



FLYING WHALES

Connecting the landlocked world to the global economy

COMMUNICATION PACKAGE DEDICATED TO OUR PARTNERS
PARIS AIR SHOW 2019

TABLE OF CONTENTS

FLYING WHALES¹ 3

CONSORTIUM - CHARACTERISTICS 4

MISSIONS 5

¹ FLYING WHALES must always be written in capital letters.

THE PROGRAM

FLYING WHALES® develops the LCA60T aeronautic program (Large Capacity Airship 60 tons) for low-cost and point-to-point transport of heavy and oversized loads.

Independent from transport infrastructures, the LCA60T is a revolutionary solution with the unique ability to load and unload dozens of tons hovering.

This will be a game-changer in the transport and logistics sector, to unlock landlocked regions while having a low environmental footprint.

The operator FLYING WHALES Services will be in charge of the LCA60T's fleet management to offer a turnkey solution to its customers.

OUR SHORT STORY

Since day one, ONF - French National Forest Agency – has been a partner, major contributor to FLYING WHALES' vision, a shareholder, and a key player for the LCA60T solution. Indeed, the program was launched to answer a macro-economic need : be able to reach additional wood ressources located in difficult access areas.

In 2014, the LCA60T program was selected by Emmanuel Macron in the 9 strategic areas of "Industrie du Futur". FLYING WHALES is also endorsed by Chinese public authorities.

In 2016, FLYING WHALES and AVIC GENERAL, a subsidiary of Chinese National Aerospace Group AVIC, signed a strategic and financial joint-venture agreement under the auspices of both French and Chinese Prime Ministers. As a result, AVIC GENERAL became a FLYING WHALES shareholder. The Ministry Of Science and Technology of China (MOST) also participates to this partnership.

In 2017, Prime Minister Edouard Philippe granted 25M Euros to the program thanks to BPI (Public Investment Bank) and its "Investissements d'Avenir" program. At the same time, ONF (French National Forest Agency) and the Région Nouvelle-Aquitaine decided to join the project by becoming shareholders.

The LCA60T's design, construction, testing and certification are performed by a large consortium of thirty leading manufacturers and laboratories. This consortium is led by FLYING WHALES.

THE CONSORTIUM

There is 30 companies and laboratories, including five major partners, presented below, investing in risk-sharing in this project:

- ONERA
- EPSILON COMPOSITE
- ZODIAC AEROSPACE
- REEL
- TECALEMIT AEROSPACE

This industrial consortium provides expertise in specific domains (e.g.: structure, engine, envelopes, avionics ...) as well as industrial know-how.

Furthermore, several actors like Regions in France and DGA (Directorate-General for Armaments) contribute financially to the program.

THE LCA60T - CHARACTERISTICS

- Dimensions : Length : 154 m ; height : 42m ; width : 60 m
- Payload : 60 tons – 132,277 lbs. (in cargo hold or under slings)
- Cruise speed : 100 km/h – 54 kts.
- Cargo bay : 80 m x 8 m x 5 m – 262 x 26 x 16 ft.
- Lifting gas : Helium (non-flammable)

THE LCA60T - A REVOLUTIONARY SOLUTION

THE LCA60T MISSIONS :

- The logging industry: the program's origine, extracting timber on behalf of ONF, partner and first client.
- The special transport (particulary for the energy industry): transport of heavy & oversized wind turbines' components, electrical towers and cable reels, etc.
- Economic unlocking: freight & logistics in/out of landlocked regions

FLEXIBLE :

- Point to point load delivery (100km/h)
- Load/unload hovering
- Loads in cargo hold or under slings.

SUSTAINABLE :

- Low consumption (no power consumption to get out of gravity)
- Low emissions
- No transport infrastructure needed

LOW COST :

- Solution available per day/per operation (no investment)
- Low operational costs
- Avoids transshipments
- No need to adapt the load to the transportation means
- No need for "last mile" infrastructure

SAFE :

- Airworthiness certification by European (EASA) and international authorities
- Piloted, on board and ground staff, supervised by an Operation Center
- Safe design (powerful engines ensuring perfect control, rigid structure, unpressurized helium cells, non-flammable).

