

## White Paper: Sustainability Strategy

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**Approved by:** CSO

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**Purpose:** Provide guidance on Viridien (ex CGG) corporate sustainability strategy

**Scope:** External communication

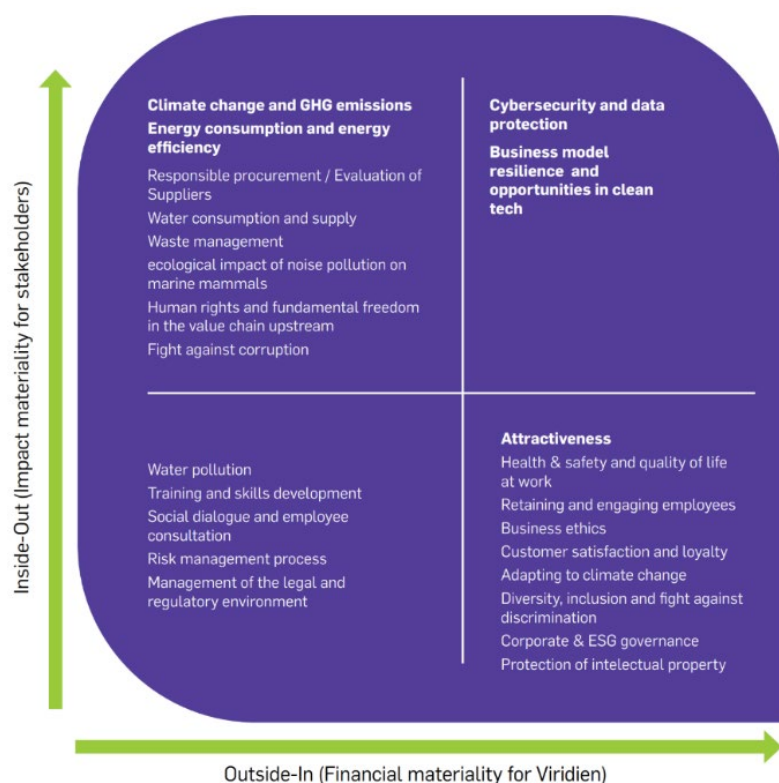
Among rising concerns regarding the role of corporations in the climate change, we, as a Company, take our responsibility in our societal, economic and environmental actions very seriously.

Given the issues around climate change and its consequences, corporate sustainability is the right thing to do for Viridien, and we believe that it is also an element of differentiation.

The sustainability strategy of the Company is driven by a thorough analysis of the environmental, social and governance (ESG) matters that are material in the way we conduct our affairs. This materiality analysis has been performed every 3 years since 2013, and in 2024 we aligned our methodology with the requirement of the new European Sustainability Reporting Standards (ESRS) for the first year of disclosure under the European Union Corporate Sustainability Reporting Directive (CSRD).

The concept of double materiality enforced by the CSRD provides Viridien with a holistic evaluation of how sustainability factors influence our company's operations (financial materiality) plus our impact on environmental, social, and governance (ESG) matters (impact materiality). Ensuring a comprehensive understanding of sustainability risks and opportunities while fostering informed decision-making.

Financial materiality reflects how external sustainability risks and opportunities could impact Viridien's financial performance and position, and by focusing on sustainability-related risks the company ensures its strategic efforts align with long-term business viability. With the assessment prioritizing risks with significant potential to influence financial outcomes like EBITDA, CapEx, or OpEx. Viridien's financial materiality evaluation focuses primarily on identifying and addressing critical sustainability risks and opportunities in 2024.



Impact materiality assesses Viridien's influence on environmental and social factors. This approach identifies and evaluates how the company's operations and value chain affect broader sustainability issues. Key considerations include the scale, scope, and irreversibility of impacts. With the assessment emphasizes both actual and potential outcomes, helping to identify material topics that require our attention.

The resulting double-entry matrix representing financial materiality (for Viridien) on the one hand, and impact materiality (for stakeholders) on the other is shown left, and details of the methodology used can be found in the relevant sections of our [2024 Universal Registration Document](#).

