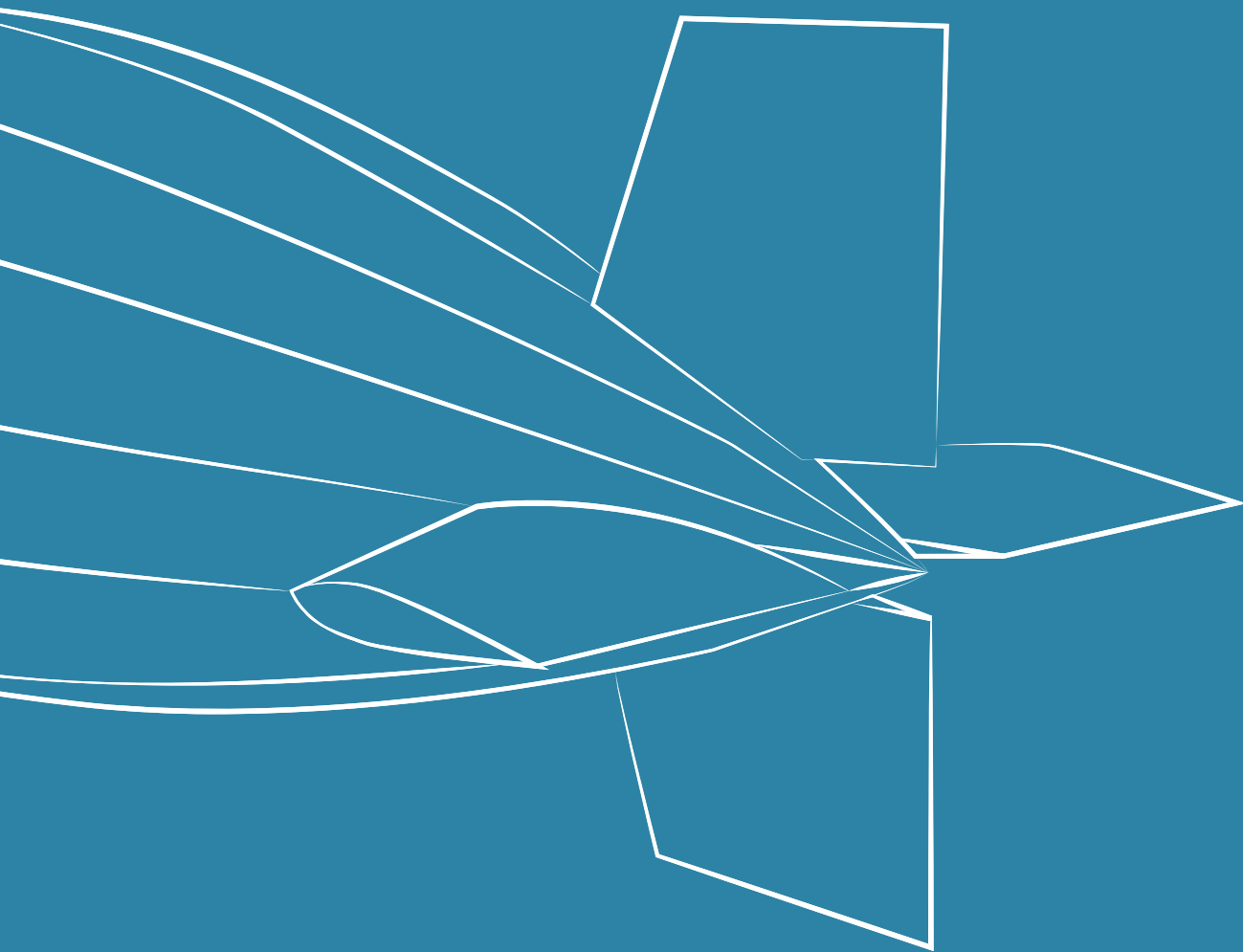


CSR REPORT

2024



FLYING
WHALES

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A WORD FROM OUR PRESIDENT

We are proud to present our fourth Corporate Social Responsibility (CSR) Report, reflecting a year of major advancements for FLYING WHALES. In 2024, our vision to revolutionize cargo transport through a **low-carbon, innovative, and responsible solution** has taken a decisive step forward.



The year was marked by **significant technical and industrial achievements**: the completion of the **Airship Critical Design Review**, the submission of the building permit for our future **Final Assembly Line (FAL)** in Laruscade, and the **first integration tests of the LCA60T equipment & systems**. These milestones bring us closer than ever to making our cargo airship project a reality.

Our workforce has also grown, with **over 180 employees** now directly involved in developing our solution, supported by an extensive network of partners. This expansion reflects the dynamism of our project and our commitment to **creating a strong industrial and aeronautical ecosystem**.

At the same time, 2024 was a year of reinforced environmental and societal engagement. The launch of our **Expert Committee for the Environment** strengthens our commitment to properly integrating biodiversity and sustainability at every stage of our project. Our collaboration with **the association Imagine for Margo**, our educational initiatives, and our continuous efforts in diversity and inclusion highlight our broader mission: **to build a company that is both innovative and responsible**.

As we look ahead to 2025, we are preparing for an acceleration phase. We will continue to **deepen our partnerships, structure our future operations, and consolidate our industrial and environmental roadmap**. Our purpose remains unchanged:

- **Contribute to the expansion of economic development by unlocking land-locked territories lacking in infrastructure,**
- **Contribute to the significant reduction of cargo transport's environmental impact.**

This journey is only possible thanks to the dedication of our teams, the support of our stakeholders, and the trust of our partners. I want to extend my deepest gratitude to all of you.

Together, we are shaping a new future for cargo transport.

SÉBASTIEN BOUGON

A stylized, handwritten signature in dark ink, consisting of several fluid, overlapping strokes.

INTERVIEW WITH VINCENT GUIBOUT, CEO OF FLYING WHALES



INNOVATING FOR A SUSTAINABLE FUTURE

You took up your position as Chief Executive Officer of FLYING WHALES on February 1, 2024. What stands out to you from this year?

This year has been extremely eventful and has strengthened my awareness of FLYING WHALES' influence, far beyond just the product itself. FLYING WHALES is not just about developing innovative solutions for decarbonization; we inspire and catalyze profound change in the industry.

FLYING WHALES plays a crucial role as a model for transformation. We have the responsibility to lead by example and create an enviable future, driving a paradigm shift.

What role can FLYING WHALES play in the ecological transition and the transformation of global logistics?

FLYING WHALES addresses a dual challenge: on the one hand, we reduce the carbon footprint of transport, but more importantly on the other hand, we pave the way for innovations that go beyond our own sector.

The airship enables the transport of exceptional loads with a reduced footprint. We can deliver essential infrastructure to remote areas while minimizing environmental impact and improving operator safety.

How do you perceive FLYING WHALES' position in the aerospace and transport sectors, and what impact could airship innovation have on the industry?

FLYING WHALES is positioned as a key player in innovation, developing a groundbreaking sustainable transport solution while also acting as a catalyst for the aviation technologies of tomorrow. Our airship, with its large size and ability to float, provides an ideal platform for integrating and experimenting in innovative propulsion systems, particularly electric ones—an endeavor that is significantly more complex in conventional aircraft due to their stringent volume limitations and equally rigorous safety requirements.

Beyond reinventing the airship for heavy cargo transport, our approach pushes the boundaries of what is possible in aerospace. Innovation is not just about improving existing solutions but about opening new horizons for sustainable mobility. As pioneers, we understand that bold ideas often face skepticism, but leadership means paving the way and inspiring the transformation of our industry.

What are the specificities of the Corporate Social Responsibility (CSR) within FLYING WHALES?

As Deputy CEO, my focus was on improving the environmental footprint of the LCA60T. Today, I fully appreciate the societal dimension of our impact.

I was pleasantly surprised by how engaged our employees are in this approach. Many internal initiatives

reflect a genuine collective commitment to maximizing FLYING WHALES' positive impact, whether through partnerships with schools, associations like Imagine for Margo, or responsible choices made by our employee representatives. This dynamic demonstrates that CSR is embraced at all levels of the company.

Our corporate purpose is based on two fundamental pillars: environmental and societal. On the environmental side, our mission is clear: to decarbonize transport and promote sustainable innovation. This is a central commitment guiding our decisions and development. The societal aspect, however, is sometimes more complex to explain. We are not looking to facilitate access to consumer goods but to meet essential needs, particularly in health, education, and infrastructure. We need to clarify the notion of “connectivity” because, in the collective imagination, it is often associated with globalization and its excesses. Our ambition is quite different: to provide solutions that genuinely improve the lives of remote communities without compromising local ecosystems.

“Climate change is weakening current infrastructures. It is essential to rethink territorial planning to ensure long-term resilience and sustainability.”

How can FLYING WHALES contribute to transforming territories in the context of climate change?

Climate change is weakening current infrastructures. It is essential to rethink territorial planning to ensure long-term resilience and sustainability.

The airship offers unmatched flexibility, as we can reach any location without requiring heavy infrastructure, thereby reducing our impact on biodiversity and local communities.

FLYING WHALES has a role to play in job creation, training for future careers, and regional development, particularly with its future airship assembly plant planned for Laruscade in Gironde. What are your ambitions in this regard?

The Laruscade site perfectly illustrates what public-private cooperation should be to meet future challenges. This project reflects a shared ambition between public authorities, a region committed to sustainable reindustrialization and investment in skills and innovation, and a company seeking to establish itself sustainably within the local ecosystem.

FLYING WHALES will represent nearly 10% of the local workforce, offering a range of jobs, including highly skilled and high-value-added positions. We are working closely with local stakeholders to structure this sector, support training, and ensure the longevity of the jobs created.

We have also brought together an ecosystem of experts to ensure

the project's success. The site's design required extensive work to meet aeronautical, environmental and regulatory requirements while integrating the region's specific challenges. Laruscade is a unique site in France, combining reindustrialization with a limited ecological footprint. The favorable opinion from the Minister of Ecological Transition confirms that Laruscade is the site with the least environmental impact among the options assessed, that it does not compromise the preservation of local species, and that it contributes to building a sustainable future.

“With determination, we are tackling the challenges of energy transition and sustainable development, relying on our partners to integrate environmental and social considerations into their core processes.”

The Laruscade site presents significant biodiversity challenges. How do you reconcile industry and environmental preservation?

We are fully aware that our project has an environmental impact. It is a necessary compromise to develop this innovation, but we have taken strong measures to minimize and mitigate it. We have worked with specialized experts in biodiversity and ecosystem preservation, water resource management, and ecological continuity to ensure the project respects the territory.

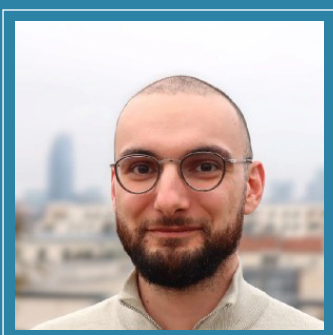
Our ambition is for the site to host as much biodiversity as possible. To achieve this, we have worked on several key aspects:

- Maximizing site compactness to limit its land footprint and preserve existing natural areas.
- Proximity to public transport, which will be further developed to enable more sustainable access to the site.

- The take-off zone, which accounts for around 40% of the land area, will remain a vegetated area, preserving as far as possible the original state of the site.

We must demonstrate that industry and environmental preservation can coexist and that this project can serve as a model for the industry of tomorrow.

A WORD FROM THE CORPORATE SOCIAL RESPONSIBILITY (CSR) DEPARTMENT



Octave JOLIMOY

Head of CSR



Marine LE CAM

CSR Specialist



Sarah PELLERAY

Environmental
Engineer

How can you further engage employees in this responsible approach?

At FLYING WHALES, the company belongs to its employees. Many have joined us because of our CSR commitments. To strengthen this engagement, I make sure each employee is able to dedicate 5% of their time to a positive-impact project related to the company.

A final message for our stakeholders?

With determination, we are tackling the challenges of energy transition and sustainable development, relying on our partners to integrate environmental and social considerations into their core processes.

CULTIVATING A CULTURE OF IMPACT
AT FLYING WHALES

At FLYING WHALES, sustainability is not just a commitment—it is a mindset that drives our actions and decisions. We are building a true culture of impact, where environmental and social responsibility are embedded in everything we do.

Measuring impact is at the heart of this approach. While some aspects, such as carbon footprint reduction, are well-defined, others, like biodiversity footprint, are more complex to assess. Yet, we remain committed to understanding and improving our impact, even when the metrics are challenging to establish.

Beyond measurement, raising awareness is key to fostering this culture. Every new employee participates in a Climate Fresk workshop to deepen their understanding of environmental challenges. Sustainability topics are also integrated into company-wide gatherings, such as seminars and monthly meetings, ensuring that everyone at FLYING WHALES is engaged in our collective responsibility.

For us, sustainability is not just about our LCA60T solution and what we achieve—it's about how we work, think, and grow together. By cultivating this culture of impact, we are shaping a future where aerospace innovation goes hand in hand with environmental and social responsibility.

