

# Corporate social responsibility information

Chapter

4

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## Introduction

The Vallourec Group has long taken a proactive approach to corporate responsibility issues, in an effort to act responsibly. Vallourec's approach to these social issues is formalized in the Group's Sustainable Development Charter, which is available at [www.vallourec.com](http://www.vallourec.com).

At the end of 2018, the Supervisory Board decided to create a new special committee in charge of assisting it in issues involving a Corporate Social Responsibility (CSR) strategy. This new committee is responsible for ensuring that the Group best anticipates the challenges, opportunities and non-financial risks associated with its business in order to promote long-term and harmonious value creation.

In the past decade, the Group has made strong commitments in these areas, in particular with the 2008 signing, along with a global employee representation organization, of its "principles of responsibility" and by becoming a signatory to the United Nations Global Compact in 2010. It has also signed several commitments to promote climate action and the circular economy, under joint initiatives with the Afep, the Medef and the *Cercle de l'Industrie*, as well as the Sustainable Development Charter of the International Steel Federation. Lastly, the Group has adopted a "carbon policy" to mobilize the Company on the many facets of these issues.

In this context, the Group must formalize its commitments to promote the Sustainable Development Goals the UN defined in 2015. Specifically, and based on the proposals of the CSR Committee, the Group could make commitments towards four goals:

- goal 5, to achieve gender equality and empower all women and girls;
- goal 7, to ensure access to clean energy, including cleaner fossil energies, and promote energy efficiency;
- goal 8, by confirming its commitment to respect labor rights and offer safe working conditions for all categories of workers; and
- goal 12, to promote sustainable production methods by significantly limiting the need for natural resources.

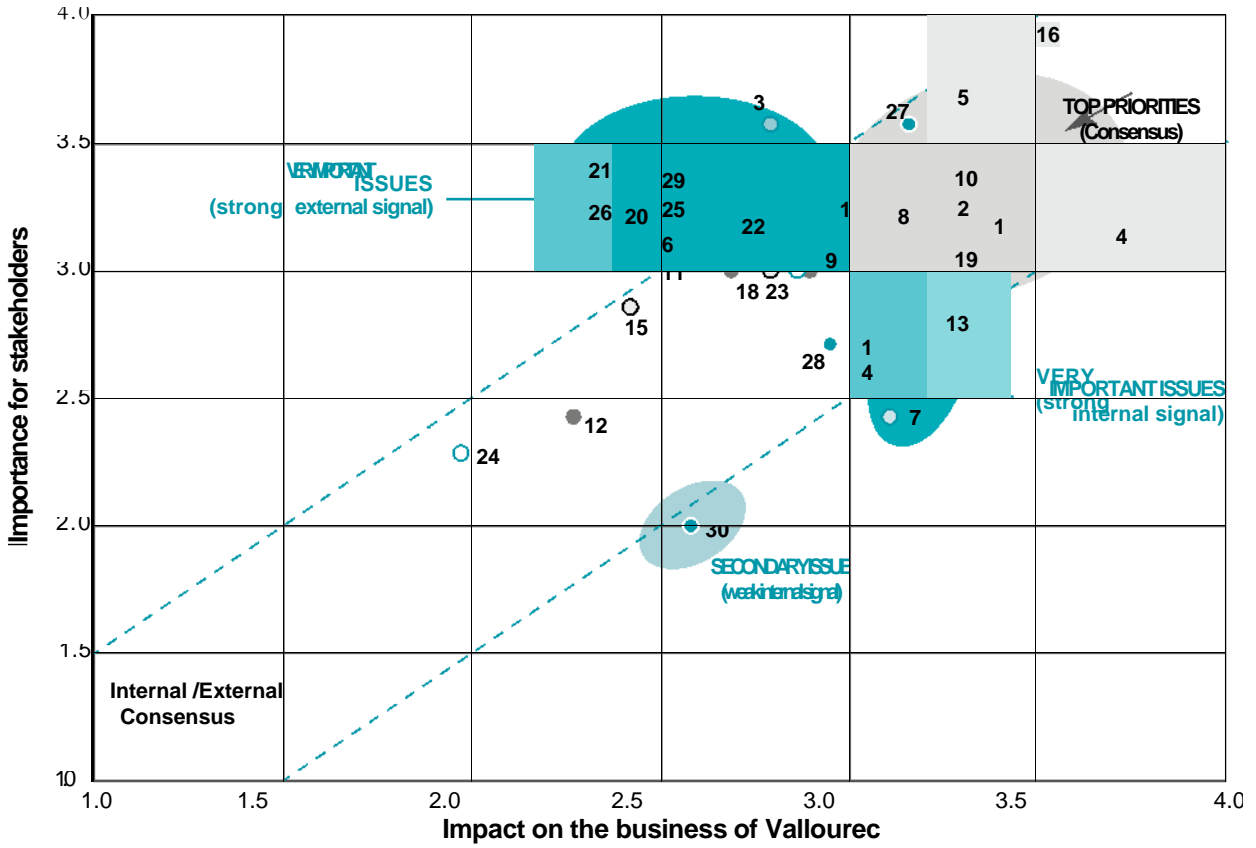
Each of these goals will be associated with an indicator and with a 2030 target, and the means needed to achieve them will be indicated. More generally, the medium/long-term CSR objectives will be set and published in 2019.

1. Since 2014, the Sustainable Development Department has been implementing a strategic five year plan for Sustainable Development and Corporate Social Responsibility (CSR), which is integrated into the strategic guidelines of the Group, updated annually and monitored by the Supervisory Board. Accordingly, the strategic plan was presented to the Executive Committee in July 2018. It was broken down by specific priorities for each of the four Regions. It was also presented to the Board's CSR Committee.

It relies on the following seven cornerstones:

- strengthening governance in Sustainable Development and CSR;
- setting medium-term objectives;
- increasing consideration of Sustainable Development issues in the Group's business model;
- involving more employees in their daily actions to promote CSR;
- developing the Group's social commitments;
- strengthening ongoing actions for progress; and
- obtaining institutional recognition of the efforts made.

Accordingly, in strengthening governance in Sustainable Development matters, in 2016 the Group prepared, with the aid of a specialized consultant, its "materiality analysis" in an effort to identify the issues it faced, both from the perspective of its management and that of its stakeholders. The analysis, which was conducted using proven methodology, allowed the Group to get the opinion of our main stakeholders on the 30 issues that had been identified as important and specific to the Company's particularities. The opinion gathering process was based on questionnaires and interviews, with senior executives, employees, investors, customers, suppliers, NGOs and the media. In all, 200 questionnaires were sent with a total response rate of nearly 60%. The results of the analysis are as follows:



Materiality Matrix: results

**Legend**

- 1 Energy transition
- 2 Resilience of the business model
- 3 Sustainable product design
- 4 Customer Relationships/Satisfaction
- 5 Innovation strategy and sustainability
- 6 Climate change adaptation
- 7 Trade barriers
- 8 Corporate governance
- 9 Accountability and transparency
- 10 Respect for ethics
- 11 Stakeholder dialogue
- 12 Transparent and fair tax strategy
- 13 Quality of social dialogue in all economic circumstances
- 14 Fair compensation and benefits

15 Diversity	
16 Occupational safety	
17 Occupational health	
18 Noise	
19 Employees' skills and development	
20 Energy use & own GHG emissions	
	21 Non-renewable resources consumption and circular economy
	22 Air pollutions
	23 Water footprint and water pollution
	24 Biodiversity
	25 Eco-design of processes and industrial equipments
	26 Sustainable logistics
	27 Respect of Human Rights
	28 Local socio-economic development & local content
	29 Responsible procurement standards and supplier relations
	30 Corporate citizenship

Through this analysis, Vallourec was able to confirm that the issues identified were pertinent, and that the importance given to them by the Company was in line with the perspective of its stakeholders. It also demonstrates that the strategic plan actions are generally addressing the needs, while at the same time highlighting that some matters could be taken into further consideration. The analysis will be conducted again in 2020 in order to take into account the changes within the Group's businesses and its new industrial footprint. The methodology will also be reviewed to expand the contributors' base in order to achieve the strongest learning outcomes possible.

- Chapter 4 focuses in the first place on the vigilance plan of the Vallourec Group, established in application of Law 2017-399 of 27 March 2017 on the duty of vigilance of parent companies and contracting companies, re-anchoring it within the framework of commitments previously made by the Group, including those within the field of Corporate Social Responsibility.

- This Chapter, which is supplemented by Sections 3.2 "Description of the Group's business model and activities", 3.6 "Transformation Plan", 3.8 "Outlook", and Section 5.1 "Risks factors" of this Registration Document, also contains the consolidated statement of non-financial performance mentioned in Article L.225-102-1 of the French Commercial Code.

The other indicators presented were constructed in reference to the Global Reporting Initiative (GRI), which aims to facilitate the measurement of companies' economic, environmental and social reporting indicators on a global basis.

This information factually demonstrates the Group's commitment to Corporate Social Responsibility and highlights the results of its key actions.

The way that this information was gathered and the limitations of this type of data collection are described in the methodological notes found in Appendix 3 to this Chapter. One of the Company's Statutory Auditors conducted audits with a moderate level of assurance as to all of the information presented in the consolidated statement of non-financial performance, and issued an opinion with reasonable assurance on selected indicators, which resulted in the report that appears in Appendix 1 to this Chapter. The indicators that were verified with a reasonable level of assurance are preceded in the text and in the Appendices by the symbol □.

4. This information forms the basis for the periodic evaluations of the main non-financial agencies or specialized SRI funds such as Vigeo-Eiris, RobecoSAM, Oekom, MSCI, Sustainalytics, CFIE, Ecovadis, etc. Even though each of these bodies has its own evaluation methods, the overall finding is a rating of B+ on a scale

of A to D based on an expert opinion. This assessment is consistent with the Group attaining the Advanced level of the Global Compact Communication on Progress, which it has now had for two years, and with its belonging to the most committed global enterprises in terms of human rights, according to the Vigeo Eiris study published in early 2017. The Group is no longer temporarily included in the Euronext Vigeo and FTSE4Good indices, not because of an insufficient commitment to CSR, but because these bodies still considered its capitalization to be insufficient in 2018. Conversely, the Group continues to be included in the Ethibel "EXCELLENCE" indices, attesting to Vallourec's quality as a sector leader in CSR. Lastly, it is also appropriate to mention that the Group received a rating of A- in 2018 for the third time by the Carbon Disclosure Project for its actions to promote a low-carbon economy. The Company aims to maintain the level of these various assessments.

## 4.1 Vigilance plan

In an effort to continue the commitments mentioned above, Vallourec established, both for itself and for all of the subsidiaries it controls, a vigilance plan in application of Law 2017-399 of 27 March 2017 on the duty of vigilance of parent companies and contracting companies, which requires establishing a plan containing reasonable vigilance measures specific to identifying risks and preventing serious violations of human rights and fundamental freedoms, the health and safety of individuals and the environment, resulting from the activities of the Company and all of the subsidiaries it controls, as well as those of subcontractors or suppliers with which it has maintained an existing commercial relationship, when these activities are related to such relationship.

This process is consistent with the priorities that the Group has set for itself, the pertinence of which has been confirmed by the results of the

materiality analysis presented above. In fact, four issues among the ten deemed to have absolute priority, both by our external stakeholders and by corporate management, form an integral part of the points covered by the vigilance plan. As concerns environmental issues, the materiality analysis classifies them as being very important. Vallourec's vigilance plan thus fits in perfectly with a continuous improvement process, in conformity with Vallourec's proactive approach in areas of corporate social responsibility.

A working group comprised of representatives from the Sustainable Development Department, the Legal Department, the Human Resources Department, the Purchasing Department and the Internal Control and Risk Management Department was created for the purpose of establishing the plan.

### 4.1.1 Identification and evaluation of risks

Generally, the Risk Management Department identifies, with the operational and functional departments, the main risks to which the Group is exposed, analyzes them and creates a risk map. Risk mapping is done for each of the major entities, Regions, and for the Group as a whole. Each map incorporates the main risks, along with their impact, probability of occurrence, and current level of control. The mapping process was adapted to incorporate the requirements of the Sapin II Law of 9 December 2016.

Priorities are determined not only according to probability of occurrence and/or consequences of risks and control level, but also according to the control improvements made, including the benchmark practices in the subject area.

As concerns risks to human rights and fundamental freedoms, the health and safety of individuals as well as the environment, which result from the activities of the Company and from all of the subsidiaries it controls, as well as from the top subcontractors or suppliers with which it maintains an established business relationship, Vallourec has particularly identified the following risks which specifically result from the Group's activities:

1. the Group conducts a significant part of its business in developing countries, in particular because of its strategy of being located close to its customers in these countries. The risks of serious violations of

human rights and fundamental freedoms, to the health and safety of individuals and the environment, associated with activities carried out in these countries, whether directly or through subcontracted companies, may result among other things from political, economic and social instability (nationalization and expropriation of assets, uncertainty as to applicable law and the application of laws, impact of sanctions, accidents, terrorism, etc.);

2. the importance of the industrial labor force to the Group's business makes it essential to manage employees' health and safety. Health and safety management is a priority for the Group and a fundamental value for Vallourec. The Group's health and safety policy was also strengthened at the end of 2016;
3. the very nature of the Group's industrial activity carries environmental risks. Due to their nature, the Group's activities are the source of noise pollution, require the use of hazardous chemical products and substances, generate waste that is classified as hazardous, may quantitatively or qualitatively impact local water resources, result in soil pollution and give rise to harmful air emissions.

Just like any other organization, the Group has been faced with the risk of non-compliance with its core values under the Code of Ethics, supplemented by the Anti-Corruption Code and the Group's internal rules and policies.

### 4.1.2 Management of identified risks

Management of identified risks simultaneously includes preventive or mitigating measures and a system for monitoring and evaluating the efficiency of the measures implemented.

Generally, Vallourec relies on a risk management policy deployed by the Risk Management Department, which also ensures it is consistent and all-encompassing. Risk management is controlled by committees that meet once a year, for each concerned entity, comprised of the Risk Management Director or their representative, the Director of the aforementioned entity, their main aides and the functional managers concerned by the specific risks, where applicable. Each committee meeting handles the following matters:

- validation of analysis, allocation and follow-up of action plans for each priority risk;
- validation of the key risk indicators, which ensures the relevance of new controls after closure of the action plan, and the on-going application of such controls.

The Group's Risk Management Director organizes centralized risk management reporting, in cooperation with the Risk Managers from the main entities, to check on the progress of the action plans and ensure they are consistent with the priority guidelines at the Group level. Additional information appears in Section 5.2 "Risk management and internal control system" of this Registration Document.

In order to progress and reduce the risks in question, the Group relies on the Vallourec Management System (VMS), whose fundamental objective is to improve the Group's performance in all of its operating processes, and which thus serves to develop risk prevention, control process variability and improve their efficiency. It uses numerous specific tools such as Lean Management and the "6 Sigma" methodology, and strives to strengthen project management methods. It also ensures that initiatives are consistent with the strategic plan and that they deliver continuous progress. It also ensures that the requirements for managing quality (ISO 9001, ISO/TS 16949, API and ASPE), health and safety (OHSAS 18001), the environment (ISO 14001) and energy (ISO 50001) are taken into account.

The specific risks to human rights and fundamental freedoms, the health and safety of individuals, and the environment, resulting from the Group's activities, as well as from its leading subcontractors or suppliers, with which it maintains an established business relationship, are managed thanks to the structure and measures described below.

#### RISK MANAGEMENT IN HUMAN RIGHTS AND FUNDAMENTAL FREEDOM ISSUES

##### Structure

Risk management in human rights and fundamental freedom issues is the joint responsibility of the Human Resources Department, as concerns the Group's employees, and the Purchasing Department, as concerns the subcontractors or suppliers with which it maintains an established business relationship (see the "Risk Management linked to the Supply Chain" paragraph below), in close cooperation with the Ethics and Compliance Officer.

##### Measures

As an international company, Vallourec has taken on significant corporate social responsibility commitments, in particular with regard to respect for human rights and universal fundamental principles that protect the dignity, respect and freedom of employees.

Therefore, Vallourec strongly condemns:

- all forms of forced or compulsory labor;
- child labor;
- any difference in treatment between individuals that is based on criteria other than their skills or aptitudes; and
- any act of physical or mental violence, or the threat of such acts. Conversely, it notably promotes:
  - a safe and healthy work environment that ensures physical and mental integrity; and
  - the employees' freedom of association and collective bargaining.

In 2008, Vallourec officially undertook to comply with the fundamental principles enacted by the international conventions of the International Labour Organization, in the "Agreement on the principles of responsibility applicable in the Vallourec Group," which was approved by the European Committee, forming an integral part of the Code of Ethics. Vallourec has also been a signatory to the UN Global Compact since 2010.

By way of example, wherever the Group operates, it has made employer-employee dialog a priority. This is organized in each country, in accordance with local regulations. To date, at least 82% of the workforce are covered by industry- or company-wide collective agreements. The Group's actions in terms of employer-employee dialog are more extensively described in Section 4.2.2.3 "Social relations" in this Registration Document.

Vallourec affirms its commitment to diversity and to combating discrimination in the workplace through the Code of Ethics.

Respect of men and women, their dignity, their diversity and the variety of their cultures is at the heart of the commitment of Vallourec's teams. Under the roll-out of the Code of Ethics, a program to educate all employees on the issue of discrimination was completed using examples from daily life.

In terms of gender equality, the Group's policy is defined around strengthening women's presence in operational business lines, in particular those of production, and in increasing women's access to leadership roles.

- Female employees with high potential can receive mentorship from the Group's senior executives. On 8 March 2017, the Group also launched Women@Vallourec, a network of women and men dedicated to debating and discussing equality and the place of women within the Group, which aims to reveal true proposals for action. More precisely, Women@Vallourec's mission is to improve diversity, starting with gender diversity, and to thus assist the Group in its transformation by improving performance and innovation.
- On 8 March 2018, Vallourec signed in the Middle East the United Nations World Charter on "Women's Empowerment Principles" (WEP), thereby committing to make every effort to offer women and men the same possibilities to fully realize their potential. The principles of the Charter in particular concern education, training, and professional development of women, along with the commitment to equality at the highest levels of business.
- In early 2019, four priority actions were identified: to relaunch and develop mentorship, systematically suggest female candidates for positions open internally, adapt the work environment, and develop women's participation in decision-making processes.

- Compensation surveys have shown no gender gap.
- Indicators are in place to ensure follow-up and accountability in the actions led by the Group.

In terms of equal opportunities, the Group strives to promote the continued employment of workers with disabilities. These actions are more extensively described in Section 4.2.2.6 “Diversity and equal opportunities” of this Registration Document.

Vallourec sees to it that these rights and principles are respected within the Group and at its subcontractors by incorporating it into its regular evaluations. The actions taken with respect to subcontractors are more extensively described below.

The Group’s responsibility does not stop at the doors of its offices and plants, but extends way beyond, through its influence in the community. An engaged partner, concerned for respecting a balanced development model, Vallourec ascribes major importance to the communities that surround it and strives to establish relationships of mutual understanding and trust with them. The Group undertakes actions that support education, healthcare and local development. Very active in Brazil, the Group has multiplied its initiatives there, including transforming the *Cine Teatro* building in Belo Horizonte into a cultural center dedicated to artistic production.

Vallourec also strives to prevent specific risks in terms of compliance with competition and anti-corruption rules. The implementation of the Group’s vigilance plan and actions in ethics and compliance matters are more extensively described in Section 4.2.1 “Ethics and compliance” of this Registration Document.

## RISK MANAGEMENT LINKED TO THE SUPPLY CHAIN

### Structure

Vallourec’s Purchasing Department is centrally structured to have a general view of the suppliers and supply chain, by using standardized processes between the Regions and appropriate information systems. A particular process of overseeing supplier risks is deployed at each of the Regions and centralized purchasing departments to identify, analyze and rank these risks. Ongoing monitoring of the action plans to mitigate or eliminate these risks is conducted on a quarterly basis. Moreover, Vallourec’s policy is to establish sustainable contracts as much as possible with its suppliers, which are not only limited to structuring the commercial transaction but also provide accountability over time for external stakeholders on performance and requirements that are linked to Vallourec’s values.

### Measures

Within the context of this responsible purchasing policy, Vallourec has established numerous tools and processes aimed at better controlling suppliers and directly considering social and environmental responsibility criteria, and sustainable development, ethics and safety issues. In application of this policy, Vallourec is leading formal and regular evaluation campaigns of its suppliers on social and environmental responsibility, along with progress action plans. All suppliers with significant activity (greater than €1 million per year) are subject to a request for formal evaluation on the criteria of social and environmental responsibility, namely the environment, ethics, respect of human rights and labor rights, and control of their own suppliers and subcontractors. The results of these evaluations are systematically taken into account in Vallourec’s decisions and guidelines with regard to its suppliers and subcontractors.

In accordance with the new U.S. laws and European directives, Vallourec has also committed to prohibiting its suppliers’ use of potential “Conflict Minerals” coming out of certain African countries.

The implementation of the vigilance plan and the actions pertaining to relations with subcontractors and suppliers are described in Section 4.2.3 “Relations with stakeholders” of this Registration Document.

## RISK MANAGEMENT IN HEALTH AND SAFETY ISSUES

### Structure

The Health and Safety policy that was updated in 2016 entails a strengthened health section. Entities thus aim to further investigate the health risks specific to the processes, while defining the means designed to eliminate or attenuate them. There are numerous issues, in particular concerning our processes, which cover chemical risk, noise, air quality and ergonomics at workstations.

### Measures

Safety is the Group’s main priority, and it aims to become a benchmark and a model for success in this area. At the end of 2018, 98% of Vallourec sites were certified OHSAS<sup>(1)</sup> and represented 100% of production in metric tons. Each year Vallourec renews its “CAPTEN+ Safe” safety improvement program, which has particularly focused on the major risks that could lead to a fatal accident and, since 2016, specifically on subcontractors.

In order to prevent the occurrence or limit the impact of risks linked to the Group’s activities in emerging countries, the Group implements systematic evaluation procedures for security and health risks, as well as emergency protection procedures, which are systematic for each of the high-risk countries where the Group frequently deploys its personnel. It also implements specific procedures for other countries, with the support of recognized external providers in all cases.

The Group respects all regulations, standards and certifications in the countries in which it markets its products, which primarily aim to ensure the safety and protect the health of users by demonstrating the product’s compliance with the regulatory requirements. They relate principally to the properties of fire resistance and slip resistance and to limits on toxic emissions.

The safe use of chemical products and substances is of critical concern to Vallourec. The database containing their details is regularly updated to ensure rigorous monitoring of developments and reactions and thus prevent harmful effects. All the products or substances entering production sites are monitored and authorized by local HSE managers. Product substitution plans that have been deemed critical were also defined. At the end of 2018, 78.7%<sup>(2)</sup> of 390 substances that were identified as CMR<sup>(3)</sup> were replaced<sup>(4)</sup>. 147 products were nevertheless identified as being unable to be substituted due to technical problems or a lack of a substitute on the market. Their uses are thus supervised by the HSE teams.

Hazardous waste is specifically managed: handling and storage are subject to strict safety rules to preserve the environment and health of the staff handling them.

The implementation of the Group’s oversight plan and its actions in health and safety matters are more extensively described in Section 4.2.2.2 “Safety and health” of this Registration Document.

(1) OHSAS 18001: International guidelines relating to occupational health and safety, published in 2001 under the authority of the International Labour Organization.

(2) Note that the products identified as non-substitutable are considered as substituted and included in the percentage calculated.

(3) Chemicals or preparations that may have various adverse effects on human health. These are classified into “CMR” categories. Within the meaning of Article R.231-51 of the French Labor Code, substances or preparations are considered CMR agents when they are carcinogenic (C), mutagenic (M) and/or toxic for reproduction (R).

(4) Some sites reported their inventory. New substances have also been officially classified as CMR.

## RISK MANAGEMENT IN ENVIRONMENTAL ISSUES

### Structure

In accordance with Group rules and guidelines, the Director of each site is responsible for setting up an effective environmental management system that is tailored to the local context and the site's activity. The Director appoints an Environment Manager who heads up all actions in this area and functionally reports to the HSE Director of each region.

The Environment Department, reporting to the Sustainable Development Department, is tasked with preparing the Group's environmental policies, monitoring their applications, and coordinating actions. It is supported by the HSE Managers of the Regions and production sites, who are responsible for implementing these policies.

The objective of this organization consists of structuring the organizations by Region or country in order to better take into account the specific national regulations.

### Measures

Vallourec notably aims to minimize the impact of its activities on the environment. This commitment is clearly explained in the Sustainable Development Charter published by the Group in 2011, and in the Group's Environmental Policy, which was signed by the Chairman of the Management Board and published in 2014. In early 2018, the Group also enacted a carbon policy to cover all of the corresponding issues.

Risk assessments have led to the establishment of measures designed to reduce the likelihood of accidents and limit their consequences and environmental impact. These measures relate to the design of the facilities, strengthening of protective measures, organizations to be put in place, and even compensation for any environmental impact if it seems inevitable.

### 4.1.3 Whistleblowing and reporting systems

The Code of Ethics provides that the Group's employees may report behaviors that violate the values and principles of the Code by contacting their line manager, their human resources manager, the Ethics and Compliance Officer, or one of the local ethics contacts. Moreover, a dedicated email address is provided to employees on the Group intranet under "Ethics and Compliance." This allows behaviors that violate the Code of Ethics or internal procedures to be directly reported to the Ethics Officer.

In North America, a telephone line has long been provided to employees who wish to provide information anonymously on non-compliance with ethics and compliance rules.

In addition to these traditional notification methods, the Vallourec Integrity Line whistleblowing system was rolled out within all the Group's entities in 2018. This system is accessible in eight languages to employees and external and occasional associates of the Group, but also to customers, suppliers, service providers and other external stakeholders through a secure website hosted by an independent company. The rollout of this whistleblowing system was announced in a communication that was widely disseminated to the Group. A link to the dedicated site is available from Vallourec's website.

Vallourec seeks to limit the industrial and environmental risk inherent in its activities by setting up efficient organizational structures and quality, safety and environmental management systems, obtaining certification or assessing its management systems, performing stringent inspections and audits, training staff and heightening the awareness of all parties involved, as well as by implementing a policy of environmentally friendly investments that reduce industrial risks. Each investment project undergoes a mandatory, formal evaluation. A multidisciplinary committee meets monthly to examine the various characteristics, evaluating impacts and determining whether to approve them.

The Group endeavors to strictly comply with locally issued operating authorizations and, more generally, with the applicable environmental laws and regulations, according to the principles presented in its Sustainable Development Charter and the policies that have been approved by the Management Board. The Group also strives to take all precautions to allow it to prevent environmental incidents. First of all, the Group, which has low greenhouse gas emissions, ascribes specific importance to publishing a complete carbon footprint. In 2018, it published its medium-term emissions objective for the first time, and is studying the various ways it can further reduce the carbon footprint from its processes.

Total provisions and guarantees for environmental risks are presented in Note 17 to the consolidated financial statements. This provision covers the cost of treating industrial land and cleaning up the mine once resources have been exhausted. The management of industrial and environmental risks is presented in general terms under Section 5.1.2, paragraph "Industrial and environmental risks".

The Group's commitments in environmental matters and the results of the policies implemented are more extensively described in Section 4.2.4 "Environmental commitments" of this Registration Document.

The scope of the whistleblowing system is broad, and includes behavior contrary to the Code of Ethics, the Anti-Corruption Code of Conduct, and internal rules and policies. It notably includes allegations of anti-competitive practices, corruption, fraud, conflicts of interest, discrimination and harassment at work, as well as irregularities that could affect Vallourec's activity or reputation that are linked to human rights and fundamental freedoms, the health and safety of people, or the environment. The system allows behavior to be reported anonymously.

An internal policy specifies the terms of use for the whistleblowing system and the rules that apply to data protection and processing.

The 2018 rollout of the Vallourec Integrity Line led to an increase in the number of reports made. As in previous years, the reports primarily came from the United States and Brazil. 80% percent pertained to human resources issues, with the remaining 20% concerning fraud, conflicts of interest, property damage, and other issues such as the environment or security. None of these reports proved to be confirmed violations: 45% of cases led to disciplinary sanctions, including dismissals (9%). None of these cases had a significant impact on the Group.



## 4.2 Consolidated statement of non-financial performance

In accordance with Article L.225-102-1 of the French Commercial Code, the Consolidated statement of non-financial performance describes how the Group takes into account the consequences of its corporate social responsibility activities, as concerns respect of human rights and combating corruption and tax evasion. It describes the main risks relating to the business and, where relevant and proportionate, the risks created by the Group's business relationships, products or services. It also describes the policies applied, including any due diligence procedures implemented to prevent, identify, and mitigate the occurrence of risks, and the results of these policies, including key performance indicators.

The results of the general risk mapping have been crossed with the results of the materiality analysis in order to determine the Group's main non-financial risk exposure. The material nature of the risk has been assessed based on the probability of occurrence, the significance of the impact and of the exposure. The list thus created was presented to the CSR Committee at its meeting of 25 January 2019, and was then approved by the Management Board when preparing its management report.