## Our ESG framework

The HSE and Sustainable Development Committee of the Board of Directors directly influences our ESG strategy and priorities.

Our commitment and engagement are demonstrated in short statements under the three pillars of ESG: Environment, Social Responsibility, and Governance. In our various public reports (regulatory and voluntary), we already cover most of the items included under this ESG umbrella.

REDUCE OUR OVERALL CARBON FOOTPRINT	BE AN EXEMPLARY COMPANY	STRIVE TO THE HIGHEST STANDARDS OF GOVERNANCE
E1: Reduce our Carbon footprint at all levels of our value chain CO2 Emissions Energy usage	S1: Promote and ensure the Health & Safety of our employees	G1: Maintain a top tier company governance (Board, Reporting)
E2: Encourage internal initiatives supporting our 2030-2050 carbon neutrality ambitions	S2: Promote an environment and a culture of Diversity and Inclusion	G2: Ensure the highest levels of ethics in all our activities
E3: Work with our Supply Chain to improve their ESG performance	S3: Promote a work environment that ensures engagement and development of our employees and attraction of the best talents	G3: Maintain and Promote an Effective Compliance Program
E4: Develop an offer of products & services enabling environmentally sustainable activities	S4: Act as a positive influence towards our employees, suppliers and communities	G4: Manage company's risks holistically, including cyber risk

We are a technology company, and we care about environment. Our continued AA rating from MSCI ESG Research in 2024, one of the largest providers of ESG research and ratings, is a clear and strong recognition for our continued focus on social responsibility, strong corporate governance and environmental footprint reduction.



Viridien also discloses annually its climate change impact and water security through [CDP](#), a global non-profit organization that runs the world's leading environmental disclosure platform. CDP drives companies and governments to reduce their greenhouse gas emissions, safeguard water resources and protect forests.



Annually we complete a thorough re-evaluation of our operational sustainability practices with [EcoVadis](#), a global standard for rating operational sustainability commitments, practices, and performance. The EcoVadis assessment includes 21 sustainability criteria across four core themes: Environment, Labor & Human Rights, Ethics and Sustainable Procurement. In our latest assessment, which was completed in late 2024, we earned a Bronze Rating - moving up from the top 79th percentile in our market to the top 84th percentile.



This rating validates and demonstrates our commitment to sustainability and supports our company goals. It is not a static assessment as the results also show us where we can improve for the next assessment.

Viridien is a supporter of the United Nations Global Compact (UNGC) as part of its commitment to being a responsible company.



The UNGC is an initiative for businesses committed to taking steps to support UN Goals and aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment, and anti-corruption.

The next section of this paper will essentially focus on the environmental aspects of our sustainability strategy. For further details on our engagement in the Social and Governance dimensions please refer to the relevant sections of our [2024 Universal Registration Document](#).

## Reducing our overall carbon footprint

Viridien are committed to minimizing our environmental impact and promoting sustainable practices across our activities. To this effect, in 2020 we developed our internal policy which is regularly reviewed and updated - latest version signed in September 2024 by our CEO - to best protect the environment, the climate and the communities where we operate.

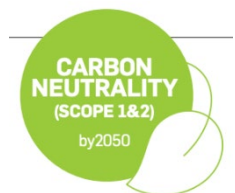
The policy identifies the five key elements on which we wish to act in our activities:

1. ***We set measurable targets and regularly assess our progress against these goals. We report environmental data across our operations, measuring and monitoring the Carbon Footprint;***
2. ***We are committed to reducing our overall carbon footprint by tackling direct and indirect emissions (scopes 1, 2 and 3) across our entire value chain. We aim at carbon neutrality by 2050 in our scopes 1 & 2 of the Greenhouse Gas Protocol;***
3. ***We foster the development of low-carbon products and sustainable services to cater for our customer needs and we collaborate on their carbon footprint reduction projects and initiatives;***
4. ***We aim at the complete decarbonization of our energy supply supporting our activities and we strive to reduce our energy consumption encouraging smart technologies and constantly improving our energy efficiency;***
5. ***We focus on reducing waste, improving water management, and promoting circular economy principles to reduce our consumption and promote recycling and reuse.***

The ESG framework is cascaded throughout the business setting the focus for various to develop localized action plans starting with the creation of annual qualitative objectives.

