Organising the co-construction of the low-carbon transition plan of the LBBE

LABORATOIRE DE BIOMÉTRIE ET BIOLOGIE ÉVOLUTIVE

Launch seminar on 30/09/2025

Clara BARRY - GTEE

Summary

I. External state of play: The ecological transition in the world of research

II. Internal inventory: The ecological transition at the LBBE

III. Co-construction of actions: Stages of the co-construction process of the LBBE's low-carbon transition plan

I. EXTERNAL STATE OF PLAY

The ecological transition in the world of research

1. Global context

of the ecological transition in research

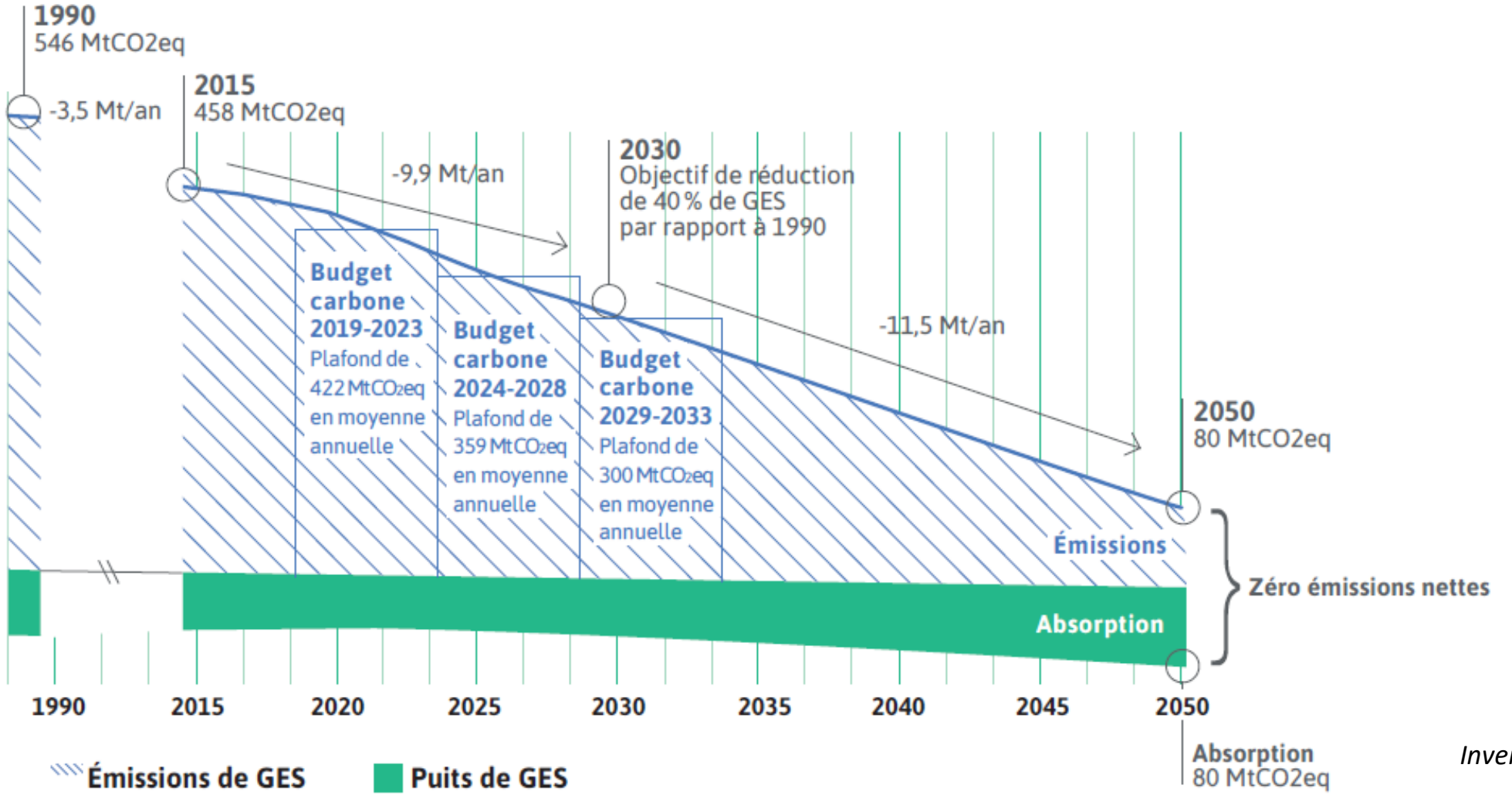
The ecological transition in the world and in France