Non-financial information category	Definition of risk (or of opportunity)	Policy applied	Key performance indicators
Consequences of global reactions to climate change	<ul style="list-style-type: none"> <li>• Business model risk</li> <li>• Image risk</li> <li>• Customer risk</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Charter Carbon policy</li> <li>• Energy Transition Opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon analysis</li> </ul>
Adaptation to the consequences of climate change	<ul style="list-style-type: none"> <li>• Risks of flooding, heat waves and prolonged drought, disturbance of water resources, hurricanes</li> </ul>	<ul style="list-style-type: none"> <li>• Adaptation plan by site</li> <li>• Follow-up on insurance recommendations</li> <li>• Capex verification</li> </ul>	<ul style="list-style-type: none"> <li>• % of sites with an approved and internally controlled adaptation plan</li> </ul>
Sustainable use of resources/ Circular economy	<ul style="list-style-type: none"> <li>• Increase of regulatory constraints and of costs</li> <li>• Opportunity for economic (customer service) and image enhancement</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Charter Environmental Policy</li> <li>• Public commitment</li> </ul>	<ul style="list-style-type: none"> <li>• Raw materials footprint</li> <li>• Waste recovery rate</li> </ul>
Energy efficiency	<ul style="list-style-type: none"> <li>• Energy costs</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Policy</li> <li>• GreenHouse project</li> </ul>	<ul style="list-style-type: none"> <li>• Energy consumption in kWh/metric ton processed</li> <li>• % of renewable energy</li> <li>• Amount of corresponding investments</li> </ul>
Water management	<ul style="list-style-type: none"> <li>• Shortage risk</li> <li>• Pollution risk</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Charter</li> <li>• Environmental Policy</li> </ul>	<ul style="list-style-type: none"> <li>• Water intake</li> <li>• Internal reuse rate</li> <li>• Water Impact Index</li> <li>• HSE investments amount</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>• Pollution risks</li> <li>• Health risks</li> <li>• Hazardous waste risks</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Charter</li> <li>• Commitment to responsible performance</li> <li>• By-products Project</li> <li>• Plastic Policy being drafted</li> </ul>	<ul style="list-style-type: none"> <li>• Recycled waste rate</li> <li>• % hazardous waste</li> <li>• HSE investments amount</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>• Air pollution risks: steam, gas and particle emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Charter Air Policy</li> </ul>	<ul style="list-style-type: none"> <li>• Emissions measurement</li> <li>• HSE investments amount</li> </ul>
Culture of ethics (excluding anti-corruption)	<ul style="list-style-type: none"> <li>• Non-compliance with the Code of Ethics</li> <li>• Image risk</li> </ul>	<ul style="list-style-type: none"> <li>• Code of Ethics</li> <li>• Compliance program</li> <li>• e-learning</li> <li>• Responsible purchasing policy</li> </ul>	<ul style="list-style-type: none"> <li>• Number and type of internal/ external alerts</li> </ul>
Diversity	<ul style="list-style-type: none"> <li>• Gender equality</li> </ul>	<ul style="list-style-type: none"> <li>• Code of Ethics</li> <li>• Mentoring for women</li> <li>• Presence of women in succession plans</li> <li>• Women's network, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Rate of women managers and executives</li> <li>• Rate of women senior executives</li> </ul>
Occupational health	<ul style="list-style-type: none"> <li>• Health risks linked to the use of chemical products and substances</li> <li>• Health risks linked to noise pollution exposure</li> <li>• Occupational illnesses</li> </ul>	<ul style="list-style-type: none"> <li>• Health Policy</li> <li>• Evaluation of sanitation risks in certain countries</li> <li>• CMR classified product substitute plans</li> <li>• Whistleblowing and reporting systems</li> <li>• Action plan to prevent noise pollution</li> </ul>	<ul style="list-style-type: none"> <li>• CMR products replacement rate</li> <li>• HSE investments amount</li> <li>• Mapping of employees' exposure to noise</li> <li>• Noise measurement on site outskirts</li> <li>• Number of confirmed occupational illnesses</li> </ul>

Occupational safety	<ul style="list-style-type: none"> <li>• Accident risks</li> </ul>	<ul style="list-style-type: none"> <li>• Capten+Safe Plan</li> <li>• Particular focus on fatal accidents and subcontractors</li> <li>• Evaluation of security risks in certain countries</li> <li>• Whistleblowing and reporting systems</li> </ul>	<ul style="list-style-type: none"> <li>• LTIR, TRIR</li> <li>• OHSAS certification rate</li> <li>• HSE investments amount</li> </ul>
Employees' skills and development	<ul style="list-style-type: none"> <li>• Key personnel departure risk</li> <li>• Loss of skills and expertise risk</li> </ul>	<ul style="list-style-type: none"> <li>• People review</li> <li>• Succession plans</li> <li>• Expert program</li> <li>• Vallourec University</li> <li>• Training Policy</li> <li>• Agreement on the principles of responsibility of the ILO conventions</li> </ul>	<ul style="list-style-type: none"> <li>• Turnover rate and reasons for termination of employment</li> <li>• Social Barometer (response rate/satisfaction rate)</li> <li>• Number of training hours</li> </ul>
Employee relations	<ul style="list-style-type: none"> <li>• Risk of deterioration in the social climate and employees' commitment</li> </ul>	<ul style="list-style-type: none"> <li>• Employer-employee dialog</li> <li>• Agreement on the principles of responsibility of the ILO conventions</li> </ul>	<ul style="list-style-type: none"> <li>• Employee survey</li> <li>• Percentage of the workforce covered by business line or Company collective agreements</li> </ul>
Quality of products and services/customer relations	<ul style="list-style-type: none"> <li>• Claims risk</li> <li>• Image risk</li> <li>• Opportunity to strengthen customer relations</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial Excellence Program</li> </ul>	<ul style="list-style-type: none"> <li>• Number of claims</li> <li>• Severity of claims</li> <li>• Claims processing time</li> </ul>
Corruption	<ul style="list-style-type: none"> <li>• Public markets access risk</li> <li>• Conviction risk</li> <li>• Image risk</li> </ul>	<ul style="list-style-type: none"> <li>• Code of Ethics</li> <li>• Anti-Corruption Code of Conduct Responsible purchasing policy</li> <li>• Internal procedures: supervisors/gifts/sponsoring</li> </ul>	<ul style="list-style-type: none"> <li>• Number of suppliers included in the CSR formal evaluation process</li> </ul>
Equal opportunity/discrimination risk	<ul style="list-style-type: none"> <li>• Non-compliance with the Code of Ethics</li> <li>• Inappropriate compensation</li> <li>• Image risk</li> </ul>	<ul style="list-style-type: none"> <li>• Code of Ethics</li> <li>• Compliance program</li> <li>• Agreement on the principles of responsibility of the ILO conventions</li> <li>• e-learning</li> <li>• Responsible purchasing policy</li> <li>• Whistleblowing and reporting systems</li> </ul>	<ul style="list-style-type: none"> <li>• Number and type of internal/external alerts</li> </ul>

The Consolidated statement of non-financial performance also contains social, environmental, and societal information, information on the fight against corruption and tax evasion, information on human rights initiatives mentioned in Article R.225-105-1 of the French Commercial Code, where relevant to the aforementioned main risks or policies, on a worldwide scope. Unless otherwise specified in the text, all information contained in this chapter refers to Vallourec, all of its subsidiaries as

defined by Article L.233-1 of the French Commercial Code, and the companies Vallourec controls as defined by Article L.233-3 of the French Commercial Code.

A concordance table showing the information required under the aforementioned article and the information presented in this chapter appear in Appendix 4 hereto.

### 4.2.1 Ethics and compliance

Risks relating to ethics and compliance are presented in Section 4.1 "Vigilance Plan" and in Section 5.1.3 "Legal and tax risks" of this Registration Document.

The organization of ethics and compliance falls under the Group's Legal Department. The position of Ethics and Compliance Officer is held by the Group's Legal Director, who helps implement the Code of Ethics and determines, with the Ethics Committee, which the Legal Director leads, the internal compliance policies. The Ethics and Compliance Officer reports to the Chairman of the Management Board.



The Ethics Committee comprises representatives from functional departments (Legal, Purchasing, Human Resources, etc.) and operating divisions. It must hold meetings at least once per quarter in order to determine, at the initiative of the Ethics and Compliance Officer, the ethics and compliance guidelines and ensure they are effectively rolled out.

The Ethics and Compliance Officer relies on a network of 12 local ethics correspondents who are organized by geographic areas, as well as on the legal managers from the operating divisions or Regions. The local ethics correspondents are tasked with disseminating the values and principles of the Group's Code of Ethics in entities worldwide, and making sure that its internal procedures are properly applied. Since 2015, management of the network of local ethics correspondents has been strengthened: they participated in bi-monthly information meetings organized by the Ethics and Compliance Officer, at which internal procedures were presented, along with the current regulatory issues regarding anti-corruption, or with regard to competition rules.

An ethics and compliance newsletter is disseminated monthly to the main senior executives of the Group, to Ethics Committee members, to local ethics correspondents and to the legal managers of Regions or divisions.

Three Group procedures formalize the principles and guidelines that were already contained in the Global Legal Compliance Program, which has been rolled out globally since 2011: the policy relating to recourse to sales agents, gifts and invitations, philanthropy and sponsorship, local partners, lobbying and political life.

Non-compliance with anti-corruption laws and regulations, or with competition rules, exposes the Group's employees to disciplinary sanctions and even termination.

As concerns the application of Law 2016-1691 of 9 December 2016 relating to transparency, the fight against corruption, and the modernization of economic life, the Vallourec Group has launched several actions:

- Vallourec has registered in the new public digital directory of representatives of interest to public bodies of the *Haute Autorité pour la transparence de la vie publique* (High Authority for Transparency of Public Life) (HATVP) and an internal reporting system has been established to formalize an activity report, which is to be sent to the HATVP annually;
- as concerns the obligations to prevent and detect corruption, the internal system has been adapted and strengthened. Accordingly, an Anti-Corruption Code of Conduct has been prepared to supplement the Group's Code of Ethics, and a new professional whistleblowing system, the Vallourec Integrity Line, was rolled out, to supplement the traditional alert methods;
- lastly, in 2018 the Vallourec Group obtained an Ethic Intelligence Program anti-corruption certification for the design of its corruption detection and prevention program. This certification confirms that the program addresses the Group's fraud and corruption risks, and corresponds to the best practices and regulations applicable in the fight against corruption. The certification also allows it to promote and strengthen the Group's values in terms of integrity and ethics with outside commercial partners and stakeholders.

#### 4.2.1.1 Code of Ethics and Anti-Corruption Code of Conduct

The Group's ethical standards are presented in a seminal document, the Code of Ethics.

The Code of Ethics is a set of core values that includes integrity and transparency, excellence and professionalism, performance and responsiveness, respect for others and mutual commitment.

It provides a framework for each employee's day-to-day activities through behavioral guidelines based on these values. The guidelines reflect the way that Vallourec seeks to manage its relationships with all of its partners and stakeholders, including its employees, customers, shareholders and suppliers, and constitute the Group's benchmark in implementing its sustainable development and corporate social responsibility plans.

In 2016, an amended version of the Code of Ethics was adopted and rolled out within the Group to reinforce Vallourec's commitments in the fight against corruption and respect for the rules of competition, while maintaining the values and principles of action with regard to its employees, partners, customers, suppliers and stakeholders. The amended version includes the guidelines already contained in the Global Legal Compliance Program and the procedures published in 2015.

Vallourec's Code of Ethics applies to all Group consolidated companies. Each employee is personally responsible for implementing its values and principles and for complying with the rules it sets out.

The Group's various reporting lines ensure that it is communicated to all Group employees. To that end, it has been translated into eight languages (French, English, Portuguese, German, Chinese, Spanish, Arabic, and Indonesian, the latter two languages were added in 2018). It has also been published on the Company's intranet and website to affirm the Group's values with regard to third parties.

The Code of Ethics is the seminal document with which a certain number of directives and recommendations are associated, which guides Group employees in applying the Code. In an effort to help implement the Code of Ethics with all employees, notably managers, the Ethics and Compliance Officer has the following duties:

- assisting Group companies in communicating the Code of Ethics;
- coordinating actions to educate new employees on the Code of Ethics;
- helping to define the procedures for implementing the Code of Ethics;
- ascertaining any difficulties in interpreting or applying the Code of Ethics that are raised by staff; to that end, the Officer receives any information relating to breaches of the principles of responsibility; and
- preparing an annual report for the Chairman of the Management Board on the Code of Ethics' implementation.

In addition to the Code of Ethics and the existing internal procedures, and in conformity with the current regulations, Vallourec has prepared an Anti-Corruption Code of Conduct. This document constitutes the Vallourec Group's anti-corruption policy. It is intended for all employees, as well as Vallourec's industrial and commercial partners. The Anti-Corruption Code of Conduct recalls Vallourec's commitment in the fight against corruption. It contains definitions and practical examples of prohibited conduct that could constitute acts of corruption or influence peddling. In particular, it covers the way in which Vallourec manages its relations with commercial partners, corporate gifts and invitations, facilitating payments, conflicts of interest, representatives of interests, and the funding of political parties. Lastly, it recalls the various reporting methods available to employees and stakeholders who wish to report non-compliance with the Code of Ethics or the Code of Conduct.

#### 4.2.1.2 Compliance program

Consistent with the principles set out in the Code of Ethics and the commitments of the Global Compact of the United Nations that the Group signed on to in 2010, Vallourec seeks to prevent specific risks relating to competition and anti-corruption, within the framework of a Global Compliance program rolled out in all of the Group's companies.

Developed and coordinated by the Group's Legal Department, this program aims to educate and train the Group's managers, mainly through internal training, on the applicable laws and regulations in these areas. It is designed to respond effectively to the risks managers may face in their activities through detailed, informative and practical recommendations that can be understood by all.

In 2018, training actions were completed worldwide. An e-learning program has also been rolled out since 2014, in an effort to educate all technical and supervisory staff, and managers of the Group, about the laws and regulations on competition, anti-corruption and environmental protection.

The principles enumerated under the Global Compliance Program were formalized in 2015 in the internal procedures relating to recourse to sales agents, gifts and invitations, philanthropy and sponsorship, local partners, lobbying and political life.

In an effort to strengthen the internal communication of the main procedures, in 2017 the Group launched the "Welcome Package." This is a module disseminated via the Learning Management System (LMS) of Vallourec University to all new employees, so that they are aware of the Company's values and workplace rules from the time of their arrival into the Group.

#### 4.2.2 Social policy

The social indicator scope includes companies within the tax consolidation scope. Staff at sales offices are likewise included in this report.

##### 4.2.2.1 Group workforce

##### Changes and distribution

###### BREAKDOWN OF WORKFORCE BY AGE, GENDER AND GEOGRAPHICAL AREA

As at 31 December 2018, □ 19,164 employees worked at more than 50 production sites or under service contracts with Vallourec (short-term or permanent contracts), compared to 20,093 employees in 2017. This decrease primarily reflects the fact that Vallourec has recentered its focus on certain activities in line with its transformation plan, and accordingly stopped its activity in the Drilling sector (approximately 310 people in France, approximately 120 people in the Middle East, and approximately 140 people in the United States). In France, Vallourec also sold its Vallourec Fittings entity (approximately 90 people) in May 2018, and in China, the workforce at Vallourec Tianda (Anhui) Co., Ltd (formerly Anhui Tianda Oil Pipe Company Limited) was decreased by approximately 450 people due to the sale of the Tongcheng plant in January 2018.

#### 4.2.1.3 Tax policies applied – Combating tax evasion

The Group's tax, accounting and/or legal teams (calling on external experts and advisors where necessary) work at a central and local level to ensure:

- implementation of accounting principles, the price transfer policy and suitable procedures to ensure that tax is calculated correctly and paid timely in the countries where it is due;
- identification and request within the legal timeframes of tax relief likely to benefit the Group;
- regular monitoring of the change in legal and regulatory requirements applicable to Group entities, and daily advice and aid to Group employees to ensure proper compliance with the applicable laws and regulations, particularly to combat tax evasion; and
- adequate personnel and/or external advisors to monitor tax audits so that they run smoothly and to enable them to be completed as quickly as possible.

This policy applies to all tax due at all levels of jurisdiction (local, regional, and national).

The Group's entities are regularly audited by the tax authorities to which they are subject.

As at 31 December 2018, no Group entity was involved in a dispute over tax evasion.

### Distribution by geographical area

Country	Number of employees	
	2017	2018
Brazil	6,784	6,752
France	3,621	3,025
Germany	3,495	3,403
United States	2,052	2,019
China	2,105	1,730
Indonesia	457	744
United Kingdom	387	328
Mexico	322	336
Saudi Arabia	192	191
United Arab Emirates	181	77
Malaysia	241	334
Other regions	256	225

Workforce as at 31 December (permanent and short-term contracts)	2017	2018	Change 2017/2018	2017 Breakdown	2018 Breakdown
Europe	7,559	6,790	-10.2%	38%	35%
Brazil	6,784	6,752	-0.5%	34%	35%
Asia	2,912	2,911	0%	14%	15%
NAFTA (United States, Canada, Mexico)	2,406	2,386	-0.8%	12%	12%
Middle East	374	269	-28.1%	2%	1%
Africa	58	56	-3.4%	NS	NS
<b>TOTAL</b>	<b>20,093</b>	<b>19,164</b>	<b>-4.6%</b>	<b>100%</b>	<b>100%</b>

### Breakdown by gender

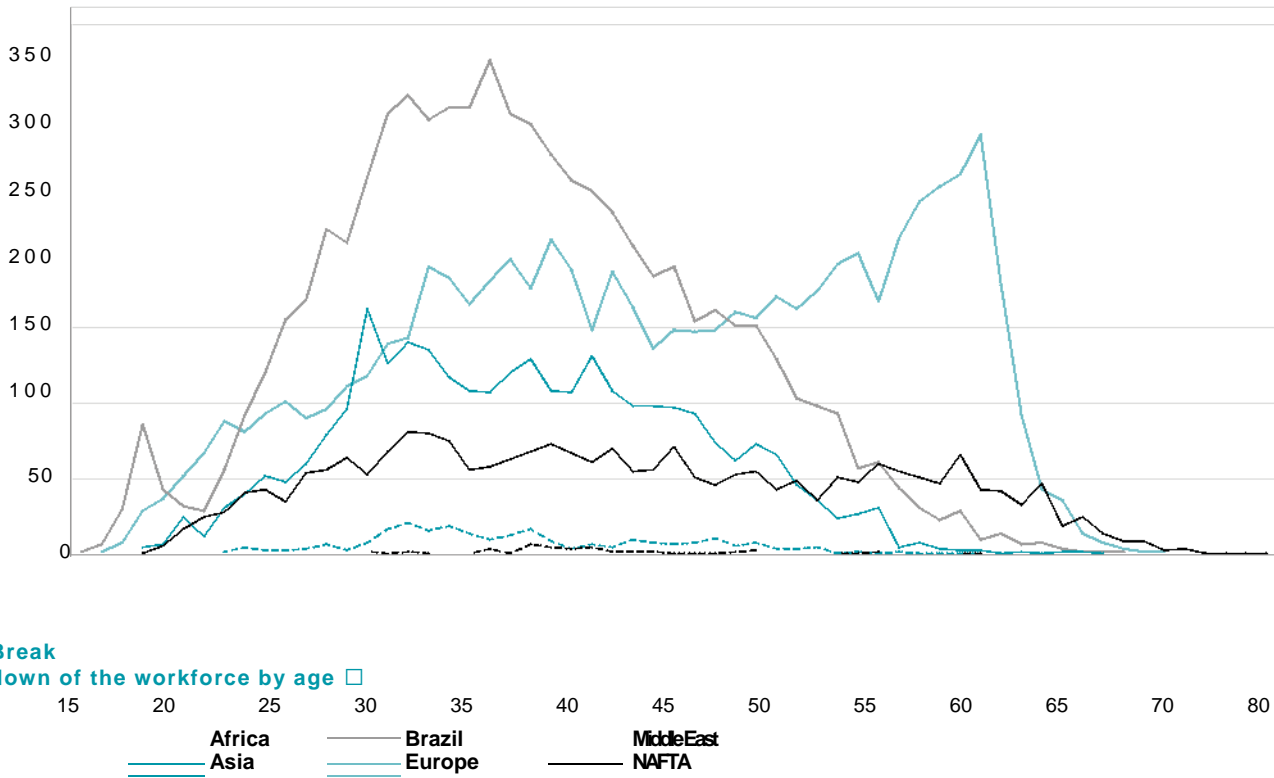
As at 31 December 2018, the Group had 2,190 women (2,048 with permanent contracts), which represents 11.4% of the total permanent workforce. Marginally present in the category of production staff, women mainly hold administrative and commercial positions. They represent 30% of the Group's technical and supervisory staff (administrative personnel, technicians or field supervisors), and 22% of its managers. The proportion of women remained unchanged for the 2017-2018 period by area, for the Group as a whole.

% of women (permanent employees)	Production staff		Technical and supervisory staff		Managers		Total	
	2017	2018	2017	2018	2017	2018	2017	2018
Europe	2%	2%	33%	33%	23%	22%	12%	12%
Brazil	5%	5%	26%	29%	24%	25%	10%	10%
Asia	13%	12%	28%	28%	17%	16%	16%	16%
NAFTA (United States, Canada, Mexico)	1%	2%	26%	27%	23%	22%	10%	10%
Middle East	-	-	15%	15%	11%	17%	6%	8%
Africa	9%	8%	14%	13%	-	-	11%	11%
<b>WORLD</b>	<b>5%</b>	<b>4%</b>	<b>29%</b>	<b>30%</b>	<b>22%</b>	<b>22%</b>	<b>12%</b>	<b>11%</b>

### Breakdown by age

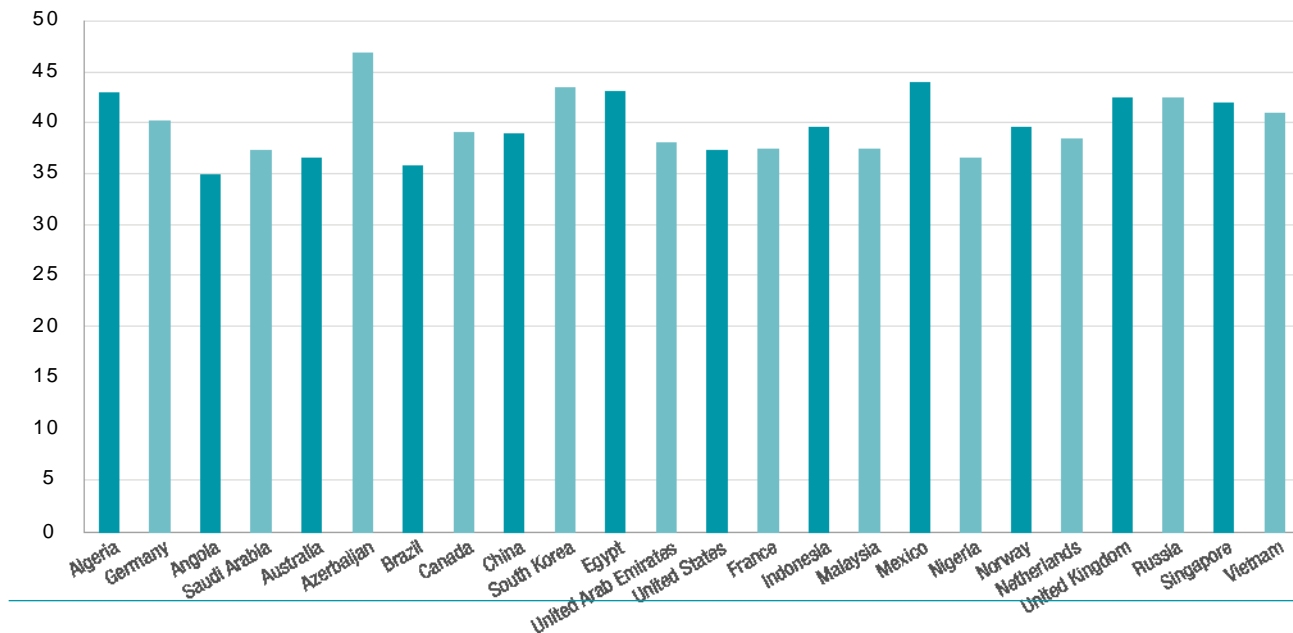
The age pyramids show significant disparities in terms of geographical areas.

The Brazilian employee population is young, with a strong concentration in the 25 to 40-year-old segment. In the NAFTA region, the distribution of the population among the various age categories is well balanced. Asia has practically no employees older than 55. Conversely, Europe remains marked by a large number of employees over age 50 (approximately 37% of the European population). The staff breakdown by age range has not changed in comparison to the previous year.



These disparities are also reflected in the average age of employees in the main countries where the Group is established.

**Average age by area and country**



**BREAKDOWN OF THE WORKFORCE BY PROFESSIONAL CATEGORY AND TYPE OF CONTRACT**

**Breakdown by professional category**

Production staff represents two thirds of the workforce.

Technical and supervisory staff includes administrative personnel, technicians and field supervisors, who account for 16% of the workforce. Managers likewise represent 16% of the workforce.





**Breakdown of workforce by category in 2018**

In 2018, the proportion of executives and technical and supervisory staff remained unchanged from 2017.



Group's registered workforce by professional category	2017	2018
Managers	3,210	3,128
Technical and supervisory staff	3,205	2,924
Production staff	13,678	13,112
<b>TOTAL</b>	<b>20,093</b>	<b>19,164</b>

Breakdown of registered workforce	Production staff		Technical and supervisory staff		Managers		Total	
	2017	2018	2017	2018	2017	2018	2017	2018
Europe	23%	22%	8%	7%	7%	7%	38%	36%
Brazil	26%	27%	3%	3%	5%	5%	34%	35%
Asia	11%	11%	2%	3%	1%	1%	14%	15%
NAFTA	7%	8%	2%	2%	3%	3%	12%	13%
Middle East	1%	1%	< 1%	< 1%	< 1%	< 1%	< 2%	< 1%
Africa	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%
<b>WORLD</b>	<b>68%</b>	<b>68%</b>	<b>16%</b>	<b>16%</b>	<b>16%</b>	<b>16%</b>	<b>100%</b>	<b>100%</b>

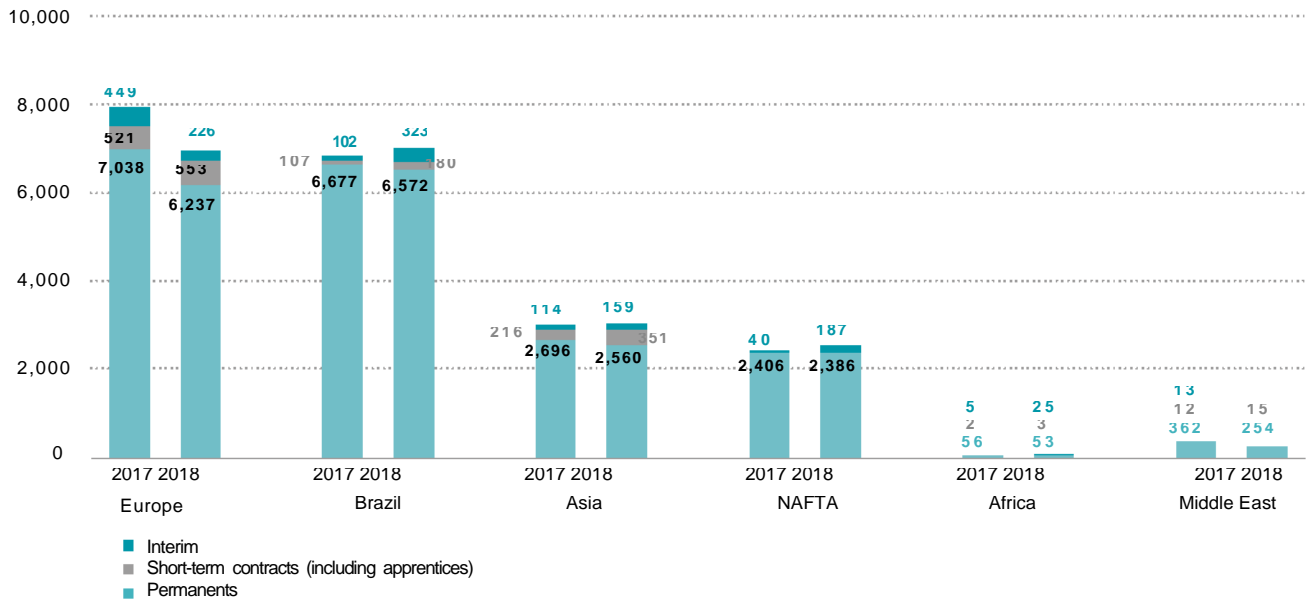
Nearly 50% of production staff are still located in Europe and Brazil, while 21.5% of managers and technical and supervisory staff are located in this same area.

In 2018, the production staff population still accounted for approximately 68% of the Group's total workforce, which is consistent in comparison to 2017.

**Breakdown by type of contract**

Due to the highly cyclical nature of its markets, Vallourec has to be able to adapt rapidly to changes in activity. As a matter of policy, it maintains a permanent workforce (via permanent contracts), which allows it to meet the needs of its ongoing operations, and temporary workers (under short-term and temporary contracts) to cope with surges in activity. For planning purposes, the permanent staff is managed on the basis of a model workforce involved in a standard activity for three to five years. Changes in peak or trough activity are handled via flexible local solutions (e.g., loans between plants, working-time adjustments in Europe, temporary staff and short-term contracts).

**Breakdown between permanent, short-term (fixed-term contracts and apprentices) and temporary workforce**



At the end of 2018, there were 18,062 permanent workers worldwide, compared to 19,235 at the end of 2017.