## Our Pledge to achieve Carbon Neutrality (Scope 1 & 2) by 2050

Aligned with the Company's longstanding commitment to act responsibly and minimize the impact of its activities on the environment, in every sector of its business, since 2020 Viridien has pledged to achieve Carbon Neutrality by 2050 in scopes 1 & 2 emissions of the Greenhouse Gas (GHG) Protocol. To reach this long-term target, Viridien has also set itself an intermediary milestone to reduce by half its 2019 levels of scope 1 & 2 GHG emissions by 2030.



We have set a clear ambition to increase the share of renewable energy in our energy mix, prioritizing green electricity, when available, at the end of each of our traditional contracts and energy efficiency initiatives. These efforts aim to reduce reliance on fossil fuels and contribute to achieving our decarbonization objectives. Regular evaluations of our energy consumption patterns enable us to identify optimization opportunities and ensure progress toward a more sustainable energy profile.

The largest share of our consumption comes from electricity, which is close to 90% of our total energy consumption. Out of which 80% comes from purchased electricity from renewable sources. The main purpose of our electricity needs is to power our data centers, which account in 2024 for 67% of our total electricity consumption. In the US we will continue our policy to switch to renewable energy contracts backed by REC at the end of our current contracts. In that regard our SMO site in Texas will contract renewable electricity by April 2025 bringing our share of renewable electricity around 90% in our electricity mix compared to the current 80%.

Far behind electricity, our second largest energy consumers are natural gas and purchased heat, which account for <5% of our energy mix each.

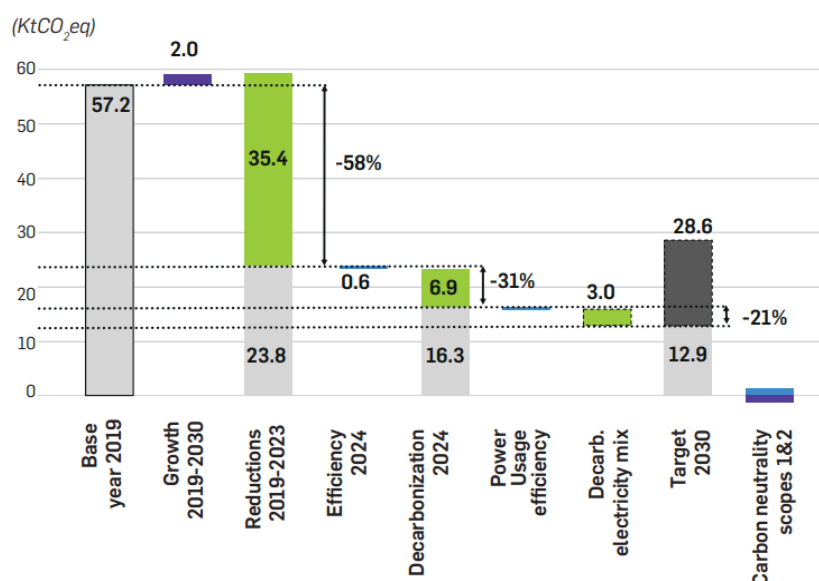
## Pathway to 2030

Viridien are committed to implementing targeted actions and allocating necessary resources to achieve 2050 Carbon Neutrality in Scopes 1 & 2. Our climate change policies prioritize the deployment of decarbonization levers across our operations and value chain, including energy efficiency measures, transitioning to renewable energy sources, electrification of processes, and fostering circular economy practices.

We have integrated climate considerations into our strategic planning, and we will, where beneficial to the realization of our objectives, develop relevant partnerships with stakeholders and investment in innovation to further strengthen our capacity to achieve reductions. Regular performance monitoring ensures alignment with our interim milestones and long-term objectives, enabling us to transparently disclose our progress.