ABOUT FLYING WHALES

FLYING WHALES is a French-Canadian (Quebec) company leading a groundbreaking industrial program, structured around two main pillars:

- **The aeronautical manufacturing branch, FLYING WHALES, is developing the LCA60T**, a unique rigid airship designed for point-to-point transportation of heavy and/or oversized loads (up to 60 tons), either in cargo hold or under-slings. This solution is both cost-effective and environmentally sustainable, offering a very low carbon footprint.
- **The operational arm, FLYING WHALES SERVICES, will manage a global fleet of 160 LCA60T airships**, supported by dedicated Bases and Operations Control Centers strategically located across major world regions. This entity ensures efficient service delivery to end-users worldwide.

FLYING WHALES is carrying out this ambitious program with the backing of:

- A world-class aerospace industrial consortium, comprising over 50 leading companies from France, Canada, the United States, and Europe (see below for full list),
- A robust shareholder structure.

The LCA60T represents a **revolution in cargo transport**: capable of loading and unloading heavy payloads while in stationary flight, it eliminates the need for ground infrastructure and leaves no environmental footprint on the ground. Its hybrid propulsion system is designed **to transition to fully electric flight, ensuring zero in-flight emissions**.

**FLYING WHALES is driving the energy transition forward
with a cargo air transport solution that operates with no
environmental footprint.**

The LCA60T addresses a broad spectrum of industrial and logistical transport markets. It is particularly well-suited to support regional economic development in areas that lack adequate or reliable transport infrastructure. Its unique capabilities also make it an ideal solution for humanitarian aid and emergency response missions, where resilience, speed, and accessibility are crucial. Additionally, the LCA60T offers a reliable and efficient means of transporting cargo to remote or hard-to-reach regions, where conventional transport methods are limited or unfeasible.



LCA60T Markets

The LCA60T program has successfully completed its design phases and is now entering the industrialization stage, which includes rigorous system testing. This next phase will lead to the assembly of the first LCA60T airship in France. The maiden flight is planned for late 2027, followed by the end of the certification process. Certification will be carried out by the relevant aviation authorities, including EASA in Europe, TCCA in Canada.



The industrial consortium behind the LCA60T program

3 production sites

To support its global operations, FLYING WHALES is establishing three production facilities strategically located to serve key regional markets.

The first site, in Nouvelle-Aquitaine, France, will handle the assembly of the inaugural LCA60T and manage operations across Europe and Africa, including the aircraft's initial certification.

A second facility will be set up in Quebec, to meet demand throughout the Americas.

The third production site will be located in Asian-Pacific region.

OUR CORE VALUES

EMPLOYEES FIRST: Our success depends on a strong, united team where collaboration and mutual respect are key. We prioritize attracting top talent and fostering an environment where individuals thrive and achieve together.

COLLECTIVE BOLDNESS: We embrace risk and push boundaries to build something unprecedented. Overcoming obstacles with resilience and continuous improvement is essential to achieving our vision.

AMBITION TO IMPACT THE WORLD: Our mission is to drive meaningful change through innovation, sustainability, and economic inclusivity. This includes developing the world's largest aircraft and coordinating efforts across three strategic countries.

QUALITY OF EXECUTION: Excellence, discipline, and precision are crucial to achieving our ambitious aeronautical goals. Safety and adherence to the highest standards define our performance.

RESPECT FOR ETHICS: Our Ethical Charter guides all decisions to ensure fairness, integrity, and trust. By upholding these principles, we strengthen collaboration and drive our shared mission forward.

FLYING WHALES is shaping the future of sustainable logistics—pioneering a new era of transport solutions that are both economically viable and environmentally responsible.

2024 Key Figures

187 EMPLOYEES

70 PRE-CONTRACTUAL
AGREEMENTS SIGNED

EQUALITY INDEX SCORE: 98%

FLYING WHALES,
A COMPANY COMMITTED
TO ECOLOGICAL TRANSITION

SECTION 1

BIODIVERSITY CONSERVATION: OUR COMMITMENT AND ACTIONS

A RESPONSIBLE APPROACH TO INDUSTRIAL DEVELOPMENT

As part of its Corporate Social Responsibility (CSR) strategy, FLYING WHALES is committed to placing biodiversity conservation at the core of its industrial development.

This commitment follows the «Avoid-Reduce-Compensate» framework, which prioritizes minimizing environmental impact before considering any offset measures:

- **AVOID:** Projects are designed following a “least impact” approach, with careful site selection and operational planning to reduce ecological disturbances.
- **REDUCE:** Where impacts cannot be avoided, FLYING WHALES implements mitigation measures to limit them as much as possible.
- **COMPENSATE:** Only after these first two steps are compensation initiatives deployed to ensure a net ecological benefit.

The construction of the first airship assembly plant in **Laruscade, Nouvelle-Aquitaine**, marks a major milestone in the company's industrial growth, as well as a significant environmental responsibility.

Following a rigorous selection process led by **Région Nouvelle-Aquitaine**, the Laruscade site was chosen from sixteen candidates based on environmental impact and compatibility with mandatory requirements such as aeronautical suitability. While this location offers the least impact, it still presents environmental challenges due to the presence of **wetlands and protected species**.

ADDRESSING THE ENVIRONMENTAL CHALLENGE

The development of the Laruscade site will impact local biodiversity, particularly wetlands and critical habitats. The Environmental Authority (AE) has emphasized the need for a robust compensation strategy. In response, Région Nouvelle-Aquitaine and Communauté de Communes Latitude Nord Gironde (CCLNG), in collaboration with Bordeaux Métropole Aménagement (BMA) and CDC Biodiversité, have adopted a two-fold approach:

- **Compensation for Protected Species**
- **Compensation for Wetlands**

These initiatives aim to offset environmental impacts by restoring larger areas than those affected, ensuring long-term ecological benefits.

1. COMPENSATION FOR PROTECTED SPECIES

The biodiversity strategy adopted by Région Nouvelle-Aquitaine and CCLNG focuses on the restoration and preservation of key habitats, particularly in the Massif de la Double Saintonge, which is home to emblematic species such as the European Mink and the European Otter. FLYING WHALES works in close partnership with Région Nouvelle-Aquitaine and support their commitments:

- **Habitat Restoration and Management:**
 - o Restoration of natural habitats connected to the Saye hydrographic network to provide refuge and resources for these species.
 - o Improvement of ecological connectivity through modifications to road hydraulic structures, reducing collision risks and ensuring habitat continuity.
- **Protection of Land and Forest Species:**
 - o Restoration of original heathlands by removing intensive maritime pine plantations across seven sites.
 - o Establishment of «senescence islands» on five sites, allowing natural forest cycles to support bat populations.

- **Long-Term Commitments:**
 - o A minimum 50-year commitment for species such as the European Mink, European Otter, and heathland species.
 - o A 90-year commitment for forest species, ensuring sustainable habitat protection.

2.COMPENSATION FOR WETLANDS

The Laruscade site includes 54 hectares of wetlands, with 38 hectares impacted by the project. These areas are divided into two categories: rain-fed plateau wetlands and alluvial wetlands near waterways.

To minimize environmental impact, FLYING WHALES has implemented water management strategies, including rainwater collection and reinfiltration, along with the depollution of previously contaminated areas on site.

To go beyond simple mitigation, five compensation sites covering 150% of the affected area have been selected based on the following criteria:

- **Functional Gain:** Prioritization of sites with the highest restoration potential.
- **Habitat Surface Area:** Selection of large sites to ensure ecological balance.



Laruscade site, November 2024 (credits: Pascal Fournier)

- **Proximity to the Impacted Site:** Favoring locations within 15 km, primarily within the Saye watershed, to maintain ecological coherence.
- **Land Security:** Ensuring long-term conservation through land acquisition or long-term leases.

3. ADDITIONAL CONSERVATION MEASURES

In addition to its regulatory obligations, FLYING WHALES has chosen to go beyond compliance by engaging in voluntary conservation measures to support local biodiversity.

- **Scientific Partnerships:** In 2024, FLYING WHALES engaged with a range of experts to refine its conservation strategies. These included specialists in local flora and fauna, such as Fabien Verfaillie, a biodiversity expert and member of our Environmental Expert Committee, as well as experts on key species like Pascal Fournier, a veterinarian and founder of GREGE (Research Group on the Study and Conservation of Semi-Aquatic and Terrestrial Mammals and Their Habitats), specializing in the European Mink. Additionally, a study conducted by AgroParisTech provided valuable insights into conservation management for the Laruscade site. The objective is to collaborate with leading experts to determine the most effective actions for biodiversity preservation.
- **Wildlife-Friendly Infrastructure:** Installation of nesting sites and other ecological structures to support long-term biodiversity enhancement.
- Beyond these initiatives, FLYING WHALES aims to support the National Action Plan for the European Mink. This includes functional compensations for infrastructures that represent obstacles to the species' movements, as well as monitoring and surveillance measures. A dedicated focus on the European Mink is presented in the following section of this report.

4. FOCUS: THE EUROPEAN MINK A MAJOR ENVIRONMENTAL ISSUE

The European Mink (*Mustela lutreola*), a mammal in danger of extinction at European level, is a focal point of FLYING WHALES biodiversity efforts. This species, primarily found in the southwest of France, faces critical threats, including road mortality, habitat loss and competition from invasive species.



European Minks (credits: Martin Mecnarowski)

To address these challenges, our project includes:

- **Detection and monitoring:** a non-invasive protocol, based on a combination of different equipment (fingerprint traps, hair traps...) will allow to identify the presence of the European Mink in its natural habitat.
- **Invasive species control:** Proactive control measures to limit the impact of the invasive American Mink and Raccoon, which compete with the European Mink.
- **Safe migration pathways:** Infrastructure improvements, such as dedicated water crossings, to reduce road mortality and maintain safe ecological corridors.

- **Restoration of ecological corridors:** Specific measures have been taken to remove barriers to movement and restore natural habitats, including the removal of a culvert obstructing the watercourse and the construction of four bridges to avoid encroachment on the banks of the Saye tributary. These actions ensure that riverbanks remain free and accessible, thereby facilitating the movement and habitat of emblematic species such as the Otter and the European Mink.

A BROADER VISION FOR BIODIVERSITY CONSERVATION

FLYING WHALES' commitment to biodiversity extends beyond the Laruscade site. As the first step in a broader international development plan, **Laruscade exemplifies an approach that will be applied to future sites**, including operational bases worldwide, all designed with a strong emphasis on sustainability and ecological responsibility.

The company's strategy is structured around three core principles:

- **Habitat Protection and Impact Reduction**
 - o Rigorous environmental assessments to minimize harm.
 - o Proactive restoration of critical ecosystems.
- **Rehabilitation and Compensation**
 - o Habitat restoration projects designed for net positive ecological impact.
 - o Collaboration with conservation organizations to ensure best practices.
- **Partnerships for Innovation**
 - o Joint research with ecological experts to develop new conservation methodologies.
 - o Setting industry-leading standards for biodiversity conservation.

2

OVERALL ENVIRONMENTAL FOOTPRINT

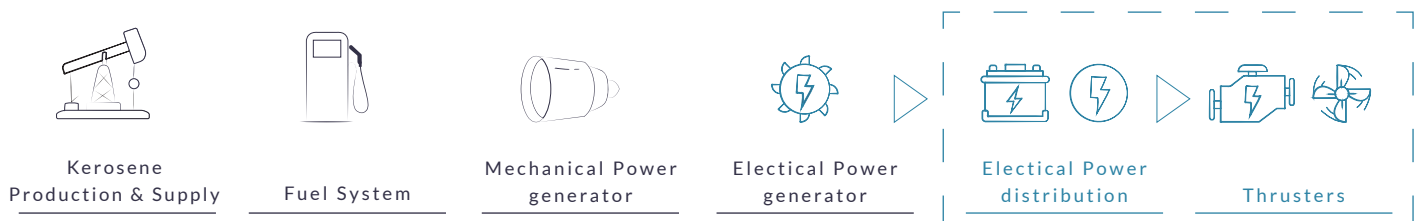
ZERO-CARBON PROPULSION ROADMAP

In line with our mission to maintain a low environmental footprint during our operations, FLYING WHALES has decided to transition to fully electric, zero-carbon propulsion.