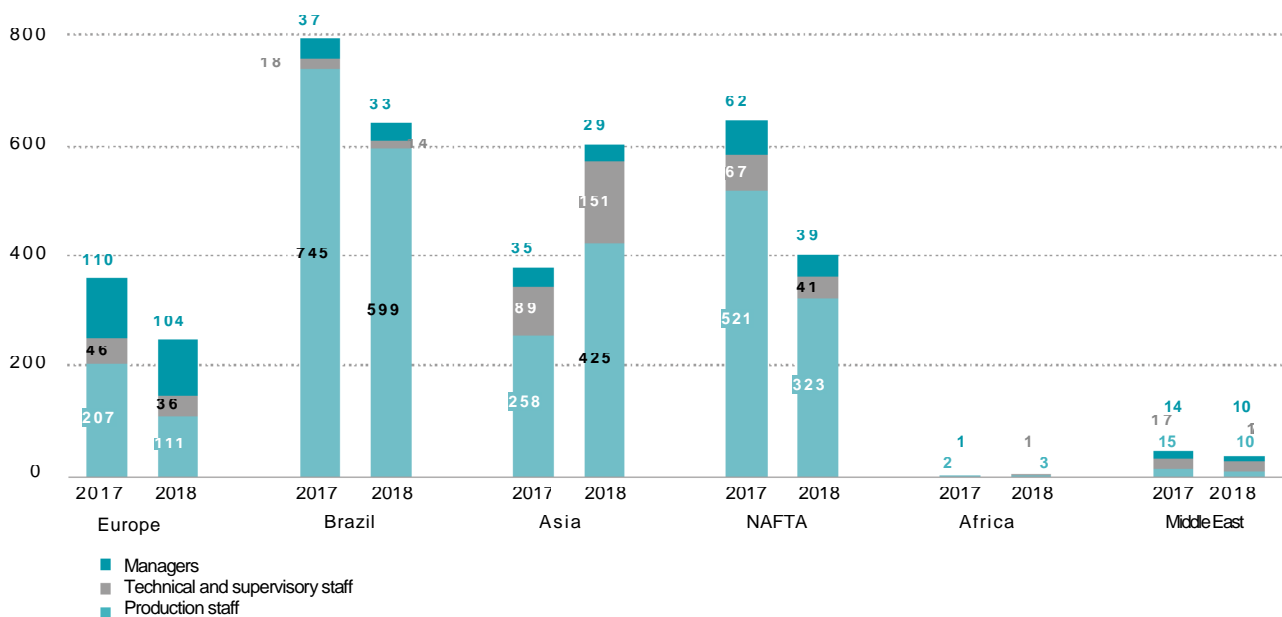
**Entries and departures**

**NEWHIRESANDTRANSFERS**

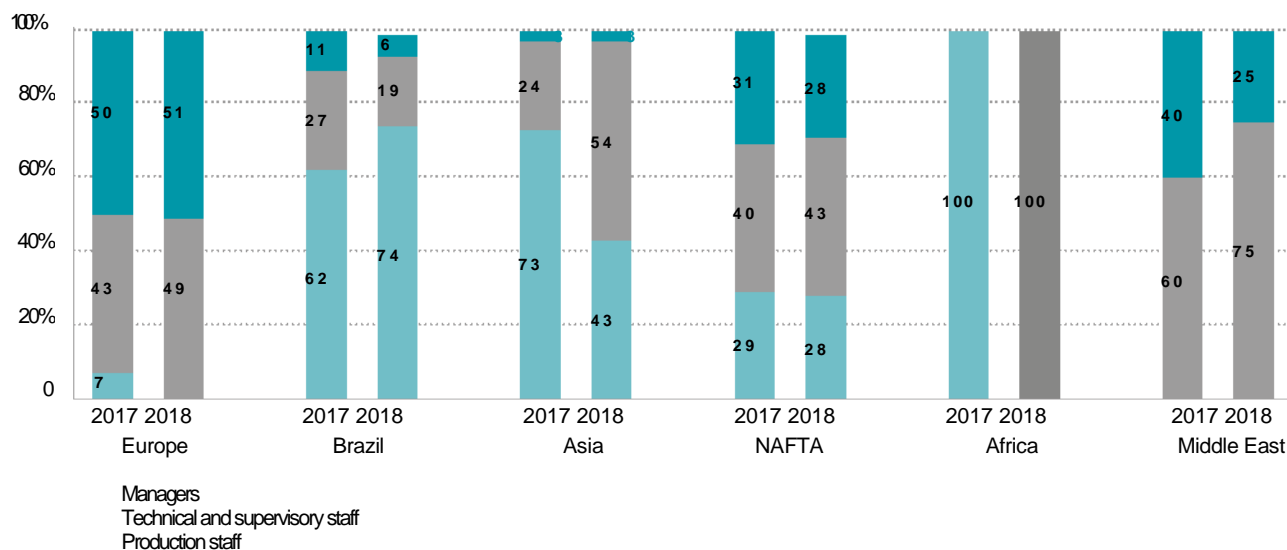
New hires of permanent workforce were lower in 2018 in all areas except Asia. The new hires should be considered in parallel with the departures for the same period and same area. Accordingly, while hiring increased in the Asia area in 2018, so did departures, and to a higher degree. Consequently, the permanent workforce in Asia also decreased as it did for all other areas.

The breakdown of new hires by professional category and geographical area is as follows:

**Breakdown of new hires by professional category**



## Breakdown of new hires of women by professional category



For all areas except Brazil, female employees were primarily hired in the professional categories of technical and supervisory staff, and managers. Female new hires in the production staff category remain significant in Brazil. The percentage of new hires in this production staff category rose from 62% in 2017 to 74% in 2018. The proportion of women in the Group remained unchanged at 11%. The Group's policy, as defined by the Management Board in 2016, focuses on two objectives, which are increasing the number of women in operations-related positions, and improving women's access to leadership roles.

## DEPARTURES

In 2018, the Group's permanent workforce dropped 6%, and its non-permanent workforce rose

## 28%. Turnover rate by area

Turnover rate (permanent workforce)	2017	2018
Europe	10%	10%
Brazil	10%	10%
Asia	12%	26%
NAFTA	23%	17%
Middle East	12%	26%
Africa	6%	11%

The turnover rate includes departures and arrivals for the year in question and is defined as follows:

$(\text{number of departures} + \text{number of arrivals for the year}) \times 2 \times 100 / (\text{workforce as of 31/12 of the preceding year})$ . This takes into account departures, arrivals and transfers within areas.

## Reasons for termination of employment contract by area

	Retirement benefits		Resignation		Dismissal		Other reasons	
	2017	2018	2017	2018	2017	2018	2017	2018
Europe	30%	23%	14%	16%	11%	12%	45%	49%
Brazil	1%	1%	4%	6%	93%	89%	2%	4%
NAFTA	12%	5%	41%	37%	43%	52%	4%	6%
Asia	4%	2%	87%	93%	6%	3%	3%	2%

In Brazil, given the employment regulations, dismissal is the method by which contracts are typically terminated. In line with the restructuring plan, the use of dismissals continues to be significant in 2018, with a ratio close to that of 2017.

In the NAFTA area, the number of dismissals increased, in particular following the sale of the Drilling business.

In Europe, 66% of contract terminations were for reasons other than retirement, resignation, or dismissal ("Other reasons"), or were related to the disposals of the Altifort-SMFI and Interfit entities.

## Organization of working time

## RATE OF WORK

The Group's policy is designed to provide flexibility and responsiveness in order to adapt to customer demand.

Working patterns enable the Group to adjust plant operations to production requirements. Most production sites have adopted a system

of continuous shift work (24 hours a day), five or six days per week using three, four or five rotating teams.

In order to minimize the arduous nature of working patterns, research is being done in conjunction with occupational physicians and employees into the structuring of working patterns to coincide with physiological rhythms. This research is then followed by trials.

Innovative solutions have been implemented, which depend heavily on cultural factors and applicable national laws.

In order for the Group to meet the need to adapt to economic conditions, whenever possible, hourly cycles were reduced (2x8 from 3x8, or to 3x8 from 5x8, etc.).

## WORK TIME

The following table shows the number of hours worked and the average number of overtime hours worked in the last two years. It is based, for each area, on the number of hours worked by the registered workforce.

	Average number of hours worked per employee		Including average number of overtime hours worked per employee during the year	
	2017	2018	2017	2018
Europe	1,458	1,435	65	52
Brazil	2,003	1,998	154	140
NAFTA	2,345	2,340	423	402
Asia	2,484	2,358	562	479
Middle East	2,390	2,104	395	187
Africa	1,795	1,955	162	300

Average number of hours worked per employee	2017	2018
China	2,604	2,479
United States	2,381	2,387
Indonesia	2,243	2,307
Mexico	2,170	2,108
Saudi Arabia	2,563	2,105
United Arab Emirates	2,208	2,103
Singapore	2,071	2,068
Nigeria	1,786	2,009
Brazil	2,003	1,998
Azerbaijan	1,888	1,935
Egypt	1,920	1,920
Malaysia	2,022	1,915
South Korea	1,920	1,760
United Kingdom	1,795	1,749
Canada	1,861	1,733
Angola	1,833	1,703
Australia	1,724	1,657
France	1,419	1,437
Germany	1,463	1,401
Norway	1,560	1,399
Russia	1,316	1,105
Netherlands	1,647	1,080

Although overtime hours do not apply to managers, the average number of overtime hours has been calculated for the entire permanent workforce (registered workforce), including managers.

#### INDIVIDUAL WORKING ARRANGEMENTS AND PART-TIME WORK (FRANCE)

In France, nearly all technical and supervisory staff benefit from individual working arrangements, enabling them to set their arrival and departure times based on personal needs and the requirements of their Department.

On a trial basis, a telecommuting program was put in place at the headquarters after consulting with staff representatives.

#### ABSENTEEISM

The rate of absenteeism is calculated by comparing the aggregate of all paid leaves (including for illness, maternity, workplace accidents or commuting accidents) with the total number of hours actually worked. In every country, it is in the low average of the rates of comparable industries.

In 2018, the absenteeism rate at the Group level remained unchanged at 3.9%. Nevertheless, absenteeism improved in all areas except Europe, where it increased in 2018.

Rate of absenteeism	2017	2018
Europe	6.2%	7.0%
Brazil	3.0%	3.0%
NAFTA	2.7%	2.3%
Asia	2.3%	1.7%
Middle East	0.9%	0.8%
Africa	1.5%	0.8%
<b>TOTAL</b>	<b>3.8%</b>	<b>□ 3.9%</b>

#### 4.2.2.2 Health and safety

Health and safety risks are presented in Section 5.1.2. "Operational risks" of this Registration Document.

### Safety

#### Commitment to responsible performance

- > Ensure the safety and protect the health of our employees
- > Offer each employee good working conditions

#### INDICATOR

The frequency rate of accidents with or without lost time (Total Lost Time Injury Rate or LTIR, and the Total Recordable Injury Rate or TRIR): number of accidents reported per million hours worked.

#### 2018 OBJECTIVES

To achieve an LTIR of 1.2 and a TRIR of 2.8 (including the performance of subcontractors).

#### ACHIEVEMENT OF THE 2018 OBJECTIVE

The Group achieved an LTIR of 1.02 and a TRIR of

2.97. **2019 OBJECTIVE**

To continue our efforts to achieve an LTIR of less than 1 and a TRIR of less than 2.5.

Safety is the Group's main priority, and it aims to become a benchmark and a model for success in this area. At the end of 2018, 98% of Vallourec sites were OHSAS certified<sup>(1)</sup> and represented 100% of production in metric tons.

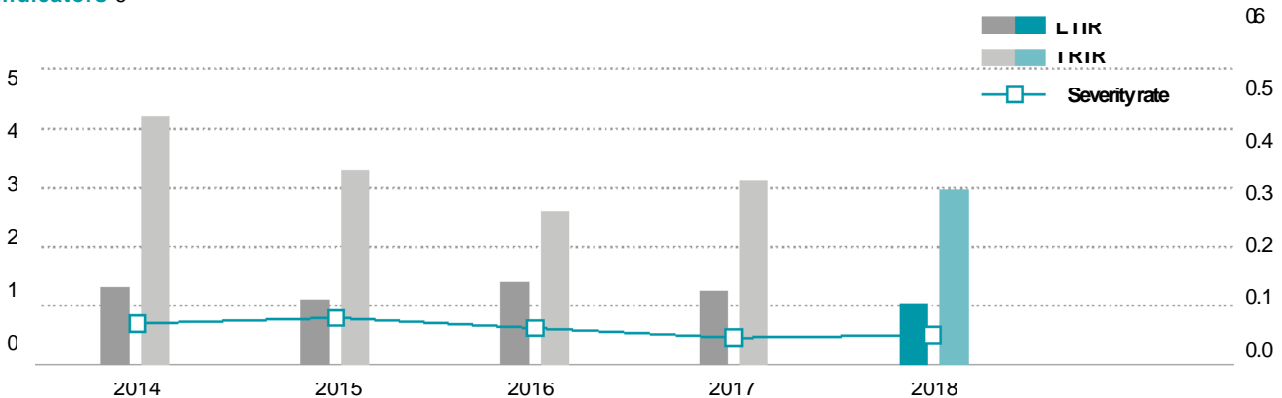
Vallourec has been committed to its "CAPTEN+ Safe" safety improvement program for several years. The program has been renewed each year with a particular focus on the major risks that could lead to a fatal accident and, starting in 2016, a specific focus on subcontractors.

Since 2016, the performance indicators have incorporated subcontractors, Vallourec staff, and temporary workers.

At the end of 2018, the LTIR<sup>(2)</sup> was □ 1.02 and the TRIR<sup>(2)</sup> was □ 2.97. The Group has not reported any fatal accidents in the last four years.

In 2018, the Severity Rate (SR) of the Lost Time Injury Rate was 0.050.

#### Change in safety indicators 6



(1) OHSAS 18001: International guidelines relating to occupational health and safety, published in 2001 under the authority of the International Labour Organization.

(2) Considering the Group's employees, temporary staff and subcontractors.

Whenever an accident involving lost time or a potentially serious incident occurs, the Group Executive Committee is informed immediately.

The safety improvement program includes the following measures at all Group sites:

- safety management committees at all levels of the Company;
- ongoing risk assessment for safety concerns, as well as a program to reduce the highest risks;
- more targeted action to reduce risks that could lead to a fatal accident (maintaining loads, working from heights, lockout-tagout of equipment, confined spaces);
- safety inspections;
- continuous improvement teams (CITs) on safety issues;
- systematic communications at workstations concerning safety issues;
- strong involvement of the entire managerial line to report and address safety issues;
- strong employee involvement to stop and report any situation involving risk;
- eight golden rules, which are grouped into eight chapters/themes: “my attitude to safety”, flow of machines and pedestrians, lifting, manual tools, working at height, confined spaces, energies and lockout-tagout procedures (LOTO), and health protection. An e-learning tool focusing on these eight golden rules, translated into the languages used in the Group, is available to all employees.

As from 2017, each reported accident is analyzed for actual and potential severity, relying on an internal scale (level 1: minor accident, level 8: fatal or potentially fatal accident). Beyond merely calculating days lost, this approach provides depth to the analysis of causes and allows corrective actions to be taken at the Group and regional levels.

In 2018, accidents were primarily to the hands (42%), shoulders (8%), legs (7%) and back (6%).

For the total accidents and near-misses reported, the golden rules broken mainly concerned conduct (36%), maintenance operations (21%) and manual tools (16%).

Education and training about safety rules is mandatory for all new employees of the Group and includes frequent follow-up. The programs for temporary staff have now been extended to subcontracting companies, just as for the permanent workforce.

Each year, a day is devoted to safety in all of the Group's sites. This is the time to raise awareness about safety issues in multiple ways among all employees, in particular through specific workshops (risks to hands, load handling, driving forklifts, working from heights, evacuation exercises, etc.) during which production is suspended. A great number of Top managers make special trips to sites for this event. The site recording the best safety performance also receives a specific honor on that day.

Staying on course to control or eliminate dangerous operations that could lead to fatal accidents, strengthening the risk analysis methodology to better understand unusual situations, developing the leadership of the management line, and employee interdependence are priorities for 2019.

In an effort to signal its commitment to safety issues, the Supervisory Board has included safety objectives for several years in the variable portion of the Management Board members' compensation, as well as in that of the main managers in charge of supervising staff at the sites, i.e., nearly 2,000 managers.

## Health

### HEALTH POLICY

In 2018, the Group did not sign any collective agreements regarding occupational health and safety. However, the Health and Safety policy that was updated in 2016 contains a more robust health section. Entities thus aim to gain further knowledge about the health risks specific to their processes, and determine the means to eliminate or attenuate them locally.

In 2018, the Executive Committee nevertheless decided to ensure that all health risks had been sufficiently taken into consideration, and to implement overall reporting, which would take effect in 2019, creating a Health Committee. There are indeed various issues that relate to the health of Vallourec's employees. As concerns our process, chemical risk (see below), noise, air quality and the ergonomics of workstations have been the subject of structured adaptation plans for several years. The issues also concern medical follow-up of employees, the risks of psychosocial risks to which they could be exposed, and the ability to offer them adapted health coverage. Lastly, the Group's health policy must also ensure that the products used for its customers' operations are safe.

### PREVENTION OF CHEMICAL RISK

The safe use of chemical products and substances is of critical concern to Vallourec, which has had a dedicated plan in this regard for numerous years. The database containing their details is regularly updated to ensure rigorous monitoring of developments and thus prevent the risks of harmful effects. Three points should be emphasized:

- a) In 2016, this basis was optimized to better assist the HSE teams in determining the danger of products, and thus establish adequate means of prevention. The application also evolved to take into account the new globally referenced classification system (GHS) as well as all of the new regulations resulting therefrom. The new functionalities were first rolled out at French sites. The rollout has continued since 2017 in Germany, the United States, Brazil, and China.

This tool also evolved to integrate the evaluation of chemical risk at the workstation. The French sites began to deploy the method at the end of 2017. This functionality has gradually been extended to the Group's other sites, and will be fully operational in Europe and Brazil in 2019.

- b) All products or substances entering production sites are monitored and authorized by local HSE managers. Medical services are regularly called in to provide a full risk assessment. Legally required checks on the atmosphere in the work environment are conducted, and this information is included in risk assessments.

c) Lastly, the impact of chemical risk is likewise studied from the initial stage of investment and R&D projects in an effort to take all prevention criteria that should be associated with them into account. Several R&D investment projects were thus validated at the Corporate level from a chemical risk perspective. The most at-risk projects are monitored and validated at each stage, through to industrialization on-site. This process is the result of close collaboration with process communities and purchasing teams. For example, the development of the next generation of grease-free coating for our connections (Cleanwell Dry 2) has allowed us to define and establish use of CMR products via closed-cup systems, and thereby guarantee zero contact to ensure maximum staff protection. These highly secure processes were then monitored by local HSE teams.

### PRODUCT SUBSTITUTE PLANS

Changes in legislation and improved knowledge about the toxicity of substances increase the number of products that are identified as CMR each year. Plans to substitute critical products have been defined and, in conjunction with R&D and the suppliers, the HSE teams have devised test and qualification programs for substitute products. These programs can sometimes take a long time and, in some cases require the manufacturing processes to be adapted or adjusted.

At the end of 2018, 78.7%<sup>(1)</sup> of the 390 plant items identified as CMR<sup>(2)</sup> were replaced<sup>(3)</sup> (67.2% in 2017 within the ISO scope). Consideration of changes in the Group's industrial scope, as well as the rollout of the new GHS classification system, resulted in an additional list of products that had not yet been identified as CMR, and in new substitution actions being undertaken. This progress is the result of the actions taken, but also of the development of the Group's industrial scope.

As mentioned above, there are still 29 industrial uses of distinct CMR products that have however remained identified as non-substitutable due to technical problems or a lack of substitute on the market; 18 other uses are linked to compartmentalized laboratory testing techniques. Their uses are thus monitored by the HSE teams and the Environment Department, which, in 2018, conducted chemical risk audits on the industrial processes using CMRs, to verify that the protection measures did not present any major defaults. Oversight plans have been established and monitored by the local teams.

The specific action plans rolled out at the Group level continue to develop, and concern:

- a) refractory ceramic fibers: Vallourec has written and circulated a single set of instructions for all countries. The materials containing this type of fiber present in furnaces are progressively dropped off during maintenance operations when an alternative solution is available. In 2018, the low number of furnace maintenance programs did not allow for much progress on RCF substitutions. The substitution percentage in the identified areas is around 59% for the new industrial scope;
- b) lead dope: tests and qualifications allowed us to list the substitution greases to use on the threading that is not subjected to high temperature according to the type of connections and environments of use. Leaded grease nevertheless is still not substitutable under certain extreme conditions. It is currently only used when operating conditions do not allow for any other options. In 2018, the sites used 297 metric tons of grease, including 11% leaded grease (25% of 175 metric tons in 2017), a significant decrease in absolute value;
- c) nickel phosphates: in 2017, the competent process community, known as VAM, rolled out a test program with the three concerned suppliers to validate three Ni-free solutions. This collaborative work

with these three suppliers has enabled worldwide supply coverage, and has also allowed the process parameters to be optimized to ensure gains on energy consumption, processing time and waste production. The three solutions were approved and presented by this process community at the plants at a specific meeting. In 2018, the Group gave the "Vallourec Environment Award" to this same community, for its work on substituting nickel salts in phosphating processes. The substitution programs began to be rolled out site by site in 2018, with the support of the Community, and this process will continue in 2019.

Other programs are conducted jointly with R&D, the plants and the suppliers in an effort to reduce CMR use. The use of borax, for example, is a common subject at several sites, which was taken up by another process community.

### 4.2.2.3 Social relations

#### Employer-employee dialog

Wherever the Group is established, it has made employer-employee dialog a priority. This is organized in each country, in accordance with local regulations. To date, at least 82% of the workforce are covered by industry- or company-wide collective agreements.

- Within the Group, an employee representative appointed by the Group Committee has chaired the Supervisory Board since the end of 2017.
- In Europe, the dialog occurs at several levels:
  - a European Committee, comprised of 30 French, German and British representatives, meets at least once a year, alternating between France and Germany. It meets with Management, which provides information about changes in the Group's activities, results and strategy;
  - a European Committee office is also in session five times a year, and regularly meets with Management to discuss the Group's future, along with other European issues. In 2018, several special meetings allowed office members to really understand the economic and industrial issues impacting the Group's competitiveness, along with the action plans linked to the Group's transformation, in particular the adaptations to be made in the Europe/Africa region;
  - additionally, European employee shareholders are represented by a Supervisory Board for employee shareholding funds. They meet with Management twice a year. An employee representative is chosen from among them, who then serves on Vallourec's Supervisory Board.
- In France:

The Group Committee has 23 representatives chosen by the trade unions from among those serving on the works councils. It meets once a year in the presence of the Management Board and receives general information about the Group (examination of financial statements, activity, investments, etc.) It is assisted by a certified public accountant. It is also involved in managing employee benefits and savings plans. In each company, works councils or central works councils, elected consultative committees or staff delegates, as well as health and safety and working conditions committees are associated with the business or institution's management. Additionally, the works councils manage social activities (participation

(1) Note that the products identified as non-substitutable are considered as substituted and included in the percentage calculated.

(2) Chemicals or preparations may have various adverse effects on human health. These are classified into "CMR" categories. Within the meaning of Article R.231-51 of the French Labor Code, substances or preparations are considered CMR agents when they are carcinogenic (C), mutagenic (M) and/or toxic for reproduction (R).



*(3) Some sites reported their inventory. New substances have also been officially classified as CMR.*

in the financing of health contracts, organization of trips, Christmas gifts, sporting activities, etc.). The union organizations that obtained more than 10% of the votes in works council or elected consultative committee elections, are the managerial contacts for negotiations.

The negotiation of an agreement on employer-employee dialog, which began at the end of 2017 and integrated the establishment of Economic and Social Committees within the French facilities, continued in 2018. This negotiation resulted in the signing of an agreement with the representative union organizations at the Group level. This is part of a tradition of corporate relations at Vallourec and clarifies the principles that allow it to maintain a high-quality employer-employee dialog about the economic, industrial, and social issues Vallourec must face.

The sales of Vallourec Fittings and Vallourec Drilling Products France, as well as the employment protection plan concerning the Saint-Saulve establishment, have also been carried out with due regard for the staff representative bodies and the applicable information-consulting processes. A majority collective bargaining agreement was also signed with the union organizations concerning the social support measures provided for by the employment protection plan.

Moreover, negotiations began for introducing telecommuting in France, as well as a job and skills planning program. These negotiations will continue in 2019.

Lastly, the employee negotiations that took place at the end of the year resulted in agreements being signed in the majority of companies.

- In Germany:

In 2018, the main priorities were the improvement of Vallourec Deutschland (VAD) and the newly implemented Transformation Plan and VAD Recovery Plan.

In the course of the VAD Recovery Plan, massive restructuring within the organization and a far-reaching reduction in staff numbers, increasingly in the white-collar sector, were initiated. In addition, preparatory talks were held on the deviation from the collective bargaining agreement.

- In the United Kingdom:

Employees are represented through two trade unions (Community Union and Unite Union) which represent production, administrative and technical workforce. 2018 negotiations concerned the wage policy, holidays and bonus schemes which resulted in an amendment to these schemes and rules surrounding them. Negotiations also related to HR policies and conclusion of the changes to the Defined Benefit Pension Scheme.

- In North America:

In Mexico, the union mainly represents production staff and is represented by a collective bargaining agreement. The union, for which dues and membership are mandatory, can propose candidates for promotions among these employees, a list of whom is drawn up in accordance with the agreements. Negotiations concern salaries and benefits in kind.

In the United States, as required by law, employees can choose to be represented by a union and a collective bargaining agreement; so far, employees have consistently voted against union representation. The last formal union election was held in 2014 in Vallourec Star sites, in Youngstown (Ohio, USA).

In 2018 Vallourec continued to encourage employee engagement through the continued communication plan that was launched in 2016. The plan includes Town Hall style meetings, which are open dialog with the workforce, intended to discuss any item that workers bring up with a short business update. The meetings are opened to all employees, which allows them to gather to know more on the state of business and major projects or change initiatives with a short time allowance for Q&A from the workforce. Round-table discussions with the President/Plant Management and HR Manager and with a small cross-section of the workforce randomly selected to allow a discussion on their likes and dislikes and other items the participants would like to discuss.

The Semi-Annual Pulse Program was expanded to all U.S. operations locations. The Pulse Survey is a short, 22 anonymous questions, survey and action program giving the employees another tool to express their voice and find solutions to improve the working relationship within the teams. The focus of the Pulse is local items, not plant or global policy but situations that the employees can be empowered to change to make things better.

A new program was introduced in the Region that focused on employee empowerment and described as The Big Opportunity (TBO) where over 1,000 employees volunteered to identify and engage in innovative ways to help our customers, streamline our processes, and improve our business. This program connected our employees' strengths or passions with opportunities and is reinforcing our commitment to the Vallourec Values of Transparency, Performance and Responsiveness, Respect for People and Joint Commitment.

All these efforts are only a small number of activities that has led our workforce to believe Vallourec is a great place to work. We are proud that the North American Region of Vallourec was awarded "The Great Place to Work" certification in November 2018.

- In South America:

In Brazil, employees are represented by trade unions, which are formed by employees not only from Vallourec, but also from other companies that integrate their territorial base.

There are legal criteria that establish the obligation of an union representation, according to the territorial location of the Company and its preponderant activity. Thus, for each unit in Brazil there is a different union representing the employees.

These unions are responsible for bargaining salary and benefits increases as well as the work conditions. The negotiations conducted in 2018 for all employees resulted in a salary increase equivalent to the inflation rate of the last 12 months in all plants (except for Mining, where the increase was a bit over the inflation rate at 0.39%, i.e., total salary increase: 4%)

Moreover, the employees are also represented by the *Conselho Representativo dos Empregados* (Employee Representative Council – CRE) that is a legal obligation for all plants that have 2,000 or more employees, since November 2017. This Council provides employee's representation internally and facilitates discussions on specific daily matters such as catering, transportation, restrooms, etc. The CRE cannot be involved in matters that are negotiated by the trade Union. It plays a complementary role.

- In China:

Employee representatives or works councils exist in some entities, and the employer has regular communications with those representatives. In any way, Vallourec encourages employees to have representatives. In the entities without employee representatives, employer-employee dialog occurs through direct contact between the production staff and management via internal communication meetings. Should employees request it, the setup of a trade union will have to be planned.

### Internal survey on employee satisfaction (“Social Barometer”)

Vallourec conducts a survey at regular intervals (twice a year) with all of its employees worldwide to find out their perception, expectations and concerns. The survey is used to measure the level of satisfaction, motivation and commitment of employees.

It ensures that employees’ responses will be kept completely confidential.

The last survey conducted in November 2018 achieved a good rate of participation (51.6% response rate) and yielded a significant satisfaction score (72.8%), slightly higher than in the March 2018 satisfaction survey. As in previous years, the pride of belonging to the Company, the work atmosphere, as well as the strong level of independence given to employees appear to be the main motivating levers.

Following the survey, action plans were begun or extended to respond to employees’ expectations concerning the standards of excellence defined at the Group level.

#### 4.2.2.4 Compensation and benefits

##### Payroll

In 2018, Group payroll, excluding temporary workers, totaled €958 million:

- €750 million in salaries;
- €16 million in employee profit sharing;
- €0.4 million in expenses associated with share subscription or share purchase options and performance shares;
- €192 million in social security costs.

Breakdown of payroll costs by country:

Breakdown of total payroll costs	2017	2018
Germany	22%	22%
Brazil	24%	21%
China	2%	3%
United States	21%	23%
France	24%	23%
Mexico	1%	1%
United Kingdom	2%	3%
Other	4%	4%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

### Group internal communications

Internal communication has a major role in Vallourec’s operations. It allows employees to be connected worldwide and to create a true sense of belonging to the Group. The goal of internal communications is to engage Vallourec’s employees and have them adopt a common vision, plan and values and to support change. Vallourec maintains dialog with its employees and provides information through various channels:

- a new intranet, My Vallourec, which was launched in January 2019, is used by approximately 8,000 employees in some twenty countries. My Vallourec was designed to combine the Group’s various intranet site into a single platform, giving employees simplified access to local and corporate information. It offers an environment based on Office 365, which is more ergonomic, consistent, modern, and above all more open. The information provided on My Vallourec allows you learn more about the strategy, objectives, results and success of teams worldwide. A bi-monthly e-newsletter also presents site news;
- My Vallourec is supplemented by the business social networking site Yammer, which allows employees to have discussions, share knowledge and best practices via dedicated communities, and by Teams, a hub designed to promote teamwork;
- specific communication on certain projects that educates employees about key issues in the Group – safety, digital, major HR projects, ethics and values, the environment – or involves them in important matters (Innovation Challenge, major projects impacting Group life, etc.); and
- at annual conventions or local meetings, the Group’s executive management team visits employees to share information and gather feedback.

