



TCFD 2020 Report



Orbia Taskforce on Climate-related Financial Disclosures (TCFD) - Aligned Report 2020

Orbia is an official supporter of the Taskforce on Climate-related Financial Disclosures (TCFD) since 2020. This is Orbia's first comprehensive TCFD-aligned reporting, building on our [climate risk assessment](#) published in 2019.

TCFD RECOMMENDATION	DISCLOSURE	REFERENCE/ FURTHER DETAILS
1. GOVERNANCE		
1.a Board's oversight of climate-related risks and opportunities.	<p>The Board's Corporate Practices and Sustainability Committee has oversight of Orbia's overall Sustainability strategy, including climate-related issues. At least twice a year, our Vice-president (VP) of Sustainability reports progress on targets to this committee, including our climate-related goals.</p> <p>Orbia's Critical Risk Committee (CRC), reports to the Audit Committee, and is responsible for identifying and assessing enterprise risks, evaluating the appropriate risk profile for the enterprise, developing risk mitigation plans, and overseeing their implementation.</p>	<p>CDP response section CL1 Orbia Corporate Governance Orbia 2020 Sustainability Report p. 7</p>
1.b Management's role on climate-related risks and opportunities	<p>Orbia's VP of Sustainability is a member of the Executive Leadership Team, along with the CFO and other key functional leaders.</p> <p>The VP and the Corporate Sustainability team work directly with the Business Group Presidents to identify climate risks and opportunities and embed climate considerations into decision-making and business strategy. Much of this work is based on the TCFD-aligned risk analysis carried out in 2019, as well as our Science Based Targets setting process, and our risk assessments and Sustainability Goals. Additionally, each Business Group has a dedicated Sustainability lead and team who is responsible for the development of the business environmental strategies and oversight of climate related performance reporting in the sustainability reporting platform.</p> <p>In 2021, an ESG modifier was integrated into senior management compensation. The modifier is based on performance targets on the metrics of our ImpactMark, including reducing greenhouse gas (GHG) emissions and waste diversion from landfill.</p>	<p>CDP response section CL2a</p> <p>Orbia 2020 Sustainability Report: Sustainability Governance p. 8</p>
2. STRATEGY		
2.a Climate-related risks and opportunities identified in the short, medium and long term.	<p>Climate change is a core challenge as Orbia transforms into a future-fit and resilient set of businesses. Each business group regularly develops and adapts their strategy to ensure Orbia's products and solutions address risks and opportunities of climate change.</p> <p>Risks</p> <p>As part of our business processes, we continually identify physical and transition risks, quantifying their potential financial impacts and time horizon. Those risks with higher financial impact are prioritized for action. See Table 1 for details.</p> <p>Opportunities</p> <p>Further detail of identified opportunities can be seen in Table 2.</p> <p>Financial impact ranges</p> <p><i>NOTE: impact range labels are aligned with categories used in Carbon Disclosure Project reporting and reflect Orbia's reviewed risk management processes</i></p> <p>We have 5 levels to define substantive financial impact:</p> <ol style="list-style-type: none"> 1. High: \$50MM or greater USD 2. Medium-High: \$37.5MM USD – \$50MM USD 3. Medium: \$22.5MM - \$37.5MM USD 4. Medium-Low: \$7.5MM - \$22.5MM USD 5. Low: Less than \$7.5MM USD <p>Time Horizons</p> <ul style="list-style-type: none"> • Short term: Up to 1 year • Medium term: 1-4 years • Long term: 5 years and above 	<p>CDP response section C2.1, C2.2, C2.3 and C2.4</p> <p>Orbia Climate Risk Assessment</p> <p>Orbia 2020 Sustainability Report: Risk Management p. 7 Sustainability Approach p. 22 Sustainable Solutions in Practice p. 35</p> <p>Orbia 2020 Annual Report p. 22, 26, 27, 35, 36, 74, 115</p>

Table 1

Key Climate-Related Risks Identified

To determine physical and transition risks, Orbia conducted a detailed Climate Risk Assessment on 12 of its most vulnerable sites, including 4 from Fluorinated Solutions, 7 from Polymer Solutions and 1 from Building & Infrastructure (as a representative site, and the most vulnerable to climate events of all extrusion sites).