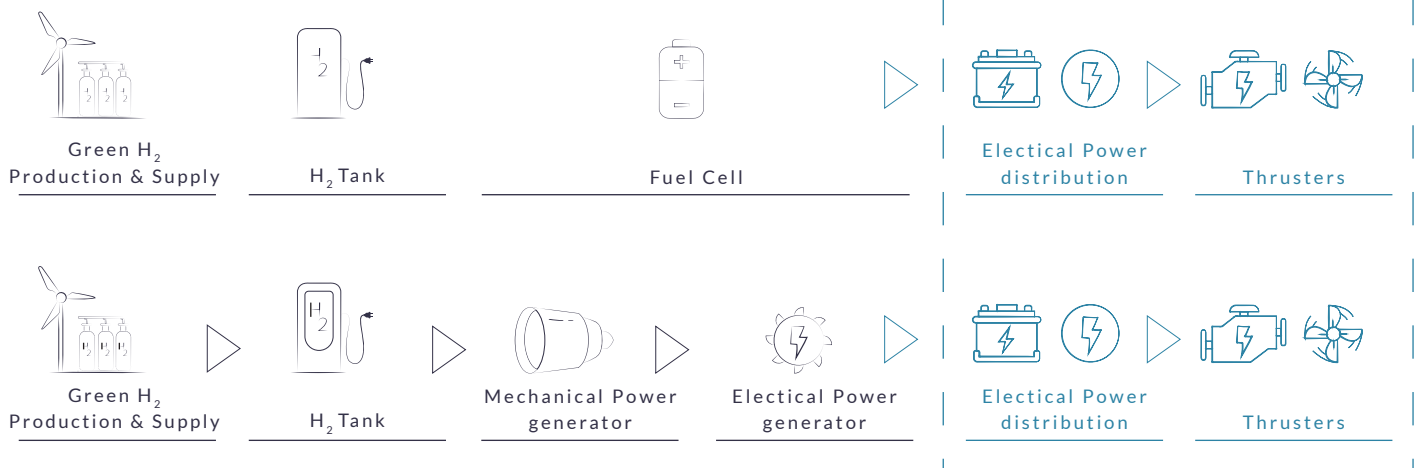
Our implementation strategy consists of two steps:

- **Hybrid Propulsion Configuration:** This involves an electrical architecture of our propulsion chain (distribution to 32 electric motors) using fossil fuels for its megawatt electrical generators..
- **Full Hydrogen Propulsion Configuration:** This involves using fuel cell or turbine injection, and batteries for electrical generation, followed by electric propulsion.

STEP 1: Hybrid propulsion configuration



STEP 2: Hydrogen propulsion configuration



The transition to the second development phase requires a dedicated research & development program encompassing all aspects, from hydrogen storage to system certification, while integrating cutting-edge technologies tailored to aerospace needs.

This program is currently led by FLYING WORKS, the research and technology division within the Technical Department of FLYING WHALES. A series of structured work packages have been defined to shape the roadmap for hydrogen propulsion. These work packages are being addressed through international collaborative research projects involving major aerospace stakeholders, with a strong focus on the specific requirements of the LCA60T.

Typically spanning three to four years, these projects allow for in-depth exploration and the development of breakthrough solutions. The current phase, initiated in 2024, emphasizes low-scale demonstrators and test bench validation—critical steps in preparing for the scale-up phase and integration into the airship.

This methodical, long-term approach ensures that the research not only yields tangible results but also remains aligned with the overarching goal: delivering next-generation, sustainable hydrogen propulsion for the LCA60T.



Storage and distribution

WORK PACKAGE 1: HYDROGEN STORAGE AND DISTRIBUTION

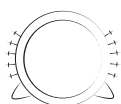
Liquid cryogenic hydrogen, selected for its optimal storage solution, is the focus of this package. The goal is to create a lightweight storage solution suited for aerospace applications. This requires examining the design features, key influencing factors, and production methods of cryogenic storage. FLYING WHALES has joined a three-year collaborative research project, “NOMADE,” led by IRT Jules Verne, with partners such as Airbus, Naval Group, Faurecia, Aresia, CEA Tech, IRT Saint Exupéry, and Ecole Centrale Nantes.



WORK PACKAGE 2: HYDROGEN POWER GENERATION

This package focuses on:

- **Generating power from fuel cells using stored liquid hydrogen.** It is essential to numerically and experimentally evaluate the performance of new high-power fuel cell generations under aeronautical constraints. FLYING WHALES is part of the five-year collaborative research project “HeMoWHY,” led by IRT Saint Exupéry and Laplace laboratories, with partners including Airbus, Liebherr, and Aerostack.
- **Generating power directly from turbines using hydrogen as injected fuel,** through the developments ongoing within FLYING WHALES’ consortium of technical and industrial partners, such as Pratt & Whitney Canada.



WORK PACKAGE 3: LCA60T POWER DISTRIBUTION

Adaptation
to LCA60T

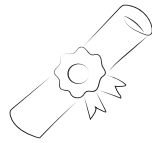
This package addresses power distribution for the LCA60T. FLYING WHALES has opted for a hybrid power distribution architecture to achieve an efficient, reliable, and optimized power generation system. This approach requires an advanced real-time Energy Management System to manage the transition between the high-power fuel cell and the integrated batteries. FLYING WHALES is participating in the three-year collaborative project “OYANA,” led by the Hydrogen Research Institute at the University of Quebec in Trois-Rivières, with Pratt & Whitney Canada and MTLS Aerostructure.



System
architecture

WORK PACKAGE 4: UNIFIED PARAMETRIC MODEL

FLYING WHALES has initiated an additional internal project to consolidate the first three work packages into a unified parametric model to evaluate system performance. The next phase involves preparing a demonstrator program with a small airship equipped with a scaled-down version of the developed system, aimed at showcasing the system’s safety and efficiency through flight missions.



*Safety
and certification*

To ensure the safe implementation and certification of these technologies, FLYING WHALES is actively involved in an international standardization EUROCAE/SAE Working Group which aims to develop standards and technical guidelines focusing on hydrogen technologies in aviation. This group includes aeronautical stakeholders such as OEMs (Airbus, Embraer, Pipistrel), hydrogen propulsion systems integrators (ZeroAvia, H3Dynamic), hydrogen fuel cell and turbine suppliers (Honeywell, Safran, Rolls-Royce, Pratt & Whitney, Toyota, PowerCell), research centers (NRC, NLR), certification agencies (EASA, FAA), and experts (Air Liquide, MTU, ZEV station). FLYING WHALES is also an active member of the Alliance for Zero-Emission Aviation (AZE), which is a collaboration between certification agencies, industry stakeholders, and policymakers, working on the regulatory roadmap development. FLYING WHALES' role is to ensure that the specific requirements of airships are reflected in foundational documents guiding the regulatory certification of hydrogen systems for aviation. Establishing a strong regulatory framework is crucial for the successful deployment of decarbonized technologies in the aviation industry.

While technological innovation is at the heart of FLYING WHALES' approach, its real impact must also be measured and demonstrated. The development of zero-carbon propulsion is a major milestone, but it is equally essential to prove that the LCA60T delivers tangible environmental benefits. This is why FLYING WHALES has established a rigorous environmental assessment process, designed to compare different propulsion configurations and quantify the expected reductions in emissions. This approach relies on two complementary tools:

- **Life Cycle Analysis (LCA):** this involves measuring the overall environmental impact of the solution to identify the main sources of impact and the actions to be taken.
- **The avoided emissions method:** this compares the LCA60T to current modes of transport available on the market to validate its environmental benefits.

LCA UPDATES

The Life Cycle Assessment (LCA) is a standardized multicriteria method that measures environmental impacts across multiple indicators, covering the entire life cycle of a product—from raw material extraction to end-of-life. The approach used for the LCA60T analyzes **16 environmental impact categories**, following the guidelines of the European Commission's Product Environmental Footprint (PEF).

For the LCA60T, the LCA has two main objectives:

- **Measuring** the overall environmental impact of the solution
- **Supporting an eco-design strategy** to improve environmental performance, including the development of a hydrogen-powered version

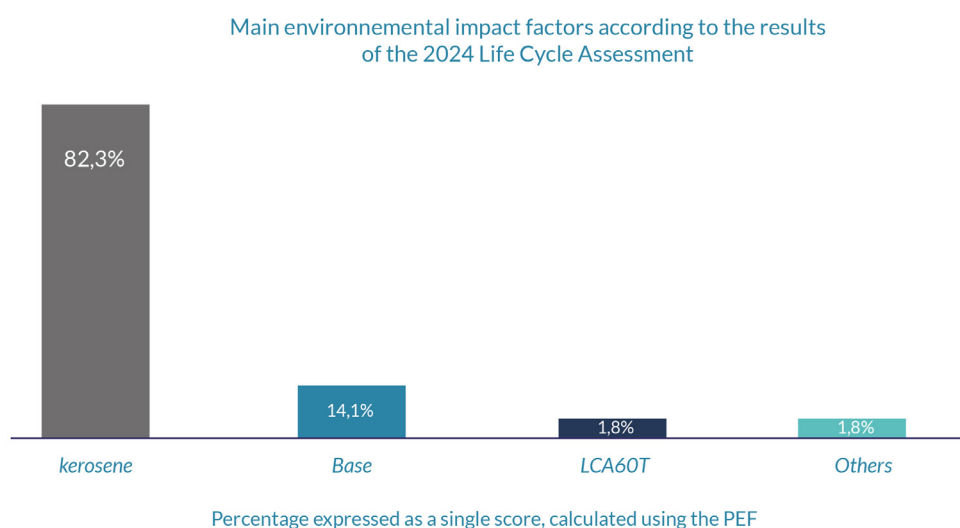
This method helps identify major sources of environmental impact and areas where improvements are needed.

An initial Life Cycle Assessment (LCA) was conducted in 2021 and subsequently updated continuously in 2023 and 2024. Engineering developments, marked by

the completion of the program's latest technical milestone (Critical Design Review), made it possible to fill in missing data and refine the data already collected. As part of a continuous improvement process, the LCA data is gradually being refined in preparation for the critical review scheduled for 2026.

As shown in the graph below, **fuel consumption is the main contributor to the environmental impact of the LCA60T**, accounting for **82%** of the total impact. Additionally, electricity consumption from BASE accounts for 14%. Overall, the environmental impact is largely driven by the climate change indicator.

The operational phase is identified as the key driver of the carbon footprint, **making the reduction of greenhouse gas (GHG) emissions a top priority** for improving the environmental performance of the LCA60T.



A comparative Life Cycle Assessment (LCA) was carried out between hybrid and hydrogen propulsion to check that the reduced impact on climate change does not result in a transfer to other environmental impacts. Modelling was carried out using grey hydrogen, blue hydrogen and green hydrogen. As part of a continuous improvement process, the hydrogen inventory, whose modeling remains complex, is gradually being refined to improve its accuracy.

The initial results indicate that the impact can be reduced by more than half with green hydrogen. This improvement is mainly due to a reduction in impact during the operation phase, particularly on the climate change indicator, resulting in a significant drop in greenhouse gas emissions. The impacts associated with the BASE remain stable, while slight changes are observed in the construction of the LCA60T and maintenance, due to the manufacturing of fuel cells and their renewal.

Thus, this analysis shows that **the main impact of the first version of the LCA60T is linked to the climate change indicator (measuring the carbon footprint)**, particularly

during the operational phase, due to fuel consumption in hybrid propulsion. This impact will be significantly reduced in the second version with hydrogen propulsion.

However, it is difficult to compare this LCA with those of other modes of transport. The scope of the analysis varies according to the solution (whether infrastructure is included, or which life-cycle phases are considered), as to the methodological assumptions (such as energy type, operating conditions and lifetime). These differences make it difficult to obtain consistent, comparable results.

A comparison tool based on greenhouse gas emissions has been developed. This tool relies on robust scientific data from LCA, including precise emission factors, to assess the environmental performance of the LCA60T solution compared with current modes of transport.

ENVIRONMENTAL RELEVANCE OF THE SOLUTION

1. CARBONE 4 STUDIES

The avoided emissions method, focusing on the key indicator of climate change, is used to compare the emissions of the scenario incorporating LCA60T with those of the reference scenario based on existing modes of transport (helicopter, plane, truck, pirogue, blade lifter). This approach has the advantage of including a broad scope of analysis, including infrastructure. It also enables a more detailed assessment of carbon emissions according to the type of operation, by integrating the context and specific features of missions, variables which influence the results.

FLYING WHALES, supported by Carbone 4, developed the emissions assessment tool based on data from its Life Cycle Assessment and from the French Environment Agency (ADEME “Base Empreinte”).

Four concrete case studies, representative of the target markets, were carried out, then critically reviewed by Carbone 4 to ensure the methodological rigor and reliability of the results.

Carbone 4 is an independent consulting firm specialized in carbon strategy and climate change adaptation. Founded by Jean-Marc Jancovici, a recognized expert in energy and climate, Carbone 4 supports companies and institutions in defining and implementing low-carbon pathways aligned with climate goals.

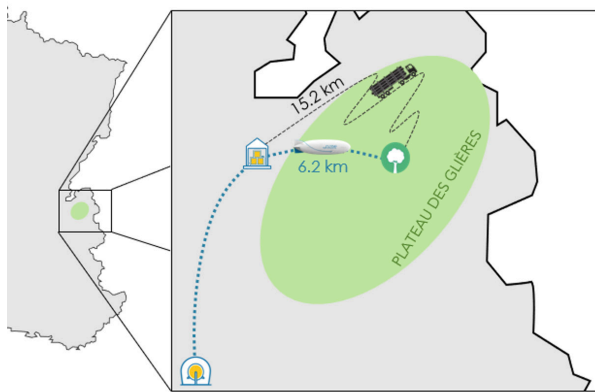
Thanks to its technical expertise and robust methodologies, the firm provides precise analyses of greenhouse gas (GHG) emissions, assesses climate-related risks, and helps build resilient and sustainable strategies.

CASE STUDY 1: Wood - Logging operation at « Glières Plateau »

This case study involves the transport of 3,100 m³ of wood from a difficult to access plateau to a storage site. The area currently has no infrastructure suitable for heavy trucks, requiring the construction of access roads for conventional logging trucks. The comparison assesses the environmental impact of using LCA60T versus logging trucks, taking into account both transport operations and the additional infrastructure required for truck access.