The Group’s internal communications are also based on local resources in the countries and subsidiaries, which relay messages, provide feedback from the field and raise topics of interest within their own channels (magazines, intranets, etc.).

## Employee profit sharing

Profit sharing plans are designed to associate employees with the Company's performance. In 2018, this amounted to €16 million.

In France, a Company savings plan (PEE) and retirement savings plan (PERCO) allow employees to invest the money they receive from profit-sharing in order to build up savings with a favorable tax status and to benefit from employer contributions.

## Employee shareholding

The Group did not continue the Value employee shareholding plan in 2018.

Shares held by employees represented 3.70% of Vallourec's share capital as at 31 December 2018, compared to 4.19% as at 31 December 2017.

## Other benefits

In almost all countries, except in African and Middle East countries, employees benefit from a healthcare coverage system for themselves and their families. During business travel, a medical service guarantees they will be cared for under the best conditions.

Multiple activities of a social, sporting or cultural nature are organized within the subsidiaries. They take on different forms according to the structures: company orchestras or choirs, organization of tourist trips, sporting competitions or parties and the funding of vacation camps for children. The goal of these activities is to bring people together outside of a strictly professional framework, to support and strengthen connections among employees.

### 4.2.2.5 Employee development

In an effort to prevent and mitigate the occurrence of the human resource-related risks described in Section 5.1.2 "Operational risks" of this Registration Document, the Group is implementing a set of employee development programs and policies.

## Talent management process

Vallourec assists its employees throughout their careers, revealing and cultivating their talents thanks to several programs and initiatives that are rolled out within the Group.

### TALENT 360

#### Annual interviews

The talent management information system, known as Talent 360, used throughout the Group, is one of the tools used to evaluate skills, manage objectives and assess the potential of the population of managers. Implementation of this tool, supported by the strong involvement of all managers, enabled performance reviews to be standardized and systematically structured on an annual basis.

The annual interview was overhauled in 2018 in an effort to further incorporate feedback from peers or employees when evaluating overall performance. This tool is also accessible to technical and supervisory staff in certain countries, in particular France.

In countries where the tool is in place, the rate of completion of annual performance interviews among managers in 2018 is  97%.

#### Professional interviews

In order to comply with the legal obligations to conduct a professional appraisal interview every two years and, in cases where an employee resumes activity after a break due to leave for maternity, parental or long-term illness, etc., measures were implemented within the "Talent 360" talent management information system during the last quarter of 2015. These professional appraisal interviews have thus been taking place since 2016.

#### Job posting

In order to allow managers to seize opportunities for growth within the organization, job openings are widely published in "Talent 360," with the option to apply online.

### EMPLOYEE REVIEW AND SUCCESSION PLANS

The staff review, run by the Human Resources Department in collaboration with the sites and Regions, is an indispensable process for ensuring that the Group has the talent needed to implement its strategy. It also allows employee potential to be identified and developed, helping staff to evolve within the organization over the short, medium and long terms.

The staff review, which is based on criteria of performance and potential, allows true career paths to be constructed by relying on levers such as training, and internal and international mobility.

Vallourec has also generalized succession plans in an effort to ensure that key positions are filled by people with the necessary expertise.

### EXPERT PROGRAM

Created in 2010, the goal of the Expert Program is to recognize employees specialized in the processes that are connected to Vallourec's core business, such as steel production, rolling, heat treatment, threading or even welding.

The Expert Program encourages and values individual career paths in these areas, and allows Vallourec to develop its competitiveness to satisfy increasingly demanding markets. To date, this program allows more than 320 experts to be recognized through the Group.

## Training

In an evolving and competitive market, Vallourec has a growing need for trained and motivated staff who are able to adapt to the changing businesses and markets. The Group strives to reconcile its need for change with the individual aspirations of its employees, allowing them to grow in their careers, while developing their skills.

In addition to training programs that are centrally decided upon by the Group Training Department, each company prepares its training plan each year, in accordance with the Group's strategy and educational guidelines. Specific training programs are thus established to locally address the regulatory or market requirements.

In 2018, more than 303,588 hours were devoted to professional employee training, i.e., a 7% increase from 2017 (data collected through the "LMS" unique training management system, including for classroom training sessions that were only given at the Group level, along with those in main location countries: Germany, Brazil, United States, France and the Middle East).

## Employees who trained at least two hours in the classroom, or who completed at least one e-learning training session

Production staff		Technical and supervisory staff		Managers		Total			
2017	2018	2017	2018	2017	2018	2017	2018		
<b>TOTAL, GROUP*</b>		65%	69%	64%	68%	92%	92%	69%	73%

\* % of employees who trained at least two hours in the classroom, or who completed at least one e-learning training session per socio-professional category.

In 2018, each Group employee completed an average of 15 hours of training, compared to 14 hours in 2017. Shorter-format distance training, which has been developing for several years, allows for rapid access to a larger number of employees. Distance training now accounts for 7% of the total training hours.

## Type of training provided

	Total number of training hours in 2018	%	Total number of training hours in 2017	%	Change
Leadership	30,387	10%	29,567	11%	3%
Training by position	13,030	4%	22,825	8%	-43%
Languages	3,480	1%	3,545	1%	-2%
Operational excellence	226,759	75%	204,102	72%	11%
including HSE	77,399	25%	83,170	29%	-7%
On-demand training	29,932	10%	22,503	8%	33%
<b>TOTAL</b>	<b>303,588</b>	<b>100%</b>	<b>282,530</b>	<b>100%</b>	<b>7%</b>

Training related to operational excellence, which is at the core of Vallourec's industrial strategy, still predominates. Furthermore, training related to the business lines (training by position) has decreased in volume, which is explained by the preparation of two major training programs for the sales and purchasing departments, which will be fully rolled out in 2019. More generally, in-person training sessions have remained stable, and e-learning given in much shorter formats has been favored for mandatory modules.

## VALLOUREC UNIVERSITY

Since its creation in 2011, Vallourec University's goal has been to be a center of excellence where employees and customers can meet to create and share in a common culture and build on their knowledge through continuous learning. Its purpose is to strengthen the values that are most important to Vallourec today: focus on the customer, agility, transparency, innovation and respect for people and cultural differences.

Vallourec University offers training programs for Group employees worldwide. These training programs may be given locally through Vallourec University in the main countries, centrally as part of international programs, which are most often organized in Europe, or via e-learning through a dedicated training platform, the Learning Management System (LMS).

All of the training programs that are launched and rolled out by Vallourec University must meet the following objectives:

- to ensure a shared understanding of Vallourec's values and corporate culture; and
- to encourage strategic, managerial and technical excellence in order to boost the Group's competitive edge.

To achieve these objectives, Vallourec University has developed four principles: experiment, share, learn and apply, as the basis of all its training. Participants have the opportunity to discuss their experiences and gain new knowledge by alternating theoretical and practical modules and applying and adapting the methods they have learned to their specific needs. Training is systematically related to the strategic objectives of the Group, Regions and its teams.

Vallourec University offers customized training and seeks to develop skills across the Group to fit with the Group's strategy. Its learning center is based on four key pillars:

- leadership, which prepares for the management of specific challenges encountered in management and leadership roles;
- on-demand training, which is focused on topics that are important to Vallourec, such as project management, communications, language skills, digital skills or even finance for non-specialists;
- functional training, aimed at improving practical and technical skills for each business line;
- training for operational excellence, which provides expertise on processes and technologies in the context of the Group's priorities and guidelines, in particular in order to contribute to the Company's performance and to the development of a unified corporate culture.

Vallourec University's activities are structured around two areas: the Learning Center and the External Stakeholders. The Learning Center is the main area and covers all training initiatives. Its modules are implemented at national and international levels, and are aimed at the continuous development and improvement of employee skills to meet the specific requirements of each level of responsibility and in the various geographical areas. They systematically integrate the Group's priorities, such as change management, customer focus and innovation.

Activities geared towards External Stakeholders aim to improve the brand's image among customers and suppliers by offering them "Business Knowledge" and "Tubular Essentials" courses. Such measures also help to attract new talent and enhance Vallourec's employer brand.

Vallourec University adopted a Learning Management System (LMS), a training management tool that offers employees more direct access to training. Intended to improve training management and access, the LMS has been gradually rolled out in the Group since May 2012. The tool offers monitoring of training times and budgets, enables employees to see what training is available in the Group, allows them to enroll in courses directly and review training histories for themselves and the employees reporting to them.

This tool allows Vallourec University to offer customized or standard training, which can be deployed quickly at the Group's various sites for all employees connected to the LMS. These offers are part of a "Blended Learning" strategy in which live training is prepared for or reinforced by e-learning sessions, leading to better understanding of the lessons and reducing time spent in the classroom. Over the next few years, Vallourec University will continue to develop a range of new live and e-learning training courses.

2018 marked a more mature phase in distance learning, in which new learning practices were adopted. Programs on safety compliance were rolled out in e-learning, and numerous modules on operational excellence were given. The number of training hours provided remotely was 22,598 hours in 2018 (hours recorded by the Learning Management System), i.e., 7% of the total training hours.

#### APPRENTICESHIP AND WORK-STUDY VOCATIONAL TRAINING

To ensure the transfer and enhancement of know-how in the context of Europe's demographic imbalance, and to attract more young talent with a training program geared to the needs of its activities, the Group operates a dynamic apprenticeship program:

- in Germany with an average of 191 apprentices in 2018;
- in France where an average of 112 work/study trainees took their training course in 2018;
- in Brazil with an average of 129 apprentices in 2018; and
- in the United Kingdom with an average of 27 apprentices in 2018.

#### 4.2.2.6 Diversity and equal opportunities

Under the roll-out of the Code of Ethics (see above, Section 4.2.1 "Ethics and compliance"), a program to educate all employees on the issue of discrimination was completed using examples from daily life.

In France, training for managers includes a specific module on this topic.

#### Diversity

The Group considers diversity to drive performance, and thus constitute an opportunity to be developed. The Group's actions aimed at promoting diversity and combating discrimination are described below.

#### GENDER EQUALITY

Women represent 23% of Group managers and executives overall, with a higher percentage in the lower leadership positions (30%) and a much lower one at the senior management level (5%).

The Group's policy is defined by the Management Board with two key objectives:

- increasing the number of women in line management positions, especially in production; and
- improving women's access to leadership roles.

Indicators are in place to ensure follow-up and accountability in the actions led by the Group. Monitored by a special committee, which is chaired by a member of the Executive Committee, these concern:

- the percentage of women in line management positions in production, sales, and Research and Development; as at 31 December 2018, 13% of these positions were held by women;
- the number of women who currently hold a senior management position: as at 31 December 2018, 8% of senior management roles were filled by women.

Moreover, an action plan aimed at increasing the number of women in the talent pool was launched a few years ago. It includes:

- a mentoring program covering a dozen female managers with a high potential for advancement; priority hiring when there is equivalent competence (measurements whose scope is low due to the reduction in new hires);
- the definition of specific career paths;
- the systematic inclusion of women in succession plans; and
- the creation of a network of women tasked with bolstering women's place in Vallourec by implementing initiatives in communication, conferences, lunches, etc.

The year 2017 was marked by the Group's activities picking up in the area of women's issues:

- strengthening the network of women following a benchmark of existing networks in other groups: a monthly guidance committee, integration of new members and the launch of initiatives such as a chat with the Chairwoman of the Supervisory Board, which gathered together 800 participants;
- the launch of a dedicated group on Yammer, Women@Vallourec, which has 234 members after one year since its launch;
- numerous regional initiatives aimed mainly at structuring a path for the promotion of women in the region.

With regard to 2018, the Group analyzed the progress of diversity action plans with the help of consultants. The resulting recommendations were used as a basis to define a new program adopted at the start of 2019.

#### CULTURAL DIVERSITY

As an international group, Vallourec enjoys a great cultural diversity. To ensure the conditions for a harmonious and rewarding collaboration, managers who are brought to work with multicultural teams benefit from an adapted training program.

Furthermore, an average of 110 employees of diverse origins have the benefit of working internationally, for a variable duration of one to three years, and in some 20 different countries.

#### Equal opportunities

#### DISABILITIES

- In Germany and in France, priority is given to keeping employees with disabilities in service by adapting positions or work hours.
- In Brazil, in partnership with the government, Vallourec Tubos do Brasil conducts a rehabilitation program to allow employees with disabilities to continue their professional activities.

## 4.2.3 Relations with stakeholders

### 4.2.3.1 Relations with employees

#### Ä Commitment to responsible performance

##### > Train and motivate our employees through skills development, recognition of expertise, talent promotion and career development

INDICATOR	2018 RESULTS
Result of the Social Barometer internal survey (employee satisfaction rate). This survey is conducted every six months.	Based on the <b>73% satisfaction rate</b> that was expressed during the survey conducted in November 2018, action plans were initiated and extended both centrally and locally to meet the stated expectations.

The social policy is presented in full in Section 4.2.2 "Social policy" of this Registration Document.

### 4.2.3.2 Relations with customers

#### Customer profile

The Group has an extensive customer portfolio.

- As concerns the Oil & Gas markets, its customers are:
  - national oil companies such as ADNOC, Saudi Aramco, Petrobras, international companies like ExxonMobil and Total, and independents;
  - engineering and construction oil service companies such as TechnipFMC, Subsea7 or Petrofac;
  - American distributors such as Pipeco, Premier Pipe, Champions, Pyramid Tubular and MRC Global;
  - service companies such as Schlumberger, Halliburton, Baker Hughes and Weatherford.
- On the Power Generation market:
  - builders of thermal and nuclear power plants such as Areva, Dong Fang, Doosan and Valmet.
- On the Industry market:
  - manufacturers of industrial equipment and distributors such as ThyssenKrupp, Hoberg & Driesch, Salzgitter and Klöckner, as well as end-users like Schaeffler, Horsch, and Liebherr.

In 2018, the five largest customers accounted for 25% of the Group's consolidated revenue.

It should be noted that a growing number of customers are asking the Group about its level of commitment to CSR in the form of a structured questionnaire.

#### The Commercial Excellence program and customer satisfaction

As part of its "Commercial Excellence" program, the Group tries to continuously strengthen its proximity to its customers.

One of the cornerstones of this program is the management of Vallourec's strategic customers: the Key Accounts. The dedicated Key Account Managers are specifically trained and certified to create a special relationship at all levels of the customer's organization. They detect their needs and contribute to differentiated sales. The community of Key Account Managers meets quarterly to exchange views and share best practices.

Another initiative of the Commercial Excellence program is the preparation of "Value Propositions." For its different offers and on its various markets, Vallourec demonstrates the value created throughout the value chain of its customers' activities through "Value Propositions."

Sales Force Management is also a lever of this program, which allows commercial functions to be professionalized at all managerial levels of the Group, through adapted training programs.

Customer satisfaction is at the heart of Vallourec's concerns. Regular surveys are taken at our customers by the Product Lines or by the Regional sales offices in order to develop detailed knowledge of the customers' experience. During these surveys, the satisfaction rate of the customers is measured according to several criteria (response time to a request for quotation, quality of technical support, quality of products and services, offer range, and lead times). When a gap between expectations and the Group realization is detected, actions are taken to improve satisfaction or, where applicable, to remedy dissatisfaction.

This approach is inseparable from the Group's efforts to raise the level of quality of its products as well as that of the associated services. Claims are systematically and fully processed.

### 4.2.3.3 Relations with subcontractors and suppliers

In order to prevent, identify, and mitigate the risks created by business relationships in corporate social responsibility issues (including the risk of corruption) described in Section 4.1 "Oversight plan" and in Section 5.1 "Risks factors" of this Registration Document the Group has developed and is implementing a responsible purchasing policy.

## À Commitment to responsible performance

### > Establish a network of reliable and responsible suppliers

INDICATOR	2018 RESULTS
Number of suppliers included in the formal evaluation process conducted by Vallourec of its social and environmental responsibility.	As at 31 December 2018, <b>more than 1,000 suppliers</b> were involved in the process, still particularly focused on emerging countries or regions newer to Vallourec (Asia and the Middle East, and certain categories of suppliers in Brazil).
	2019 OBJECTIVE
	Involve <b>60% of the suppliers with which Vallourec has significant revenue</b> (greater than €1 million) in the Group's formal evaluation process, as well as all <b>suppliers that are deemed "critical"</b> , meaning that directly impact the Vallourec product or its production process.

In 2018, the Group's purchases totaled €2,613 million, i.e., a 3% increase from 2017. They break down geographically as follows: 38% in Europe, 29% in North America, 28% in South America and 5% in the rest of the world.

#### National purchases

Vallourec ascribes specific importance to the local, economic and social impact of its activities on the neighboring and national populations.

National purchases, which totaled an estimated amount of nearly €2.3 billion in 2018, represented approximately 90% of purchases and directly contributed to supporting the national economy.

Subcontracting purchases for operations and maintenance represented an amount in the order of €203 million. These concerned either industrial finishing or control services, or services needed for proper operation. Subcontracting purchases were for the most part local, given the quality and responsiveness requirements that providers must satisfy. Services correspond to a significant number of highly qualified jobs that helped strengthen the local industrial fabric, although it is not easy to evaluate their number. A significant part of local subcontractors was taken into account in the CSR evaluation of Vallourec's suppliers.

#### Responsible purchasing policy

Vallourec's Purchasing function is organized for optimal supplier management, consistent and centralized governance, and shared deployment of tools and processes to all Group entities. This structure, which supports the line management teams and clarifies processes, is based on an analysis by type of purchase to facilitate the implementation of synergies.

Within this framework, a Supplier Quality and Performance Department established several tools and processes in recent years which aim to best monitor suppliers, their selection and their performance: creating purchasing strategies by category, a formal contracting process,

management of supplier quality, measurement of supplier performance, and supplier risk analysis. All of these new processes directly emphasize criteria such as Corporate Social Responsibility (CSR), sustainable development, ethical conduct, anti-corruption and safety.

In 2018, pursuant to this policy, Vallourec:

- conducted several hundred audits or supplier risk analyses at all of its sites. This consistent effort will continue in 2019 with increased precision, in particular with respect to the streamlining of audits. To do so, Vallourec will use improved audit guidelines, still very significantly integrating the criteria on sustainable development, ethics and safety;
- continued the formal and systematic evaluation of suppliers based on CSR criteria, still with the assistance of the same specialized firm. As at 31 December 2018, 426 suppliers representing more than 37% of Vallourec's expenditure, conducted a complete assessment, along with progress action plans. The assessment showed that 52% of the suppliers evaluated already publish a formal report on their energy consumption and greenhouse gas emissions, 59% publish a report on their health, safety and environment (HSE) indicators, and 32% are ISO 14001 certified;
- continued and perfected a specific innovative process to anticipate supplier risks. A score card on the subject matter is continually updated and reviewed quarterly by the Group's Purchasing Department Committee. In 2018, this monitoring allowed the risks identified for the Group's global suppliers to be treated or eliminated. Furthermore, several e-learning training modules are available to train buyers and their internal customers in all aspects of supplier risk;
- used the full power of its unique and central Purchasing information system, which facilitates integrated management of purchases and suppliers, with visibility at all levels, from local to global. This system contains in particular a specific data sheet for each supplier in which sustainable development and safety criteria feature strongly. It also allows supplier development and improvement action plans to be managed.



Vallourec's requirements of sustainable development, ethics and safety are always one of the main messages delivered to suppliers during the Top Management Meetings (TMM) that are regularly organized with the Group's largest suppliers.

In accordance with U.S. laws and European directives, Vallourec has also committed to monitoring potential "Conflict Minerals" coming out of certain African countries that could be used by its suppliers. The Group's policy consists (i) of making sure, in accordance with the Group's Code of Ethics, the Sustainable Development Charter and the Environmental Policy, that none of these minerals are used directly or indirectly and (ii) where certain cases are detected, that solutions are found to replace them. The oversight plan was significantly expanded to cover nearly 4,000 suppliers in 2018. These suppliers were all subject to this survey's analytical matrix. The summary of responses to the questionnaires sent out and analyzed using special software did not show that Group products contained any conflict minerals from the African countries in question. The survey will be further strengthened in 2019, and a specialized company will verify all of the suppliers' responses.

### Anti-corruption actions

All suppliers are aware of and have access to the Group's Code of Ethics, particularly through Vallourec's website. Furthermore, by accepting the general purchasing conditions, the suppliers formally promise to manage their activities in conformity with the values and principles of the Code of Ethics. Vallourec's systematic evaluation of suppliers based on CSR criteria, initiated in 2013 (see above), showed that 44% of Vallourec suppliers already evaluated (compared to 43% in 2017) have also formally established a Code of Ethics or a Business Ethics Charter.

Moreover, as concerns relations with local stakeholders and suppliers, in 2018, there were no comments or complaints related to respect for the values set out in the Group's Code of Ethics.

Vallourec's Anti-Corruption Code of Conduct reminds its employees, including the purchasers, of the conduct to maintain when interacting with suppliers, the rules to be respected in terms of corporate gifts and invitations, and the rules concerning conflicts of interest. Vallourec has also established the Vallourec Integrity Line, a whistleblowing system that can be accessed in eight languages through a secure Internet platform by employees and stakeholders, including service providers and suppliers.

#### 4.2.3.4 Support of the local socioeconomic fabric

### Socioeconomic impact of the Group's activity

In an effort to better determine the global impact of its activity, in 2017 the Group finalized a study, based on 2016 data, with a specialized provider to assess the Company's socioeconomic footprint, meaning to measure our contributions to the regional economies through the amount of our supplier orders, the expenses of our employees, and the taxes and duties paid. The Local Footprint<sup>®</sup> model used, with 20% precision, is based on national accounting methods. The main results concern direct jobs (full-time equivalent) in the Company, the indirect jobs created in its supply chain based on the analysis of the purchasing volume, and those ultimately created in the regional economies. The study highlights the total GDP created in the main countries where the Group is present.

Data was collected in the main countries where Vallourec has operations, namely Germany, France, the United States, Brazil, China, Mexico, the United Kingdom, Indonesia, Saudi Arabia and Mexico. This study thus allowed us to consider approximately 90% of the Group's economic

scope. For this scope, in 2016, the payroll was €949 million and purchases were €2,207 million. The study examined these purchases according to 13 categories, because the effects obtained differed from one to the next. In short, the Group, which employed 18,000 people, thus supported more than 160,000 other jobs globally, i.e., a job creation factor of 9, which is in the high range, precisely given the quality of those jobs. The GDP created worldwide reached €6 billion for added value of nearly €860 million, i.e., a multiplying factor of nearly 6. For example, the Group made the most purchases in Brazil and Germany and it was in these two countries that the Group generated the most jobs, i.e., 63,000 and 21,000 respectively.

Vallourec can thus claim to create significant value benefiting its stakeholders. It can also be considered that the Group's socioeconomic impact in 2018 was, as in 2017, greater than what is noted above, since 2016, which was used as the reference, was a year of low activity and very insufficient results, although the industrial footprint has since changed. It will thus be desirable to conduct the study in question in the upcoming years.

### Local community support policy

Vallourec has initiated numerous relationships with local stakeholders in its activities, such as professional organizations and local authorities, residents' associations and groups with a social or environmental objective related to its sites' activity. Although no overall systematic evaluation of the quality of relations between our sites and the local communities has yet been performed, relationships are considered to be good and no conflicts have arisen. Social actions to benefit local stakeholders are mainly conducted in countries such as Brazil and Indonesia where the expectations of the local residents are strongest and where social systems are less developed than in Western countries. With the exception of these two countries, the Group receives few requests for support.

In accordance with issued recommendations, the local level has until now had the autonomy to determine the actions to be taken, with the approval of management, and focusing on the following guidelines, which are included in simple recommendations at the Group level:

It should be mentioned that the five-year strategic plan to promote sustainable development provided for establishing a more formal framework for social actions. With the aim of furthering discussion on the subject, an exhaustive list of actions taken at all sites was made in 2015 and 2016. After internal consultation and based on the recommendations of a specialized consultant, in 2017 the Group prepared a new action policy to support local communities, which was approved by the Executive Committee, which began to be rolled out in 2018. This new policy includes three cornerstones established by the Group: education (and, in particular, the subjects of science, digital and essential knowledge), support for initiatives to preserve the environment, and encouragement of employee's volunteer involvement. Therefore, volunteer employees may take time off to get specifically involved in an initiative supported by the entity or even lead such initiatives. Each site must construct a medium-term project associated with a budget, to be validated by the managerial chain, and must encourage volunteers to get involved. Their practices must converge toward the cornerstones set by the Group in a certain number of years and make sure that its practices respect the specific prohibitions identified. Lastly, governance of these actions will be formalized at the level of each site, or even at the level of site groups that operate close to one another.

At the Group level, a specialized committee will evaluate the actions conducted and to be completed once a year and will disseminate a specific guide on best practices.

### Actions taken in favor of local communities

In 2018, the resources devoted to financing partnerships were approximately €2.45 million, nominally down from 2017 (€2.7 million) but slightly higher when applying the 2017 exchange rates. This relatively low level is clearly the result of the Company's poor results during the last four years.

The review of the initiatives was conducted in conformity with the new principles indicated above and it is very significant to note that 800 employees volunteered, primarily in the United States and Brazil. A certain number of actions that should be noted have also emerged:

- In Brazil, due to historic, cultural and regulatory reasons, and because the Barreiro site is located in the middle of a very urbanized district in Belo Horizonte, relations with local stakeholders, particularly low-income populations, have for several years followed a structured process in close collaboration with local authorities, backed by tax incentives. The very numerous actions include economic development, cultural and sporting programs. In 2018, Brazil was the country where the involvement of local stakeholders was by far the strongest.

The Jeceaba site also established economic and cultural support programs among other local populations within the framework of agreements with local communities comparable to those developed in Barreiro.

The discussions with the local residents of the Brumadinho mine (Mineração) continued and have allowed any environmental concerns to be clarified and the implications for the local economy to be explained.

Lastly, the local residents of the Rio das Ostras site and forest have also benefited from the support programs.

We can thus name among the 17 reported actions:

- the financial support to the Mario Pena hospital to develop assistance for cancer patients;
- the specific “Comunidade viva” school support program. This program, implemented since 2005, has demonstrated its effectiveness, since during the 2011-2015 period, nearly 6,000 young people directly benefited from the programs, and more than 10,000 benefited indirectly, in particular the families of employees. In 2018, more than 500 young people directly benefited from the program. The very practical results are length of schooling, which has grown from 5.6 years in 2005 to 8.8 years, with a rate of integration into the workplace that rose from 45% to 53%, accompanied by a very considerable increase in family income of more than 70%;
- the outstanding effort over the past several years to restore a historic movie theater in the city center has allowed the Belo Horizonte metropolis to become a major cultural center; the *Cine Teatro Brasil Vallourec* has become incredibly successful and has welcomed nearly 240,000 visitors in 2018 for arts activities including exhibitions, and dance, music and theater shows. As in 2017, support for the operation of this establishment is the most important action that was carried out in Brazil;
- “Education volunteers,” who provide educational support directly to nearly 600 young children, in particular for basic knowledge;
- ongoing social and educational projects for more than 100 senior citizens near the Barreiro site;
- a program that provides support for youth athletic activities.

- In the United States, more than 80 actions have been listed, which are primarily geared toward the support of local educational, athletic, and environmental initiatives.
- In Europe, given the level of development of social infrastructures, corporate initiatives are for limited amounts and tend, in general, to support university, cultural and sports initiatives, to finance social and charitable causes, restore cultural centers, support the local economic fabric, or even subsidize environmental restoration programs.

In the Montbard basin in France, the Group has participated in the Alizé program for large and medium-sized local businesses, which consists of contributing pro bono expertise to SMEs by providing consulting from managers and coordinating projects categorized as part of the “Metal Valley Rural Excellence Division”.

In the Düsseldorf region of Germany, for example, cultural or sports associations are supported.

- In Indonesia the subsidiary P.T. Citra Tubindo TBK has been committed for many years to educational, medical, social and athletic support programs for the population, which in particular benefit children. These programs concern actions that either benefit the individuals themselves, or help to construct or maintain the necessary facilities. P.T. Citra Tubindo TBK has also developed and financed a program known as “Valérie”, which is designed to develop the pedagogical competence of schools that provide professional training, from which the underprivileged children of the Nongsa district most often benefit.

### 4.2.3.5 Relations with shareholders and investors

The Group's priority is to maintain lasting, trustworthy relations with all its shareholders, whether individual or institutional, French or foreign. It strives to give them access to exact, precise and accurate information, particularly with regard to its activities, results, outlook and strategic developments. Accordingly, and with ongoing concern for clarity and transparency, numerous dedicated communications media are available, and regular meetings are arranged throughout the year. For example, the Group annually presents its actions on a certain number of jointly identified topics to Bpifrance Participations.

In 2018, the Group participated in 240 meetings and telephone conferences with institutional investors and financial analysts. Each year, it also meets with SRI (Socially Responsible Investment) funds and analysts. This approach contributes to the Group's improvement in the area of sustainable development.

The Group maintains an ongoing dialog with its individual shareholders through various communications media and channels. Accordingly, Vallourec's Shareholders' Club notably allows them to participate in information meetings to deepen their knowledge and understanding of the Group's activities. In addition, in 2018, the Group published two editions of its Letter to Shareholders and participated in the Shareholders' Exhibition to meet its individual shareholders.

The entire scheme used by the Group for shareholders and investors is presented in Sections 2.6.2 “Relations with institutional investors and financial analysts” and 2.6.3 “Relations with individual shareholders” of this Registration Document.