These actions underscore our commitment to mitigating climate risks and contributing to global efforts to limit global temperature rise, while creating sustainable value for all stakeholders.

The graph below shows that we are on a path to reduce by roughly 80% our Scope 1 & 2 emissions in 2030 compared to 2019, overachieving our target of reduction by half. For more detail on the methodology used in our path towards 2030, go to section 3.2.2.2.5 of our [2024 Universal Registration Document](#).



### Advanced High-Performance Computing (HPC)

As an HPC company, we require a very large data processing capacity and own our own internal servers and facilities.

Our dedicated infrastructures are spread over three major sites: Texas (United States), UK and France. Each site acting as a regional hub, and while we have several other computer rooms throughout the world, they represent a small share in computing power and energy consumption.

To monitor our three hubs' energy consumption and efficiency, Viridien analyses its energy bills and follows their power usage effectiveness (PUE). We are evaluating our PUE in category 1 based on the standard ISO/IEC 30134-2:2016, by dividing the total consumption of the data center (air conditioning, light, security, servers, network, etc.) by the pure IT consumption (servers, network). The weighted average PUE achieved on our three major sites in 2024 is 1.33, an improvement compared to the 2023 average of 1.35.

Most data volumes are processed at our US and UK sites, which account for around 60% of the Group's annual electricity consumption and are therefore a priority for actions to reduce energy consumption.

In Texas, where we have our largest Data Center, we have had a wind energy contract in place since May 2023, backed by renewable Energy certificates (REC). In the UK, the new data center is powered by a green energy contract, as are all our other activities in the country since 2021. In France, all sites are backed by electricity contracts with guarantees of renewable origin, and where possible sites are studying the installation of photovoltaic panels, which would allow the Group to strengthen its energy mix.

On November 14, 2024, Viridien filed for the EU Code of Conduct on Data Centers and committed itself to abide by the principles described by the Commitments and Monitoring section for the data center it owns or operates.

The European Union's Code of Conduct on Data Centre Energy Efficiency is a voluntary initiative aimed at reducing energy consumption in data centers across Europe.

### Sensing & Monitoring (SMO)

SMO's operational sites are all ISO 9001 certified; with the objective to move all these sites to an integrated management system by 2025: quality (ISO 9001), environment (ISO 14001) and energy (ISO 50001). The St-Gaudens site in France and the Junfeng site in China have been ISO 14001 certified in 2023 and the DeRegt site in the Netherlands in January 2024. The Nantes site in France, Sercel Inc. and Concept in the United States have started the process and will be certified in 2025. ISO 50001 certification is in progress for Nantes, St-Gaudens, Sercel Inc. and Junfeng, with a target date for completion in 2025.

SMO is also working on the eco-design of its products. In 2023, the methodology was applied to 4 projects in France with the organization of an eco-design week in September 2023, and 245 people took an online training course on the topic. The implementation continued in 2024 with the objective to generalize by 2025 the use of this methodology, based on a simplified Life Cycle Assessment (LCA) in accordance with ISO 16524, to determine the environmental profile of products, improve the integration of recycled materials, lighten products and reduce emissions by reducing consumption during use. SMO is also working on packaging reuse, repairability and product life extension.

We have installed non-intrusive meters at strategic locations in all our major industrial sites with a view to controlling our electricity consumption, and we have also planned to deploy photovoltaic shading systems at our main SMO French sites from 2026 with the ambition to cover around 15% of our electricity consumption on these sites.

### Our main energy targets

- ✓ ***Our ambition is to continue improving the energy efficiency of our main advanced high-performance computing centers, reaching a PUE of 1.3 in 2030 and aiming for 1 by 2050.***
- ✓ ***By 2030 90% of our purchased electricity mix will be from market-based renewable sources***
- ✓ ***Our fleet of Company cars will be 100% electric by 2050.***

### GHG emissions

Viridien has been measuring, calculating and publishing its greenhouse gas emissions for over ten years, and since 2020, we have committed to the following emission reduction targets:

- ***to reduce by half the absolute value of our scopes 1 & 2 emissions compared to 2019;***
- ***achieve net carbon neutrality in scopes 1 & 2 by 2050.***

We have chosen 2019 as our reference, which corresponds to the year in which Viridien began its transformation by spinning off its highly capital-intensive proprietary seismic data acquisition activities.