The first hybrid version of the LCA60T cuts emissions by a factor of 2 compared with the use of trucks and the associated road creation, the one using 50% SAF cuts emissions by a factor of 3, while the second version, running on renewable hydrogen, cuts emissions by a factor of 6.

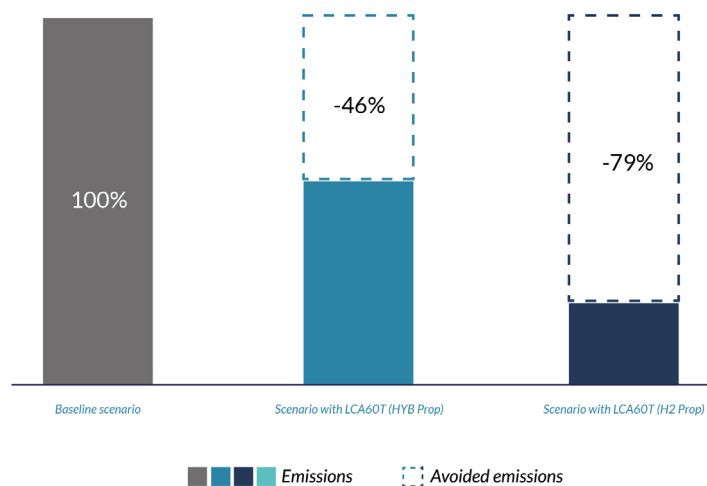
Reducing CO₂e emissions relies primarily on **avoiding the construction of new infrastructure**. By reducing this need, LCA60T not only reduces emissions, but also facilitates access to Alpine Forest resources in a more sustainable way.



Carbon-equivalent impacts computed:

- Access road for logging trucks: road construction, removed trees, trucks fuel consumption, emissions amortized over the road's lifespan (15 years)
- LCA60T: FAL, base, fuel consumption

Emission comparison (tonnes of CO₂ equivalent) and average reduction (%)



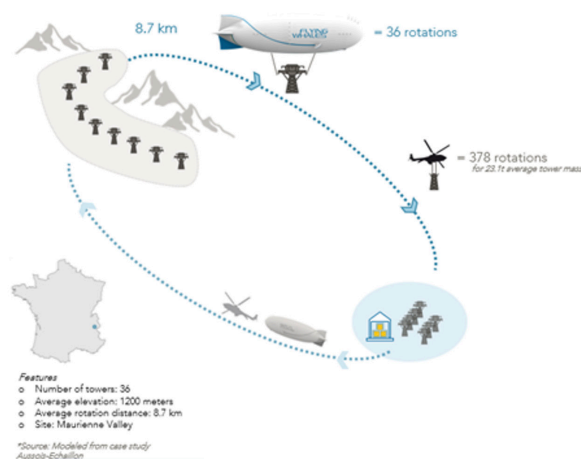
CASE STUDY 2: Construction - Transport operation for 36 Pylons

This case study models the **dismantling of a 150kV high-voltage line**, comprising 36 pylons weighing an average of 23 tons, in mountainous areas. In the base scenario, the pylons must be cut into several sections for lifting by H225 (A1 jet) helicopters. The LCA60T, on the other hand, proves extremely efficient, transporting them in a single piece, thus simplifying operations.

Emissions from the LCA60T with hybrid propulsion are lower than those of a helicopter, making it 3 times less emissive. The LCA60T with hybrid propulsion using 50% SAF cuts emissions by a factor of 4. The second-generation LCA60T with hydrogen propulsion reduces emissions by a factor of 10.

The greater the weight of the pylon, the greater the reduction in environmental and financial costs enabled by the LCA60T. Avoided emissions are lower when the pylon is lighter, as the helicopter requires fewer round trips, since it can carry a maximum load of 2.2 tons in mountainous areas.

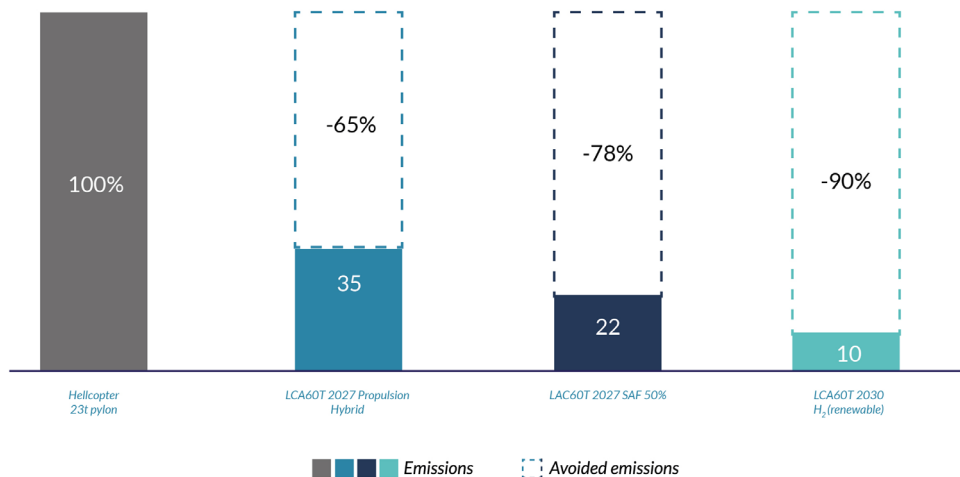
What's more, the fact that the LCA60T doesn't require the pylons to be cut into small pieces means that work at height is avoided, thus improving operator safety.



Dismantling a line involves:

- **Helicopter operation:** transport pylons into sections (<2t)
- **LCA60T operation:** pylon transported in one piece (up to 60t)

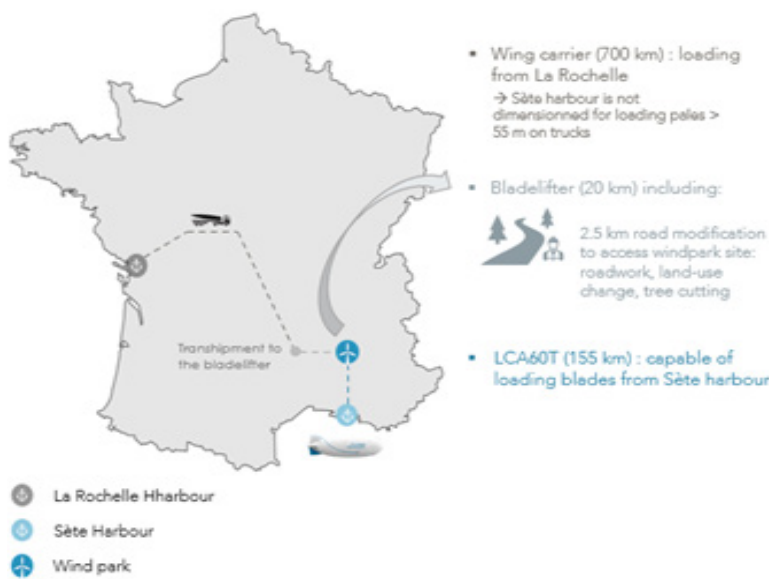
Emission comparison (tonnes of CO₂ equivalent) and average reduction (%)



CASE STUDY 3: Power - Blades transport operation

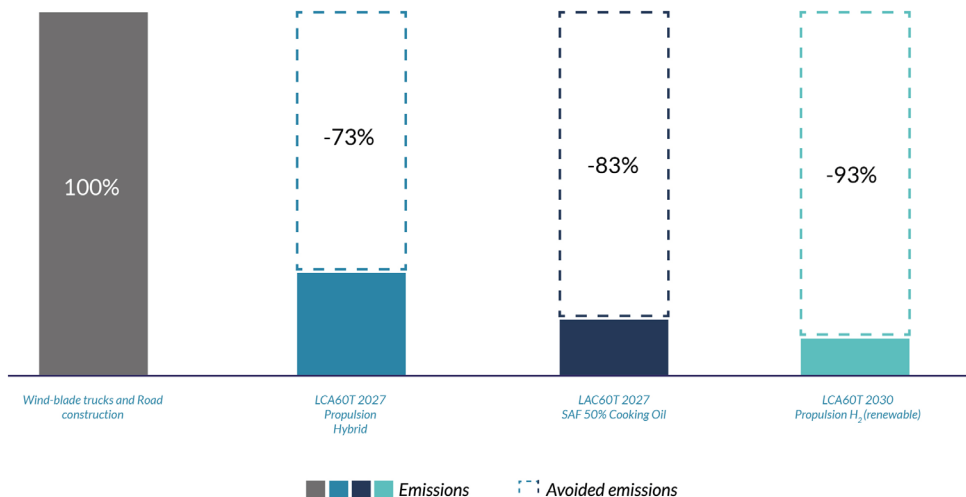
This case study models the **transport of 9 wind turbine blades**, each measuring 62 meters and weighing an average of 15 tons, from the port to the wind farm.

In the reference scenario, **specialized heavy vehicles such as wing carriers and bladelifters require major road modifications**, or even the construction of a new road, to access the wind farm. In this case, a 2.5 km road would have to be modified, involving roadworks, changes in land use and the felling of trees to allow the passage of these large components. **The LCA60T offers a much more efficient alternative, eliminating the need for such infrastructure changes.**



By limiting the felling of trees and the road modifications required for the passage of specialized trucks, the use of LCA60T generates significant savings while reducing environmental impact. **Compared with the reference scenario, LCA60T with hybrid propulsion reduces CO₂ equivalent emissions by a factor of 4, hybrid propulsion using 50% SAF achieves a reduction of 6, and the hydrogen-powered version reduces emissions by a factor of 13.**

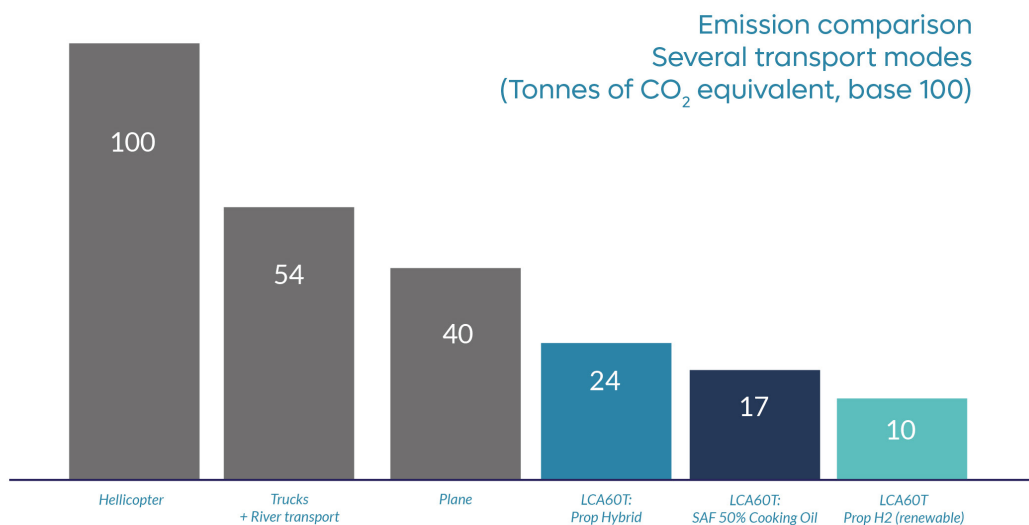
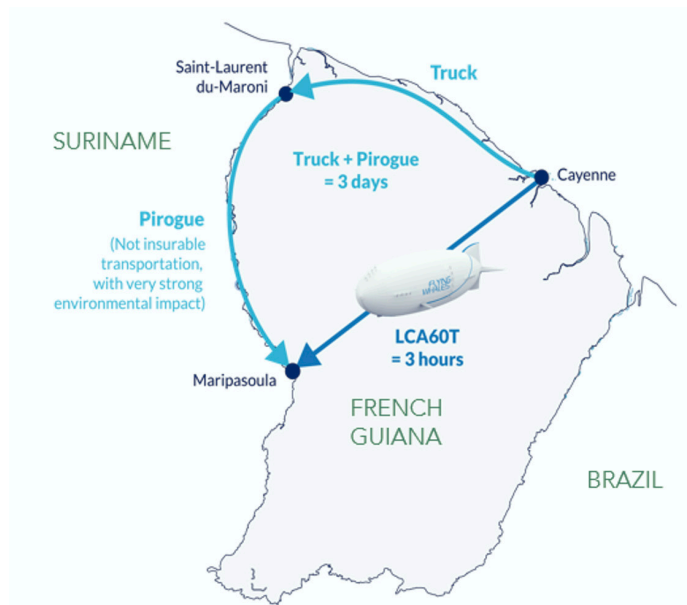
Emission comparison (tonnes of CO₂ equivalent) and average reduction (%)