#### 4.2.4 Environmental commitment

The main environmental risks are described in Section 5.1.2 “Operational risks” of this Registration Document.

The environmental data included in the environmental reporting for 2018 concerns all of the subsidiaries controlled by the Group, noting that those of Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) (China), acquired in late 2016, have been taken into account. The Tianda plant has indeed been subject to numerous progress actions, including in the environmental domain, in an effort to gradually bring it up to Group standards.

The majority of the ratios are established using metric tons processed, in other words the sum of production from the various units, which are considered independent production workshops. This concept better accounts for the level of activity of the production units than metric tons shipped for two reasons. On the one hand, because it is more representative of the flows and stages of production, and on the other, because it is less affected by changes in inventory.

For this 2018 assessment, the Group chose to consider Vallourec’s activity to consist of several business lines that all contribute to achieving the objective of manufacturing seamless steel tubes, and providing the associated services. This “sector-specific” approach is found in the “CDP Climate” questionnaire structure to which Vallourec responded in 2018, and in the “Science Based Targets” approach Vallourec has decided to adopt.

Accordingly, the Group’s “Metal Processing” business line requires mastery of the following four activities:

- “Mine”: extraction of iron ore from the Vallourec Mineração mine to supply the Brazilian steel mills (the Pau Branco mine is located in the State of Minas Gerais. It has a total area of 1,373 hectares, of which 32% is industrial area, 20% is an environmental protection region, and 48% is unused space);
- “Forest”: operation of a eucalyptus forest in Brazil (Florestal) and manufacturing of charcoal to supply Brazilian blast furnaces and the Jeceaba pelletization unit;
- “Iron and steel”:
  - manufacture of iron ore “pellets” to supply the Jeceaba steel mill. Vallourec operates a pelletization unit there to improve the yield of the blast furnaces. This facility, which operates at nominal capacity, also supplies other Brazilian steel manufacturers,
  - production of steel in the United States and Brazil to supply steel billets to the rolling mills;
- “Tubes”: manufacture of seamless steel tubes and their accessories (connections, etc.) in rolling mills, heat treatment units, finishing units, and the associated services provided to customers.

On a like-for-like basis, namely by integrating the 2017 data from the Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) (China) plan, the production expressed in metric tons processed increased from 5,245 in 2017 to 5,524 in 2018, i.e., a 5.3% increase. During the same time, the tube sales volume went from 2,256 kilotons in 2017 to 2,364 kilotons in 2018, which represents a 4.8% increase.

##### 4.2.4.1 General environmental policy

Vallourec’s manufacturing policy is to minimize the impact of its activities on the environment. This commitment is clearly explained in the Sustainable Development Charter published by the Group in 2011, and in the Group’s Environmental Policy, which was signed by the Chairman of the Management Board and published in 2014. Vallourec strengthened its commitment to the climate by cosigning in late 2017, along with 89 other French businesses, a new version of the French Business Climate Pledge, to contribute to a low-carbon economy. It also published its carbon policy in early 2018 (see below).

In 2013, Vallourec created a five-year environmental roadmap for each of the following three industrial divisions: Upstream, OCTG and Vallourec Tubos do Brasil, which became VSB. These roadmaps constitute a strategic Environmental plan and identify targeted environmental projects (energy, water, waste, chemical hazards and noise) whose purpose is to minimize the Group’s environmental footprint. They focus on defining objectives, determining the necessary resources (including capital expenditures to be made), promoting progress and cost savings, and setting priorities. They are monitored regularly and updated each year. Their horizon is extended annually in one-year increments, and currently concerns the 2018-2023 period. Since early 2017, these roadmaps have simultaneously been adopted by the new Europe-Africa, Middle East and Asia, North America and South America regions.

##### Environmental management

In accordance with Group rules and guidelines, the Director of each site is responsible for setting up an effective environmental management system that is tailored to the local context and the site’s activity. The Director appoints an Environment Manager who heads up all actions in this area and functionally reports to the HSE Director of each region. The “Corporate” Environment procedures are regularly updated and may be accessed at all plants on a dedicated portal.

The Environment Department, reporting to the Sustainable Development Department, coordinates all environmental initiatives. It is supported by the Environment Managers of the regions and production sites, who are responsible for implementing Vallourec’s policies through:

- uniform management of environmental performance, risks, projects, communications and sharing among all Group entities;
- incentives for entities to improve their environmental performance; and
- development of environmental competencies.

These structures exist in all of the countries. The objective of this department consists of structuring the organizations by region or country in order to better take into account the specific national regulations. Under the Transformation Plan, the global workforce now totals approximately 45 full-time equivalent people for the Group as a whole.

Exchanges among the countries are continuing to develop, fostering significant progress thanks to the benchmarking of performances and solutions, particularly during regional environmental conferences.

The Environment Department is also responsible for coordinating and monitoring these actions to share best internal practices, and in particular for gathering and consolidating all of the Group's environmental data. The results are consolidated monthly and communicated quarterly to the sites, the management line, and to the Executive Committee members, in the form of a report that is specific to each Region and entity.

In 2016, the Group rolled out a new IT application to manage safety and environmental data. This application simplifies the collection and verification of data and offers new features to the sites that help them with their own local reporting.

In view of facilitating communications between environmental managers and promoting the sharing of best practices, the Environment Department has rolled out a specific application based on the Yammer social networking service.

## Audits and certifications

Internal environmental audits are regularly organized in each country to assess compliance with regulations. Specifically, the Performance & Risk audit evaluates performance and risk levels for each environmental concern as well as the energy and environmental management systems (EEMS) in place. The results are used to identify priorities and corresponding action plans. These audits are part of the process of preparing for certification audits, which are now comprehensive, in other words, simultaneously concerning environmental, energy, quality and safety procedures at the regional level. As at 31 December 2018, 98% of all of the Group's sites were ISO 14001 certified, which represents more than 99% of production.

In this context, support was provided to conform to the new ISO 14001-2015 standards as concerns mapping aspects of the stakeholders and analysis of product life cycle.

Each year since 2011, the Group has identified a site deserving of the "environment award." In 2018, this distinction was awarded to the "VAM" community of experts for their work on optimizing the phosphating processes, taking into account several aspects such as waste management, water and energy savings, and the elimination of "CMR" products.

## Legal compliance

Regular audits are performed by outside specialists to assess compliance of the production sites' activities with statutory and regulatory requirements.

Through the regular and systematic review of regulatory developments, actions implemented in the context of continuous improvement, new investments or organizational changes can be developed or updated. In France, an environmental regulatory watch has been set up on a dedicated intranet portal, accessible by all production sites. This portal facilitates access to useful information for various sites, and in particular compiles the procedures that are periodically updated.

## Training and education

Employee training and education on the environment, sustainable development and energy efficiency are carried out in the plants through poster campaigns, periodic publications, briefings and compliance programs, among other measures. The Global Compliance Program, developed and coordinated by the Group's Legal Department, has an educational component on compliance with environmental regulations (see above Section 4.2.1 "Ethics and compliance").

In 2018, the total number of training hours in the field of health, safety and the environment listed in the LMS system (including classroom training at the Group level and those in the main location countries: Germany, Brazil, United States, France, Middle East and China) totaled 77,399 hours, compared to 83,170 in 2017. They represented 25% of the total training time.

## Investments

The Group systematically incorporates sustainable development concerns in designing its investment projects. In particular, a health, safety and environment (HSE) analysis is conducted at the beginning of every project to assess the potential impacts and anticipate environmental risks.

A procedure on eco-design rules has been in place since 2015 as part of the overhaul of major project governance and updated in 2018. It is intended to verify the best practices and techniques available for design that meets HSE challenges in the following main areas:

- regulatory compliance and impacts on administrative authorizations;
- water management through recycling and recovery of rainwater using storage basins, and better quality through more efficient wastewater treatment plants, along with a reduction in the volumes of water discharged;
- waste management through improvements in collection, sorting and recycling;
- reduction of atmospheric emissions via continuous improvement of capture systems, as well as carbon emissions. To that end, since early 2017 it has been requested for the most important projects to apply a single global price to carbon emissions of €40/metric ton in order to evaluate the sensitivity of these projects' profitability to the existence of carbon pricing systems, which are likely to develop it at the world level within the framework of the latest COP recommendations. This allows the final decision to be influenced, above all if the project is structured and falls within the medium/long-term activities development policy;
- the optimization of energy consumption through the establishment of best practices, smart metering tools, in a structured process of ongoing improvement;
- potential impacts on biodiversity and consideration of the consequences of climate change;
- reduction of noise inside and outside the plants by emphasis on cutting noise emissions at source;
- safe use of chemical products with the goal of restricting the use of the most hazardous products;
- preventing the risks of occupational illnesses and improving the ergonomics at workstations.

In addition to confirming that the general principles above have been applied, some projects are clearly aimed at improving work conditions or reducing environmental impact. They concern:

- improvement in working conditions (ergonomics, noise reduction, lighting and heating)...
- ensuring environmental compliance of work equipment (filtering, fume extraction, water and gas networks, fire protection systems and product storage)...
- reduction in energy consumption (furnaces and heat treatment, lighting, insulation, etc.);

- improved water management (recovery and recycling, purification plants, etc.);
- forest management operated by Vallourec Florestal (reforestation, carbonization furnaces, etc.);
- decreased use of hazardous chemical substances (partitioning, extraction, substitution, etc.);
- limiting atmospheric emissions;
- layout and safety of plants in terms of roofing, roads and parking.

In 2018, HSE investments reached €23.4 million, i.e., approximately 18% of the Group's total investments. These investments were thus equivalent to those in 2017.

By way of example, we note the following main accomplishments:

- fine-tuning of the functioning rainwater system in Montbard (France), allowing pumping into the Bourgogne canal to be reduced;
- development of the Cleanwell Dry 2 product line, which avoids the use of grease, and in particular lead-based grease;
- in Youngstown (United States), modernization of compressed air system production stations for rolling mills and the associated distribution network;
- in Tianda Chuzhou (China), refurbishment of the rotary hearth furnace refractory with billet heating and improvement of the management program;
- at VSB Jeceaba (Brazil), partial substitution of natural gas with charcoal for the pelletization unit furnace.

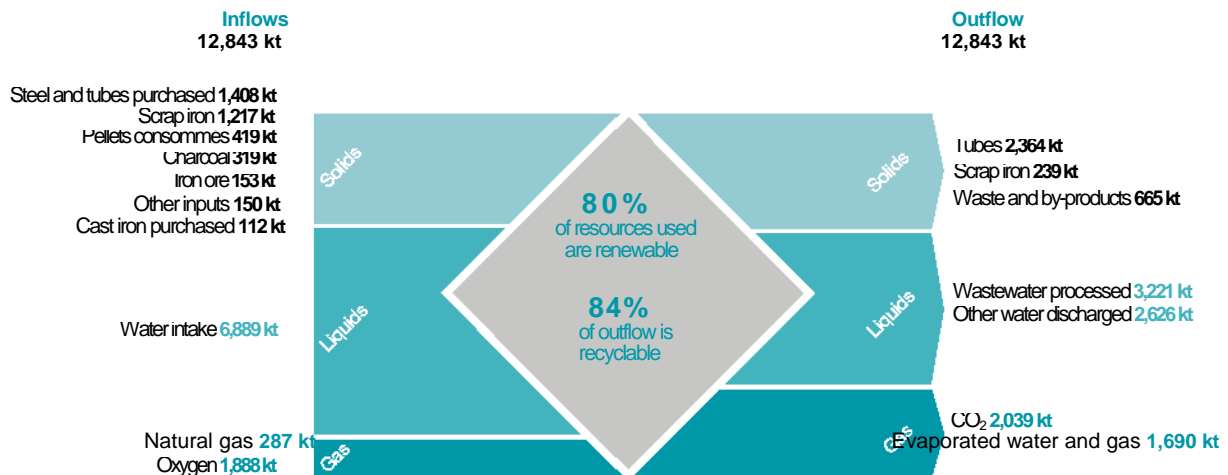
#### 4.2.4.2 Use of resources

The specific environmental statistics (expressed in relation to metric tons processed) improved as site performance continued to improve (see below).

#### Resources implemented

Since 2013, the Group has conducted an analysis of all mass flows necessary for tube production at all its industrial sites. The activities of Vallourec Mineração Ltda (iron mine), of Jeceaba pelletization unit and of Vallourec Florestal (forest) are thus recorded in proportion to the iron ore and carbon productions used for Vallourec's internal steel production in Brazil and appear as inputs.

#### Raw materials footprint for 2018



In 2018, the 2,364 metric tons of tubes in production shipped required the consumption of 12.84 million metric tons of different kinds of inputs, up 19% from 2017 following the consideration of Tianda's activity. Water intake in 2018 represented 54% of the total resources, close to the figure of 57% in 2017.

It should also be emphasized in this regard that:

- 80% of the resources consumed are renewable (scrap and steel made from scrap, charcoal, water and oxygen), demonstrating the limited nature of the Group's net environmental footprint. This number is down from 2017 (85%), due to consideration of the Chinese steel purchases for the Tianda plant, primarily manufactured by the cast

iron sector, using blast furnaces with a high consumption of iron ore and fossil coals. The extraction of non-renewable resources thus represented only 107% of the production shipped;

- 99% of production-related outputs could be considered recyclable if we consider that the CO<sub>2</sub> emitted is to be absorbed to reconstitute the biomass, to which the forest operated by the Group also contributes. This rate is only 84% if we do not use this assumption as a precaution;
- in 2018, the ratio of tonnage produced on resources implemented was 18.4%, compared to 20.9% in 2017.



### Record of the raw materials footprint

	2014	2015	2016	2017	2018
Input/output (kt)	12,937	8,951	8,988	10,786	12,843
<b>Production shipped (kt)</b>	<b>2,323</b>	<b>1,411</b>	<b>1,281</b>	<b>2,256</b>	<b>2,364</b>
% renewable resources	84	83	86	85	80
% ratio of shipments/input	18	15.8	14.2	20.9	18.4

This updated analysis demonstrates the need to continue to deal with water management and, additionally, industrial waste disposal, areas in which the Group has taken action for several years. As concerns carbon emissions, the footprint remained quite positive due to consideration of the flows specific to the forest operated by the Group. Nevertheless, there are areas for progress in the upcoming years.

### Life cycle analyses

In 2013, the Group also performed a life cycle analysis of two typical products in the Oil & Gas activity (tubing and casing) in cooperation with an important end customer. The ten key impacts evaluated (including carbon, energy, water, resource depletion, toxicity, eutrophication) demonstrated the weak relative impact of the Group's products. The goal is to continue these analyses on other products, in cooperation with other customers, when they so request. To this end, the Group in 2017, with the aid of an outside consultancy firm, fine-tuned a specific tool designed to perform these types of analyses for products that are already available on the market or that are being created through R&D programs. Since 2017, this tool has been successfully used by

several production sites to refine the life cycle analyses of their main production as part of their 2015 ISO 14001 certifications. It is also possible to implement this for R&D actions, if a preliminary qualitative analysis shows a sufficient impact.

### Consumption of raw materials

The steel used by Vallourec to manufacture tubes is prepared in part by the Group's steel mills, and in part by outside purchases of steel ingots and bars.

Internally, two processes are used: the blast furnace process in Barreiro and Jeceaba and the electric process in Jeceaba, Brazil and in Youngstown, United States. Thanks to these internal processes, the Group is on the one hand promoting the use of charcoal produced from its eucalyptus forest and, on the other, recycling scrap.

To increase the efficiency of these processes, the steel mills are trying to precisely document their internal manufacturing rules and their requirements so as to obtain different steel grades while maximizing the furnaces' energy efficiency.

### Steel mill production in 2018

Plant (tons)	Inputs from blast furnaces			Cast iron produced
	Iron ore	Pellets and scrap	charcoal	
VSB Barreiro	84,593	176,642	141,583	120,167
VSB Jeceaba	68,815	268,635	177,707	210,905
<b>TOTAL</b>	<b>153,408</b>	<b>445,097</b>	<b>319,290</b>	<b>331,072</b>

Plant (tons)	Inputs from electric steel mills			Scrap and cast iron used
	Cast iron purchased	Scrap iron	of which % of internal recycling	
VSB Jeceaba	92,274	428,318	31	520,592
Youngstown	19,319	762,398	11	781,717
<b>TOTAL</b>	<b>111,593</b>	<b>1,190,716</b>		<b>1,302,309</b>

One key event in 2018 was the final shutdown of the remaining blast furnace and of the steel mill in Barreiro, Brazil on 15 July 2018. Steel production was transferred to the Jeceaba site, restarting its own blast furnace. Accordingly, 2018 production at the Barreiro steel mill dropped 53% from 2017, and production in Jeceaba conversely increased 56%.

Compared to 2017, the total internal recycling rate for scrap rose from 15 to 20%.

In 2018, the electric process (Youngstown and Jeceaba steel mills) represented 91% of Vallourec's internal steel production, and notably contributed to reducing the usage of natural raw materials from scrap recycling.

**STEEL MILL CONSUMPTION IN 2018**

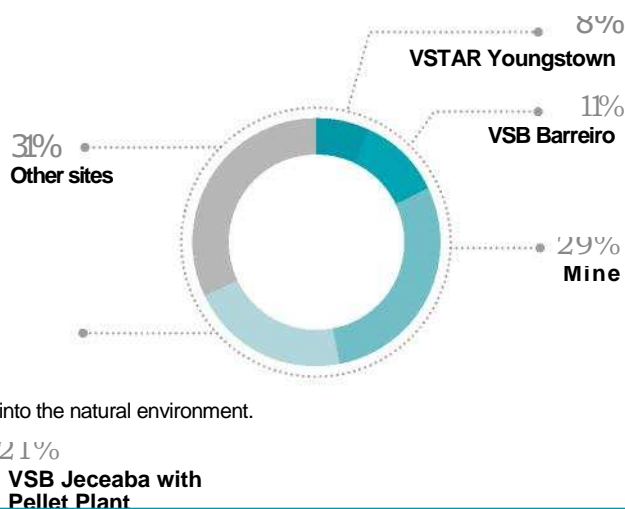
If we consider the steel purchased, the portion from the electrical process goes down to 57%, because the HKM steel mill in Europe and the majority of our Chinese suppliers use the “blast furnace” process.

**Water management**

The Group considers water management to be one of its major challenges due to its importance to the well-being of populations, the risks of competing usages, shortage, and because water quantitatively represents the main resource needed for the Group’s production processes. It is mainly used for:

- extraction of iron ore from the Vallourec Mineração iron mine;
- cooling hot machinery (steel manufacturing and rolling tubes);
- cooling tubes after heat treatment;
- solidifying liquid steel (continuous cast);
- surface treatments, hydraulic operations, non-destructive tube tests and cooling of other tools in the manufacturing process,
- emptying of dissolved or undissolved process substances;
- sanitary uses of personnel employed at the sites.

All of the water used for the Group’s entire scope totals nearly 10,600,000 cubic meters. Nearly 30% of this amount concerns the mine, for which the recorded water comes from pumping in groundwater extraction wells, which are mainly immediately released



into the natural environment.

**A) THE MINE**

The Vallourec Mineração “Pau Branco” iron mine is located on the territory of the cities of Nova Lima and Brumadinho, in the State of Minas Gerais (Brazil). It has a total area of 1,373 hectares, of which 32% is industrial area, 20% is an environmental protection region, and 48% is unused space.

At this stage, it is interesting to note that the developments in mine processes have led water usage to be significantly reduced, as

follows: **Water intake needed from the “Vallourec Mineração” Mine processes (2014-2018)**

Year	2014	2015	2016	2017	2018
Iron ore production ( <i>metric tons</i> )	4,392,533	4,226,598	4,002,306	4,394,245	4,693,317
Total water intake ( <i>m<sup>3</sup></i> )	4,402,762	3,147,696	3,304,122	2,967,715	3,097,651
<i>m<sup>3</sup>/metric tons of iron ore</i>	1.00	0.81	0.83	0.68	0.66

This clear decrease is the result of a new iron ore treatment process, which, since 2015, has consisted of filtering the water/waste mixture resulting from the process, instead of spreading it (as was done previously) into a 3 million m<sup>3</sup> hydraulic disposal site, retained by a dam. This allowed the humidity rate of the mixture to be reduced from 70% to

15%, and to establish a “dry” storage on the mine site, which eliminates any risk to the stability of the dam, which is now out of service, while the water collected is reused. This process is an industry reference, and in 2017 the mine received the Group’s annual “Environment” trophy.



Dry disposal area



Installation of press filters





**B) TUBE MANUFACTURING**

Water use in the steel mills, rolling mills, and finishing units of Vallourec may be summarized as follows:

Water intake (%)		Water discharged (%)	
Tap water	47	Discharge to external treatment plant	16.4
River water	28.3	Discharge to internal treatment plant	30.4
Groundwater	13	Evaporation	15.1
Rainwater	8.7	Other water outlets (leaks, waste)	38.1
Water harvested (cellars, etc.)	29		
<b>TOTAL INTAKE</b>	<b>100</b>	<b>TOTAL OUTLET</b>	<b>100</b>

It should be noted that the water reuse rate in the circuits of the integrated plants (steel mill and tube mill) total approximately 98%, which allows for limiting the intake of water, which is still the primary resource used in our processes.

**C) NUMERICAL ASSESSMENT OF WATER USED**

In recent years, water intake has decreased, primarily thanks to the establishment of tools that allow the rate of reuse to increase and rainwater to be collected. Intake has nevertheless gone from 6.18 million cubic meters in 2017 to 6.9 million cubic meters in 2018, due to the increase in production and the integration of the Tianda site in China.

Yet specific water intake (rainwater included) in cubic meters per metric ton processed has significantly improved, going from 1.85 in 2016 to 1.36 in 2017, and to 1.25 m<sup>3</sup>/ton in 2018, making the success of the savings actions carried out by the plants a reality. Rainwater collection and reuse developed strongly at certain major industrial sites, which allows surface water and groundwater intake to be reduced. Vallourec has also improved the recognition of these volumes of recovered water, which allowed it to save 600,000 m<sup>3</sup> in 2018.

Numerous actions can be cited, such as water needs monitoring and measurement actions (reduction, or even stoppage of pumps during production shutdowns, recovery or rainwater, recycling and reuse of wastewater).

In 2018, Vallourec Tube France in Saint-Saulve, which is undergoing restructuring, redesigned its pretreatment facilities for the industrial water pumped into the Escaut. These improvements allowed intake to be reduced from 71% in absolute value (i.e., nearly 300,000 m<sup>3</sup> saved) and in specific value, from 7.9 to 4.6 m<sup>3</sup> per metric ton processed.

In late 2014, the Brazilian site in Barreiro launched a plan to reduce the risk of water rationing, despite an already very satisfactory industrial water reuse rate. VSB Barreiro is the largest consumer of water in Belo Horizonte, and is extremely dependent on COPASA, the public entity in charge of water distribution.

Due to a chronic drought, the regional government requested that water consumption be reduced 30% compared to the 2014 benchmark. Consequently, VSB Barreiro implemented an action plan in 2015 to reduce industrial and domestic water loss, increase internal water recirculation, drill wells and develop internal campaigns to change behavior in order to encourage the saving of water resources, and in particular lower the fixed consumption level, with an objective of reducing water consumption from the public network by 32% in comparison to 2014. In 2016, these actions concerned the flow measurement system and the completion of well drilling, which allowed intakes to be reduced 26% compared to 2015. In 2017 and 2018, new progress was made, which allowed the initial objective to be surpassed.

The two large plants at the Rath site (Germany) operate with 33% rainwater.

In Montbard (France), the Vallourec Bearing Tubes plant uses 82% of the rainwater collected in two basins and the Valinox Nucléaire plant fine-tuned a new rainwater treatment and recovery system to produce very high quality industrial water for 25% of its needs.

**Water intake – 2002-2018\***

Year	Total water intake (m <sup>3</sup> )	Water intake per metric ton processed (m <sup>3</sup> /metric ton)
2002	11,526,990	2.71
2007	9,554,272	1.78
2012	7,868,009	1.60
2013	8,857,826	1.60
2014	7,831,288	1.40
2015	5,630,516	1.99
2016	5,672,035	1.85
2017	6,179,371	1.36 (1.23 without rainwater recovery)
2018 (including Tianda)	6,889,346	1.25 (1.14 without rainwater recovery)

\* For steel mills, tube mills, finishing lines, and related services.

**New methodology**

The Group now considers that except for the mine and for the reasons mentioned above, it is desirable to integrate all of the production units into the reporting, i.e., to also take the forest and pelletization unit into account.

On this basis, 2018 intake rose to 7.50 million m<sup>3</sup> for the entire Vallourec scope, excluding the mine. The corresponding ratios (with and without rainwater) were 1.25 and 1.36 m<sup>3</sup>/metric ton respectively, which are very satisfactory levels.

**D) QUALITY OF WASTEWATER**

Over these past few years, the quality of plant waste has improved.

Process water can be discharged into municipal networks (most sites) or into the natural environment after being treated at internal purification plants. The Group aims to reduce the quantity of discharged wastewater by increasing internal reuse. Sites are monitoring the following parameters, which the Group has been reporting since 2018 in metric tons released into the natural environment. The 2018 assessment is thus as follows, and the 2017 figures have therefore been reviewed:

- SPM (suspended particulate matter): 17.1 tons compared to 15.7 tons in 2017;
- COD (chemical oxygen demand): 77.2 metric tons compared to 63.6 metric tons in 2017;
- BOD (biochemical oxygen demand): 18.0 tons compared to 9.7 tons in 2017;
- TH (total hydrocarbons): 0.35 tons compared to 0.4 tons in 2017;
- Heavy metals: 0.46 tons compared to 0.745 in 2017.

Increases are a result of considering the Tianda plant and the restarting of the Jeceaba blast furnace, which was an exceptional event.

The progress is notably a result of the actions at the Saint-Saulve site, and at the Aulnoye-Aymeries (France) site where a very high-performing dephosphoration system was put into service.

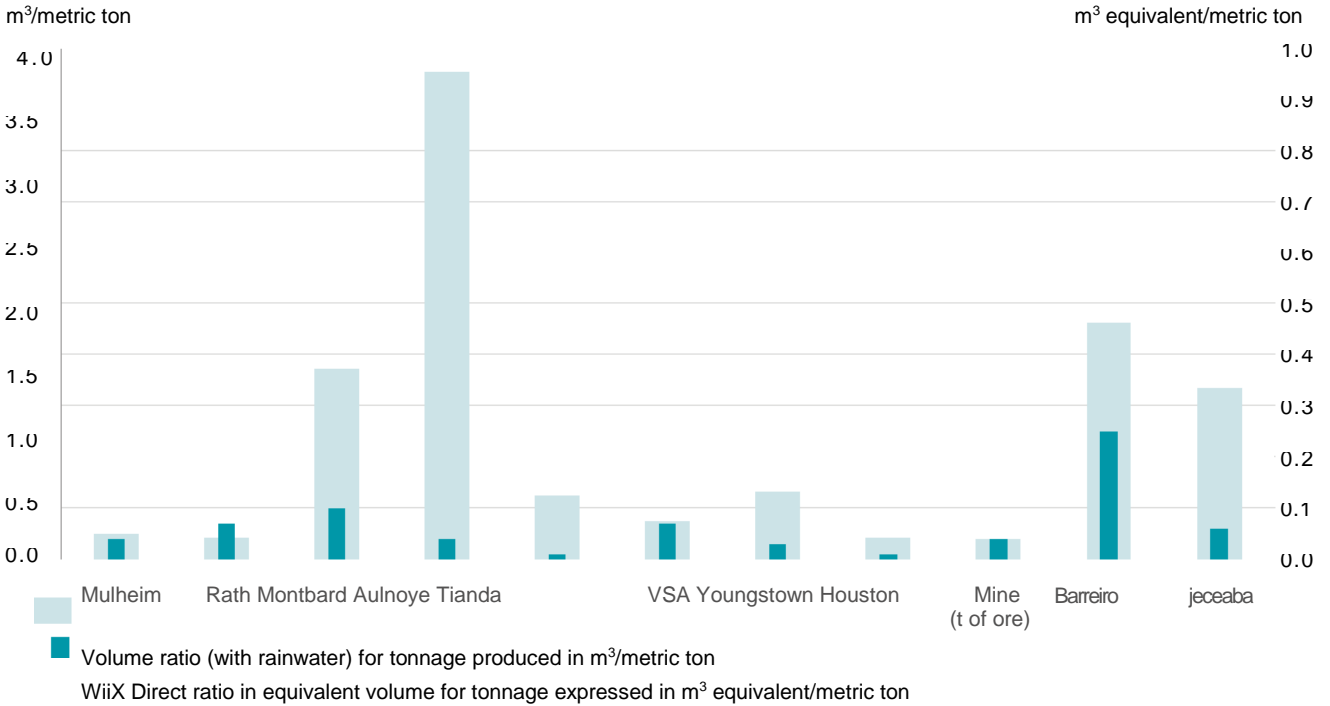
Water management is not limited to measuring intake in natural environments or municipal networks, or to monitoring the quantity and quality of waste. The materiality analysis mentioned above showed that the stakeholders devoted increased attention to water management. That is why the Group is tracking and analyzing its "water footprint" thanks to an indicator known as the "Water Impact Index". This indicator takes into account the volumes abstracted and discharged, the quality of the abstracted and discharged water, and stress factors (water scarcity and the hydrological context). Expressed in equivalent m<sup>3</sup> as related to the site's production, it synthetically measures the impact of each site with regard to the available water resources in the basin to which it belongs.

Launched in 2011, this study was repeated in 2015 and again in 2018 (2017 data) for the 11 most important sites, considering the new industrial scope: in Germany (Mulheim, Rath), in France (Montbard, Aulnoye-Aymeries), in China (Tianda), in Saudi Arabia (VSA), in the United States (Youngstown, Houston) and in Brazil (Pau Branco iron mine, Barreiro and Jeceaba). In order to take into account the latest developments in the conditions of catchment areas, a more precise stress factor was used in the study: the AWARE indicator, which was developed in 2016 as part of the WULCA (Water Use in Life Cycle Analysis) university project.

