1) or indirect (Scope 2). Downstream emissions generated by using products (washing of fashion products, rinsing of certain cosmetics products, etc.) or when products come to the end of their useful life will be refined at a later stage.

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 price per metric ton of CO_2 emitted, which was doubled in 2018, from 15 to 30 euros. The amount thus obtained must be invested the following year in projects aimed at reducing emissions. The LVMH Carbon Fund reached its target in 2018, with 11.4 million euros in financing for 112 projects that could help avoid 2,800 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 1,096,760 MWh in 2018 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 2017 and 2018:

(in MWh)	2018	2017	2018 pro forma[(1)]	Change[(1)] *(as %)*
Wines and Spirits	220,454	188,292	217,135	15[(a)]
Fashion and Leather Goods	393,598	371,105	361,135	(2)
Perfumes and Cosmetics	94,044	90,160	92,726	3
Watches and Jewelry	40,935	35,924	36,515	2
Selective Retailing	325,723	296,537	279,257	(4)
Other activities	22,006	17,091	18,486	8
Total	**1,096,760**	**999,109**	**1,005,254**	**1**

(a) Change due to increase in business activity and the installation of new equipment at a Glenmorangie site.

(1) Value and change at constant scope.

Energy consumption by business group and by energy source was as follows in 2018:

(in MWh)	Electricity	Natural gas	Heavy fuel oil	Fuel oil	Butane Propane	Steam	Ice water	Renewable energies
Wines and Spirits	21,387	73,151	23,790	26,101	3,047	-	-	72,978
Fashion and Leather Goods	158,684	114,608	-	8,546	6,156	2,124	2,392	101,088
Perfumes and Cosmetics	7,769	31,263	-	1,874	-	1,236	405	51,497
Watches and Jewelry	14,062	6,853	-	867	149	-	-	19,004
Selective Retailing	182,182	31,157	-	1,159	4	5,182	9,932	96,107
Other activities	3,689	4,386	-	1,259	43	1,717	3,590	7,322
Total	**387,773**	**261,418**	**23,790**	**39,806**	**9,399**	**10,259**	**16,319**	**347,996**

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

Scope 1 emissions are those generated directly by sites, mainly associated with the combustion of fuel oil and natural gas. Scope 2 emissions are those generated indirectly from energy use, mainly the consumption of purchased electricity at the sites. Measures to reduce these emissions have been in place for a number of years at the production sites of the Maisons. The Maisons are also working to vigorously improve energy efficiency at their points of sale, 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).

CO_2 emissions by business group changed as follows between 2017 and 2018:

(in metric tons of CO_2 equivalent)	CO_2 emissions in 2018	*Of which:*		CO_2 emissions in 2017	CO_2 emissions in 2018 pro forma [1]	Change [1] *(as %)*
		Direct CO_2 emissions (as %)	*Indirect CO_2 emissions (as %)*			
Wines and Spirits	40,845	*72*	*28*	36,442	40,454	11 [a]
Fashion and Leather Goods	113,783	*24*	*76*	104,990	99,401	(5)
Perfumes and Cosmetics	12,807	*54*	*46*	11,892	12,025	4
Watches and Jewelry	7,027	*24*	*76*	5,633	4,718	(15) [b]
Selective Retailing	117,978	*6*	*94*	116,375	97,912	(14) [c]
Other activities	3,319	*38*	*62*	2,800	2,995	7
Total	**295,759**	***25***	***75***	**278,132**	**257,505**	**(6)**

(a) Change due to increase in business activity and the installation of new equipment at a Glenmorangie site.
(b) Change mainly related to the switch to renewable energy at certain sites.
(c) Change mainly related to the switch to renewable energy at certain sites as well as the rollout of energy-saving technologies.

4.3.3 Raw materials and transport (Scope 3)

The study carried out in 2016 into the environmental impact of producing the raw materials required to manufacture the Group's 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 with its efforts to quantify these emissions and also seeks to fine-tune 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 tCO_2e), winegrowing (172,000 tCO_2e, which includes vineyards belonging to Maisons as well as grape suppliers) and glass for packaging (158,000 tCO_2e);
- inbound transport: movement of raw materials and product components to production sites. Only the main materials and components are taken into account;
- outbound transport: movement of finished products from production sites to distribution platforms.

(1) Value and change at constant scope.