CASE STUDY 4: Construction - Transport to remote communities

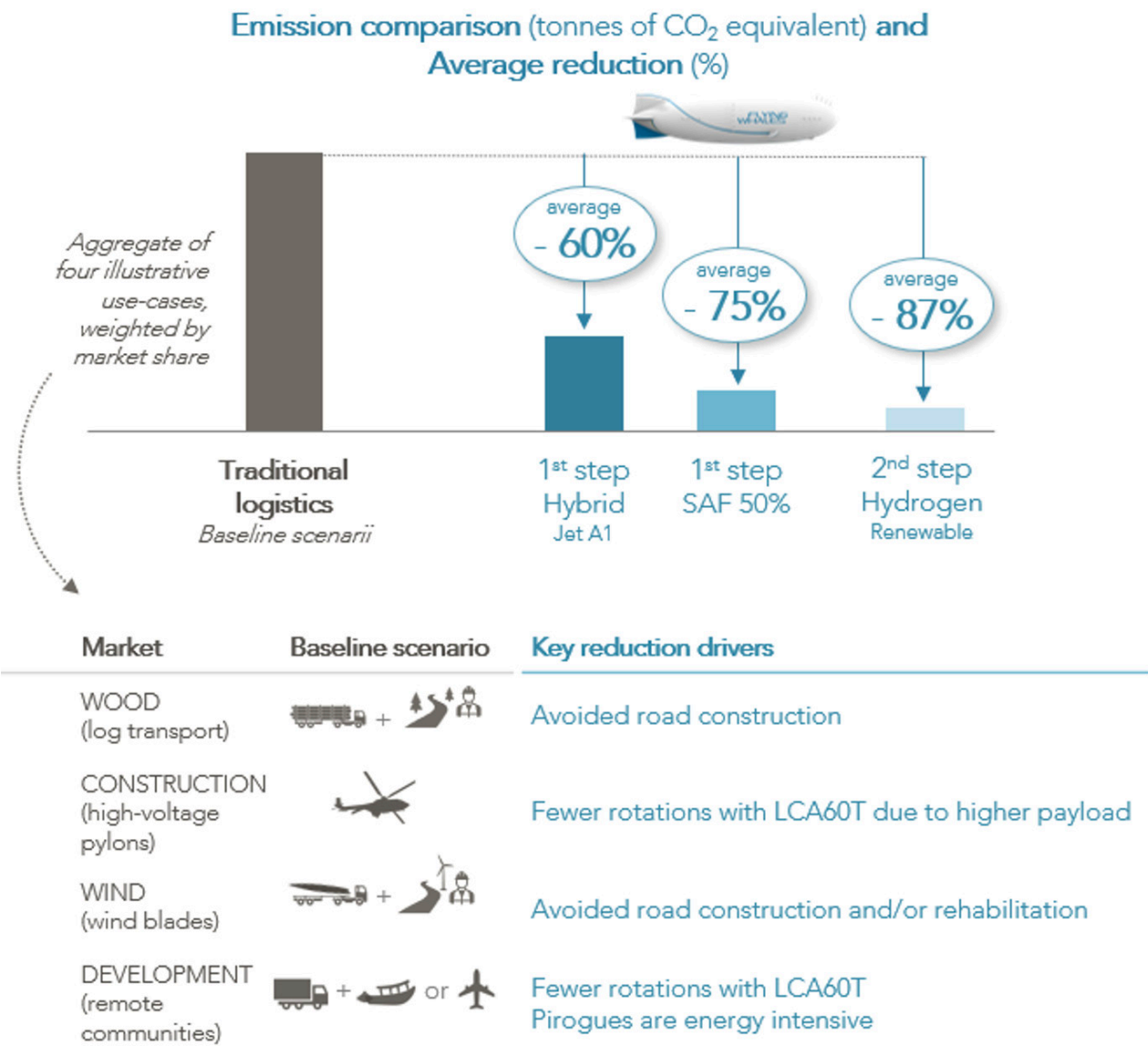
This case models **the transport of 60 tons of building materials from Cayenne to Maripasoula, a landlocked community in French Guiana**. In the baseline scenario, transport is by truck, pirogue or airplane (using fuel), each of which presents significant logistical constraints. The LCA60T solution offers a direct and efficient alternative, providing access to this remote region while offering the added advantage of transport even during the dry season, when river navigation proves to be difficult.

The results show a reduction in CO₂ equivalent emissions with LCA60T compared with the reference scenario. **Hybrid propulsion reduces emissions by a factor of up to 4, hybrid propulsion using SAF (50%) achieves a reduction of up to 6, and hydrogen reduces emissions by up to 10.** The emissions avoided stem from the fact that the pirogue consumes a lot of energy and runs on fossil fuel (diesel). With a transport capacity of just 10 tons, it requires several trips compared with the LCA60T, which further increases fuel consumption.



SYNTHESE

The LCA60T represents a significant advancement in sustainable transportation, *achieving CO₂ emission reductions between 60% and 87% compared to traditional transport methods*, particularly in areas lacking adequate infrastructure.



Its 4 differentiating features are:

- **LOADING AND UNLOADING IN STATIONARY FLIGHT:** the LCA60T can load and unload in stationary flights, eliminating the need for ground infrastructure. As such, it reduces infrastructure upgrades or construction works dedicated to specific

projects, which generate significant emissions (use of heavy machinery, production and transport of materials, tree cuts, land-use change, etc.).

- **HELIUM BUOYANCY:** the LCA60T maintains its lift by using a lighter-than-air gas that generates Archimede's buoyance. As such, the LCA60T does not expend energy to counteract gravity, and, doing so, significantly reduces fuel consumption compared with traditional rotorcraft which require fuel consumption to lift the payload.
- **ELECTRIC PROPULSION SYSTEM:** the LCA60T is equipped with distributed electric propulsion architecture, which optimizes energy use and enables emission reductions. The 2nd generation of LCA60T will incorporate hydrogen propulsion, to further decarbonize.
- **60-TON PAYLOAD CAPACITY:** design with a substantial payload, the LCA60T reduces the number of trips required, especially when transporting large components, thus lowering the impact of emissions during operation.

This solution combines logistical efficiency and respect for the environment, making the LCA60T a strategic asset for responsible transport, adaptable to the most demanding conditions. Use cases have confirmed its environmental advantages over traditional modes of transport.

2. SOTALIA PROJECT

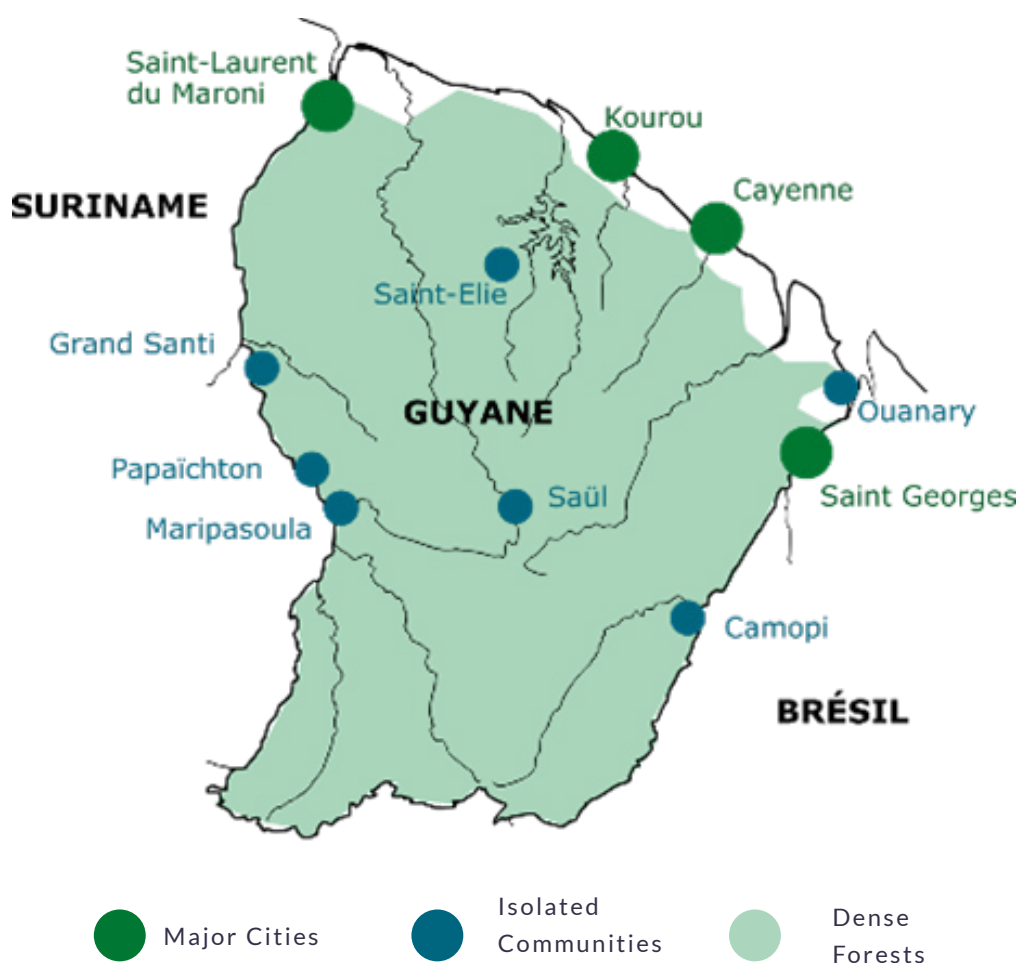
This project was financed by the French government as part of France 2030.

The SOTALIA project seeks to tackle the significant isolation challenges faced by French Guiana, where 30,000 residents —expected to reach 40,000 by 2030—live in remote



interior communes, hundreds of kilometers away from any road infrastructure. This geographic isolation creates major challenges in terms of access to essential services, ensuring the supply of basic goods, and possibility to develop local economic activities.




By participating in this call for projects, FLYING WHALES aims to increase the region's connectivity while minimizing the environmental impact of cargo transport through the innovative capabilities of the LCA60T.



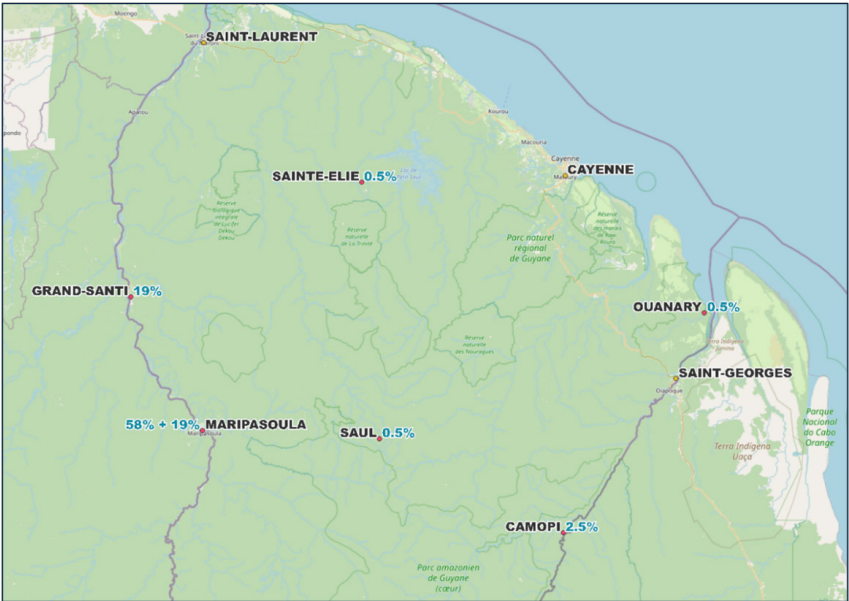
A comprehensive market analysis allowed us to pinpoint the unique needs of each community and design an annual delivery schedule tailored to their size and specific requirements. This study led to the identification of four primary use cases across three strategic markets, ensuring that each community is served regularly in accordance with its scale.

These use cases are outlined below.

SOTALIA project, studied applications

CONSTRUCTION	GENERAL FREIGHT	WASTES
		
Transport of: <ul style="list-style-type: none">• Raw matériaux• Construction equipment• Prefabricated elements• Indivisible loads	Varied transport covering all population's needs (food, LPG, hardware, etc.) Willingness to counter informal trade	Repatriation of assimilated household waste
Volume 2027 56 500t (⇔ 1.6t/hab)	Volume 2027 36 000t (⇔ 1t/hab)	Volume 2027 10 000t (⇔ 0.3t/hab)

For the calculation of each use case, we assume that the base is located near Cayenne.



Map of key locations in Guyana

USE-CASE 1: CAYENNE-MARIPASOULA REGULAR LIAISON



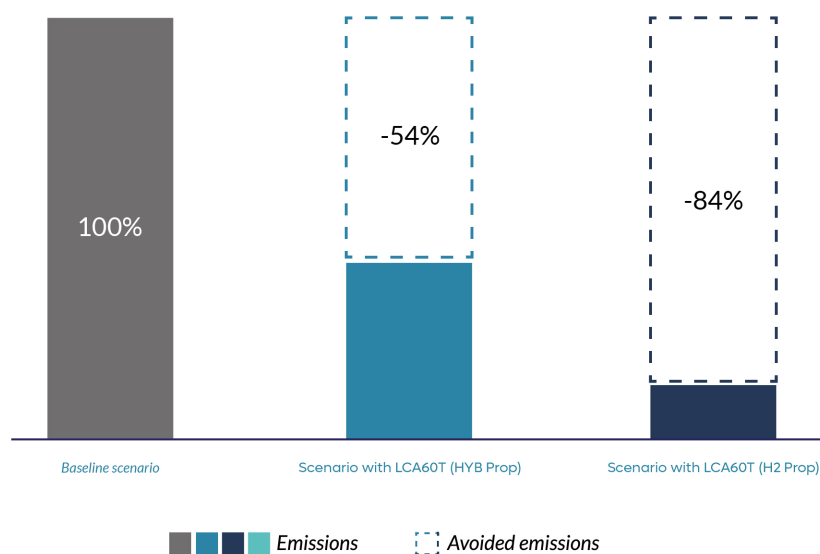
Days/year: 75 days

Population in scope:
19,500 inhabitants

The main use case studied concerns **the liaison between Cayenne and Maripasoula**, with a target of two rotations per day and a total volume of 120 tons transported.