Several sites from the study use recovered rainwater (Rath, Aulnoye-Aymeries and Montbard). Jeceaba pumps river water and is beginning to collect rainwater. Youngstown gets its supply through the municipality from two dams that store rainwater. The Saudi Arabia site is supplied by desalinated ocean water. Each site thus adapts to its immediate environment to reduce its own footprint.

The WIIX measures the impact of water intake and returns in the basin concerned. It is clear that only the Barreiro site merits particular follow-up.

The summary graph below calls for the following comments:



- Mulheim and Rath have strong production, and therefore a low water usage ratio. Water is in large part returned to the natural environment, through purification plants, which results in a low WIIX;
- The two Montbard plants produce special low-tonnage tubes. One of them uses 100% rainwater, and the other 25%. The WIIX thus remains low despite it being a very fragile basin;
- The Aulnoye-Aymeries site contains several very different workshops and primarily uses rainwater collected on its site (88%). The use of this large volume with regard to metric tons produced thus has little impact, despite it being a very fragile basin;
- Tianda is similar to Mulheim: its tap water consumption is a bit high, but the WIIX remains low since it is a region with many rivers and lakes;
- VSA in Saudia Arabia uses desalinated seawater. Its impact is thus low despite being in a desert region;
- Youngstown is an integrated site that has an electric steel mill and two rolling mills. Its water consumption is thus higher, although the Ohio region has numerous dams and rivers that provide good quality water. The WIIX is thus very low;
- Houston has several finishing workshops. The water consumption is controlled and the WIIX low;
- The Pau Branco mine (Brazil) pumps very large quantities of water to be able to access the iron ore, but 90% of this water is returned to the natural environment (watering and river);
- Barreiro is undergoing a full restructuring (shutdown of the second blast furnace midyear) and its water intake should be able to continue to drop. This site is in a growing urban area. The tap water used is thus in competition with the needs of the population;
- Jeceaba is resuming the Barreiro steel production with a blast furnace and electric steel mill, as well as a rolling mill. Water is abstracted from a river and in large part returned.

The general conclusion is that the impact from water intake in the Group's sites is very reasonable, the result of the management efforts taken. Indeed, the average WIIX is around 0.07 m³ equivalent per metric ton with a maximum of 0.25 for the Barreiro site. These figures are comparable to the WIIX of major integrated European steel sites, which are between 0.20 and more than 0.30. The Vallourec Group can thus also avail itself of very responsible water resource management.

## Energy policy

### ENERGY CONSUMPTION

#### Commitment to responsible performance

**> Improve the energy efficiency of our equipment and reduce carbon emissions from our manufacturing processes**

#### INDICATOR

Energy consumption in kWh/metric ton processed.

In 2018, energy consumption was  3,680 GWh for natural gas, or 666 kWh per metric ton, and  1,881 GWh for electricity, i.e., 341 kWh per metric ton. Overall, total energy consumption (on a like-for-like basis including Vallourec Tianda (formerly Tianda Oil Pipe) increased 4.5% compared to 2017, while specific consumption dropped by nearly 1%.

This strong performance reflects the energy savings actions (investments, ongoing improvements, management).

In 2018, we integrated electricity, natural gas and fuel (oil, gas oil, propane) from the following sites into Vallourec's energy assessment:

- the Tianda Chuzhou plant (China);
- the pellet manufacturing unit supplying the Jeceaba steel mill (Brazil);
- the Vallourec Mineração iron mine (Brazil).

In 2018, energy consumption (gas and electricity) represented an expense of €235 million (€258 million in 2017 foreign currency), compared to €227 million in 2017 (with the Tianda site), i.e., a 14%

#### 2019 OBJECTIVE

Set at the beginning of the year, it will incorporate the data from the Tianda site based on the values obtained and analyzed throughout 2017.

increase while energy consumption increased 4.4%. This is explained by several reasons, notably by the production level, geographic mix of production, consumption conditions, and the price and currency effects. This amount is equivalent to nearly 6% of the 2018 revenue, compared to 5.4% in 2017.

The Group also uses biomass as a source of energy for its pelletization unit and blast furnaces in Brazil. It owns 230,000 hectares of eucalyptus plantations and forests, for the production of charcoal, which is used to process the iron ore into pig iron in the Blast furnace.

The table below shows the energy sources used by the Group:

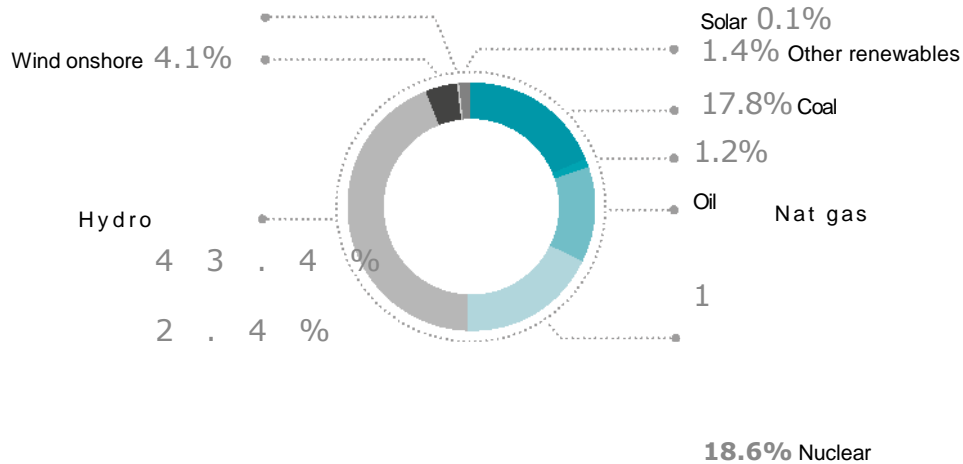
Energy source	Unit	Renewable Non-renewable		Total
		Energy	Energy	
Electricity purchased		923	959	1,881
Natural gas	GWh	–	3,680	3,680
Fuel		–	207	207 <sup>(a)</sup>
Charcoal		2,097	–	2,097
<b>TOTAL</b>	<b>GWh</b>	<b>3,020</b>	<b>4,845</b>	<b>7,865</b>
Energy consumed	%	38%	62%	100%

(a) Including since 2015, the fuel needed to produce electricity at certain sites, such as PTCT.

In 2018, renewables accounted for nearly 38% of the energy consumed on a Group scale. This figure was 42% in 2017 and 37% in 2016. The slight drop compared to 2017 is explained by the integration of the Tianda sites in China and the pelletization unit in Jeceaba (Brazil), which uses natural gas.

As concerns electricity, in 2018 (as in 2017), the Group also based itself on information from its providers, "market-based" data, and on "location-based" national energy mix data. This allowed the Group to better measure the impact of its choice of energy supply sources and to better manage them to reduce the Vallourec Group's carbon footprint.

The average “energy mix” is summarized by the graph below:



The share of renewable electricity represents 49.04% of the total, which is satisfactory. It primarily comes from the hydraulic dams of Brazil. The non-renewable portion is distributed between coal (China, United States), nuclear (United States, France), and natural gas (United States, Germany).

The portion of non-carbon electricity (renewable and nuclear) reached nearly 68%.

#### THE GREENHOUSE PROJECT

In an effort to significantly reduce energy consumption, starting in 2009, the Group established the GreenHouse project, which aimed to reduce total gas and power consumption by 20% by 2020, for an equivalent scope, product mix and level of activity, using 2008 as the reference year. With this project, Vallourec is also acting to promote a “low-carbon” economy, contributing to reducing greenhouse gas emissions. This commitment was further affirmed in January 2018 with the publication of the Group's Carbon Policy, which was signed by the Chairman of the Management Board.

The GreenHouse project is rigorous in its approach and is supported by Vallourec Management System tools and methodologies (see above). It is one of the levers of the Group's Energy and Carbon Policy and centers around the following main elements:

- sharing of best practices, led by Practice Communities, which include energy and industrial process experts in all energy-related areas (thermal, electrical, compressed air and steam production processes) and the organization of numerous Continuing Improvement Groups acting exclusively in the energy sector to improve the Group's performance. Seven objectives on the different aspects of energy efficiency have been drafted and issued as a working document for the continuous improvement groups;
- numerous quick wins as a specific result of the actions in question;
- the introduction of thermal balances and energy audits:
  - thermal balances to date, covering over 80% of the Group's furnaces. The furnace performance analysis helps to identify areas for improvement and to propose investments to increase energy efficiency, such as the installation of regenerative burners, steam heat recovery systems and better insulation,

- energy audits at the Group's major sites identify the equipment or workshops that use the most energy, and prioritize future actions;
- a self-assessment system for sites controlled by the project leaders.

In 2018, internal steel and tubes production increased 5.3% compared to 2017, on a like-for-like basis, including the 2017 and 2018 production from the Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) plant (China).

The Group's total gas and electricity consumption (including Tianda, the mine, the forest, and the Brazilian pelletization unit) increased by 4.7 and 4.4% respectively compared to 2017.

Energy consumption per metric ton processed in 2018 was 666 kWh/metric ton for electricity and 341 kWh/metric ton for gas, compared to 672 and 343 respectively in 2017 (on a like-for-like basis). Accordingly, between 2017 and 2018, specific energy consumption dropped 0.6% for electricity and 0.9% for gas.

The energy performance for each year was calculated until 2014 using a straight-line model of consumption, taking into account the production volume and mix effect represented by the percentage of heat treatment compared to the 2008 reference year. Production levels and the organization of production (periods of stoppage and work at a given post) for 2015 and 2016 have no longer allowed such a model to be used. Furthermore, the Group's industrial footprint changed considerably in 2017, which led it to decide to change its method. With Vallourec's situation having been stabilized, the Group chose to determine its intrinsic energy performance in 2018 compared to 2017, which became the new reference in place of 2008, which was the source of the Greenhouse project. New objectives for 2025 were set in 2018 based on new assumptions and based on the Group's new scope. They will be published in 2019 under the SBT initiative process (see below).

Several remarkable actions leading to energy savings were carried out in 2018:

- in Aulnoye-Aymeries: establishment of a speed variator on the combustion air fan of a furnace, drop in temperatures of standby furnaces, leading of ongoing improvement groups for energy performance;
- in Youngstown: improvement of compressor performance and monitoring of the network distributing compressed air in the two rolling mills;
- in Jeceaba: charcoal dust supply to pellet plant burners;
- in Tianda: reduction of heat losses and improvement in regulation of the rotary hearth furnace heating billets for the rolling mill.

### THE VALLOUREC ENERGY MANAGEMENT SYSTEM

To take this to the next level and incorporate sustainable energy management into industrial processes, the Group developed the Vallourec Energy Management System based on the methodology of the GreenHouse project and international energy efficiency standard ISO 50001.

As mentioned in its Energy policy, Vallourec is committed to having its primary production facilities ISO 50001-certified. The certification has been obtained for the Barreiro (Brazil), Vallourec Oil & Gas UK (United Kingdom), Vallourec Tubes France (Saint-Saulve and Aulnoye-Aymeries sites), Vallourec Deutschland (Germany), Valinox Nucléaire (France) and Vallourec China sites and, since 2018, for the Jeceaba site (Brazil). The production at these sites thus represents 40% of the total production.

The success of the certification and the sustainability of results depend on:

- energy efficiency training: several hundreds of operators were trained in dedicated energy efficiency sessions in France, Brazil

#### 4.2.4.3 Impacts and emissions

##### Air quality

To preserve the quality of the air surrounding its plants, the Group systematically measures the levels of atmospheric emissions and implements appropriate solutions to limit each type of emission. The emissions produced by plants are gas compounds and particles.

##### GAS COMPOUNDS\*

- Nitrogen oxide (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) emissions come from furnaces for steel billets and from the heat treatment of tubes. To limit these emissions, all furnaces are fed by natural gas, which is low in emissions, and every year some of the older burners are replaced by more efficient or "low-NO<sub>x</sub>" burners that meet the highest technical specifications for this type of emission. In 2018, 719 metric tons of NO<sub>x</sub> were emitted (as compared to 633 in 2017), an increase connected to the recovery of activity and the integration of Tianda, and 6.42 metric tons of SO<sub>2</sub> were emitted, compared to 5.9 in 2017.
- Emissions of volatile organic compounds (VOCs) come from our facilities for tube lubrication, lacquering and painting, and for degreasing and cleaning tubes and machinery parts. They also come from oily vapors from rolling or cold-forming facilities and machine tools. In 2018, the nominal amounts of VOCs that were emitted, meaning before trapping and filtration, were estimated at 535 metric tons (260 metric tons in 2017). The quantity of VOCs emitted practically doubled due to the integration of emissions from the Tianda finishing plant, which has numerous lines of solvent varnishes and paints. Atmospheric emissions were thus considerably higher, especially since finishing activity increased in 2018. Actions are put in place every year to reduce VOC emissions at the source, by coordinating with product suppliers and the process community and, if that is not possible, channeling and treating emissions. As concerns vapors from surface treatments, facilities are equipped with a retention and treatment system in compliance with applicable regulations.

After the progress made in the past few years, the main source of the Group's VOC emissions is now linked to the temporary protection of OCTG tubes. Efforts to limit VOC emissions in future years will concern the corresponding facilities.

and Scotland, with experts from each site and the assistance of specialized organizations. The training is given in various technical disciplines, such as compressed air, thermal combustion, industrial cooling, lighting, mechanization and renewable energy;

- real-time metering systems, known as "Advanced Metering Management," at the largest sites in Brazil, France, Germany, Scotland and the United States.

##### EXPANSION OF ENERGY PERFORMANCE RESEARCH

Vallourec Florestal, which manages the Brazilian forest, is also seeking to improve energy performance. Its teams developed a more efficient carbonization process that improves the mass transformation rate of wood into charcoal from 29% to nearly 35%. The procedure is applied to investments in new furnaces. This has led to (i) a decreased need for wood and cultivated areas for production of cast iron, (ii) a very considerable reduction in methane emissions as compared with m<sub>3</sub> of charcoal, as well as (iii) a reduction in the heat dispersed into the atmosphere.

Without the Tianda site, the Group's annual emissions of VOCs for 2018 would have totaled 323 metric tons due to the clear recovery of finishing line activity.

##### PARTICLES

- The main potential sources of particulate emissions are steel mill furnaces and hot-rolling. Every year, retention systems are improved to continuously reduce the corresponding emissions.
- The conditions for replacing refractories in electric arc furnaces and ladle furnaces were also modified to avoid the generation of dust. In Youngstown, since the installation of the dust extractors, the working environment has considerably improved. Particle retention is very efficient and abstractions show that the heavy metal content released (chrome, lead, nickel, etc.) is well below the authorized limits.
- Tube mills and finishing plants also produce dust from facilities for hot rolling, grinding and polishing tubes. Processes for sealing, aspiration and filtering are incorporated into the machinery to collect dust at source. Where necessary, these systems can be supplemented by extraction devices and filters on the roof to capture diffused emissions.
- Trucks, cars and other handling equipment circulating outside the buildings are also a source of dust emissions. To ensure that personnel and neighbors are not inconvenienced by dust clouds, the road surfaces are coated with concrete or macadam. They may also be watered during a dry period to limit re-entrainment.

In 2018, the Group's particulate emissions totaled 487 metric tons.

\* The 2017 figures are on a like-for-like basis, i.e., excluding Vallourec Drilling.



<b>Atmospheric emissions</b> (metric tons per year)	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
VOCs	460	551	429	319	260	535
NO <sub>x</sub> *	772	729	511	492	633	719
SO <sub>2</sub> *	6.9	6.5	4.6	4.4	5.9	6.4
Particles	N/A	N/A	N/A	N/A	N/A	487

\* In 2018, the data calculated using gas consumption represented 89% of the data published.

## Soil

### FRENCH FACILITIES

Because of sites being old, all soil studies have been completed at the Group's initiative without being required by the authorities. The results of these investigations prompted some facilities to introduce piezometric sensor-based monitoring of underground water, after obtaining permission from the relevant authorities. The list of monitored sites is included in an official database known as BASOL.

The Cosne-sur-Loire site, which stopped its activities in 2017, continued its treatment of soil and groundwater pollution after the transfer of the machinery to the Villechaud site. In 2017, eight new piezometric tubes for monitoring groundwater were put into service, in addition to the seven already in existence, and the site was completely cleaned. In 2018, with the continued stoppage of activity and in agreement with the DREAL, a rehabilitation project was prepared. At least 77 samples were taken to investigate the soil. These studies will allow technical solutions to be implemented to address certain traces of pollution.

In 2018, investigations and diagnostics were carried out in Déville-lès-Rouen and Saint-Saulve as part of site reindustrialization projects.

In Aulnoye-Aymeries, underground investigations were conducted on an old disposal site for miscellaneous materials. By 2020, it will be confined and placed under monitoring following a new prefectural order.

In Montbard, underground investigations were conducted on an old disposal site, following a 2002 prefectural order.

### FOREIGN ENTITIES

After analyses, and with permission from the local authorities, groundwater monitoring systems were set up at two facilities in Germany. As far as the Group is aware, there is no contamination at the other sites.

In Brazil, the only potential risks relate to the Barreiro plant in areas of the site previously used to store waste. A depot formerly used to store slag (a metallurgical by-product of the cast iron process) and a former sludge depot were made compliant. They underwent landscaping and the quality of the groundwater is being periodically monitored by a piezometric system. A program to make a former solid industrial waste storage site (wood, plastic, scrap, etc.) compliant with legislation, which began in 2004, is now being completed: the polluted soil has been removed and the land rehabilitated, allowing it to be considered for reuse for industrial or logistical activities.

In the United States, the industrial land is leased. Soil analyses were conducted at the majority of the sites prior to Vallourec's starting operations, in order to establish a baseline. Many of those sites are located in areas that have been industrial for many years. To the Company's knowledge, there is no record of any significant incident resulting from Vallourec's tube and steel production activities that has led to soil pollution.

## Waste and by-product management

### À Commitment to responsible performance

#### > Respect our environment by recovering our waste

##### INDICATOR

Percentage of waste recovered.

##### ACHIEVEMENT OF THE 2018 OBJECTIVE

The recovered waste rate reached  **95.5%**, sharply up from 2017, considering the change in scope.

##### 2019 OBJECTIVE

Given the progress made, the 2019 objective has been set at 96%.

As is the case with all industrial activities, the Group generates significant quantities of various types of waste. In 2018, 731,488 metric tons of waste was produced, which includes the mine and the pelletization unit (720 kilotons in 2017 with Tianda), and including 3.3% of hazardous waste (3.6% in 2017), a rate that has clearly been reduced in just a few years.

The key indicators for their management are as follows:

	2013	2014	2015	2016	2017	2018
Waste (in thousands of metric tons)	626	669	467	459	697 (566)(a)	731
Waste/production processed (%)	11	12	17	15	13	13
% hazardous waste	8.6	6.1	6.1	6.0	3.5 (4.3)(a)	3.3
% recovery	92.7	93.5	94.8	94.4	94.0	95.5

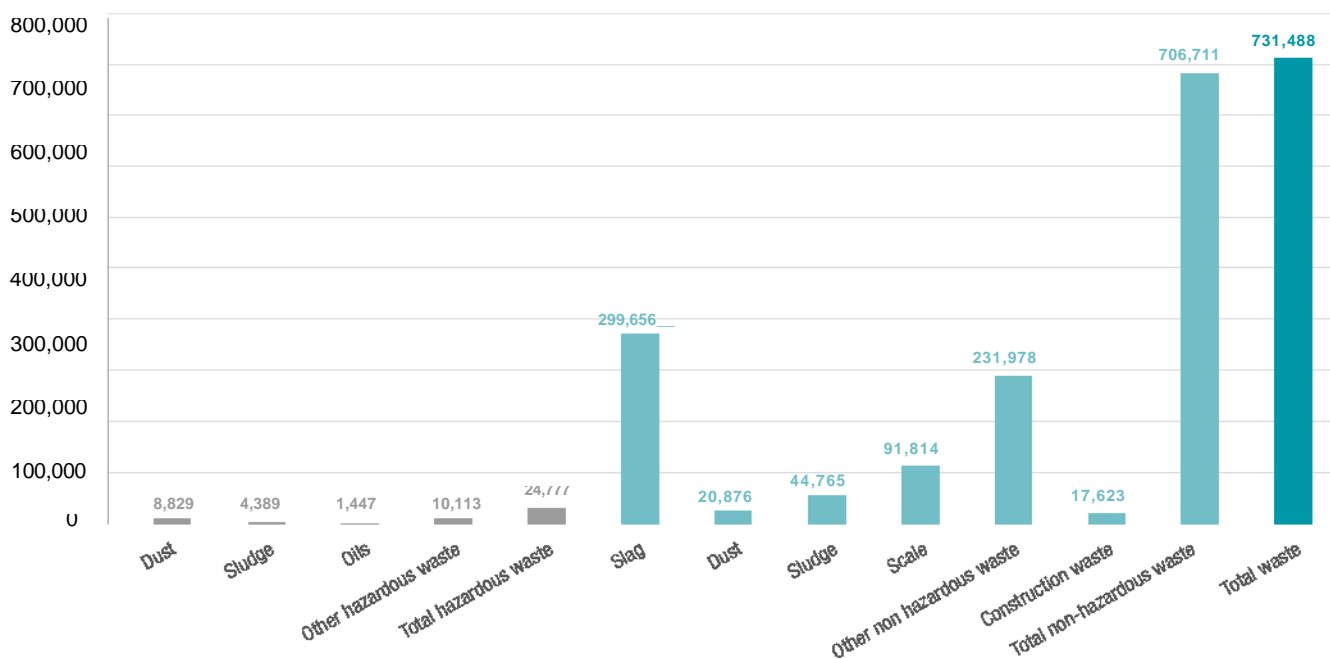
(a) The data in parentheses corresponds to the waste balance, excluding mine and pelletization plant.

The business upturn along with Vallourec's new consolidation scope had an impact on the Group's recovery rate. The Mineração iron mine and the Jeceaba pelletization unit generate a lot of recovered waste,

leading to a recovery rate that was sharply up from 2017 (95.5%), even though a few sites continue to prefer landfilling over incineration due to cost considerations.

A breakdown of the waste produced appears below: in

m<sup>3</sup>/metric ton



To mark its commitment to the environmental issues represented by waste management, starting in 2013, the Supervisory Board, at the recommendation of the Appointments, Compensation and Governance Committee, introduced a waste recovery target into the variable portion of Management Board members' compensation.

In this same spirit, the Group joined the AFEP initiative to promote the circular economy, which became public in February 2017 and was updated in 2018.

### The "By-products" project

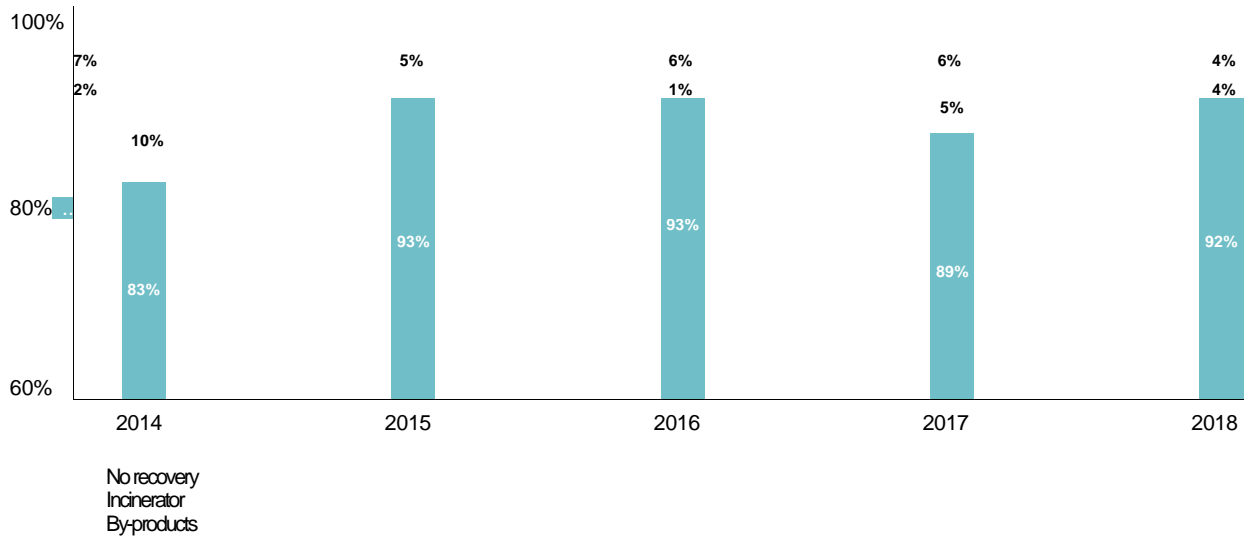
Waste management is a major economic and environmental concern for the Group, which considers that most of such waste should now be treated as value-added by-products and generate operating revenue. This is the objective of the "By-products" project.

Waste is now considered a resource to be exploited rather than an unavoidable consequence of production. Depending on its origin and type, it is managed and treated differently in accordance with local regulations, with maximum emphasis on recycling of materials or energy recovery.

In a spirit of continuous improvement, all waste categories are monitored monthly by each site with the aim of reducing volumes. The percentage of recycled waste in the form of material (by-products) was 91.9%, that of waste incinerated to produce energy 3.6%, and that of landfill waste 4.5%. The recycling of materials significantly increased in 2018, due in large part to the recycling of metal waste. Indeed, the change in scope and the exit of certain sites led us to reconsider recycling metal waste externally. Likewise, the closure of the Barreiro blast furnace and the start-up of the Jeceaba furnace led to changes in waste management in Brazil.



### Waste by end-use



The main levers of progress under the “By-products” project are as follows: “Reduce, reuse, recycle”:

- the reduction of waste volumes, and above all the share of hazardous waste in connection with the decrease in chemical risk;
- identification, consolidation and optimization of output for process sludge (from rolling and surface treatment), metallic residues, scale and dust;
- identification of the best channels for recycling for blast furnace slag sold to the cement industry;
- recovery of metallic waste (turnings, chips, etc.) to processes outside the Group;
- increase in the recovery rate by promoting the recovery of material rather than energy. The consolidated Brazilian sites of VSB Barreiro and VSB Jeceaba, after tests in 2013, have been using blast furnace sludge as a source of enrichment for the soil in eucalyptus forests, and as raw material for the ceramic industry. The steel mill sludge from the VSB Barreiro plant is now 100% recycled using iron ore particles to manufacture sinter feed.

By way of example, in 2018 the local teams opened new waste management channels and generated additional revenue by implementing the following initiatives:

- in Youngstown (United States), “bad” scale, which was previously sent to the landfill, now continues to be mixed with “good” scale. The resulting combination is sold to companies in the cement sector. This new business opportunity has allowed the amount landfilled to be reduced, and has decreased treatment costs. Vallorec Star Youngstown also changed its sludge dehydration practices. The addition of sawdust allowed it to reduce the amounts of sludge that are sent for treatment;
- in Brazil, numerous trial programs were launched in 2017 to reuse certain waste internally through the steel mill, mine or pellet plant (sludge, dust) or to open up new channels for recycling. Additionally, the restructuring of the sites in Brazil also allowed considerable progress to be made to reduce landfilling;

- the renegotiation of certain contracts;
- the sites of the Montbard basin (France) chose to incinerate their waste instead of landfilling it, despite a slight increase in cost applied by the supplier.

### TREATMENT OF HAZARDOUS WASTE

Posing a risk to health and the environment, hazardous waste (classified as such due to the hazardous substances it contains) is subject to special treatment. The percentage relating to all waste, i.e., 3.3% in 2018, dropped slightly in comparison to 2017 (3.5%).

The Group has identified two important hazardous waste categories on which it is working:

- organic waste (sludge, oils); and
- solid mineral waste (dust).

Hazardous waste requires specific management: handling and storage are subject to strict safety rules to preserve the environment and health of the staff handling them. Furthermore, this waste is generally not very recoverable as is, and processing costs are significant.

There are thus two possibilities that have been explored by the By-products project: either reducing the portion of hazardous substances at the source, or separating that portion from the rest of the waste concerned through pre-treatment. For example, the water treatment station at the Youngstown site was able to improve the separation of mill scale particles and oil, which is responsible for its hazardous classification. Non-oily mill scale, which is not classified as hazardous, may thus be recovered for its material. The establishment of small waste oil treatment units allowed for a corresponding decrease in the generation of this waste, which is reused internally after treatment.

In Youngstown too, a change in operation for neutralizing the used phosphate and stripping baths allowed these baths to be sent to the evapo-concentrator and thus to reduce the amount of hazardous waste sent for treatment, thereby reducing costs.

## Noise

Among actions to continue preventing noise pollution, in January 2012 the Sustainable Development Committee defined a noise action plan. This approach is part of the discussion conducted by the Group in accordance with the Sustainable Development strategic five-year plan to increase attention paid to employee health. The new Health and Safety policy published in 2016 clearly mentions this.

The Group's activities inevitably involve noise.

The noise arises from various sources: steel mill furnaces, the cutting and storage of steel bars, the impact between bars and tubes, and the steel-rolling process. Several types of action are in place to limit noise, reduce it as far as possible or eliminate it entirely. The most effective actions are those that allow noise to be reduced at its source. For example, some plants replace pneumatic movement commands by hydraulic movement commands or incorporate rubber between tubes to avoid a much noisier direct impact. Similarly, the tubes are cleaned with Venturi-type nozzles instead of standard nozzles.

The Vallourec Group wants to best protect its employees and local residents from the noise emitted by the machines (steel mills, rolling mills, cutting) from moving products (impact between bars or tubes) and by transporters (trains, trucks).