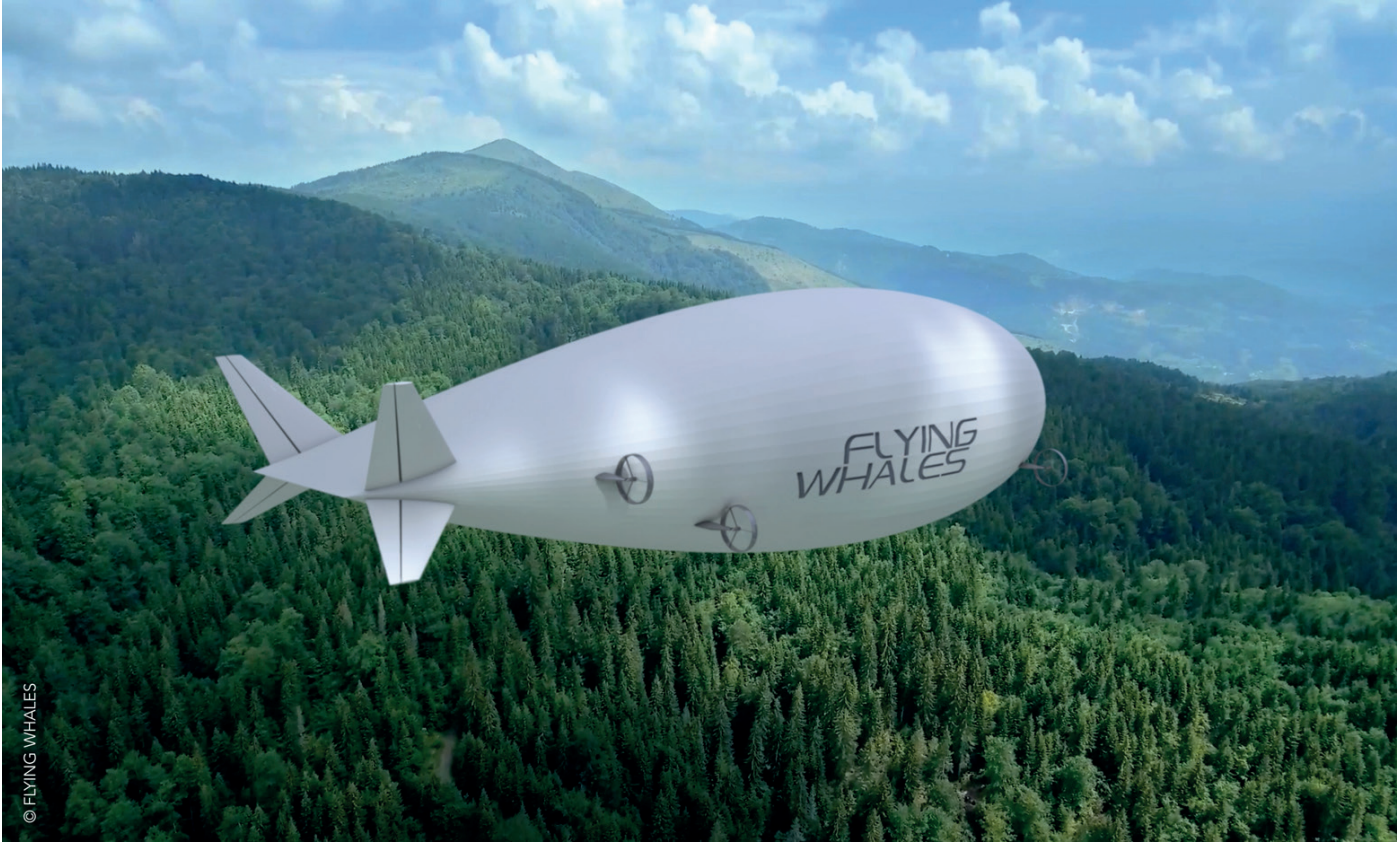
LOGOS

LOGO WITH SLOGAN :