In the basic scenario, containers are picked up in Cayenne and transported by truck to Saint-Laurent-du-Maroni. There, they are unloaded, and the individual packages inside are distributed across multiple pirogues for the final journey to Maripasoula, thus ensuring continuity in the logistics chain. In the alternative scenario with the LCA60T solution, on the other hand, **container transport is optimized**, enabling direct shipment from Cayenne to Maripasoula without passing through Saint-Laurent-du-Maroni.

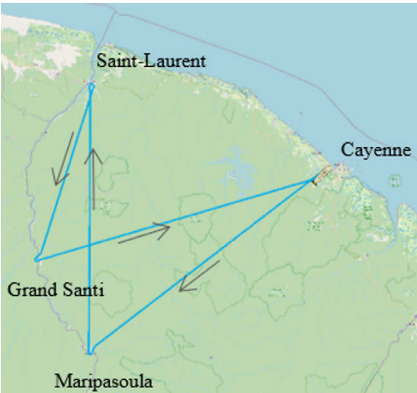
The reference scenario includes road and river transport. The corresponding emissions amount to 118 tCO₂e, whereas the emissions generated with the LCA60T solution are 55 tCO₂e for hybrid propulsion (JetA1) and 19 tCO₂e for hydrogen propulsion. **This translates into emissions reductions of 54% and 84% respectively.**



USE-CASE 2: CAYENNE-MARIPASOULA THEN ST-LAURENT-GRAND SANTI LIAISON

Days/year: 52 days

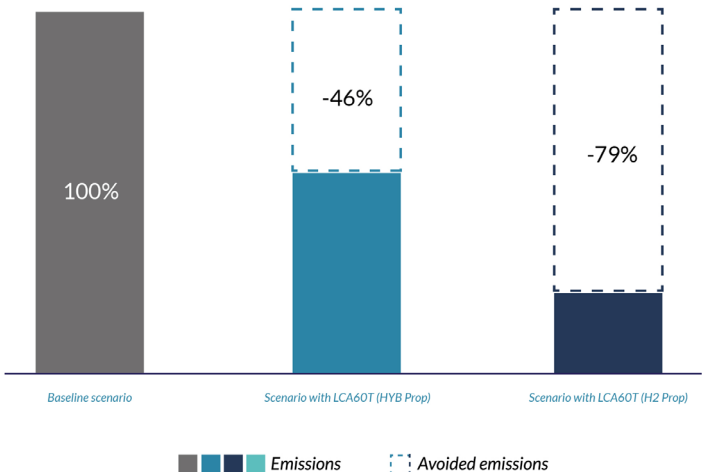
Population in scope:
34,600 inhabitants



In this case study, the objective is to transport a total of 120 tons, distributed between Grand-Santi (60 tons) and Maripasoula (60 tons).

In the baseline scenario, the entire cargo is transported by truck from the pickup area to Saint-Laurent-du-Maroni. Once there, river transport takes over: 60 tons are shipped by pirogue to Grand-Santi, while the remaining 60 tons continue by pirogue to Maripasoula. In the scenario with the LCA60T, to address the inland city of Grand-Santi, the use-case is devised, optimizing timing by performing the second loading from Saint-Laurent du Maroni instead of Cayenne. This cuts the mission duration by about one hour, which is significant. It implies the ability to bring the payload by road to Saint-Laurent du Maroni (which is currently the logistical departure point for river transport).

The baseline scenario includes road and river travel, but the overall distance covered by pirogue (dugout canoe) is lower since the second destination is Grand-Santi instead of Maripasoula. The corresponding emissions amount to 96 tCO₂e, whereas the emissions generated with the LCA60T solution are 52 tCO₂e for hybrid propulsion (JetA1) and 20 tCO₂e for hydrogen propulsion. This results in emission reductions of 46% and 79%, respectively.



USE-CASE 3: CAYENNE-MARIPASOULA THEN ST-GEORGES-CAMOPI LIAISON



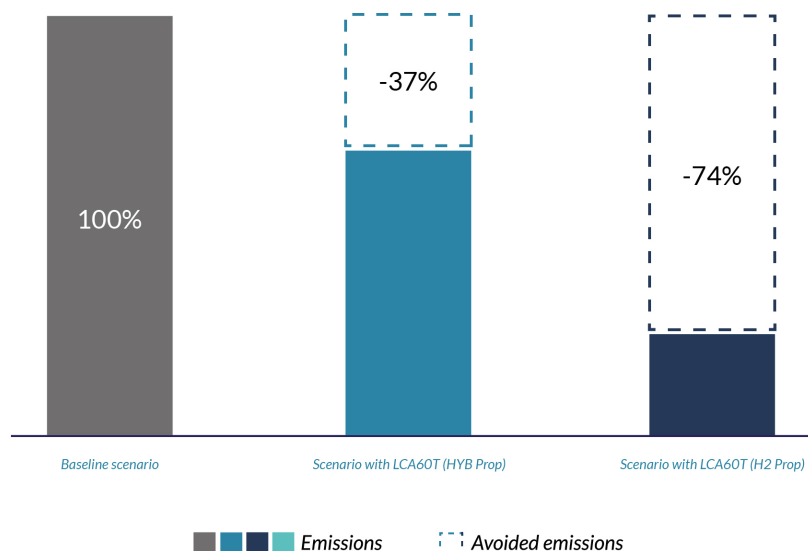
Days/year: 7 days

Population in scope:
21,600 inhabitants

In this case study, **the objective is to transport a total of 120 tons, divided between Camopi (60 tons) and Maripasoula (60 tons).**

In the baseline scenario, transport follows two distinct routes. Firstly, 60 tons are transported by truck from the collection area to Saint-Laurent-du-Maroni, then transferred to a pirogue to reach Maripasoula. The second route follows the same process: 60 tons are transported by truck to Saint-Georges, then loaded onto a pirogue for delivery to Camopi. In the scenario with the LCA60T, based on a concept similar to that of UC2, Camopi can be reached more efficiently by carrying out the second loading at Saint-Georges. This implies the ability to transport the payload by road to Saint-Georges.

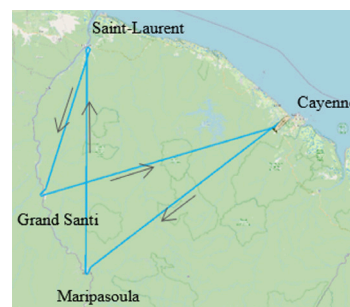
The base scenario includes both road and river travel, but the total distance covered by pirogue is lower, since the second destination is Camopi instead of Maripasoula. The corresponding emissions amount to 84 tCO₂e, whereas the emissions generated with the LCA60T solution are 53 tCO₂e for hybrid propulsion (JetA1) and 22 tCO₂e for hydrogen propulsion. This translates into **emissions reductions of 37% and 74% respectively.**



USE-CASE 4: CAYENNE-MARIPASOULA THEN CAYENNE-ST-ÉLIE-SAUL-OUANARY LIAISON

Days/year: 4 days

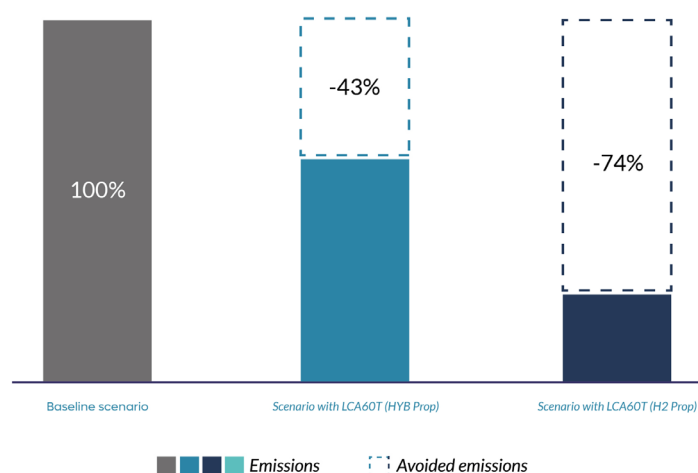
**Population in scope:
20,800 inhabitants**



This case study involves the transport of 120 tons of goods to four destinations: 60 tons to Maripasoula, 20 tons to Saint-Elie, 20 tons to Saül and 20 tons to Ouanary. Transport routes differ according to destination.

The 60 tons destined for Maripasoula travel by road to Saint-Laurent-du-Maroni, then continue by pirogue. The 20 tons destined for Saint-Élie are first transported by road to the Barrage du Petit Saut, then by pirogue, with a final short stretch by road. The 20 tons for Saül are transported by road to Cayenne Félix-Éboué airport in Matoury, then flown to Saül. The 20 tons for Ouanary are transported by road to Saint-Georges, then loaded onto a pirogue. In the LCA60T scenario, although the expected volume potential is much lower for small communities, the aim is to be exhaustive in terms of the communities that can be involved. Consequently, a specific use case is envisaged for Sainte-Elie, Saül and Ouanary. Technically, the annual volume identified could be processed in just 1 or 2 rotations for each of these localities, but it is considered that 1 or 2 deliveries per year might not be sufficient. It is therefore assumed that all three will be processed in a single rotation, leaving 20 tons of payload on each site instead of 60 tons on a single site, but more frequently throughout the year.

The base scenario includes delivery by air to Saül, and road and river travel in the opposite case. The corresponding emissions are significantly higher, at 133 tCO₂e, whereas the emissions generated by the LCA60T solution are 76 tCO₂e for hybrid propulsion (JetA1) and 35 tCO₂e for hydrogen propulsion. This translates into **emissions reductions of 43% and 74% respectively**.



In a nutshell, analysis of the various use cases for the Sotalia project shows that **scenarios involving long distances covered by pirogue have the highest carbon emissions, making them a major issue to consider**. In this context, the LCA60T solution is proving effective in improving connectivity, supporting economic development and reducing the carbon footprint.

FLYING WHALES,
A COMPANY COMMITTED
TO ITS EMPLOYEES
AND SOCIETY AS A WHOLE

SECTION 2

HEALTH & SAFETY (H&S)

Ensuring the health and safety of our employees is the company's number one priority. This commitment is reflected in our stringent safety protocols, continuous training programs, and proactive health measures, all designed to create a secure and healthy work environment for everyone at FLYING WHALES.

H&S ROADMAP – KEY ACTIONS ACHIEVED IN 2024

With the acceleration of its tests and trials, the company is also stepping up employee training to maintain a high level of safety.

SAFETY RESULTS 2024

OBJECTIVES	RESULTS
OBJECTIVE N°1 Achieve Zero Workplace Accidents	<ul style="list-style-type: none"> – Workplace accidents: 0 work-related accident resulting in sick leave – Commuting accidents: 1 commuting accident resulting in sick leave
OBJECTIVE N°2 Training and Qualification for Risk Management	<ul style="list-style-type: none"> – This objective aims to enhance the skills of FLYING WHALES employees in first aid and fire safety while also ensuring proper training for roles requiring specific authorizations, certifications, or driving permits. • First aid Training: <ul style="list-style-type: none"> o 7 new employees trained to strengthen the first aid team in Suresnes and Bordeaux o 2 refresher training sessions conducted. • Electrical Authorization: <ul style="list-style-type: none"> o 5 test engineers trained to obtain the mandatory electrical authorization for managing, implementing, and supervising electrical tests, including the Iron Whale project.

OBJECTIVE N°3

**Empower Employees
and Stakeholders in
Workplace Safety**

- Creation of Health & Safety Resources on FLYING WHALES's Website:
 - o The dedicated H&S section provides access to key safety indicators (KPIs), procedures, templates, and information about the H&S team and its organization.