To determine noise levels, the sources of noise are measured and analyzed. Depending on local constraints, these measurements are taken internally, at the edge of the site, or at neighboring properties, if the plant is situated close to a residential area. At certain sites, very elaborate systems have been installed. They allow noise to be measured at very precise locations and to determine its source. Simulation software is often used to assess the reduction of noise levels that various insulating systems might provide.

To that end, the following actions have been recommended since 2012:

- establishing noise maps on the most critical and representative sites of sound levels in different workshops and staff exposure based on their number and the length of time spent working in the areas concerned;

### 4.2.4.4 Climate change

#### Greenhouse gas emissions

The Group published its Carbon policy in January 2018. Its goal is to continue to better understand all of our emissions, reduce our direct and indirect emissions, position them in the dynamic of commitments of the Paris climate agreement, integrate a €40 carbon price into our decision-making processes, pursue the development of products that respect the environment, and make sure that our industrial assets will resist the future impacts of climate change.

Further to the commitments made in 2015 as part of the preparation for COP 21 and to the adhesion to the "business proposals in view of a 2015 international climate change agreement at COP 21 in Paris" initiative launched by 80 international companies, in late 2017 Vallourec, with 90 other French companies, signed a new version of the French Business Climate Pledge in order to contribute to a new low-carbon economy thanks to a significant effort to finance R&D projects and *ad hoc* investments.

- analyzing and improving the behaviors of employees and providers in the workshops;
- implementing best practices for new investments and refittings;
- reducing nuisances at the property limits, and thus for local residents;
- favoring group protection over individual protection measures;
- reducing noise at the source.

The project to install a new saw at the Mülheim site (Germany) shows how the noise disturbance is effectively considered starting from the earliest phases of ecodesign.

The project validation process incorporates an identification of the impacts on the noise in the workshops and the environment. The site has thus contacted an acoustics firm and implemented their recommendations, as follows:

- the machine was delivered covered so as to not exceed the limit of 85dB in the workshop;
- simulations of the impact on the sound level around the plant were made at four points of reference for local residents and allowed it to be verified that the future operation of the saw will not increase the ambient noise level;
- the study also allowed other sources of specific noise to be identified (impact from billets), and two screen walls were installed to absorb the sound.

In 2018, of the 30 industrial sites, employing more than 15,000 employees, 65% of the actions recommended above (compared to 39% in 2014) were completed or undertaken, which represents a strong increase in taking the noise issue into consideration. An additional effort should nevertheless be made to fine-tune knowledge of the noise sources and establish adapted action plans.

During investments, prior documentation on the impact from new noise sources must be provided to the Capex Committee in charge of validating projects. Sound level measurements before and after the completion of work are most often requested.

It is also worth mentioning that, since 2013, Vallourec has been improving its public report under the Carbon Disclosure Project each year. Its evaluation in terms of transparency and performance has improved, since its ratings between 2012 and 2015 respectively went up from 63 to 98, and from D to C. The results of the abovementioned study and the precision of the information provided helped to further raise the rating of our commitment to a low carbon economy, earning a rating of A- in 2016, which was confirmed in 2017 and 2018.

Accordingly, in 2018 Vallourec examined, with the assistance of specialists, whether its emissions pathway could fit within the "Science based targets" approach by 2025, which aims to assess the compatibility of companies' efforts with the provisions of the 2015 Paris Agreement. Based on the findings of the analysis, the Group's Management decided to join the Science Based Targets Initiative (SBTI) in late 2018.

## ANALYSIS OF EMISSIONS

(see detailed table in appendix 4)

Reducing greenhouse gases and, first and foremost, being aware of its emission level, is a goal for Vallourec.

1. It should be noted that in 2015 a detailed analysis of the carbon cycle for the forest operated in Brazil was completed with the help of university and institutional experts.

The study, which went on for several years, aimed to provide evidence that the Company had managed this forest responsibly from a carbon emissions standpoint, that it had a sound methodological basis that would allow it to estimate the emissions with sufficient precision, and, correspondingly, to set a medium-term emissions objective.

The 230,000 hectare forest area operated by Vallourec Soluções Tubulares do Brasil (VSB) within its Florestal subsidiary consists of a so-called native forest, which represents approximately one third of the surface area. It is kept as is, while the other portion is cultivated. Every year, about one seventh of the cultivated forest is cut down for the production of charcoal, and that area is then immediately replanted. As they grow, trees absorb CO<sub>2</sub>. The trunks of harvested trees are transformed into charcoal, with a high carbon content, in furnaces designed for that purpose. The charcoal then enters the cast iron manufacturing process needed to manufacture steel in addition to iron ore. This process, which leads to the combustion of charcoal, results in CO<sub>2</sub> emissions. Until now, the generally accepted assumption of the profession in Brazil was that this CO<sub>2</sub> was gradually reabsorbed by the forest during its growth through photosynthesis.

The study in question provided specifics, over a long period, about the quantity of carbon put into play from the two-fold perspective of measuring stock and measuring the flows of carbon and greenhouse gas, taking into account initial deforestation operations. It was conducted by VSB's Sustainable Development Department, with the assistance of the University of Lavras, Professor Caetano of the University of Viçosa, and with the participation of Professor Sampaio as an expert consultant from the SR office of the GeoConsult consultancy firm, all under the methodological control of the National Forests Office, in France.

The study considered the scientific research and data that have been available for the past 30 years, and in particular used the public aerial surveys, which allowed the scope and nature of the native or exploited forest to be reconstituted over this period.

Particular care was taken, firstly in calculating the emissions at each stage in the processes of exploiting the forest and carbonization, using the scientifically recognized methods, and secondly, with regard to analyzing the phenomena of carbon sequestration in the atmospheric and underground biomass. The study lastly concerned the role of soil from the viewpoint of carbon retention, thanks in particular to on-site measurement initiatives on various kinds of soil, and around stumps and roots of trees at various stages of growth. This study will be made public once it is finalized.

In essence it shows that, in the 1983-2013 period, i.e., in 30 years, the forest sequestered 29.6 million metric tons of CO<sub>2</sub> equivalent, after taking into account the particular power of methane as a greenhouse gas emitted during carbonization. It also shows that, after considering the CO<sub>2</sub> emissions during the cast iron manufacturing process in the blast furnaces, the net sequestration over this period is 7.4 million metric tons per year, or on average 250 thousand metric tons per year; even though, until now, due to the conservative assumptions adopted, the estimated annual analysis was an emissions level of approximately 300 thousand metric tons.

Based on this information, it was thus possible to redefine a method for calculating the carbon analysis of the forest/blast furnace system that was used to establish the Group's annual carbon analysis since 2015 on more precise bases.

The calculation done for the 2018 analysis again shows a very significant level of sequestration (more than 3.13 million metric tons of CO<sub>2</sub>), which is the result of the forest management process by our subsidiary Florestal. This is why Vallourec considered that the sequestered carbon should be included in the calculation of "scope 1" biogenic emissions as a "negative" emission.

2. Emissions were calculated using the GHG protocol methodology, which distinguishes between direct, fossil and biogenic emissions (scope 1), indirect emissions from electricity consumption (scope 2), and indirect emissions from other sources of emissions based on the Group's full scope (scope 3).

In short, the full simplified carbon analysis is as follows (the detailed analysis is commented on in appendix 4):

Simplified carbon footprint (CO<sub>2</sub>e and CH<sub>4</sub> equivalent)

Type of emissions	2013	2014	2015	2016	2017	2018 <sup>(a)</sup>
Non-biogenic direct emissions (scope 1) (CO <sub>2</sub> e in thousands of metric tons)	1,126	1,273	580.3	550.9	652.3	927.1
Biogenic direct emissions (scope 1) (CO <sub>2</sub> b and CH <sub>4</sub> b in thousands of metric tons)			2,321.9	2,121.4	2,348.5	2,626.4
Total biogenic sequestration (scope 1) (CO <sub>2</sub> b in thousands of metric tons)			(3,275.7)	(3,141.2)	(3,078.6)	(3,132.2)
<b>TOTAL DIRECT EMISSIONS (SCOPE 1)</b> (CO <sub>2</sub> e in thousands of metric tons)	<b>1,126</b>	<b>1,273</b>	<b>(373.5)</b>	<b>(468.8)</b>	<b>(77.7)</b>	<b>□ 421.4</b>
Indirect emissions (scope 2) (in thousands of metric tons)	580	696.2	422.8	518.3	410.6	□ 436.3
Indirect emissions (scope 3) (in thousands of metric tons)	3,195	2,889.9	1,782.9	1,811.3	2,416.2	3844.2
<b>TOTAL EMISSIONS (in thousands of metric tons)</b>	<b>4,901</b>	<b>4,859</b>	<b>1,832.2</b>	<b>1,860.8</b>	<b>2,749.1</b>	<b>4702.2</b>
Specific emissions (in kg per metric ton processed)	899	882	648	606	608	851

(a) Including the emissions from Vallourec Mineração (the mine), the Jeceaba pelletization unit and the Tianda site.

As concerns the so-called non-biogenic scope 1, the first observation is that (non-biogenic) direct ordinary emissions increased by 275 thousand metric tons between 2017 and 2018. This increase reflects:

- the integration of the Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) sites, the Jeceaba pelletization unit, as well as the iron mine (Mineração) into the scope of the consolidated carbon assessment, nearly 210 thousand metric tons;
- the consideration of new carbon-bearing raw materials consumed by steel mills, 55 thousand metric tons;
- the transfer of Brazilian steel production from the Barreiro site to the Jeceaba site, 10 thousand metric tons.

As concerns the so-called biogenic scope 1, emissions increased by nearly 280 thousand metric tons between 2017 and 2018. This is explained by:

- the consumption of carbon from the pelletization unit that was added, i.e., nearly 100 thousand metric tons;
- the Jeceaba blast furnace, which was started to replace the one in Barreiro, i.e., approximately 120 thousand metric tons;
- the increase in charcoal production on the Florestal site, i.e., 60 thousand metric tons of CO<sub>2</sub> and methane (expressed in CO<sub>2</sub> equivalent) generated during the carbonization process.

Conversely, the sequestration of biogenic CO<sub>2</sub> by the Brazilian forest increased 53 thousand metric tons due to the increased activity of Florestal.

We must also keep in mind that:

- two of the Group's three steel mills (Youngstown in the United States and Jeceaba in Brazil) used the "scrap" method to manufacture their steel. The process, which consists of melting scrap and recycled steel in an electric furnace, emits low levels of CO<sub>2</sub>. This industrial feature, which limits the use of fossil carbon in comparison to the cast iron process and its blast furnaces, is one of the reasons why Vallourec's direct emissions have remained moderate;
- in Brazil, the blast furnaces in Barreiro and Jeceaba (before they closed) used charcoal as a primary source of carbon. But as explained above, calculation of the sequestration of the eucalyptus forest has resulted in the Vallourec Group's biogenic direct emissions being negative.

As concerns scope 2, indirect emissions from electrical energy consumption purchased have increased 6.2%, i.e., approximately only 25.5 thousand metric tons of CO<sub>2</sub>, despite the integration of the Brazilian mine and pelletization unit (8.8 thousand metric tons) and of the Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) site (50 thousand metric tons) into the consolidation scope. Emissions savings (33 thousand metric tons) are primarily explained by the less carbon-bearing energy mixes.

Indeed the Group was able to note that the emissions factors (kg CO<sub>2</sub>/kWh) of our American and Chinese suppliers dropped by 14% and 19% respectively.

As in 2017, this assessment was established based on emission factors (kg CO<sub>2</sub> equivalent/kWh consumed) of Vallourec's local electricity suppliers whenever information was available from them, in particular in France, Germany, Brazil and in the state of Ohio where the Youngstown site (United States) is located.

In 2018, the upstream and downstream indirect emissions (scope 3) increased 59% (1,433 thousand metric tons of CO<sub>2</sub>) compared to those calculated for 2017. The strong increase is explained by the consideration of the carbon impact from Chinese steel purchases, produced primarily by the cast iron process, in order to supply the Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) site with steel bars. We have also added the carbon impact from outside purchases of tubes and that of purchases of raw materials for our steel mills. In all, this "upstream" line item increased by 1,620 thousand metric tons of CO<sub>2</sub>.

200 kilotons of CO<sub>2</sub> were partially offset thanks to the improvement of the method for calculating emissions from the upstream and downstream distribution chain, which was implemented with the support of an expert firm.

3. Lastly, thanks to the carbon sequestration by its Brazilian forest, Vallourec was able to limit its direct CO<sub>2</sub> emissions (scope 1) to approximately 385 thousand metric tons. With 2018 revenue of €3,920.7 thousand, the carbon intensity (scope 1 and scope 2) of the Group totaled 0.22 kg per euro, compared to 0.09 in 2017 (without the Tianda site), which remains low with regard to industrial standards.

Vallourec continues to be considered a low-emissions

#### entity. 2020 EMISSIONS PROJECTIONS

The Group's new industrial footprint has been effective since 2017. Under these conditions, the 2020 activity forecast allows us to evaluate what our emissions will be for that time horizon. To that end, we have noted that the operation of a single blast furnace in Brazil renders our forest area over-capacity, such that the sale of a large portion of our forest area will necessary in time.

This was the assumption that was used to calculate the 2020 emissions objective, which would thus be slightly less than one million metric tons for scopes 1 and 2, i.e., a carbon intensity of approximately 0.21 kilograms of CO<sub>2</sub> per euro of revenue. Even though the intensity level remains moderate, it will nevertheless be appropriate to consider accompanying measures to further reduce our emissions, such as using low-carbon electricity, establishing measures to offset our emissions and, in the long term, using systems for trapping our emissions, or even using biogas.

That is what the so-called SBTi process mentioned above will be able to validate, as it should allow an emissions objective to be set in 2025, which should logically be less than the current emissions level.

#### EMISSIONS REGULATION SYSTEMS

Since 2013, both French and German tube mills and the Vallourec Drilling Products site in Aulnoye-Aymeries have fallen within the scope of Directive No. 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing the European Community Emissions Trading Scheme for the third period. It is appropriate to note that the considerable reduction in Vallourec's activity and industrial footprint in France and Germany had the result of reducing the amount of free allocations compared to which the Group could benefit from to date. Therefore, the quotas allotted to the Saint-Saulve steel mill, on the order of 40,000 metric tons per year, have no longer been taken into account since 2017, due to the disposal of majority interests in the Company. The same is true as from 2018 for the quotas allotted to the French site of Vallourec Drilling Products in Aulnoye-Aymeries, due to its sale to Grant Prideco-NOV.





In 2018, the quotas allotted to the sites concerned (five in Germany and four in France) were 168,917 metric tons for Germany (down 1.9% compared to 2017) and to 38,778 metric tons for France (down 57% compared to 2017, due to a reduction in activity at the Vallourec Tubes France sites in Saint-Saulve and Déville-lès-Rouen). Therefore, in 2018, Vallourec still benefited from surplus direct allocations in the order of 27,000 metric tons of CO<sub>2</sub>, although this figure was significantly down from 2017 (approximately 60,000 metric tons).

The impact of the mechanism on the Group's activity is not limited to consideration of its own emissions. European electricity suppliers are obligated to fully cover their CO<sub>2</sub> emissions with emission rights, although it is not easy to measure the corresponding impact on the price of electricity supplied. Furthermore, steel suppliers and, in particular HKM, which uses the cast iron coke-ore process, are also obligated to purchase emission quotas. Therefore, given the low average price of these emission quotas in 2018, the full impact of the ETS system provisions on the Group's operating costs remained very moderate in 2018.

Lastly, we should note that in 2017 and 2018, the European authorities agreed to new provisions applicable starting in 2021 for the greenhouse gas emissions allowance and trading scheme for the 2021-2030 period. The impact on the Group is being evaluated, given its own seamless steel tubes production, as well as the activity of its European steel suppliers, including HKM.

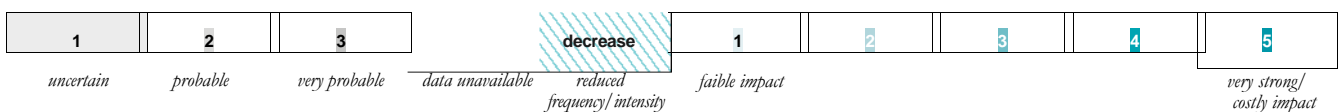
## Adaptation to the impact of climate change

In 2014, the Group conducted a study of the risks related to the consequences of climate change, distinguishing among eight regions with distinct climate characteristics, namely Hauts-de-France, Burgundy, Rhine-Westphalia, Minas Gerais, Ohio, Texas, Batam Island in Indonesia, and the Shanghai region.

Upon an in-depth examination of the public documents and national adaptation plans, the main phenomena identified were the risks of flooding, heat waves and prolonged drought, periods of frost, disturbance of water resources and the evolution of marine or lacustrine life. Some exceptional events could become more frequent (storms and hurricanes) and damage the Group's facilities. The conditions under which the sites are operated could also worsen (availability of water needed for the tube manufacturing process, working conditions at the plants, operation of equipment during heat waves). In addition, the unique ecosystem of Group-operated forests could change or weaken over the long term. For each of these risks, a probability of occurrence was estimated, and the extent of the consequences also evaluated. Lastly, the upstream and downstream supply chains are also likely to be seriously impacted.

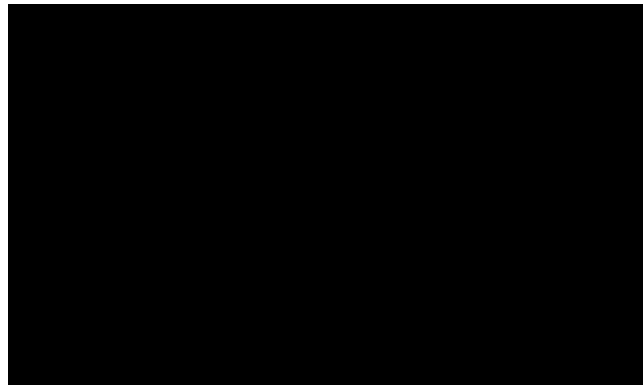
The main conclusions are thus as follows:

	Hauts-de-France France		Burgundy France		Rhine-Westphalia Germany		Minas Gerais Brazil		Ohio/Cleveland United States		Texas/Houston United States		Batam Indonesia		Shanghai China	
	Probability	Impact	Probability	Impact	Probability	Impact	Probability	Impact	Probability	Impact	Probability	Impact	Probability	Impact	Probability	Impact
Increased average temperature	3	1	3	1	3	1	3	2			3	1	3	1	1	5
Heat waves	3	2	3	2	3	2			3	3	3	4	2	3	2	3
Drought	3	2	3	2	2	1	1	decrease	2	decrease	3	4	1	3		
Depletion of water resources	2	2	2	3	1	1	2	4			3	4	1	3	2	4
Snowfall/frost	3	decrease	2	decrease	3	decrease			3	decrease						
Strong rains, flooding and mudslides	3	3	2	2	3	4	3	5	3	5	2	3	1	5	1	5
Storms, tornadoes, hurricanes, etc.					2	1	2	3			2	5	1	5	1	5
Rising sea level	N/A	N/A	N/A	N/A	N/A	N/A	2	3	N/A	N/A	3	5	3	3	2	5
Drop in levels of rivers, lakes and waterways									3	3						



The study, which was conducted in 2014, will be updated in 2019, given the Group's new industrial footprint, the risk trends, recent climate events, and the greater precision of the simulation methods. The findings will be published in late 2019.

Each of Vallourec's industrial sites is in charge of further examining, at a local level, the risks that have thus been identified, and of constructing an adjusted adaptation plan, that is particularly in line with the emergency plans required by the local authorities.



This process starts with a general approach and focuses on the situations that would be deemed most critical, and falls within the mapping of major risks that the Company keeps updated, with the support for the Risks Department and the internal control teams. It also relies on the expertise of the insurance companies and takes their recommendations into account.

The raising of the Santa Barbara dam can be cited as an example (see photo opposite). It serves to retain runoff from the Pau Branco mining site in Brazil. The environmental authorities in the state of Minas Gerais recently decided that this type of dam should now be sized to absorb potential rainwater for 10,000 years instead of 100 years. Indeed one of the consequences of climate change is the increased probability that a phenomenon of a certain intensity will occur.

#### 4.2.4.5 Biodiversity

Summary surveys have been conducted over the past few years at the main Vallourec sites, to evaluate the impact of their activities on biodiversity. No major risk has been identified.

Some of the Group's specific activities nevertheless have a direct link to biodiversity and so very specific measures aimed at protecting it have been established for several years already, or are established for a specific project.

#### Brazil

- The Barreiro site, located in the city of Belo Horizonte, runs an environmental education center at the edge of the city. This 20-hectare center includes three ecosystems: the *cerrado* (savanna), the transitional vegetation, and the *mata atlantica* (Atlantic forest). In 2018, this site developed an environmental recovery project on 2.4 hectares along the edge of the plant, where 800 local trees will be replanted.
- The Jeceaba site created a reference center on the "Atlantic forest" over a surface area of 660 hectares, with the goal of replanting this area with approximately 400 native species of the region. This space includes the legal reserve as well as the "green belt" and "forest belt." A surveillance system for monitoring wildlife has been established. Numerous specimens have been detected, including protected species, which is an indicator of biodiversity and helps protect regional ecosystems.

- The Vallourec Florestal subsidiary operates eucalyptus plantations, which serve to produce the charcoal needed to operate the Jeceaba blast furnace. Approximately half of the surfaces are preserved in their natural state and distributed so as to create corridors for wildlife to circulate. This subsidiary regularly participates in plant and wildlife study projects with Brazilian administrations (Regional Forest Institute), universities (Federation of Universities of Minas Gerais) or international NGOs. In 2018, a project related to understanding the *Pecari Tajaçu (Cateto)*, a small wild pig typical of the region. The *Cateto* project was recognized by the COPAM (Regional Council for Environmental Policy).
- The Vallourec Mineração subsidiary is located some 50 kilometers from the Jeceaba site, which it supplies with iron ore. As exploitation of this open-pit mine gradually continues, the resulting waste rock is pressed, dried, then put in landfills. The ground is in the end reforested with local species at the rate of six hectares per year. Accordingly, 1,600 replanted hectares have already been returned to nature. Additionally, 200 hectares are allocated for an "Atlantic forest" type natural reserve. A biodiversity study has allowed 176 wild species of mammals, reptiles, fish, and birds to

be identified. In particular, endangered species were observed, such as the "*Leopardus guttulus*" (wild cat), the "*Puma concolor*" (puma or cougar), and the "*Chrysocyon brachyurus*" (maned wolf). 154 species of "Atlantic forest" type native plants were inventoried. Moreover, 45 caves were monitored; their specific wildlife (bats) and plants are currently being studied.

### **In Aulnoye-Aymeries, France**

To improve knowledge of biodiversity on this site, an impact study of the Aulnoye-Aymeries area was launched in 2017, with a specialized provider in and around this site which has several plants and is located close to classified natural spaces, a space belonging to the Natura 2000 network, and listed natural heritage areas. The study, which concerned Vallourec's land holdings, the immediate periphery of Vallourec's industrial site, and a study area that was expanded to a radius of 10 kilometers, concerned unusual and invasive species.

This study, which was finalized in 2018, has shown that the same plants and wildlife exist within the site, in the fallow ground, outside, in the immediate proximity, and in the various ecosystems that comprise the Sambre basin, the marshland and flood zones bordering it, as well as in the surrounding fields and pastures.

These habitats and species pertain to conservation issues that fall primarily outside of Vallourec's holdings. However, the diversity noted within the site remains remarkable for a major industrial site such as Vallourec. Indeed, protected species have been observed on land where there is less human activity, such as the majority of the fallow land, the heap on the road to the plant, and even the stormwater basin.

This observation is thus encouraging in terms of the low impact of the Group's activities on biodiversity, and shows that it is also possible for an industrial company to help protect and develop plant wildlife.

### **Indonesia**

For several years, PT Citra Tubindo, in association with "Batam Botanical Garden," has been planting trees, specifically fruit trees, and has maintained a mangrove close to the facilities. These actions slow coastal erosion, halt the penetration of saltwater towards the interior, and protect the shores from storms, as well as enabling carbon to be retained, and the toxic products contained in the water to be absorbed. These actions are supported by the local populations, academic institutions and students. Accordingly, in 2018, more than 300 trees were placed on the site and more than 100 in the botanical garden. The collaboration with the BBG will continue in 2019.

## Appendices

### Appendix 1 – Report by one of the Statutory Auditors, appointed as independent third party, on the consolidated statement of non-financial performance included in the management report

#### Fiscal year ended 31 December 2018

To the Shareholders,

In our capacity as Statutory Auditor of Vallourec S.A., (the “Company”), appointed as independent third party (ITP) and certified by COFRAC under number 3-1049<sup>(1)</sup>, we hereby report to you on the consolidated statement of non-financial performance for the year ended 31 December 2018, included in the management report (hereinafter the “Statement”), presented in the Group’s management report pursuant to the legal and regulatory requirements of Articles L.225-102-1, R.225-105 and R.225-105-1 of the French Commercial Code.

#### COMPANY’S RESPONSIBILITY

The Management Board is responsible for preparing a Statement pursuant to the legal and regulatory requirements, including a presentation of the business model, a description of the main non-financial risks, a presentation of the policies applied with regard to those risks, as well as the results of such policies, including key performance indicators.

The Statement has been prepared in accordance with the Company’s procedures (hereinafter the “Guidelines”), for which the material items are presented in the Statement and available on request from the Company’s registered office.

#### INDEPENDENCE AND QUALITY CONTROL

Our independence is defined by the provisions of Article L.822-11-3 of the French Commercial Code and in the French Code of Ethics for Statutory Auditors. In addition, we have implemented a quality control system including documented policies and procedures regarding compliance with the ethical requirements, professional guidelines and the applicable legal and regulatory requirements.

#### RESPONSIBILITY OF THE APPOINTED INDEPENDENT THIRD-PARTY STATUTORY AUDITORS

Our role, based on our work, is to formulate an opinion, having reached a conclusion of moderate assurance on:

- compliance of the Statement with the provisions of Article R.225-105 of the French Commercial Code;
- the fairness of the information supplied pursuant to Article R.225-105 paragraph 3-I and II of the French Commercial Code, namely the results of policies, including key performance indicators, and the actions relating to the main risks, hereinafter the “Information”.

Our role include expressing, at the request of the Company and outside the scope of accreditation, reasonable assurance that the information selected<sup>(2)</sup> by the Company and identified by the symbol □ in Chapter 4 of the management report is presented in accordance with the Guidelines in all its material aspects.

Our role, however, does not include expressing an opinion on:

- the Company’s compliance with other applicable legal and regulatory provisions, particularly concerning the vigilance plan, the fight against corruption and tax evasion;
- compliance of products and services with the applicable

regulations. **Nature and scope of the work**

We conducted our work described below in accordance with Articles A. 225-1 *et seq.* of the French Commercial Code defining the conditions under which an independent third party performs its engagement and with the professional guidance issued by the French Institute of Statutory Auditors (*Compagnie nationale des Commissaires aux comptes*) relating to this engagement and to ISAE 3000 (Assurance engagements other than audits or reviews of historical financial information).

We have performed work that allows us to assess the Statement’s compliance with legal and regulatory provisions and the fair presentation of the Information:

- we have obtained an understanding of the business of all companies within the consolidation scope, of the main social and environmental risk exposure relating to this business, and, of its effects as concerns respect of human rights, combating corruption and tax evasion, as well as the resulting policies and their outcomes;
- we have assessed the suitability of the Guidelines in terms of their relevance, completeness, reliability, neutrality and understandability, and taking into account industry best practices where appropriate;
- we have verified that the Statement covers each information category pursuant to Article L.225-102-1-III in regards to social and environmental issues, as well as respect of human rights, and combating corruption and tax evasion;

(1) Scope available at [www.cofrac.fr](http://www.cofrac.fr).

(2) See the list of indicators presented in Appendix 1 of this report.

- we have verified that the Statement includes an explanation of the reasons that account for the absence of the information required by paragraph 2 of Article L.225-102-1-III;
- we have verified that the Statement presents the business model and main risks linked to the business of all the companies within the consolidation scope, including, where relevant and proportionate, the risks created by its business relationships, its products or services, as well as the policies, actions and results, including key performance indicators;
- we have verified that when it is relevant to the main risks or policies presented, the Statement presents the information contained in Article R.225-105-II;
- we have assessed the process for selecting, and validating the main risks;
- we have inquired about the existence of internal control and risk management procedures implemented by the Company;
- we have assessed the consistency of the results and key performance indicators used with regard to the policies and main risks presented;
- we have verified that the Statement covers the consolidated scope, namely all the companies included in the scope of consolidation pursuant to Article L.233-16 within the limits specified in the Statement;
- we have assessed the collection process implemented by the entity with regard to exhaustiveness and the fair presentation of the information;
- For the key indicators and the other quantitative results<sup>(1)</sup> that we considered the most important we have implemented:
  - the analytical procedures that involve verifying the accurate consolidation of the collected data, as well as the consistency of their changes;
  - tests of details using sampling techniques that involve verifying correct application of the definitions and procedures and to reconcile the data of supporting documents. This work was performed with a selection of contributing entities<sup>(2)</sup> and covers between 21% and 80% of consolidated data for key performance indicators and selected results for these tests;
- we have consulted the documentary sources and conducted interviews to corroborate the qualitative data (actions and results) that we considered to be the most important<sup>(3)</sup>;
- we have assessed the consistency of the whole Statement based on our understanding of the group of companies included in the consolidation scope.

We believe that the work we have carried out, based on our professional judgment, is sufficient to provide a basis for our moderate assurance conclusion; a higher level of assurance would have required us to carry out more extensive procedures.

### Means and resources

Our work involved the skills of six people and was carried out between November 2018 and March 2019 over a period of approximately eleven weeks altogether. We were assisted in our work by our sustainable development and social responsibility specialists. We have carried out around twenty interviews with the persons responsible for preparing the Statement.