Paris Agreement (2015)
European Green Deal (2019)
National Low Carbon Strategy 3 (2024)

Global goal: Carbon neutrality by 2050
European and national target: Reduce GHG emissions by 55% by 2030 (compared to 1990)

The ecological transition in France

Evolution of GHG emissions and sinks on French territory between 1990 and 2050 (in MtCO2eq)



Inventory CITEPA 2018
SNBC 2

The ecological transition in public services

European Green Deal

Paris Agreement (2015)

SERVICES PUBLICS écoresponsables

State ecological planning: Eco-responsible public services (2022)

Target: Reduction of the State's GHG emissions by 22% by 2027 compared to 2022 (-5% per year)

The ecological transition in higher education and research

European Green Deal

Paris Agreement (2015)

SERVICES PUBLICS écoresponsables

State ecological planning: Eco-responsible public services (2022)

MESR: Climate-Biodiversity Plan (2023)

Requests the definition of a DD&RS master plan from all ESR operators

The ecological transition in higher education and research

The MESR's levers of action:

the programming of the key research themes of the French National Research Agency (ANR) and France 2030

the objectives and performance contracts concluded with research organisations after evaluation by the HCERES

the HCERES evaluation framework

- Six indicators make it possible to evaluate ecological transition criteria in units:

The unit has a sustainable development charter and the internal regulations refer to it

Existence of environmental footprint criteria in the definition of research actions and experiments

A policy for the management of missions and staff travel was adopted

A policy for the management of waste, consumables and waste is adopted

The students are regularly made aware of the need to take into account environmental impacts

The unit continuously self-assesses its good practices in terms of environmental footprint

The ecological transition of our supervisory authorities

European Green Deal

Paris Agreement (2015)

SERVICES PUBLICS écoresponsables

State ecological planning:
Eco-responsible public services (2022)

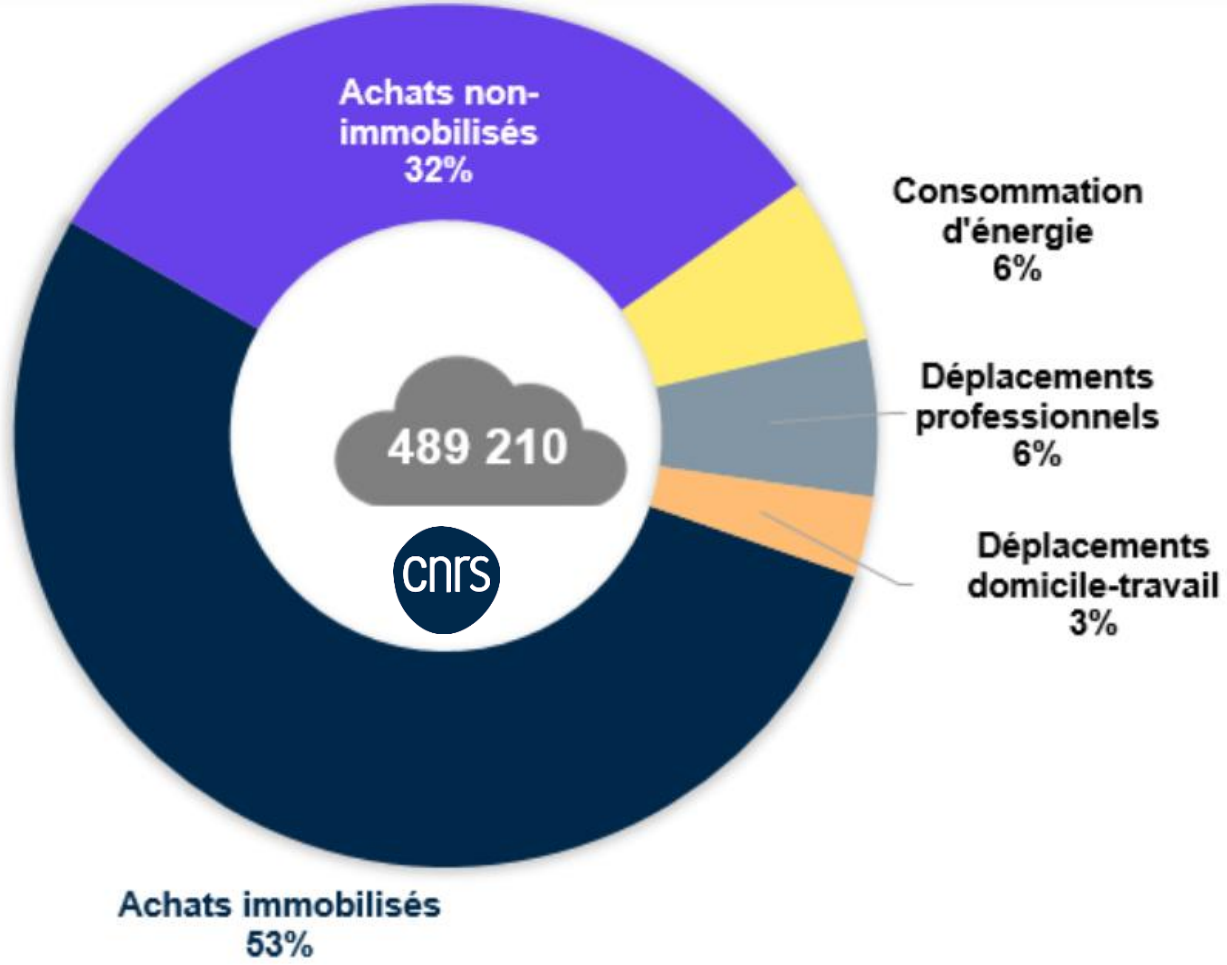
MESR: Climate-Biodiversity Plan (2023)