In 2018, the distribution of greenhouse gas emissions generated by inbound transport broke down as follows:

(in metric tons of CO_2 equivalent)	Road	Air	Ship	Total
Wines and Spirits	16,294	407	1,120	17,821
Fashion and Leather Goods	966	15,876	52	16,894
Perfumes and Cosmetics	1,205	37,239	457	38,901
Watches and Jewelry	3	1,997	1	2,001
Selective Retailing	-	-	-	-
Total	**18,468**	**55,519**	**1,630**	**75,617**

In 2018, the distribution of greenhouse gas emissions generated by outbound transport broke down as follows:

(in metric tons of CO_2 equivalent)	Road	Rail	Air	Ship	Inland barge	Electric vehicle	Liquid natural gas	Total
Wines and Spirits	23,020	587	42,949	18,344	203	4	209	85,316
Fashion and Leather Goods	18,478	40	173,238	134	1	-	154	192,045
Perfumes and Cosmetics	2,911	-	279,969	2,632	-	-	-	285,512
Watches and Jewelry	349	-	39,179	196	-	-	-	39,724
Selective Retailing	3,124	-	10,802	185	-	81	-	14,192
Total	**47,882**	**627**	**546,137**	**21,491**	**204**	**85**	**363**	**616,789**

Rimowa, Château Cheval Blanc, 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 expanding its use of renewable energy, and at a rapid pace. Between 2013 and 2018, the proportion of renewables in the Group's energy mix rose from 1% to more than 27%. 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 has allowed for the supply of green electricity to LVMH's 450 sites in France, owned by 27 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. Furthermore, many sites have installed solar panels or geothermal systems.

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 (wider rows, increasing the size of grapevine stocks, employing irrigation in certain countries, etc.) 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"). Finally, according to current scientific knowledge, vineyards in New Zealand and western Australia are the least susceptible to climate change.

4.5 Tracking target achievement

Progress toward meeting the LIFE 2020 Climate change targets:

Indicators	Baseline	Performance in 2018	Target for 2020
CO_2 emissions	220,480 tCO_2e	-16%	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%	27%	Raise the proportion of renewables in the Group's energy mix to at least 30%
Store energy efficiency (*in kWh/m²*)	460 kWh/m²	-16%	Improve store energy efficiency by 15% (in kWh/m²) (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 393 manufacturing and administrative sites as well as its 4,000 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. They have also been assigned specific targets for their stores. Stores must achieve a score of at least 50 out of 100 for their environmental performance on the LVMH Store Guidelines scale, which was developed in 2016 on the basis of the most stringent international standards. It identifies the 10 most important factors contributing to a store's environmental performance, from the building's insulation and air conditioning to heating and lighting density. 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.

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 first Wines and Spirits company in the world to obtain ISO 14001 certification in 1998. At the end of 2018, 53% of all the Group's manufacturing, logistics and administrative sites were ISO 14001-certified (63% of manufacturing sites more specifically).

5.3 Water consumption and preventing pollution

5.3.1 Analysis of water consumption

Water consumption is analyzed based on 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 consumption for vineyard irrigation outside France, as irrigation is not used for the Group's vineyards in France. As such, water is taken directly from its natural environment for irrigation purposes. Its consumption varies each year according to changes in weather conditions. However, it is worth noting that the measurement by the sites of water consumption for agricultural purposes is less precise than the measurement of process water consumption.

Water consumption changed as follows between 2017 and 2018:

(in m³)	2018	2017	2018 pro forma[1]	Change[1] *(as %)*
Process requirements	4,170,596	3,876,536	4,045,833	4
Agricultural requirements (vineyard irrigation)	5,568,770	4,721,037	5,568,759	18[a]

(a) Change mainly related to increased irrigation requirements due to extended drought conditions in Argentina and California.

Water consumption for process requirements can be broken down as follows by business group:

(process requirements in m³)	2018	2017	2018 pro forma[1]	Change[1] *(as %)*
Wines and Spirits	1,193,364	1,151,814	1,183,962	3
Fashion and Leather Goods	1,996,697	1,714,661	1,872,325	9
Perfumes and Cosmetics	211,493	178,646	211,395	18[a]
Watches and Jewelry	81,279	91,416	99,770	9
Selective Retailing	422,774	483,950	420,855	(13)[b]
Other activities	264,989	256,049	257,526	1
Total	**4,170,596**	**3,876,536**	**4,045,833**	**4**

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

An in-depth analysis of sensitivity to local constraints was carried out at each Group company 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 85% of the Group's agricultural water requirements;
- the Domaine Chandon California and Newton vineyards, which represent 7% of the Group's agricultural water requirements.