### Conclusion

Based on our work, no material irregularity has come to our attention that causes us to believe that the Statement of Non-Financial Performance does not comply with the applicable regulatory provisions or that the Information, taken as a whole, is not presented fairly in accordance with the Guidelines.

(1) See the list of key performance indicators and other quantitative results presented in Appendix 1 of this report.

(2) Social information and safety: Valourec France S.A. (France); Anhui Tianda Oil Pipe Co., Ltd. (China); Valourec Deutschland GmbH (Germany); Valourec Star Youngstown (United States).

Environmental information: Anhui Tianda Oil Pipe Co., Ltd. (China); Vallourec Tubes France Aulnoye, Vallourec Tubes France Saint-Sauve (France); Valourec Star Youngstown (United States); Vallourec Soluções Tubulares do Brasil Barreiro, Vallourec Soluções Tubulares do Brasil Jeceaba, Valourec Florestal Ltda (Brazil).

(3) See the list of due diligence procedures presented in Appendix 2 of this report.



**Reasonable assurance on a selection of non-financial information****Nature and scope of the work**

For the information selected by the Company and identified by the symbol H in Chapter 4. "Corporate social responsibility information" of the Statement, we have performed our work of the same nature as described in the paragraph "Nature and scope of the work" above for the Information considered the most important, but in more depth, particularly regarding the number of tests.

The selected sample represents 46% of the workforce, and between 46% and 80% of environmental information identified by the symbol H.

We consider that this work enables us to express a conclusion of reasonable assurance for the information selected by the Company and identified by the symbol H.

**Conclusion**

In our opinion, the information selected by the Company and identified by the symbol H in Chapter 4. "Corporate social responsibility information" has been prepared, in all material respects, in accordance with the Guidelines.

Paris-La Défense, 25 March 2019

KPMG S.A.

Fanny Houlliot

*Partner*

*Sustainability Services*

Alexandra Saastamoinen

*Partner*

**Appendix A**

<b>Social indicators</b>	<b>Level of assurance</b>	
Workforce at 31/12	Reasonable	
Breakdown of the workforce by age, gender and geographical area		
New hires		
Departures		
Lost Time Injury Rate (LTIR)		
Total Recordable Injury Rate (TRIR)		
Rate of completion of annual performance interviews among managers		
Rate of absenteeism		
Severity rate		
Number of employees having participated in a training session		Limited
Number of training hours		
<b>Environmental indicators</b>		<b>Level of assurance</b>
Electricity consumption and natural gas consumption	Reasonable	
CO <sub>2</sub> emissions for scopes 1 and 2		
CO <sub>2</sub> emissions for scope 3, linked to losses during extraction, storage and transport of energies		
CO <sub>2</sub> emissions for scope 3, linked to purchases of materials, goods and services		
Water intakes (per source)		
Volume of hazardous and non-hazardous waste		
Percentage of waste recovered (including recycled)		
Water discharged		
Quantity of metals per liter of water discharged		
VOC emissions		Limited
NO <sub>x</sub> emissions		
Percentage of substances identified as CMR replaced		
Consumption of raw materials – Ore, pellets and scrap metal, charcoal and purchased cast iron		

**Appendix B**

<del>Qualitative social information</del>
<del>Diversity and equality measures</del>
<del>Employer-employee dialog measures</del>
<del>Qualitative environmental information</del>
<del>Adaptation to the consequences of climate change</del>
<del>Ground quality preservation measures</del>
<del>Waste management and hazardous waste measures</del>
<del>Qualitative societal information</del>
<del>Anti-corruption measures</del>
<del>Human rights measures</del>
<del>Supplier evaluation schemes</del>



## Appendix 2 – Methodological note

Designed to inform shareholders and the greater public about the actions taken by Vallourec to promote sustainable development, Chapter 4 of the Registration Document complies with the Grenelle 2 Law of 12 July 2010, and in particular Articles L.225-102-1, R.225-104 and R.225-105 of the French Commercial Code. The information contained herein is derived from database systems deployed worldwide, at each site concerned.

All of the CSR information published in Chapter 4 of the Registration Document was verified by an Independent Third Party Body, whose report appears on page 120 of this document.

These assertions clearly explain the Group's CSR strategy, as well as its actions in these areas.

### GUIDELINE INDICATORS

Vallourec defined its guidelines by reproducing the list of CSR information that appears in Article R.225-101-1 of the French Commercial Code (*Code de commerce*). See concordance table below. Other indicators were constructed based on those published by the Global Reporting Initiative (GRI), which proposes CSR reporting indicators for global companies.

Environmental and safety indicators have been drawn from the CR 360 reporting system since late 2016, which has allowed for monthly monitoring and consolidation. They are included in a project definition worksheet provided by the Sustainable Development Department to its network of local contacts in the Group's four working languages (French, English, German and Portuguese).

Social indicators are also the subject of a precise and standardized Group-wide definition, and covered by a detailed procedure.

- Indicators related to workforce and hours

The data is automatically collected by the GatheringTools system, and then sent to several SIRH tools, including Qbik (consolidating and management of social data). The Human Resources Department collects this data, which goes through an on-site correspondent.

- Training-related indicators

The data is collected in the LMS (Learning Management System). Calculation and consolidation are completed by the Group Training Department: the Vallourec University Department.

### REPORTING SCOPE

The environmental reporting scope is determined according to rules established by Vallourec's Sustainable Development Department. The environmental reporting scope includes:

1. industrial sites. The following are thus excluded from environmental reporting: the Shared Services Center in Valenciennes, the administrative offices and headquarters, and all sales offices. Research centers are also excluded, with the exception of Vallourec Research Center France, whose activity is more varied;

2. as concerns the consolidation of safety indicators, all sites are incorporated, including the registered offices in Boulognes and Rath, except for the small sales offices (less than 20 people);
3. sites belonging to Vallourec for more than six months. This rule is to be considered when a disposal or acquisition occurs. The Vallourec Tianda (Anhui) Co., Ltd (formerly Tianda Oil Pipe) company, which was acquired in late 2016, which was not taken into account in 2017, due to environmental data that was still partial and incomplete, was integrated in 2018;
4. sites with active industrial operations during the year. This excludes construction sites that have not been in operation for more than six months;
5. sites for which Vallourec owns more than 50% of the voting rights. Conversely, the sites for which Vallourec is a minority shareholder are not consolidated (for example, this is the case for the HKM steel mill in Germany).

The social reporting scope includes companies within the tax consolidation scope, with the exception of the company Vallourec Niko Tubes Holding GmbH, created in 2018, which will be integrated within the social reporting in 2019.

### CONSOLIDATION PRINCIPLES

1. The companies and sites included in the reporting scope in accordance with the rules described above are not accounted for using the equity method, but are treated equally in the reporting consolidation – that is, as wholly owned by the Group.
2. Precautionary principle: consolidation is established on the basis of prudent assessments to avoid transfer risk and reputational risk.
3. Accrual principle: all fiscal years are independent from one another. **Consolidation and auditing**

Environmental indicators are consolidated and audited monthly by the Sustainable Development Department (timeliness, fairness, completeness). In case of doubt or inconsistency, the Regions and sites involved are questioned and must provide sufficient explanation to clarify the given indicators, as well as the achievement or shortfall of the targets set for the year. This step is essential to ensure the quality of the reports and the integrity of the indicator monitoring system within a continuous improvement process. In addition, to verify and compare the data, the Sustainable Development Department issues a quarterly summary to General Management and to all sites.

Safety indicators are issued monthly, after verification, to General Management, the Regions and divisions, and all sites.

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### PRODUCTION CALCULATIONS

**By “metric ton processed”** Vallourec means metric ton produced in each plant (number of units of work produced in the plant), whether of steel, hot-rolled tubes or cold-finished tubes. The production of each plant is added together to calculate the total production in metric tons processed or work units.

For consolidated sites, such as Vallourec Star in Youngstown (United States), and Vallourec Soluções Tubulares do Brasil (VSB) in Barreiro and Jeceaba (Brazil), the total production is the sum of the steel and tubes produced.

Production of iron ore by Vallourec Mineração, the manufacture of pellets in Jeceaba, as well as the production of charcoal by Vallourec Florestal are, however, not included in the Group's total production.

**By “metric ton shipped”** Vallourec means metric tons of tubes and accessories shipped to customers during the year. This production indicator is published in the Group's results.

Environmental data are routinely expressed in absolute and relative terms, in both graphs and tables of quantified results.

Relative values are divided either by production, expressed as metric tons of tubes processed (which allows different sites to be compared) or metric tons of tubes shipped, expressed as metric tons of tubes (which helps in estimating the environmental footprint of tubes shipped to customers).

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### VERIFICATION OF CSR INFORMATION

All of the CSR information published in Chapter 4 of the Registration Document was verified by an Independent Third Party. A selection of indicators identified by the symbol  for more in-depth verifications, with a check at the reasonable assurance level. For each piece of information presented, Vallourec has prepared a file to demonstrate a complete and rigorous implementation of its policy.



**METHODOLOGICAL LIMITATIONS AND SPECIAL CASES**

The following table lists some exceptions or special rules.

Issue	Plant concerned	Description
Atmospheric emissions of NO <sub>x</sub> and SO <sub>2</sub>	All those consuming natural gas	In the absence of measures performed by the site on the quality of the gases emitted from its combustion facilities, the NO <sub>x</sub> and SO <sub>2</sub> emissions are calculated by multiplying its natural gas consumption (in kWh) for the following emissions factors: 0.0001944 for NO <sub>x</sub> and 1.73913*10 <sup>(-6)</sup> for SO <sub>2</sub> (EF source: suppliers of gas in France)
Wastewater quality	Vallourec Tubes France (tube mills in Saint-Saulve, Déville and Aulnoye), Vallourec Deutschland Rath, Vallourec Star Houston, PT Citra Tubindo, VSB Jeceaba	Indicators for monitoring wastewater quality (SPM, COD, TH and 10 metals) are only consolidated for sites that discharge wastewater directly into the environment after internal processing at their effluent treatment plants. These indicators are calculated based on the weighted average concentration per flows of discharged wastewater. This data is based on a list of metals established by the Group, with the knowledge that the data reported by the sites only concerns the analyses imposed by the local regulations.
Waste	All plants	"Historical" waste (hazardous/non-hazardous) produced prior to the reporting period and stored on site is not counted in the total tonnage of consolidated waste. Waste is classified as hazardous or non-hazardous according to the local regulations.
Sludge from blast furnaces and steel mills	VSB	In Brazil, sludge generated by blast furnaces is classified as non-hazardous waste, and is a totally different type of waste from tube mill sludge.
Dust from blast furnaces and steel mills	VSB	In Brazil, dust generated by blast furnaces is classified as non-hazardous waste, and is a totally different type of waste from the other types of dust produced by the other steel mills.
Methane	Vallourec Florestal	When estimating methane emissions, the calculations are based on the statistical study in Appendices 5 and 6 of the "Project Design Document Form (CDM PDD) – Version 03" registered as a CDM 8606 project at UNFCCC: "Carbonization Project – Mitigation of Methane Emissions in the Charcoal Production of V & M Florestal, Minas Gerais, Brazil", which is available at: <a href="https://cdm.unfccc.int/Projects/DB/BVQI1354824411.24/view">https://cdm.unfccc.int/Projects/DB/BVQI1354824411.24/view</a> According to that study, process methane emissions depend on the gravimetric yield of wood carbonization in furnaces (Appendix 5), or the ratio between the final mass of dry charcoal (after combustion) and the initial mass of wood (Appendix 6).
Sequestration of Florestal	Vallourec Florestal	The method for calculating amounts of CO <sub>2</sub> sequestered by the forest during the reference year is as follows. It derives from information drawn from the study conducted in cooperation with numerous scientific authorities (See 4.5.4.1). Annual sequestration is estimated when the tree is cut to be transformed into charcoal. The reference value is thus the annual charcoal production. The reference study allowed a 30-year observation period to be identified, considering the amount of charcoal produced, the amount of carbon absorbed by the tree trunk and the amount absorbed by the roots and stumps in the soil. It was thus possible to calculate the ratios of carbon sequestered by the roots in relation to the tonnage of charcoal produced and ultimately consumed in the blast furnaces, and the ratio of carbon absorbed by the tree trunk, also in relation to the charcoal produced. These ratios are then used to calculate the amounts of carbon sequestered annually. The amounts of carbon emitted during carbonization of the trunks and the amounts of methane emitted during the carbonization process in the ad hoc furnaces are also in proportion to the charcoal produced.
Water consumption	Vallourec Mineração	The water consumption of the site only corresponds to the part used for the extraction and land watering process, and not to the mine water that is sent directly into the river like rainwater.
Raw materials	All plants	Indicators of raw materials (iron ore, iron ore pellets, charcoal, charcoal dust, scrap, cast iron) correspond to the amounts used for steel production. Scrap is considered by Vallourec as a by-product and is not included in either the waste or the recovery rate indicator.
Compensation	All	The "Compensation" indicator is calculated as the sum of staff compensation, social security charges and pension expenses.
Turnover	All	The turnover rate includes departures and arrivals for the year in question and is defined as follows: (number of departures + number of arrivals for the year) x 2 x 100 / (workforce at 31/12 of the preceding year). It includes departures, arrivals, and transfers of the workforce within the zones. The reasons for departure included are: retirement, resignation, dismissal, and other (death, change of category, contract termination, termination after trial period).

Method of accounting for lost days following a workplace accident in the United States	All	In the United States, lost days for workplace accidents are not counted beyond the 180 <sup>th</sup> day in accordance with applicable OSHA regulations. This accounting method is specific to the United States and differs from the rule recommended by the Group for accounting for lost days.
Number of training hours	All	The data relating to the number of training hours published covers classroom-based learning that exceeds two hours and e-learning. The percentage of employees trained is calculated in relation to the number of employees that have had access to training during the fiscal year and not to the workforce at the end of the period. Classroom-based learning of less than two hours is excluded from this data.
Number of hours worked	Vallourec Tianda (formerly Tianda Oil Pipe)	Hours worked do not include the hours of truck drivers who deliver the billets, provide internal transportation between the workshops, and load the products for delivery to a port of destination or to customers. The estimated impact represents less than 0.4% for the Vallourec Group as a whole in 2018.



### Appendix 3 – Concordance table between the information required under Articles L.225-102-1 and R.225-105-1 of the French Commercial Code and the information in this chapter

	Profile (p.2) / 3.2 / 3.6 / 3.8 (p.32 / 56 / 66)
<b>1° GROUP BUSINESS MODEL</b>	
<b>2° DESCRIPTION OF THE MAIN RISKS</b>	
a) Environmental issues	4.1.1 / 4.2 Introduction / 5.1.1 / 5.1.2 (p.74 / 78 / 136 / 138)
b) Social issues	4.1.1 / 4.2 Introduction / 5.1.2 (p.74 / 78 / 138)
c) Corruption and tax evasion issues	4.2 Introduction / 5.1.3 (p.78 / 143)
d) Human rights issues	4.1.1 / 4.2 Introduction / 5.1.2 / 5.1.3 (p.74 / 78 / 138 / 143)
<b>3° DESCRIPTION OF THE POLICIES APPLIED AND THEIR RESULTS</b>	
a) Environmental issues	4.2.4 (p.101)
b) Social issues	4.2.2 (p.81)
c) Corruption and tax evasion issues	4.2.1 (p.79)
d) Human rights issues	4.2.1 / 4.2.2.2 / 4.2.2.3 / 4.2.2.6 (p.79 / 89 / 91 / 96)
<b>4° SOCIAL INFORMATION</b>	
<b>a) Employment</b>	
1. Total number and breakdown of employees by gender, age and geographical segment	4.2.2.1 (p.81)
2. New hires and dismissals	4.2.2.1 (p.81)
3. Compensation and compensation trends	4.2.2.4 (p.93)
<b>b) Organization of work</b>	
4. Organization of working time	4.2.2.1 (p.81)
5. Absenteeism	4.2.2.1 (p.81)
<b>c) Health and safety</b>	
8. Health and safety conditions at work	4.2.2.2 (p.89)
10. Workplace accidents, including their frequency and severity, and occupational illnesses	4.2.2.2 (p.89)
<b>d) Employee relations</b>	
6. Dialog between employers and employees, including procedures for informing, consulting and negotiating with staff	4.2.2.3 (p.91)
7. Review of collective bargaining agreements	4.2.2.3 (p.91)
<b>e) Training</b>	
11. Training policies implemented, particularly for environmental protection	4.2.2.5 (p.94)
12. Total number of training hours	4.2.2.5 (p.94)
<b>f) Equal opportunity</b>	
13. Measures taken to promote gender equality	4.2.2.6 (p.96)
14. Measures taken to promote the employment and integration of the disabled	4.2.2.6 (p.96)
15. Anti-discrimination policy	4.1.3 / 4.2.2.6 (p.77 / 96)
<b>5° ENVIRONMENTAL INFORMATION</b>	
<b>a) General environmental policy</b>	
20. Organization of the Company to take environmental issues and, where appropriate, environmental assessment or certification efforts into account	4.2.4.1 (p.101)
22. Resources devoted to the prevention of environmental risks and pollution	4.2.4.1 and 5.1. 2 (p.101 / 138)
23. The amount of provisions and guarantees for environmental risks, provided that such information is not likely to cause serious harm to the Company in an ongoing dispute	4.2.4.1 (p. 101) and Note 17 to the financial statements (p.211)

<b>b) Pollution</b>		
24.	Measures to prevent, reduce or remediate discharges into the air, water and soil which seriously impact the environment	4.2.4.3 (p.111)
27.	Consideration of all forms of pollution specific to a business, particularly noise and light pollution	4.2.4.3 (p.111)
<b>c) Circular economy</b>		
<b>Waste prevention and management</b>		
	• waste prevention, recycling, reuse, other forms of recovery and elimination measures	4.2.4.3 (p.111)
	• actions to combat food waste	N/A
<b>Sustainable use of resources</b>		
28.	• water consumption and water supply according to local constraints	4.2.4.2 (p.103)
29.	• consumption of raw materials and measures to improve efficiency in their use	4.2.4.2 (p.103)
30.	• energy consumption, measures to improve energy efficiency and use of renewable energy	4.2.4.2 (p.103)
31.	• land use	4.2.4.3 (p.111)
<b>d) Climate change</b>		
	Significant items for greenhouse gas emissions generated from the Company's activity, particularly through use of goods and services that it produces	4.2.4.4 (p.115)
	Measures taken for adaptation to the consequences of climate change	4.2.4.4 (p.115)
32.	The medium- and long-term reduction objectives set voluntarily for the reduction of greenhouse gas emissions and the means implemented to this end	4.2.4.4 (p.115)
<b>e) Biodiversity protection</b>		
34.	Measures taken to preserve or enhance biodiversity	4.2.4.5 (p.119)
<b>6° SOCIETAL INFORMATION</b>		
<b>a) Societal commitments to support sustainable development</b>		
35.	Impact of the Company's business on employment and local development	4.2.3.3 / 4.2.3.4 (p.98 / 99)
36.	Impact of the Company's activity on neighbors or local populations	4.2.3.3 / 4.2.3.4 (p.98 / 99)
	Relations maintained with the Company's stakeholders and dialog with them	4.2.3 (p.97)
38.	Partnership or sponsorship actions	4.2.3.4 (p.99)
<b>c) Subcontracting and suppliers</b>		
39.	Consideration of social and environmental issues in the purchasing policy	4.2.3.3 (p.98)
40.	Consideration of relations with suppliers' and subcontractors' and their CSR responsibility	4.2.3.3 (p.98)
<b>d) Fair practices</b>		
42.	Measures for consumer health and safety	4.2.3.2 (p.97)
<b>7° ANTI-CORRUPTION INFORMATION</b>		
	Actions to prevent corruption	4.2.3.3 / 4.2.1 (p.98 / 79)
<b>8° INFORMATION ON ACTIONS THAT SUPPORT HUMAN RIGHTS</b>		
<b>Promotion of and respect for the fundamental conventions of the International Labour Organization</b>		
16.	• respect for freedom of association and the right to collective bargaining	4.1.2 (p.75)
17.	• elimination of discrimination in respect of employment and occupation	4.1.2 (p.75)
18.	• elimination of forced or compulsory labor	4.1.2 (p.75)
19.	• effective abolition of child labor	4.1.2 (p.75)



**9 ADDITIONAL INFORMATION**

The consequences of the Company's activity on climate change and the use of goods and services that it produces	4.2.4.4 (p.115)
Societal commitments to support sustainable development	4.2.3.3 / 4.2.3.4 (p.98 / 99)
Societal commitments to support the circular economy	4.2.4.2 / 4.2.4.3 (p.103 / 111)
Societal commitments to combat food waste	See below
Societal commitments to combat food insecurity	See below
Societal commitments to support respect of animal welfare	See below
Societal commitments to support responsible, equitable, and sustainable food	See below
Collective agreements reached within the Company and their impact on the Company's economic performance as well as on employees' working conditions	4.2.2.3 (p.91)
Actions to combat discrimination and promote diversity	4.1.3 / 4.2.2.6 (p.77 / 96)

In light of the Group's activities, the Company considers that it is not relevant to report on its commitments regarding combating food waste, combating food insecurity, promoting respect of animal welfare, and responsible, equitable, and sustainable food.

**Appendix 4 – Summary of workforce-related and environmental indicators****Social indicators**

	2013	2014	2015	2016	2017	2018
Workforce	24,053	23,709	20,964	18,325	20,093	□
Turnover (%)	9	12	17	9	13	14

	2013	2014	2015	2016	2017	2018
<b>Safety</b>						
LTIR <sup>(a)</sup>	2.26	1.32	1.24	1.41	1.24	□ 1.0
TRIR <sup>(b)</sup>	5.51	4.23	3.25	2.61	3.13	□ 2.95
Severity rate	0.12	0.06	0.07	0.06	0.045	0.050
<b>Training</b>						
Number of employees having participated in a training session	14,912	14,537	145,779	13,779	13,615	13,990
Number of training hours	582,000	513,597	473,009	506,459	282,542	303,588

(a) LTIR (lost time injury rate): number of accidents with lost time per million hours worked.

(b) TRIR (total recordable injury rate): number of accidents declared per million hours worked.

**% of women (permanent employees)**

Production staff	Technical and supervisory staff		Managers		Total			
	2017	2018	2017	2018	2017	2018		
Europe	2%	2%	33%	33%	23%	22%	12%	12%
Brazil	5%	5%	26%	29%	24%	25%	10%	10%
NAFTA	1%	2%	26%	27%	23%	22%	10%	10%
Asia	13%	12%	28%	28%	17%	16%	16%	16%
Middle East	-	-	15%	15%	11%	17%	6%	8%
Africa	9%	8%	14%	13%	-	-	11%	11%
<b>WORLD</b>	<b>5%</b>		<b>29%</b>		<b>22%</b>		<b>12%</b>	

	Permanent		Fixed-term contract (including apprentices)		Temporary	
	2017	2018	2017	2018	2017	2018
Europe	7,038	6,327	521	553	450	226
Brazil	6,677	6,572	107	180	102	323
Asia	2,696	2,560	216	351	114	159
NAFTA	2,406	2,386	0	0	40	188
Middle East	362	254	12	15	13	0
Africa	56	53	2	3	5	25

## Environmental indicators\*

Indicators	Units	2013	2014	2015	2016	2017	2018
<b>Production</b>	<b>Metric tons "processed"</b>	<b>5,456,271</b>	<b>5,508,079</b>	<b>2,826,499</b>	<b>3,068,607</b>	<b>4,524,518</b>	<b>5,523,792</b>
	Metric tons shipped	2,159,000	2,322,800	1,410,865	1,281,500	2,256,100	2,364,000
<b>Water intake</b>	<b>m<sup>3</sup>/year</b>	<b>8,786,030</b>	<b>7,831,288</b>	<b>5,630,516</b>	<b>5,672,035</b>	<b>6,179,371</b>	<b>H 7,480,278</b>
	m <sup>3</sup> /metric ton "processed"	1.61	1.42	1.99	1.85	1.37	1.35
	m <sup>3</sup> /metric ton shipped	4.07	3.37	3.99	4.43	2.74	3.17
<b>Water discharged m<sup>3</sup>/year</b>		<b>5,494,232</b>	<b>4,087,062</b>	<b>3,616,090</b>	<b>3,179,631</b>	<b>3,203,321</b>	<b>3,221,422</b>
	m <sup>3</sup> /metric ton "processed"	1.01	0.74	1.28	1.04	0.71	0.59
	m <sup>3</sup> /metric ton shipped	2.54	1.76	2.56	2.48	1.42	1.37
	Total metals released g/m <sup>3</sup>	0.81	1.29	1.23	0.94	0.60 (1,261 kg)	0.10 (457 kg)
<b>waste</b>							
Non-hazardous waste	Metric tons/year	572,669	628,005	438,266	430,980	673,111	H 706,711
Hazardous waste	Metric tons/year	53,737	40,909	28,549	27,670	24,763	H 24,777
% recovered waste	%	93	93	94.8	94.38	94.0	H 95.5
Total waste	Metric tons/year	626,406	668,914	466,815	458,650	697,887	731,488
	kg/metric ton "treated"	115	121	165	149	154	132
	kg/metric ton shipped	290	288	331	358	309	309
<b>Energy</b>							
Natural gas	GWh/year	3,708	3,751	2,498	2,531	2,939	H 3,680
	kWh/metric ton "processed"	680	681	884	825	649	666
	kWh/metric ton shipped	1,717	1,615	1,771	1,975	1,302	1,492
Electricity	GWh/year	1,812	1,873	1,205	1,376	1,590	H 1881
	kWh/metric ton "processed"	332	340	426	448	351	341
	kWh/metric ton shipped	839	806	854	1,074	705	796
<b>CO<sub>2</sub><sup>(a)</sup></b>							
Total direct emissions (scope 1) <sup>(a)</sup>	Metric tons/year	1,127,592	1,273,427	(373,538)	(468,853)	(77,744)	H 421,397
	kg CO <sub>2</sub> equivalent/metric ton "processed"	207	231	(132)	(153)	(17)	76
	kg CO <sub>2</sub> equivalent/metric ton shipped	522	548	(265)	(366)	(35)	178

## Breakdown between permanent and non-permanent contract staff

\* Data on the Group's total consolidation scope except for water, which excludes the mining figures. (a) Energies = electricity, natural gas, gasoline, gas oil, propane.

## Analysis of GHG emissions 2018

Scope	Businesses	Mine	Forest
<b>Scope 1 Non-biogenic direct CO<sub>2</sub> emissions</b>	Natural gas combustion		
	Fuels for internal transportation	17,484	17,745
	Production of iron and steel		
	<b>Total – scope 1 non-biogenic</b>	<b>17,484</b>	<b>17,745</b>
<b>Scope 1 Biogenic direct CO<sub>2</sub> emissions</b>	Carbonization of charcoal		1,070,984
	Atmospheric and underground sequestration		(3,132,193)
	Combustion of charcoal		
	<b>Total – CO<sub>2</sub> scope 1 biogenic</b>		<b>(2,061,209)</b>
<b>Scope 1 Biogenic direct CH<sub>4</sub> emissions</b>	Carbonization of charcoal		394,906
<b>Scope 1 Non-biogenic and biogenic direct emissions</b>	<b>Total – scope 1</b>	<b>17,484</b>	<b>(1,648,558)</b>
<b>Scope 2 “Supplier base” indirect emissions</b>	Electricity purchased	45	2
	Total – scope 2		
<b>Scope 3 Other emissions, indirect<sup>(a)</sup></b>	Upstream and downstream external transport ordered by the Company		
	Waste treatment		
	Employee transportation and travel		
	Purchases of materials, goods and services		
	Emissions related to the carbon content of industrial equipment proportionate to amortization and depreciation		
	Emissions linked to losses during extraction, storage and transportation of energies <sup>(b)</sup>		
	<b>Total – scope 3</b>		<b>17,529</b>
<b>TOTAL ACROSS ALL COMPONENTS</b>		<b>17,529</b>	<b>(1,648,556)</b>

(a) The items appearing under this entry are those for which the Company has an action or direct influence, and for which data is available. To date, emissions pertaining to client processes are neither known nor taken into account. In an effort to improve knowledge of scope 3 in light of its importance, the Group will again examine the content of these items in 2019, with the assistance of a specialized consultant, and will likewise evaluate, if possible, upstream and downstream emissions connected to its customers and suppliers' activity.

(b) Energies = electricity, natural gas, gasoline, gas oil, propane.

Summary of emissions in metric tons of CO<sub>2</sub> equivalent

Production of iron and steel	Rolling and heat treatments of tubes	Finishings & Services	Sub-total (metric tons CO <sub>2</sub> e)	% sub-subtotal	% subtotal	% total
78,225	456,259	145,148	679,631	73	42	9
2,252	1,257	10,051	48,789		5	
198,720			198,720		21	
<b>279,197</b>	<b>457,516</b>	<b>155,199</b>	<b>927,141</b>		<b>100</b>	
			1,070,984	20	41	
			(3,132,193)		58	
1,160,559			1,160,559		22	
1,160,559			<b>(900,650)</b>		100	
			394,906	100	18	
<b>1,439,755</b>	<b>457,516</b>	<b>155,199</b>	<b>□ 421,397</b>	<b>100</b>	<b>100</b>	
166,673	167,857	101,697	□ 436,274	100	100	9
-	-		215,077	6		82
-	-		123,990		3	
-	-		46,784		1	
-	-		□ 3,122,761		81	
-	-		150,447		4	
-	-		□ 185,464		5	
-	-		<b>3,844,523</b>		100	
<b>1,606,164</b>	<b>625,373</b>	256,896	<b>4,702,194</b>	<b>100%= 851 PER METRIC TON "PROCESSED"</b>		