TIME HORIZON	RISK TYPE	CLASSIFICATION	RISK DESCRIPTION	MAGNITUDE OF FINANCIAL IMPACT	REFERENCE/ FURTHER DETAILS
Short term	Physical	Chronic	Increased water stress and drought leading to reduced capacity, resulting in decreased revenues.	Low	CDP response section 2.3 Orbia 2020 Annual Report p. 22, 26, 27, 35, 36, 74, 115
	Transition	Policy and Legal	Carbon pricing mechanisms leading to increased direct costs.	Low	
	Transition	Policy and Legal	Mandates on and regulation of existing products and services (e.g. The AIM Act, which was signed into law in Dec. 2020, and directs EPA to establish limits to production and consumption of HFCs in line with the Kigali amendment), leading to reduced demand for products and services and decreased revenues from HFCs.	Medium - Low	
Medium term	Physical	Acute	Increased severity and frequency of cyclones and floods, leading to reduced capacity and decreased production and revenues.	Medium - Low	

Table 2

Key Climate-Related Opportunities Identified

TIME HORIZON	CLASSIFICATION	DESCRIPTION	MAGNITUDE OF FINANCIAL IMPACT	POTENTIAL FINANCIAL IMPACT	REFERENCE/ FURTHER DETAILS
Medium Term	Products and services	Climate adaptation, resilience and risk solutions, including: <ul style="list-style-type: none"> • Stormwater and Indoor Climate Solutions. • Precision agriculture solutions e.g. opportunities to reduce agriculture's carbon footprint in rice fields. • Low climate impact solutions e.g. low global warming potential (GWP) propellants and refrigerants. 	High	Increased revenues resulting from increased demand for products and services.	CDP response section 2.4 Orbia 2020 Sustainability Report: Sustainable Solutions in Practice p. 35
		Development of new products or services through R&D and innovation – e.g. Battery performance solutions.	High	Increased revenues through access to new and emerging markets.	
	Energy source	Use of lower-emission sources of energy.	Medium - Low	Reduced direct costs and taxes (including potential carbon taxes).	
Long term	Markets	Public-Private partnerships to support smallholders in the adoption of precision agriculture solutions and technologies.	High	Increased revenues through access to new and emerging markets.	

TCFD RECOMMENDATION	DISCLOSURE	REFERENCE/ FURTHER DETAILS
<p>2. STRATEGY</p> <p>2.b Impact on the organization's business, strategy and financial planning.</p>	<p>Products & Services</p> <p>Orbia's business groups are connected by a shared purpose: to advance life around the world. We are committed to addressing challenges facing the world today, including ensuring food security, reducing water scarcity, reinventing the future of cities and homes, connecting communities to data and information services and expanding access to health and well-being through providing advanced materials, specialty products and innovative, human-centered solutions.</p> <p>Climate change is at the center of these challenges as we continue to evolve into a future fit and resilient business. Our businesses take on these challenges daily, working to ensure our products and solutions address risks and opportunities of climate change.</p> <p>Case 1: Buildings and buildings construction sectors combined are responsible for 40% of energy use¹. Our Wavin Indoor Climate Solutions (ICS) enable heating and cooling of buildings at lower energy use and low carbon emissions compared to existing technologies. Typically, using our Indoor Climate systems, users can save up to 21% of energy by using zone control, up to 20% by using underfloor heating instead of radiators and up to 34% in cooling vs. air-conditioning. This technology is being supported by the European Union, who is encouraging more energy efficient and low carbon technologies and buildings. Orbia has taken a strategic decision to invest and grow this business over the next 5 years.</p> <p>Case 2: The world is experiencing floods and drought more erratically due to climate change. Our Wavin Stormwater management solutions (SWM) are key to mitigating and addressing flooding and drought in cities and urban areas. SWM solutions are able to capture and store rain/flood waters for reuse when rain is scarce. The business has taken a strategic decision to continue expanding the SWM product line and launch it globally over the next 2 years.</p> <p>Case 3: Farming (including cattle ranching) accounts for 45% of methane emissions², which has a Global Warming Potential (GWP) of 28 times CO₂. According to a 2020 Lifecycle Assessment (LCA) for our Netafim products, used in corn fields, drip irrigation has a carbon footprint at least 52% lower than flood irrigation and at least 38% lower than sprinkler irrigation. Our Netafim irrigation business has invested extensively to expand the use of drip irrigation. An example of this is the growth of our community irrigation projects in India, where the adoption of precision irrigation grew from 12,000 hectares and 60 million USD in 2017 to 106,000 hectares and 245 million USD in 2020.</p> <p>Supply Chain</p> <p>Derived from tightening regulations on fossil fuels, our procurement and logistics teams are constantly looking for alternatives. Examples of those opportunities are switching from road to rail transport, take-back programs, or finding recycled or bio-based raw materials when available.</p> <p>Case 1: We piloted a project in Mexico aimed at reducing greenhouse gas emissions in transportation by more than 90%, by transferring domestic shipments from road to rail transport. Due to the pandemic, we fell short of our plans to switch all shipments (around 450 per year) to rail, which has the potential impact of saving 1,200 tons of CO₂e per year. Rail transport varied between 40% and 75% during 2020. Plans to achieve 100% will be resumed once conditions become favorable. This project aligns with our logistics team's strategy targets to reduce our Scope 3 emissions as we work towards carbon neutrality in 2050.</p> <p>Case 2: Wavin operations aim to increase the use of post-consumer recycled PVC to 25% by 2025 in products to reduce dependence on virgin raw materials and avoid carbon emissions. According to DEFRA (UK's Department for Environment, Food & Rural Affairs) recycled PVC emits 82% less GHG emissions compared to virgin PVC. Similarly, Netafim has a target of increasing recycled content in drip lines to 45% by 2030. These are key targets for integrating circularity into our business strategy. It is important to note that our Category 1 represents around 7% of our Scope 3 emissions for all Orbia operations. This contribution is higher when looking at our extrusion businesses alone, where Category 1 represents around 57% of their Scope 3 emissions.</p> <p>Case 3: We promote recyclability as a core element in our design criteria for all new Wavin products with a goal to increase recycled content to 25% (from 8% in 2020). We maintain a major recycling facility in California for customers of our Netafim irrigation systems in the region. We incentivize customers to return used drip lines, which we recycle to make new products. Following receipt of a \$2.01 million grant in 2019 from the California Department of Resources Recycling and Recovery, in 2020, we completed a major expansion of our recycling capacity, reaching an annual 12,000 tons per year.</p> <p>Case 4: In 2020, Wavin Colombia implemented logistics solutions to optimize their distribution network, with, among other tools and actions, a Transportation Management System (TMS). This has improved the route planning process, achieving a reduction in distance traveled, while delivering the same number of finished products. Results are: a reduction in carbon emissions of 5,087 tons (scope 3, category 4); an average load per truck (ton/truck) change from 2,581 to 2,669; and kilometers per ton (km/ton) 14.6% lower.</p>	<p>CDP section C3.1d & C3.1e</p> <p>Orbia 2020 Sustainability Report: Sustainable Solutions p. 30</p>