Master plan
Lyon 1

Master plan
cnrs

2. The ecological transition of our supervisory authorities

CNRS carbon impact



CNRS carbon footprint in 2022

14.7 tCO2eq per capita

Capital purchases: scientific and computer equipment
Non-Capitalized Purchases: Consumables and Laboratory Instruments

CNRS SD&RS master plan

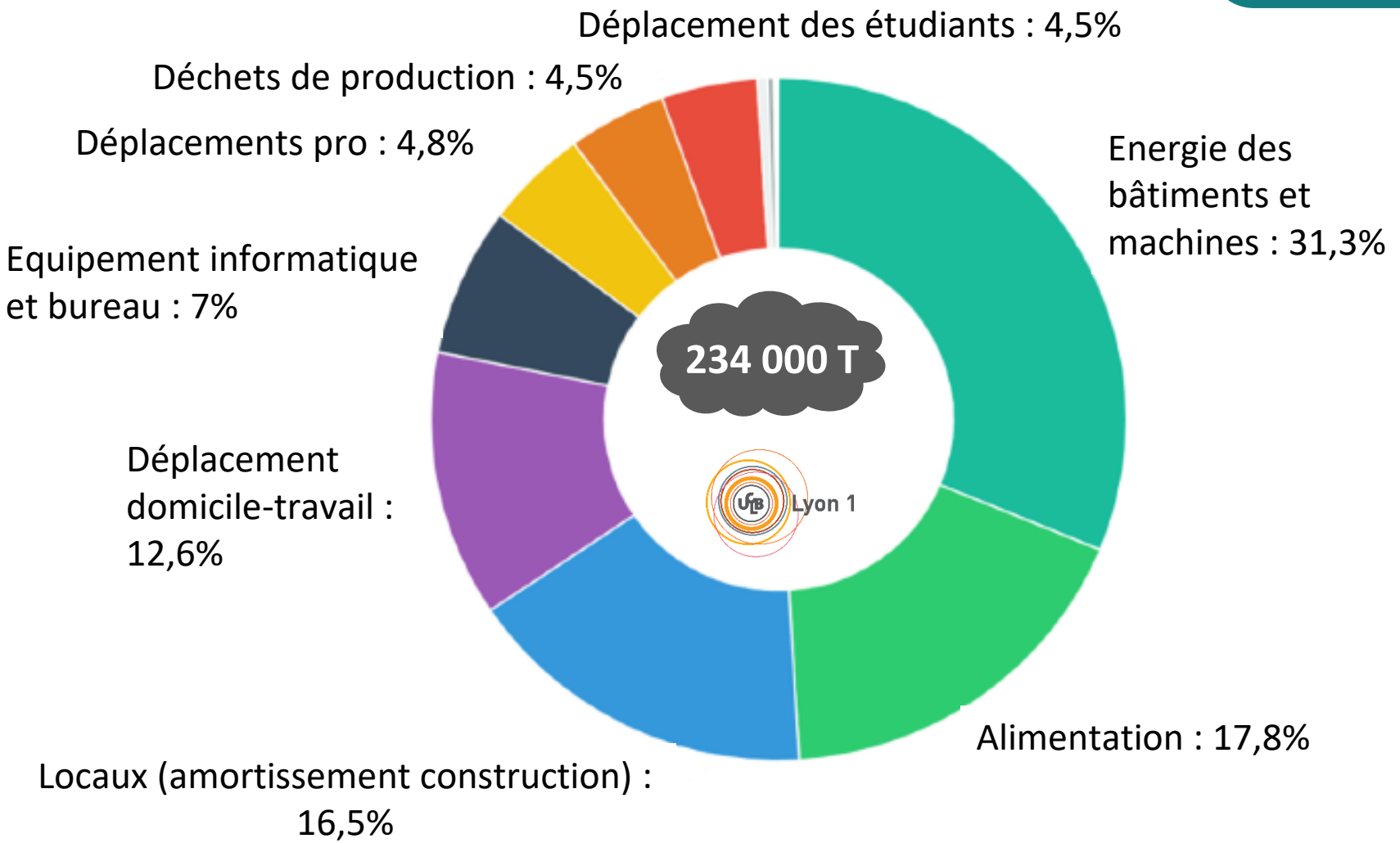
Axis 3: Environmental transition

GHG Emissions & Resources

Driving a responsible and resilient digital strategy	25% of computer and telephone equipment from reuse or reuse per year
Decarbonizing missions and business travel	-30% outward journeys made by plane compared to 2019
Decarbonising local mobility	-25% of greenhouse gas emissions linked to local mobility in 2027 compared to 2022 (SNBC)
Reducing the energy consumption of buildings and facilities	-25% energy consumption of tertiary buildings in 2027 compared to 2022 at isoperimeter of need
Preserving water resources	-15% drinking water consumption in 2027 compared to 2022

UCBL's carbon impact

4.5 tCO2eq per capita



UCBL's carbon footprint in 2019

UCBL's SD&RS Master Plan

Excerpt concerning the laboratories:

Structuring the network of TEDS correspondents in the laboratories

Identify and pool resources for research

- Inventory energy-intensive research platforms and dismantle unused ones
- Mapping scientific equipment to facilitate its sharing
- Follow the establishment strategy for eco-responsible digital technology
- Pooling the purchase of consumables through the establishment of common stores

Supporting laboratories for a collective TEDS strategy

- Propose a common paragraph for research units on ecological transition initiatives and objectives in their HCERES evaluations
- Support the self-assessments of laboratories in terms of ecological transition and encourage the inclusion of a carbon footprint objective
- Encouraging laboratories to train their staff in the challenges of the transition

3. Laboratory Impact and Initiatives

In France

Carbon footprint of Labo 1.5 network laboratories

3,739 BGES carried out by 1640 laboratories on GHGs 1.5

From 2 to 35 TeqCO2 per person

according to scientific disciplines

Purchasing dominates laboratory emissions

They account for an average of **56% of emissions**

Of which 36% for consumables and 20% for equipment

The impact of clinical studies and the obtaining of big data for laboratories in health, waste, food and water is little or not evaluated.