Vineyard irrigation is an authorized and supervised practice in California and Argentina due to the climate. It is essential for the preservation of vineyards. The Group has also taken the following measures to limit water consumption: harvesting rainwater; drafting agreements on measures and specifications with respect to 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 actually 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

With regards to preventing water pollution, the discharges of substances causing eutrophication by Wines and Spirits, Fashion and Leather Goods, and Perfumes and Cosmetics operations are considered the only significant and relevant emissions into water. The Group's other business groups have 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 impacts the environment. The parameter used is the Chemical Oxygen Demand (COD) calculated after treatment of the discharges in 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 2017 and 2018:

COD after treatment *(metric tons / year)*	**2018**	**2017**	**2018 pro forma[1]**	**Change[1]** *(as %)*
Wines and Spirits	1,066	1,611	1,065	(34)[a]
Fashion and Leather Goods	64	39	64	65[b]
Perfumes and Cosmetics	10	9	10	9
Total	**1,140**	**1,659**	**1,139**	**(31)**

(a) Change related to improvement of wastewater treatments. In 2017, the installation of an innovative wastewater treatment system enabled Glenmorangie to significantly reduce its COD after treatment. This system completed its first full year of service in 2018, which explains the significant decrease over the year.
(b) Change related to business activity and improvements in reporting processes.

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 2018, 91% of waste was recovered (91% in 2017). 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. the waste is used for the same purpose for which the product was initially designed;
- recycling, i.e. direct reintroduction of waste into its original manufacturing cycle resulting in the total or partial replacement of an unused raw material, 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 2017 and 2018:

(in metric tons)	**Waste produced in 2018**	***Of which: hazardous waste produced in 2018[a]***	**Waste produced in 2017**	**Waste produced in 2018 pro forma[1]**	**Change in waste produced[1]** *(as %)*
Wines and Spirits	65,423	*646*	48,410	65,089	34[b]
Fashion and Leather Goods	16,603	*3,150*	12,505	14,628	17[c]
Perfumes and Cosmetics	10,191	*2,347*	8,741	10,190	17[d]
Watches and Jewelry	881	*214*	904	872	(4)
Selective Retailing	6,852	*8*	5,994	6,503	9
Other activities	2,234	*106*	1,995	2,104	5
Total	**102,184**	***6,471***	**78,549**	**99,386**	**27**

(a) Waste that must be sorted and processed separately from non-hazardous waste (such as cardboard, plastic or paper).
(b) Change related to the increase in pressing waste due to exceptional harvests.
(c) Change related to exceptional maintenance operations at the Heng Long tannery.
(d) Change related to business activity.

(1) Value and change at constant scope.

Waste was recovered as follows in 2018:

(as % of waste produced)	Re-used	Recovery of materials	Waste-to-energy recovery	Total recovery
Wines and Spirits	4	88	6	98
Fashion and Leather Goods	2	37	32	71
Perfumes and Cosmetics	1	70	24	95
Watches and Jewelry	12	34	33	79
Selective Retailing	4	44	32	80
Other activities	4	10	79	93
Total	**3**	**73**	**15**	**91**

The Perfumes and Cosmetics companies, as well as Sephora since 2010 and Louis Vuitton since 2011, have used the CEDRE recovery and recycling facility (*Centre Environnemental de Décondition-nement, Recyclage Écologique*) 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 2018, around 2,174 metric tons of waste were processed. The various materials (glass, cardboard, wood, metal, plastics, alcohol and cellophane) are resold to a network of specialized recyclers.

5.4.2 Actions to combat food waste

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

In 2018, its partnership with the Red Cross, which collects any unsold prepared food each day, was extended to include new categories and new products. The gourmet food emporium formed a new partnership in 2018 with Too Good to Go, the world's leading app for fighting food waste, allowing stores to offer 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 Site targets:

Indicators	Baseline	Performance in 2018	Target for 2020
Presence of environmental management systems (ISO 14001, EMAS, etc.) at manufacturing sites	60%	63%	Rollout of an environmental management system (ISO 14001, EMAS, etc.) at all manufacturing sites