OBJECTIVE N°4

**Developing a "Stop and
Solve" Safety Culture**

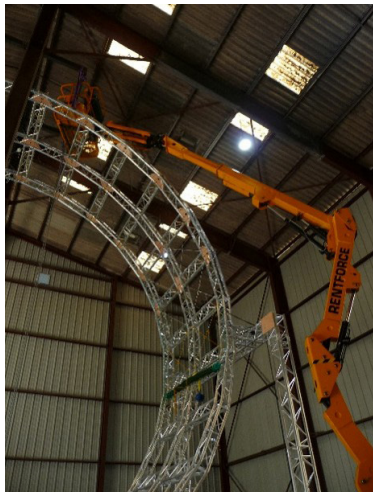
- H&S Field Audits:
 - o 2 field audits conducted per site/floor, following the predefined schedule.
 - o In 2024, the H&S and Facilities teams implemented a new system to enhance responsiveness in addressing safety actions with our maintenance subcontractor, ensuring quicker resolutions or prompt quotations for required H&S actions.
 - Safety Checks for Tests and Mock-ups:
 - o All tests and mock-ups are subject to a safety checklist
 - o Tests conducted in 2024: 2
- 1. Origami Test:**
- Structure assembly test, replicating the LCA60T's internal structure frame
 - A helium gas cell inflation was tested under various scenarios to assess its behavior during assembly and maintenance processes.
 - H&S considerations were integrated from the project's inception through checklists to anticipate training needs, authorization requirements, and necessary equipment and procedures.
 - Safety audits were conducted throughout the test to manage risks and ensure compliance.

OBJECTIVE N°4

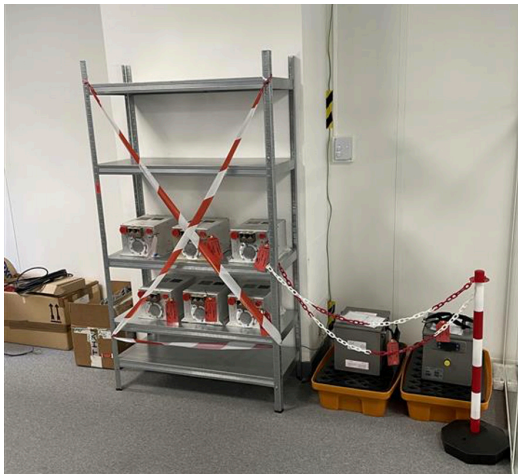
Developing a “Stop and Solve” Safety Culture

2. Iron Whale Test Setup:

- This project involved designing a safe testing area at our headquarter office in Suresnes to implement all necessary equipment for the “Iron Whale” test bench.
- H&S considerations were prioritized throughout the planning phase to ensure the highest safety standards, including training, authorizations, protective measures, and control mechanisms.



Origami Tests



Protective Measures – Iron Whale

OBJECTIVE N°5

Developing prevention and continuous improvement

- All commuting accidents with sick leaves are systematically subject to 8D analysis
 - o This method has been used to analyze a commuting accident that occurred in the bicycle parking at Suresnes. Thanks to this analysis, the root cause has been identified, and a communication campaign has been done to remind the safety rules to accede at the bicycle parking.
- H&S roadmap: Achieve 100% of the targeted milestones set for 2024
 - o Of the 8 items identified in the H&S roadmap for progression in 2023, five have been successfully validated to advance to the next level.

AXES – PROGRESS BY 2024

AXES	PROGRESS BY 2023
AXIS 1 Skills and Qualifications	<ul style="list-style-type: none">• H&S Authorizations:<ul style="list-style-type: none">o All employees requiring specific authorizations have been identified and trained accordingly.• H&S Training:<ul style="list-style-type: none">o A comprehensive mapping has been completed to identify the H&S training and certification needs for each technical function.
AXIS 2 Management Effectiveness	<ul style="list-style-type: none">• Visual Communication on Accidents:<ul style="list-style-type: none">o Based on the 8D analysis methodology, this communication initiative helps share and highlight the root causes of accidents and the corresponding action plans.
AXIS 3 Continuous Improvement	<ul style="list-style-type: none">• Employee Representation:<ul style="list-style-type: none">o The H&S action plan is presented to employee representatives.o Progress updates on the action plan are shared during Social and Economic Committee meetings.• Accident Communication:<ul style="list-style-type: none">o Following the 8D analysis, a standardized communication template is completed and distributed.o This document shares the root cause of the accident, outlines the action plan, and, if necessary, reinforces safety rules.

SOCIAL AND EDUCATIONAL INITIATIVES

COMMUNITY INVOLVEMENT

PARTNERSHIP WITH THE ASSOCIATION "IMAGINE FOR MARGO"









Each year, the employees of FLYING WHALES are invited to support a cause close to their hearts. In 2024, we once again renewed our commitment to the association "Imagine for Margo".

At the end of September, Imagine for Margo organizes its annual race where each participant must raise at least 200 euros. These funds play a crucial role in advancing pediatric cancer research, leading to better understanding and improved treatments. This event is a highlight for our company, bringing us together around a meaningful cause.

This year was particularly special: **thanks to the incredible dedication of our employees and the generosity of our donors, we surpassed our previous fundraising record!** A total of €34,200 was collected internally, securing us the **4th place among the top fundraising companies in 2024**. This achievement reflects the strong commitment and solidarity within FLYING WHALES.

To further boost contributions, participants set personal challenges, creating a dynamic and collaborative atmosphere. Additionally, the company matches every donation made by an employee, effectively doubling the impact of each contribution.

	2019	2020	2021	2022	2023	2024
Employees & FLYING WHALES contribution	 X 8 5 000€	 X 29 29 000€	 X 18 21 000€	 X 25 30 530€	 X 25 32 250€	 X 25 34 200€



**Team participation at the “Children Without Cancer” Race,
29/09/24**

EDUCATION AND AWARENESS

STUDENT CHALLENGE: THE FLOAT, LIFT & FLY CONTEST

The Float, Lift & Fly Contest, organized by Planète Sciences and FLYING WHALES, brings together engineering students to design and develop a 6-meter airship capable of replicating the missions of the LCA60T on a small scale. Each team integrates a **piloting system, ballast system, and payload system onto a blank airship envelope provided by the organizers.**

Three general meetings with FLYING WHALES experts help teams refine their designs, addressing **sizing, risk reduction, and system optimization**. The challenge culminates in a **two-day competition**, where teams navigate a course and complete tasks to determine the best-performing airship.

2023-2024 Edition: Focus on Wind Energy

This edition centered on the **transportation of wind turbine components**, reflecting the need for sustainable transport solutions in the green energy transition. Participants tackled the challenge of **efficiently moving wind turbine blades, masts, and containers** to an onshore wind farm.

Achievements & Innovation

The contest saw record participation, with **seven finalist teams** from top engineering schools like **Polytech, IPSA, ESTACA, and ELISA Aerospace**. The event also fostered gender diversity, with women representing 20% of the 40 participants.

Innovation was at the heart of this edition, with teams developing:

- **A wireless communication system**, reducing weight and enhancing energy efficiency.
- **A mobile ballast system** for improved balance while exchanging loads.
- **A multi-element gripping tool**, streamlining payload operations.

Benefits & Rewards

Beyond technical skills, students gain **valuable hands-on experience** in aeronautics, strengthening their **communication, resilience, and problem-solving abilities**. The winning team earns an **exclusive internship with FLYING WHALES**, offering deeper immersion in **airship engineering and sustainable transportation**.

This competition reflects FLYING WHALES' commitment to **innovation, education, and sustainability**, preparing the next generation of engineers for future transport challenges.



Participants testing their solutions

DIVERSITY AND INCLUSION

PROGRESS AND INITIATIVES FOR EQUAL OPPORTUNITY

At FLYING WHALES, people are at the core of our corporate vision. This conviction is embedded in our **ethics charter** and is reflected in the **equal opportunity agreement** developed in collaboration with employee representatives. This agreement outlines the company's firm commitment to creating an inclusive work environment—one that values diversity and ensures equal opportunity for all, regardless of gender, origin, age, disability, or family situation.

In 2024, FLYING WHALES continued to strengthen its efforts around inclusion and diversity through a series of targeted actions, including:

- **Enhanced monitoring of gender pay equity**, with particular focus during annual compensation reviews, in alignment with our salary policy.
- **Regular reporting and transparency** on key diversity indicators, such as the proportion

of women by job category, representation in leadership roles, and the company's gender equality index score: 94% in 2023, rising to 98% in 2024.

- **Inclusive recruitment practices**, including the publication of job offers on platforms dedicated to promoting diversity.
- **Comprehensive administrative support** for international employees, to facilitate the visa and residence permit process required to join the company.
- **Robust support for parenthood**, including full salary coverage during parental leave, structured return-to-work interviews, and safeguards for continued career development.
- **Proactive inclusion of people with disabilities**, with tailored workstation accommodations when necessary to ensure sustainable employment.

ANNUAL OBJECTIVES AND STRATEGIC FOCUS AREAS

FLYING WHALES adopts a forward-thinking and structured approach to diversity and inclusion, centered around the following priorities:

- **Encouraging gender balance** in technical and managerial positions through awareness initiatives and early exposure programs, such as internships for 9th and 10th grade students.
- **Ensuring equal career development opportunities**, by facilitating access to training, internal mobility, and promotions regardless of personal background.
- **Reinforcing workplace accessibility** for employees with disabilities by continuously improving and adapting working conditions.
- **Supporting the integration of international talent**, notably through programs designed to

strengthen professional fluency in French.

- **Fostering work-life balance**, with flexible remote work policies and adaptable working arrangements.

CONCRETE MEASURES TO FOSTER INCLUSION AND DIVERSITY

Beyond formal commitments, FLYING WHALES adopts a hands-on, pragmatic approach to building a more inclusive culture:

- **Job postings are systematically written in inclusive language** and distributed through specialized diversity networks.
- **Training and onboarding programs are customized** to meet the specific needs of employees, including those requiring accommodation.
- Intergenerational dialogue is actively promoted, encouraging collaboration across age groups.
- **Inclusive team-building events** such as Integration Day and International Lunch help create a welcoming and cohesive work environment.
- **A “buddy” system** is in place to ensure that every new employee benefits from personalized guidance and support upon arrival.

TRAINING & SKILLS DEVELOPMENT

TRAINING AND SKILLS DEVELOPMENT

At FLYING WHALES, we are deeply committed to the continuous development of our employees' skills. We believe that strengthening both individual and collective expertise is a strategic driver of innovation, performance, and long-term engagement.

EMPLOYEE TRAINING PROGRAM

In 2024, FLYING WHALES pursued an ambitious training policy, fully aligned with the company's strategic goals. Built collaboratively with employees, managers, leadership, and Human Resources, this participatory approach ensures the identification of training needs, prioritization of actions, and deployment of a development plan tailored to our technical, managerial, and societal challenges

Key training focus areas in 2024 included:

- **Technical Skills Development:** Targeted training programs were launched to strengthen job-specific expertise, particularly in tools such as Catia, 3DX, and Box, as well as in the development of complex systems.
- **Managerial and Leadership Training:** Several learning pathways were deployed, including management fundamentals, cross-functional leadership, and the internal WPL (Workpackage Leader) training program.
- **Health, Safety & Social Responsibility:** In addition to reinforcing mandatory awareness modules—covering workplace harassment prevention and essential health and safety training (SST, fire safety, HSE)—FLYING WHALES has introduced **The Climate Fresk**, a collaborative, hands-on workshop designed to deepen understanding of the climate crisis. During this session, participants work together to assemble a large mural (fresk) using cards that represent scientific facts about the causes, consequences, and interconnected effects of climate change. Through discussion and card-linking exercises, they cultivate critical thinking, creativity, and teamwork, fostering both individual insight and collective commitment to environmental action. This initiative not only enhances the alignment of internal corporate social responsibility policy but also empowers employees to grasp the complexity of climate issues and become active agents of change. From 2024 onwards, newcomers are systematically invited to

participate in a Climate Fresk, which is led internally by trained employees.

- **Communication and Inclusion:** Training on the Process Communication Model (PCM) helped improve interpersonal communication and provided better support for non-French-speaking employees through targeted language programs.

INITIATIVES TO STRENGTHEN INTERNAL AND EXTERNAL EMPLOYABILITY

At FLYING WHALES, training and career development are not only levers for immediate performance but also key drivers of long-term employability, both internally and externally.

- **Annual and Mid-Year Performance Reviews:** In addition to mandatory professional development interviews, FLYING WHALES has implemented annual performance reviews complemented by mid-year reviews. These regular touchpoints provide structured opportunities to discuss individual objectives, performance, skills development needs, and career aspirations, while ensuring ongoing alignment between employees and the company's strategic priorities.

- **Professional Development Reviews:** In line with legal requirements, professional development interviews are conducted every two years. These reviews focus on long-term career perspectives, access to training and certification, and the identification of future development pathways, contributing to sustainable employability.

- **Internal Mobility and Cross-functionality:** Skills development is a key enabler of internal mobility at FLYING WHALES. Employees interested in evolving toward new roles or functions within the company benefit from dedicated support, encouraging cross-functionality and strengthening internal career pathways.

2024 RESULTS

By the end of 2024, **93% of the individual training plans agreed upon had been completed**, allowing FLYING WHALES to meet its company-wide training objectives.

MAINTAINING OUR COMMITMENT
TO POSITIVE-IMPACT MARKETS

SECTION 3

1

FLYING CARE PROJECT

A SOLUTION ALIGNED WITH THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

FLYING CARE is a modular, rigid, autonomous, and self-sufficient mobile hospital transported by the LCA60T airship. Once deployed, the mobile hospital will be staffed by medical professionals and provide essential, recurrent, preventive, and curative health services. These include dental care, ophthalmology, pediatric care, advanced diagnostics, prevention of non-communicable diseases, and even surgical interventions.