NOTES:

1 According to the International Energy Agency. <https://www.iea.org/topics/buildings>

2 According to Our World in Data. https://ourworldindata.org/grapher/methane-emissions-by-sector?time=2016.latest&country=~OWID_WRL

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<p>2. STRATEGY</p> <p>2.b Impact on the organization's business, strategy and financial planning.</p>	<p>Investment in R&D</p> <p>Our businesses are constantly investing in developing innovative low global warming potential (GWP) and low carbon products, such as our new medical grade propellant (GWP 90% lower than current propellants), new refrigerants, exploring options for fossil free resin, integrated recycled content and recyclability criteria in design, among others. We are also investing in the development of solutions, such as battery storage innovations, that enable and support the transition to a low carbon economy.</p> <p>Case 1: Conventional PVC production is linear, with fossil crude oil and salt as raw materials. It's also carbon-intensive, where for every kg of PVC produced, about 2.4 kg of CO₂e are emitted. In line with business strategy to be future fit and sustainable, our PVC business is exploring options to produce fossil free PVC.</p> <p>Operations</p> <p>Each Orbia business has targets to improve efficiency and transition to cleaner or renewable sources of energy and obtain or maintain an environmental management system. Among other related strategies, several plants have developed plans to adapt to potential extreme weather events. Climate-related risks have influenced our global targets to become carbon neutral by 2050 (reducing Scope 1 and 2 emissions by 47% by 2030, pending validation by the Science Based Target Initiative) and have all plants certified as ISO-14001 or equivalent by 2025.</p> <p>Case 1: Renewable energy consumption increased by 61% in 2020, driven by key projects across most of our Business Groups. As an example, Wavin operations in Europe aim to source 100% of their electricity consumption from renewable sources by 2025, this will enable a 4% reduction of Orbia's GHG emissions. Also, our Dura-Line plant in Goa, India, has formalized a Power Purchasing Agreement to acquire 1,000 MWh per year of solar power starting the second semester of 2021, representing 12-15% of Goa's annual electrical load.</p> <p>Case 2: A trigeneration plant started operating in our Vestolit Altamira I site. Starting in 2021, yearly emissions reductions are predicted at almost 20 thousand tons of CO₂e, which would equate to taking over 4,500 cars off the road.</p> <p>Case 3: Technology modification and investments in additional condensers allowed to replace chilled water by cooling water in the PVC process at Altamira I. The projected energy consumption reduction is of 65 KWh per ton of PVC produced.</p>	<p>Orbia 2020 Sustainability Report: p. 30&58</p>
<p>2.c Resilience of the organization's strategy considering climate-related scenarios.</p>	<p>All mid- and long-term environmental analysis and risks assessments are based on the Intergovernmental Panel on Climate Change (IPCC)'s 2015 A2 scenario. When more accurate scenarios at a local scope are available, for example nationally determined contributions in European countries, these will be considered for the operations within those regions.</p> <p>The IPCC's climate-modelling tools are used with future scenarios of forcing agents (e.g., greenhouse gases and aerosols) as input to make a suite of projected future climate changes that illustrates the possibilities that could lie ahead. The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self-reliance and preservation of local identities.</p> <p>Using a geographic information software (ArcGIS), the company developed a risk analysis which identified the impact of water availability, sea-level rise and temperature rise at operational sites. The output of this analysis showed only 6% of the operational sites would be affected by physical changes in climate-related variables.</p> <p>The scale of magnitude degree (same as the one used by the IPCC) was used to determine the exposure to different physical risks of each operational site. This scale is based on the probability of short return period (less than 25 years).</p> <p>Additionally, the company is making a more detailed analysis at operational sites that have already been impacted, such as the Cartagena site, by shifting rainfall patterns and its proximity to the sea. Currently, Cartagena has developed an analysis for the next 50 years with the help of experts in hydrology and rainfall patterns for the area and have incorporated preventive and adaptation measures necessary to guarantee operational continuity and therefore, the uninterrupted supply to customers in case such events occur in the future. The time horizon(s) considered was 25-50 years, as this is a relevant horizon for life of capital assets.</p>	<p>CDP response section C3.1b</p>