Initiatives of French laboratories

Today, while many laboratories have carried out their first carbon assessment, there are only 20 laboratories in transition according to Labos 1.5

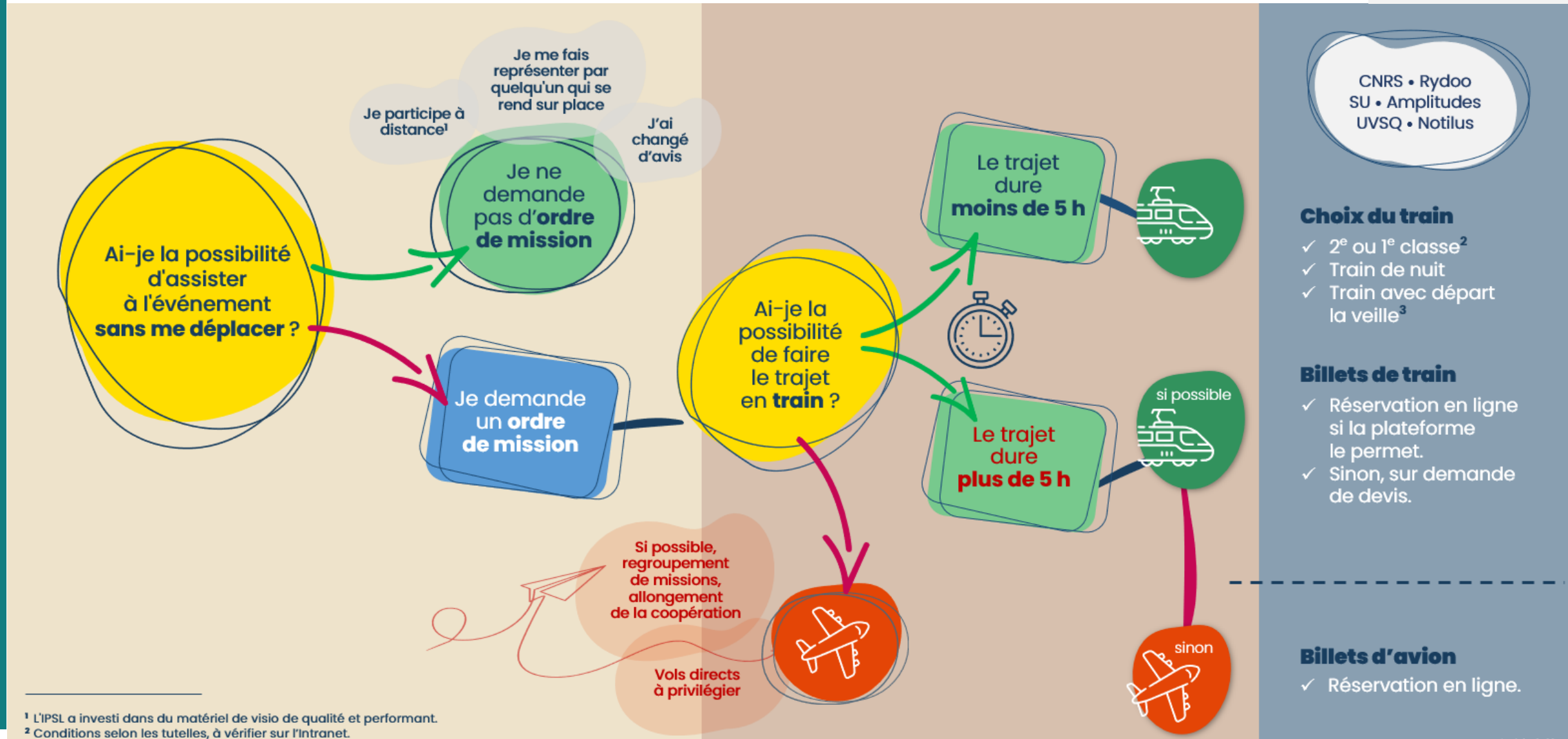
The most commonly listed actions within French laboratories:

- Appointment of a sustainable development referent
- Creation of a GTEE
- Assessment of the laboratory's carbon footprint with GES1.5
- Drafting of a sustainable development charter (mission, digital, purchasing aspects) voted on by the council or GA
- Awareness-raising action (fresco workshop)

Other inspiring one-off actions:

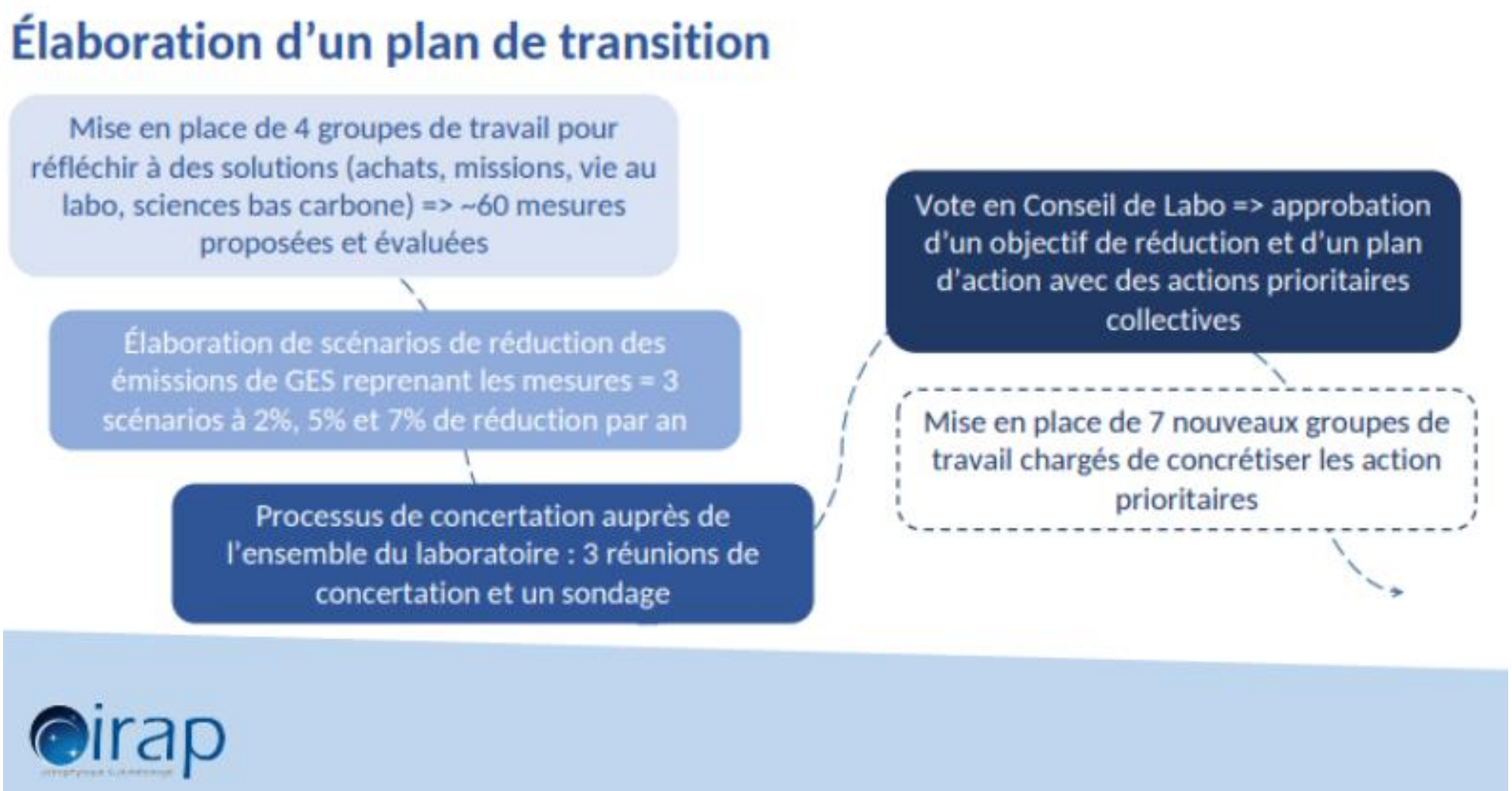
- Freezers go from -80 to -70°C
- Replacement of plastic experimental vessels with glass
- Sale of unused equipment: technical high school, CNRS equipment exchange/resource centre
- Recycling of polystyrene and WEEE
- Implementation of a carbon tax on gas and electricity emissions

Initiatives of French laboratories



[1] L'IPSL a investi dans du matériel de visio de qualité et performant.
[2] Conditions selon les tutelles, à vérifier sur l'Intranet.
[3] Avec l'accord du DU. Une seule réservation pour le transport et l'hébergement.