The FLYING CARE project was initiated through collaboration between FLYING WHALES and INGEROP Health Department. Currently, the consortium comprises seven distinct entities, each with complementary expertise:



- **FLYING WHALES:** Project leader, responsible for hospital/airship integration and operations.
- **INGEROP:** A leader in hospital engineering, ensuring optimal functionality, sustainability, and compliance with medical standards.
- **Dr. Xavier ATTRAIT:** Emergency physician, former Chief Medical Officer of the French Civil Protection's field hospital.
- **ROLAND BERGER:** Global management consultancy responsible for geographical development studies and project strategy.
- **SIEMENS SMART INFRASTRUCTURE:** A global leader in medical technology, offering innovative imaging and digital healthcare solutions, in charge of medical equipment evaluation.
- **ADOPALE:** Specializes in optimizing hospital organizational performance (operations, logistics, inventory management) and supports hospital operational functionality.
- **PRAESENS CARE:** Developer and operator of mobile laboratories in remote areas of Africa.

KEY FEATURES

Preliminary global studies have begun to characterize the overall architecture, internal systems, subsystems, and necessary medical equipment for the FLYING CARE mobile hospital, which will support healthcare campaigns in remote or underserved areas. Detailed design studies are currently underway. The mobile hospital's design must incorporate innovative methods and adapt to specific constraints to ensure its feasibility. Key objectives include maintaining a target weight and ensuring resilience against extreme weather conditions.

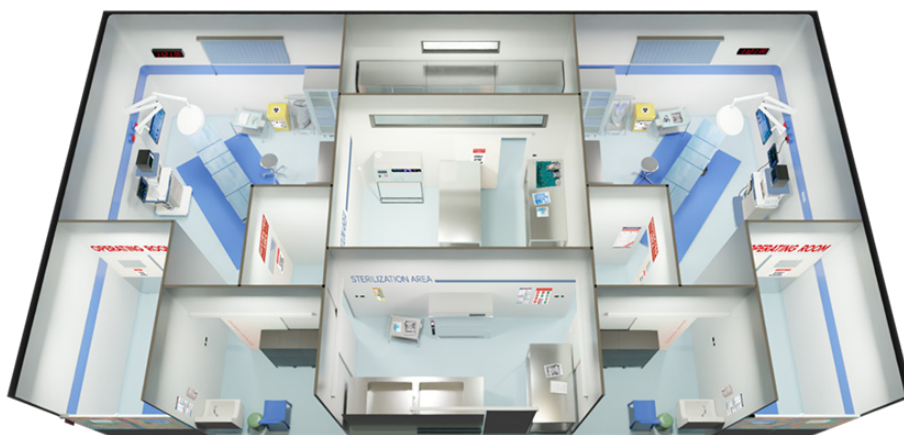
Key features of this mobile hospital infrastructure include:

- **Regular deployment:** The LCA60T airship enables year-round recurring medical tours, consistently reaching remote or underserved

regions to provide essential healthcare services where infrastructure is lacking.

- **Advanced technology:** Equipped with satellite communication capabilities, health data management, remotely operated diagnostics, specialized healthcare expertise, as well as advanced imaging and laboratory equipment, in addition to featuring two fully equipped operating rooms.
- **Modular design:** Each module measures 7m in width, 13m in length, and over 5m in height, providing a significant medical-ready space. The hospital can be expanded from 2 to 6 modules, totaling 550 m² of modular infrastructure, offering a flexible and scalable healthcare solution, adapted to local needs.
- **Lightweight and durable:** Designed with composite materials, the structure is lightweight and easily transportable by airship, enabling efficient air transport while integrating high-standard medical equipment within weight limits. Its durable, flexible design ensures a robust, long-lasting infrastructure that can be deployed across various locations to support high-quality healthcare services.

This mobile hospital aims to provide accessible, high-quality healthcare in challenging environments, combining cutting-edge technology with flexibility and mobility.



3D modeling of FLYING CARE operating room module

FLYING CARE SOUTH AFRICA

Furthermore, part of the consortium secured a €3 million public project grant (Eureka - Eurostars Call for Project), partially funded by European funds, to investigate and develop FLYING CARE hospitals for South Africa. This 3-year program will be managed by a partnership involving experts from the health, industrial, and logistics sectors in South Africa, including AFRISHORE and the UNIVERSITY OF CAPE TOWN.

This FLYING CARE pilot project aims to carry out successful experiments in South Africa to validate business models and establish a new standard for mobile hospitals and complementary airborne medical services. The goal is to develop the technologies and systems needed to deliver a full-scale FLYING CARE mobile hospital, consisting of several specialized healthcare and support modules. The outcomes of this South African project will include a complete 3D model of the mobile hospital modules and a full-scale prototype of one module.

INTERVIEW WITH MICHÈLE RENAUD, SALES DIRECTOR, FLYING WHALES SERVICES



Can you introduce the role and main missions of the Sales & Marketing Directorate?

My role, along with that of my team, is to anticipate, structure, and support the commercial development of our solution.

Specifically, we work very early in the process to identify potential applications for the airship and promising markets. We also prepare the deployment of our future bases, which will be established in areas where demand and economic potential are highest. This anticipation is crucial, as

it takes between three and five years to set up a base before operations can begin.

Our mission also includes establishing progressive commercial agreements. At this stage, these commitments are

“Anticipating, structuring, and supporting the development of our services: that is our core mission.”

not yet binding, but we are working to gradually strengthen them as our solution becomes more concrete. Finally, we conduct strategic monitoring and analyze market trends to guide our commercial decisions.

We have structured our organization by geographical areas: a team based in Quebec focuses on the Americas, another covers Europe, and a third oversees Africa. We also have dedicated managers for China and the Asia-Pacific region, where numerous opportunities exist.

What are the main business opportunities for the airship and its applications?

The FLYING WHALES airship is generating significant interest as it addresses major logistical challenges in several sectors. One of the most promising markets is wind energy, where our solution enables the transport of large components to hard-to-reach sites. Many wind farm developers had abandoned certain projects due to the lack of suitable logistical solutions. Today, thanks to our technology, they can reconsider these opportunities.

The transportation and installation of high-voltage power lines also represent a strategic market, particularly in Australia and China but in France and Europe as well, where major projects are underway. Our airships offer a safer and more sustainable alternative to helicopters, which are still widely used despite their risks and environmental impact. By allowing the transport of larger sections in a single operation, we reduce field operators' exposure to hazards.

The environmental aspect is a key factor for some clients, especially large international corporations that integrate these considerations into their strategy. However, the economic argument remains decisive for others, who see our solution as a means to optimize costs and operations.

What were the main areas of focus and key achievements in 2024?

The year 2024 was marked by significant progress for our directorate. We reached seventy commercial agreements with varying levels of commitment, demonstrating a growing interest in our solution. In several cases, these agreements were reinforced by strong mutual engagement – including formal promises or strategic partnerships – highlighting the trust and long-term vision shared with our partners. Thanks to these agreements, we are now able to confirm the future establishment of our bases in several territories, including the Alps, the Pyrenees, Quebec, and French Guiana.

We also conducted specific studies to prepare for our deployment in Germany and strengthened our presence in

“The year 2024 was marked by significant progress for our directorate. We reached seventy commercial agreements with varying levels of commitment, demonstrating a growing interest in our solution.”

Côte d'Ivoire, with the support of the Ministry of Transport. In China, we intensified discussions on humanitarian applications, a strategic issue in certain provinces frequently affected by natural disasters.

Another major milestone in 2024 was the creation of FLYING WHALES SERVICES. This structural evolution does not fundamentally change our commercial approach, but it reinforces our credibility and demonstrates our growing maturity. Concrete developments, such as the implementation of the simulator and the role of the «load-exchange officer» (or crane operator) make our solution more tangible for potential clients and increase our attractiveness in the market.

“The challenge is not just technological; it is also human. We must understand local specificities and ensure that our solution genuinely benefits the communities involved.”

How do you see the long-term evolution of the market, and what are the objectives for 2025?

The year 2025 will be a strategic one, particularly with the finalization of an agreement in China for maritime operations. We will also work on the social and environmental acceptability of certain applications, such as timber transport. This topic sometimes raises concerns, and we must demonstrate that our approach aligns with sustainable practices, in partnership with responsible

organizations like the National Forestry Office with whom we intend to sign our first commercial services contract..

We will also continue exploring new markets, particularly in the energy sector. Next-generation small nuclear reactors, for instance, may require logistical solutions like ours for transportation and installation.

Finally, we will push forward with our project in French Guiana, where declining river levels are making it increasingly difficult to supply isolated populations.

What message would you like to share with stakeholders about FLYING WHALES' commitment to this sustainable and innovative approach?

Our solution can have an extremely positive impact, and we must support this change responsibly and in collaboration with local stakeholders.

At FLYING WHALES SERVICES, we are fully aware of the ongoing transformations in the logistics and transportation sectors. We are committed to providing a sustainable solution that respects the territories where we operate.

The challenge is not just technological; it is also human. We must understand local specificities and ensure that our solution genuinely benefits the communities involved. We are convinced that our approach can generate significant economic and environmental benefits, but we must facilitate these changes with intelligence and respect.

The coming year will be decisive in structuring our operations and continuing to develop an innovative, efficient, and sustainable economic model.

*STRENGTHENING OUR RELATIONSHIPS
WITH OUR STAKEHOLDERS*

SECTION 4

1

TRANSPARENCY AND ENGAGEMENT: FLYING WHALES DAY

Transparency is at the heart of our stakeholder relationship strategy, fostering trust and collaboration with all those involved in our journey. One of the key events embodying this commitment is FLYING WHALES DAY, our annual gathering that brings together shareholders, technical and commercial partners, and employees – all of whom are also shareholders in the company.

More than just an update on business performance, strategic initiatives, and corporate responsibility, this event is an opportunity for **open dialogue, knowledge sharing, and collective celebration**. By engaging our stakeholders directly, we ensure they play an active role in shaping the company's future.

The second edition of FLYING WHALES DAY took place on **May 28** at the Trianon Theatre in Paris, welcoming around **280 attendees, with additional participants joining remotely**. The event featured an opening address by Alan Weston, CEO of LTA, followed by a welcome address from FLYING WHALES President Sébastien Bougon. This year, the general assembly adopted a more dynamic and interactive format, with team-led discussions offering a deeper insight into each department's work. The day concluded with the CEO Vincent Guibout outlining key objectives and upcoming milestones. The event closed on a convivial note, with a networking cocktail that provided an opportunity to strengthen ties among employees, partners, and shareholders.

FLYING WHALES DAY remains a cornerstone of our commitment to transparency and engagement, reinforcing the trust and collaboration that drive our success.





FLYING WHALES LAUNCHES EXPERT COMMITTEE TO STRENGTHEN SUSTAINABILITY COMMITMENTS

In 2024, FLYING WHALES took a significant step forward in its sustainability journey by establishing an Expert Committee for the Environment (ECE) composed of four renowned specialists in biodiversity, water management, hydrogen, and sustainable development. With experience from leading companies such as Veolia and Air Liquide, these experts contribute their knowledge voluntarily and independently to enhance the company's environmental and social responsibility efforts.

“This committee provides a forum for multi-disciplinary dialogue, where expertise is combined to formulate solid, scientifically-supported recommendations, thus contributing to the development of FLYING WHALES”

Fabien VERFAILLIE,
Ecologist, Committee Member

The committee plays a key role in shaping FLYING WHALES' strategic direction, ensuring that projects maximize their positive environmental impact while mitigating potential risks. Their mission includes assessing ecological challenges, providing feedback on current initiatives, identifying areas for improvement, and offering recommendations to strengthen sustainability practices.

By integrating this expertise, FLYING WHALES reaffirms its commitment to responsible and sustainable growth, ensuring that its innovations contribute to a greener future.



ECE kick-off meeting, 05/12/2024

CONCLUSION

In 2024, FLYING WHALES reached key milestones in the technical development of the LCA60T and its assembly line, while strengthening its environmental and social commitments to build a model that combines innovation and sustainability. Looking ahead to 2025, we are committed to further structuring our approach to sustainable development. In addition to our Expert Committee for the Environment, we will create a new internal committee dedicated to reinforcing our CSR commitments and fostering a collective dynamic within the company.

At the same time, we will closely monitor **developments related to the European Union's CSRD directive to stay informed of best practices in transparency and performance measurement**, reinforcing our commitment to a rigorous and responsible approach to sustainability reporting.

Finally, in the continuity of 2024, **the progress of our Final Assembly Line in France** will remain a major priority, supporting our industrial deployment and the realization of our vision.

The road ahead is ambitious, but we are determined to build a future where airship-based transport serves both economic development and environmental preservation.

We extend our heartfelt thanks to all those who contribute to this adventure—our employees, partners, and stakeholders—who, through their commitment, make this transformation possible.

See you in 2025 for the next step in our journey!

*If you are interested in reaching
FLYING WHALES about
its Corporate Social Responsibility,
please contact :*

*Octave Jolimoy
Head of CSR
octave.jolimoy@flying-whales.com*

www.flying-whales.com



CSR REPORT
2024

FLYING
WHALES