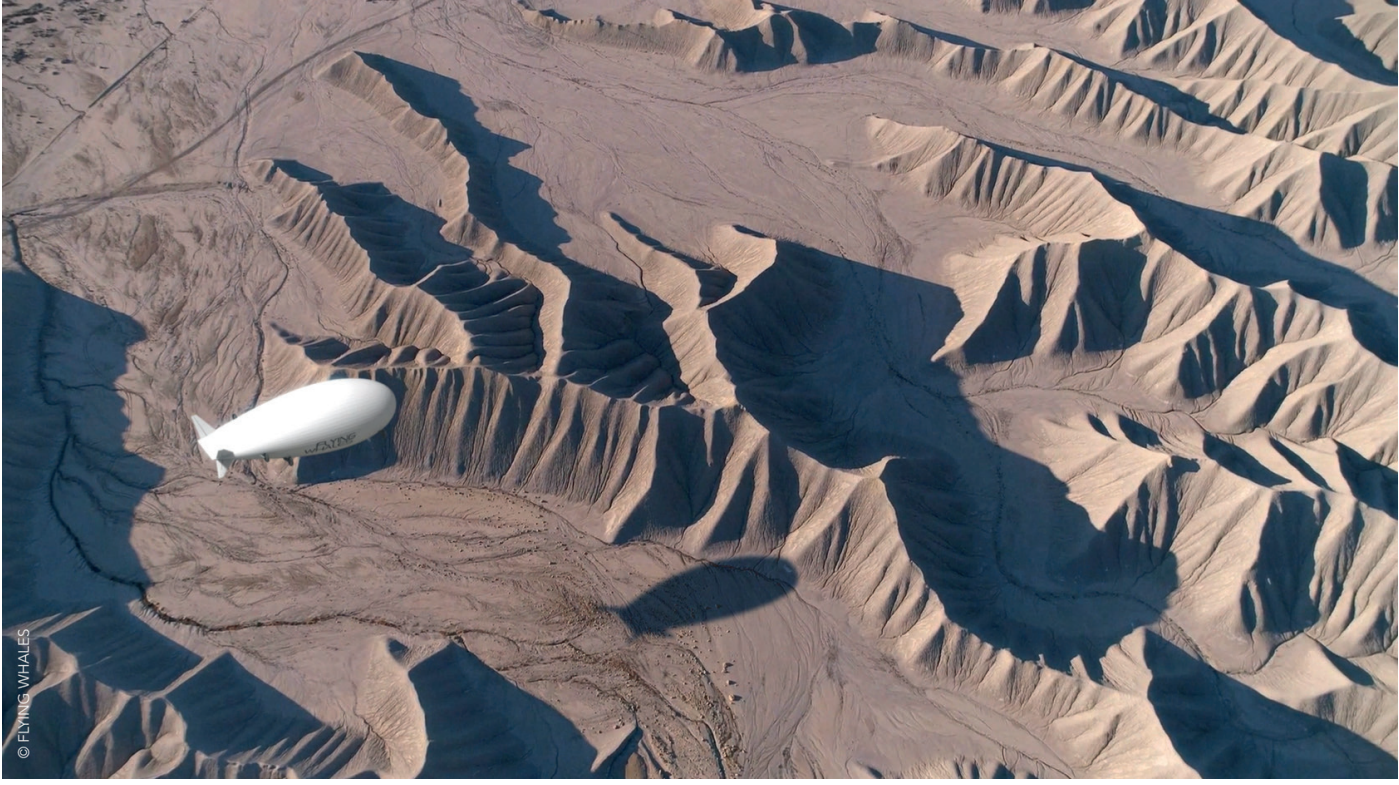


LOGO WITHOUT SLOGAN :









LEAFLET



FLYING WHALES

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A CUTTING EDGE TRANSPORT SOLUTION

FLYING WHALES designs and will manufacture and operate the LCA60T, a groundbreaking rigid airship for point-to-point transportation of heavy and oversized cargo, up to 60 tonnes.

Originally developed to extract wood logs from difficult-to-access areas, the LCA60T opens up new horizons. It will answer many logistic and accessibility challenges around the world, thanks to its revolutionary capability to load and unload its cargo in hover flight.

The operator FLYING WHALES SERVICES will be in charge of operating and maintaining the LCA60T fleet to offer a turnkey service to its customers.

SUSTAINABLE

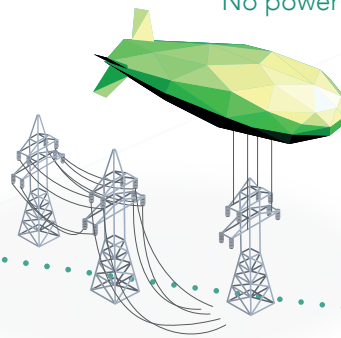
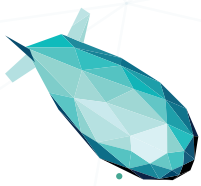
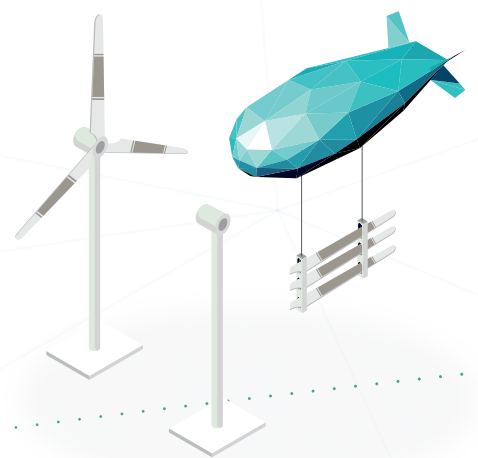
- No additional transport infrastructure needed
- No impact on existing transport infrastructure
- Low fuel consumption / Low emissions
- No power needed to overcome gravity