The GHG protocol is our framework for measuring and managing GHG emissions.

Performance Indicators	2024	2023	2022	2021	2020	2019
VIRIDIEN Power Usage Effectiveness	1.33	1.35	1.42	1.35	1.32	1.33
Carbon Footprint Scope 1 (KtCO <sub>2</sub> eq)	2	3	2	2	2	3
Carbon Footprint Scope 2 (KtCO <sub>2</sub> eq)	14	21	39	43	51	55
Carbon Footprint Scope 3 (KtCO <sub>2</sub> eq)	1 078	992	n.a	n.a	n.a	n.a
Share of low carbon source in our purchased electricity	80%	65%	51%	36%	30%	n.a



## Advancing our Technology & Services

In a global context unfavorable to the exploration and exploitation of fossil fuels, Viridien initiated its diversification strategy in 2018 to ensure the long-term resilience of the business model. The development of our New Businesses has the potential to bring growth and to contribute to the long-term sustainability of our business.

In 2024 Viridien continued to focus on diversification growing new businesses in markets beyond Oil&Gas, whilst keeping steady delivery of the core activities. The portfolio of diversification offering was further focused and refined to deliver advanced technology solutions.

The New Businesses are focused on three main axes, attenuation of climate change, Digital solutions and Infrastructure monitoring, building on our core competencies. We aim to reposition our technologies in new markets as well as developing solutions to serve new customers.

- **Digital:** With the rapid and continuous advance of technology and digital solutions, Viridien is focusing its historic leadership in digital technologies applied to geosciences, to provide unique digital solutions to its customers, long-standing and new, that are increasingly focused on energy transition, reducing their environmental footprint and decarbonization. Beyond these traditional activities, we have capitalized on our technologies and know-how to develop in the fast-growing markets of Digital Sciences and Energy Transition.
- **Carbon Capture, Utilization and Energy Storage (CCUS):** As one of the solutions chosen by the international community to contribute to the effort to decarbonize human activities and achieve the objectives of the Paris Agreements. In this domain, the commercial potential for Viridien is significant as its core competencies in underground reservoir expertise, including geological and petrochemical imaging, modeling and analysis, fit well within the framework of CO<sub>2</sub> storage planning, optimization and continuous monitoring of storage sites. Many of our existing and new customers are planning large CCUS projects and are beginning to incorporate the application of CCUS technologies into their activities.

Building on more than a decade of CCUS experience, Viridien continued to expand its CCUS business throughout 2024. Viridien has performed imagery projects focused on CCUS storage, and Earth Data sales to support CCUS projects around the world. We continue to perform screening studies to assess the optimal storage locations in areas focusing on the development of CO<sub>2</sub> storage offshore as well as onshore in the main locations worldwide.

Onwards, the focus will continue to be on cost efficient storage assessment and future monitoring, while continuing to support flagship CCUS projects for key customers.

- **Energy transition minerals:** Critical minerals such as copper, lithium, nickel, cobalt and rare earth elements are essential to the development of clean energy technologies– from wind turbines and electric grids to electric vehicles and batteries. Supply of critical minerals is key to the growth in renewables and supporting the energy transition.

Heightened geopolitical tensions lead countries to step up efforts to reduce dependencies and secure their own sources of these critical minerals. The requirement to search for these minerals and extract them safely, with the minimum possible impact on the surrounding environment and in a responsible manner managing associated risks, presents business opportunities for Viridien.

The development of activity continued in 2024 with Viridien being well positioned to take advantage of the increased activity in the minerals and mining industry with our offering of integrated data to give valuable insight to our clients.

For exploration, these range from large-scale regional scouting studies considering individual minerals and associated mineral systems, to more targeted projects on specific areas. In addition to core geoscience expertise, these projects also leveraged our expertise in data and machine learning.