Initiatives of French laboratories



II. INTERNAL STATE OF PLAY

The ecological transition at the LBBE

1. Carbon footprint

Of LBBE

Limitations of the study

PERIMETER

Several elements not taken into account:

External research platforms

Lacassagne (217m2) and Lyon Sud (300 m2) buildings

Point-of-care funded missions and purchases

Refrigerants (but estimated impact≤ 1%)

METHODOLOGY

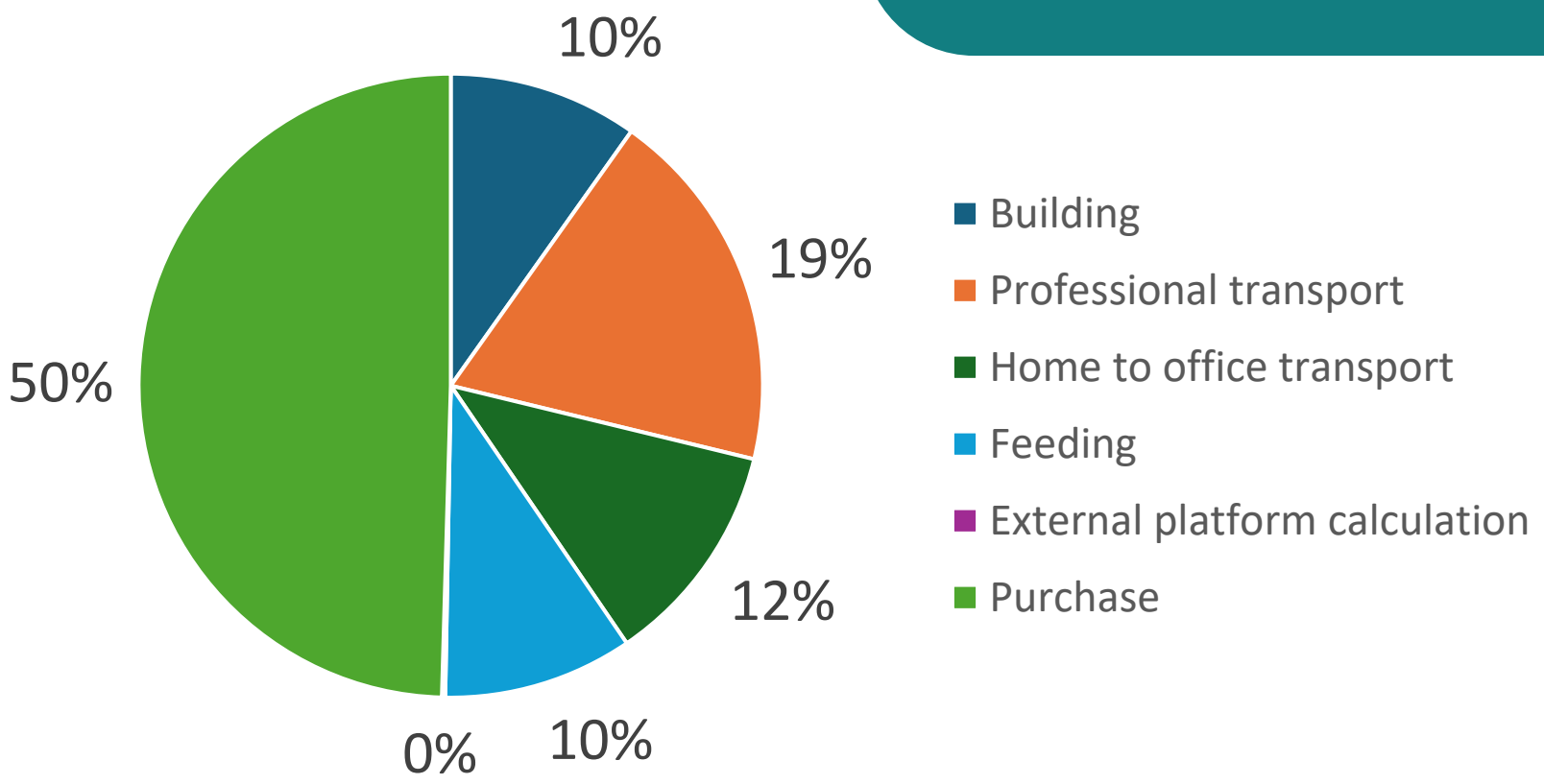
The GHG 1.5 tool takes into account the total impact of the manufacture of the equipment purchased during the year, without taking into account its lifespan