LOW COST

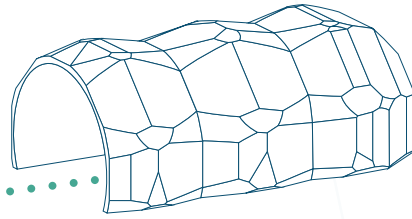
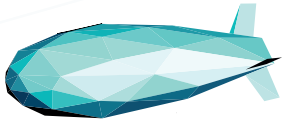
- Low operating costs
- Low consumption
- Free from transport infrastructures
- Avoids breaking bulk
- No limitations on cargo size
- Last-mile issues solved

TURNKEY SERVICE

- Complete handling of the mission
- Dedicated mission planning
- Coordination with Authorities
- Real-time monitoring by the Operation Control Center



AND A TURNKEY SERVICE

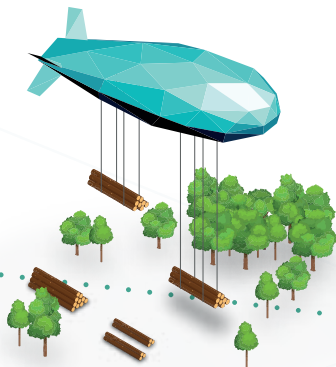


FLEXIBLE

- Point to point cargo delivery
- Loading / unloading in hover flight
- Transport in cargo hold (80mx8mx5m) or underslings
- Short rotations or long range flights
- Vertical take-off and landing

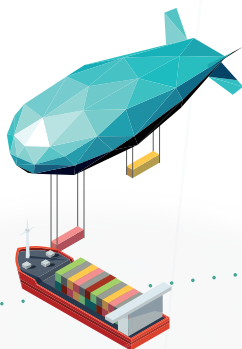
OPERATOR ECOSYSTEM

- Solution available per day / per operation
- Continuing Airworthiness Management Organisation
- Approved Training Organisation for crews and maintenance
- Maintenance, Repair and Overhaul



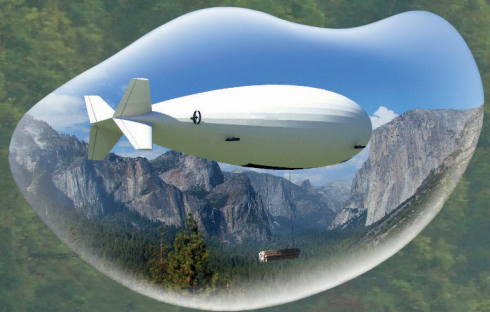
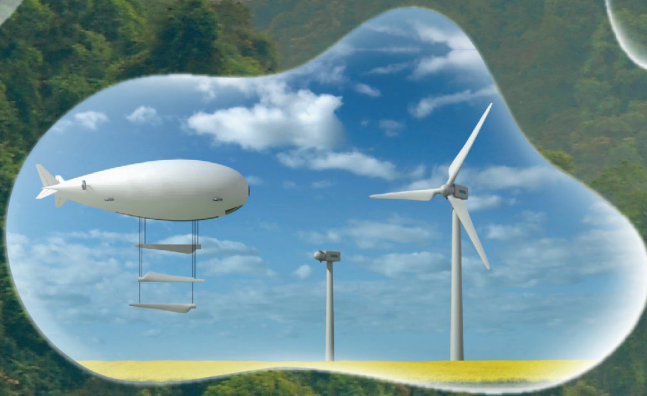
SAFE

- Certification by European and International Authorities
- Integrated and real-time meteorological service
- Piloted, on board and ground crews
- Rigid structure, multiple propulsion points and unpressurized heliums cells



KEY FEATURES

- Payload : 60 tonnes
- VFR & NVFR
- Cruise speed 100 km/h
- Loading / unloading in hover flight



2022

2023

2023

FIRST FLIGHT

CERTIFICATION

OPERATION

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