On the monitoring side, we continued to expand our satellite monitoring offering whilst continuing to develop our TailingsPulse solution, allowing us to offer complete and integrated

mine site monitoring solutions from space, air and floor. We expect more technology to be used to successfully explore and extract additional resources efficiently, and are moving towards solutions combining both equipment (leveraging on Sercel's Geotechnical monitoring solutions) and associated information for our customers. 3D seismic technology for hard rock mining is an emerging technology in hard rock mining, a concept derived from oil and gas industry.

- **Infrastructure monitoring (SHM & Geotechnical):** In a general context of aging infrastructure in the United States and Europe the diagnosis, inspection and repair of structures is in high demand. Estimated close to \$4 billion by 2030, the infrastructure monitoring market known as Structural Health Monitoring (SHM) is a market for the future.

Viridien, through its Sensing & Monitoring division (SMO), has established itself in this promising market by developing two distinct solutions: S-Lynks and S-morpho for structural diagnosis (bridges, buildings, offshore structures) and S-Scan for geotechnical diagnosis of structures (rail, dykes). These three solutions, initiated in 2018, are based on Sercel's technologies and know-how in electronics (sensors), development of on-board software and physical and geophysical analyses.

Geocomp acquisition in 2022, in the SHM sector, fulfills its objective of allowing us to strengthen our position on the American market. SMO also reinforced its position on this market in March 2023 by acquiring Morphosense, a French company that pioneered the SHM business with a static and dynamic monitoring solution (S-morpho). Recent successes include the monitoring of railways in Europe and in the Middle East, void characterization in mines in Africa, cable stay bridge structural assessments in the US.

- **High Performance Computing:** With 70 years of HPC experience and a dominant position in seismic imaging, Viridien aims to accelerate the adoption of HPC and AI in industries like startups, SMEs, and corporations.

The company focuses on using HPC as an industrial production tool through a continuous co-design approach, optimizing hardware, software, middleware, and algorithms. Key contributions include:

- **Energy Efficiency and Cooling:** Developing immersive cooling solutions to minimize power consumption and align with decarbonization goals.
- **Edge HPC Data Centers:** Creating cost-effective, efficient, and easily deployable solutions.
- **Middleware:** Improving software stack productivity and efficiency.
- **Algorithms:** Innovating in mixed-precision techniques for scientific libraries and solvers.
- **Enhancing industrial use of hybrid HPC clouds.**

Viridien's research prioritizes energy-efficient, cost-designed HPC infrastructures with a focus on large-scale computing farms, real-time monitoring, data analysis, fault tolerance, and energy optimization. The company also explores AI applications, particularly in generative AI, aiming to make them energy-efficient and industrially scalable through co-design techniques

- **Other markets:**

- **Geothermal energy:** Traditionally harnessed in tectonically active areas, Viridien has always played a role in this market through its multi-physics imaging team and occasionally through its seismic imaging team.

To date, Viridien has undertaken more than 130 targeted projects, developing expertise and associated software. Today, the exploitation of geothermal energy also applies to sedimentary basins and offers new opportunities to Viridien. Underground geoscience expertise, including seismic imaging, reservoir modeling and geological analysis, are highly sought-after skills in this emerging energy sector where we remain focused on some key areas.

Viridien's expertise has also helped assess the broader geothermal value chain, for example by creating a global lithium screening product to implement highlights for the potential of lithium brines.

- **Satellite Enabled Solutions:** Viridien has a long history of processing and interpreting satellite data, particularly difficult-to-manage Synthetic Aperture Radar (SAR) data. As more and more SAR satellites are launched into orbit, the ability to realistically monitor a wide range of surface facilities in real time is now within reach. This, combined with the growing ability of satellites to measure environmental data, makes it a rich area in which Viridien can find substantial business.

Viridien technologies have the potential to be applied to both natural resource mapping and extraction as well as monitoring of the environment. We actively look at reposition technology developed for advanced oil and gas exploration and extraction to new markets.