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3. RISK MANAGEMENT		
3.a Processes for identifying and assessing climate-related risks.	<p>Climate risks are now integrated into the Orbia multi-disciplinary company-wide risk management process. This is reviewed every few years, and includes short-, medium- and long-term risks.</p> <p>Climate-related risks were first identified through a specific climate-related risk management process carried out in line with the 2019 TCFD recommendations. 2020 onward, our revamped Enterprise Risk Management process integrates climate-related risks alongside other enterprise risks. We identify physical and transition risks as part of this process and quantify their potential financial impact along with their time horizon. Those risks with higher financial impact and likelihood are prioritized for action.</p> <p>Additionally, Orbia's risk mapping process in 2020 included teams from each Business Group who developed a universe of relevant risks by Business Group using researched topics, internal surveys and targeted interviews with business leaders. These results were aggregated to form a Risk Register, which was reviewed and approved by the Critical Risk Committee (chaired by our CEO, comprised of our CFO, Business Group Presidents, VP of HSE and Sustainability, and other key functional heads).</p>	<p>CDP response C2.2</p> <p>Orbia Annual Report 2020 p. 166</p>
3.b Processes for managing climate-related risks.	<p>Orbia's ERM (Enterprise Risk Management) function and each Business Group have developed workstreams to monitor and track the progress of actions to mitigate our top risks, including climate-related risks. Our main climate-related risks are integrated into the company's centralized enterprise risk management program.</p>	<p>CDP response C2.2</p>
3.c Integration of processes for identifying, assessing and managing climate-related risks.	<p>Orbia has a formalized Enterprise Risk Management program that will be embedded into the culture of the company. The CRC's primary responsibility is to assist the Board of Directors in formulating Orbia's risk management practices and overseeing their implementation, including Orbia's climate-related risks.</p> <p>In addition, Orbia has engaged with compliance world leader ENHESA, to identify applicable and emerging regulatory requirements derived from climate change.</p>	<p>Orbia Corporate Governance</p> <p>Orbia 2020 Sustainability Report: Risk Management p. 7</p>
4. METRICS AND TARGETS		
4.a Metrics used to assess risks and opportunities.	<ul style="list-style-type: none"> • Reduction of GHG emissions • Achieving Zero Waste to Landfill in all sites • Procurement of post-consumer and post-industrial recycled raw materials • Revenues from sustainable solutions 	<p>Orbia 2020 Sustainability Report: Commitments and Progress p. 27</p>
4.b Disclosure of Scope 1, 2 and 3 greenhouse gas (GHG) emissions.	<p>Scope 1 (2020): 603,969</p> <p>Scope 2 (2020): 1,262,425</p> <p>Scope 3 (2019): around 80 million tons CO₂e</p>	<p>Orbia 2020 Sustainability report - ESG performance data p. 28</p>
4.c Targets used and performance.	<ul style="list-style-type: none"> • Science Based Targets (aligned with a 1.5° scenario): <ul style="list-style-type: none"> • Scope 1 and 2 emissions: 47% reduction by 2030* • Scope 3: To be defined during 2021 • Achieve Zero Waste to Landfill by 2025** 	<p>Orbia 2020 Sustainability Report: Commitments and Progress p. 27</p>

NOTES:

* To be approved by Science Based Targets Initiative (SBTi)

** 90% of waste (hazardous and non-hazardous) is diverted from disposal to landfill. Accepted diversion methods exclude incineration without energy recovery