- **HPC Beyond the Core:** Viridien's HPC enables the group to explore the use of complex, multi-layered data to provide customers with insights to reduce and mitigate risk. Increasingly more complex climate regulations as well as the need to safeguard our societies from the impact of more severe weather events allow us to develop solutions targeted to other markets. Based upon Viridien core competencies to derive insight from large volumes of data open the door to deliver advanced solutions to financial institutions, governmental bodies or insurance to improve the understanding of the challenges faced from the impact of climate change.
- **Defense:** Viridien, through its Sensing & Monitoring (SMO) division, has always put its marine expertise and technological know-how at the service of National Defense. Historical activity since the 1980s, SMO is a recognized supplier of equipment and solutions for the French Navy: mainly sensors, on-board systems or specific customized solutions. SMO has supported the French Navy throughout the successive Military Programming Laws (LPM), which have been constantly increasing since 2017. Through its subsidiary DeRegt, SMO also delivers marine dynamic cables to European Navies. Since 2022, the Defense market has taken on a new dimension following the military conflict in Ukraine, the growing need for security energy infrastructure and the growing interest in exploring the deep seabed. SMO, as a recognized historic supplier, is well positioned in this market to support the navies with acoustic antenna components in these new challenges of tomorrow. On top of its traditional offering (towed arrays and marine cable), Sercel has expanded its portfolio by delivering some SHM solutions to the Defense market in 2024.
- **Energy transition at SMO:** Viridien's commitment to a decarbonized future is evident through our dedicated efforts in assisting new energy clients in achieving more sustainable operations. To that extent, SMO addresses different markets such as Carbon Capture and Storage (CCS), Geothermal, Wind Energy, H2 Natural, Minerals & Minings as well as Earth & Ocean Monitoring. Our value proposition in these markets include:
  - Seismic Equipment for Imaging at deep targets (Geothermal);
  - Piksel: a dedicated High-resolution solution for offshore shallow targets imaging (Wind Offshore);
  - Autonomous nodes (MicrObs) for monitoring CO<sub>2</sub> injections in offshore fields;
  - Integrated structural monitoring solutions to extend the life of wind farm infrastructure;
  - Void characterization for Mining operations;
  - Onshore and Offshore seismometers for measurement of seismic activity;
  - Quietsea: Marine Mammals monitoring system that provides real-time monitoring to detect the presence of marine mammals in advance of noisy maritime operations.
- **Autonomous robots:** With the acquisition of a stake in the AMBPR start-up in July 2020, Viridien, through its equipment subsidiary Sercel, entered the ship maintenance market, that of the treatment of coatings on hulls (washing, stripping, painting). With its autonomous articulated robot, AMBPR wants to revolutionize the cleaning of ship hulls by offering an innovative solution that is 100% robotic, fast, less expensive and respectful of the health of workers (workers on sites exposed to musculoskeletal disorders and discharges of paints and coatings hazardous chemicals). Relying on the know-how and industrial resources of SMO in Saint-Gaudens, AMBPR offers a unique patented solution with the ambition to become the market leader working with ports and ship owners worldwide.



In 2024, AMBPR has delivered 5 robots to Damen Shipyard, one of the biggest actors worldwide. This first commercial sale is a major step for AMBPR and marks the beginning of the automation of repair shipyards worldwide.

- **Offshore simultaneous operations monitoring (Marlin):** With the proliferation of renewable energy projects at sea around the world, which require the use of many boats with different profiles, and the global trend of increasing maritime transport activity, the management of maritime fleet operations becomes a critical activity for the world of today and tomorrow. Sensing & Monitoring, through the acquisition of Concept in September 2022, has decided to establish itself in this promising market by developing and marketing the Marlin solution: centralized software solution for the management, piloting and monitoring of multi-ship offshore operations for ports and ship owners and operators.

In 2024, Sercel Concept has delivered a Marlin solution for the monitoring of offshore simultaneous activity in South America, for a major US player. This major step paves the way for further deliveries in 2025 worldwide.

We have launched an update of our materiality analysis in Q1 2025. The Sustainability Committee will review the evolution of our Impacts, Risks and Opportunities and will recommend the Board with any necessary adjustments to our ESG strategy for the next 3 years.