The figure of "2.9 TCO2eq per agent" is considered for 153 agents, while the workforce amounts to 225 agents in 2023 (Health department taken into account at 33% and teacher-researchers at 50%)

Total carbon footprint of the LBBE in 2023

512 tCO_2e

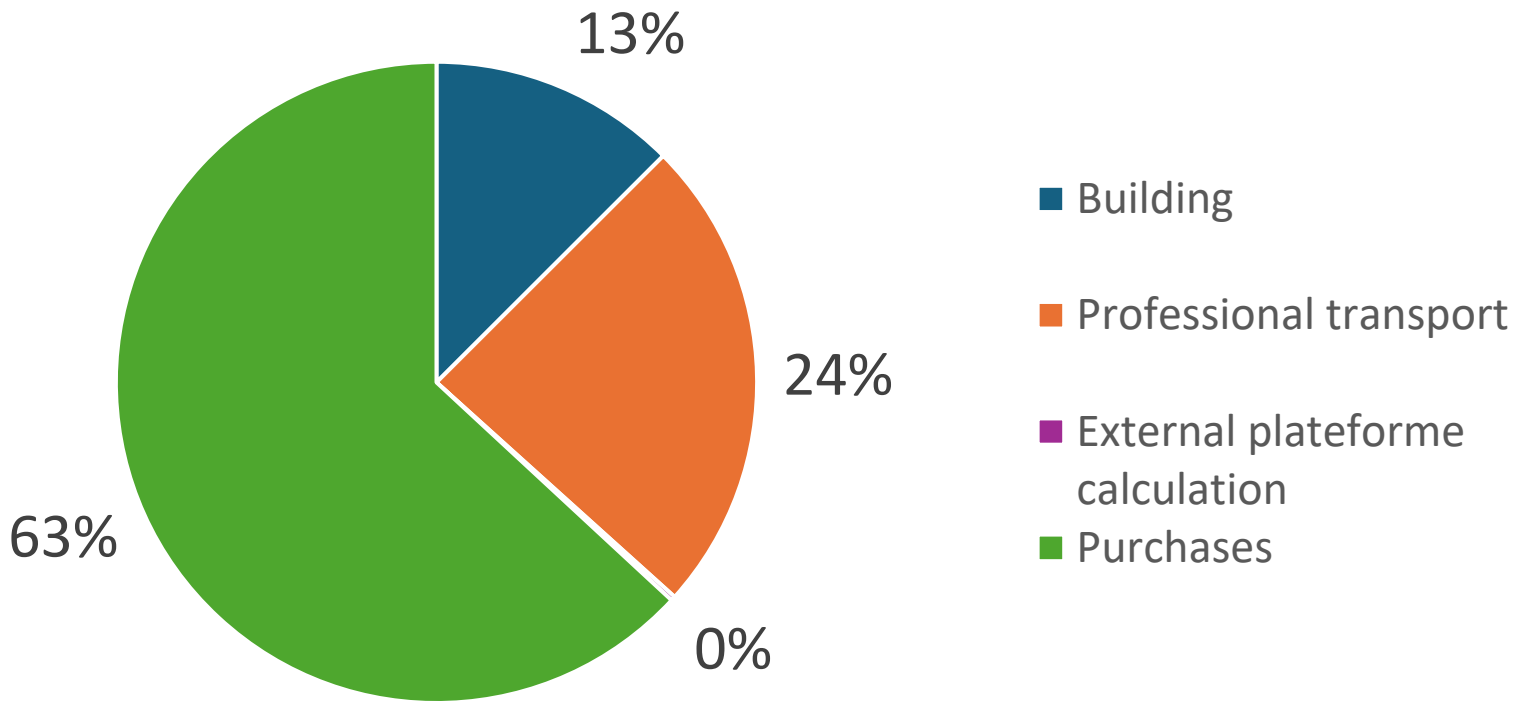
Or 2.9 TCO2eq per person



Breakdown of the total carbon impact of the LBBE in 2023

Carbon footprint of research activities

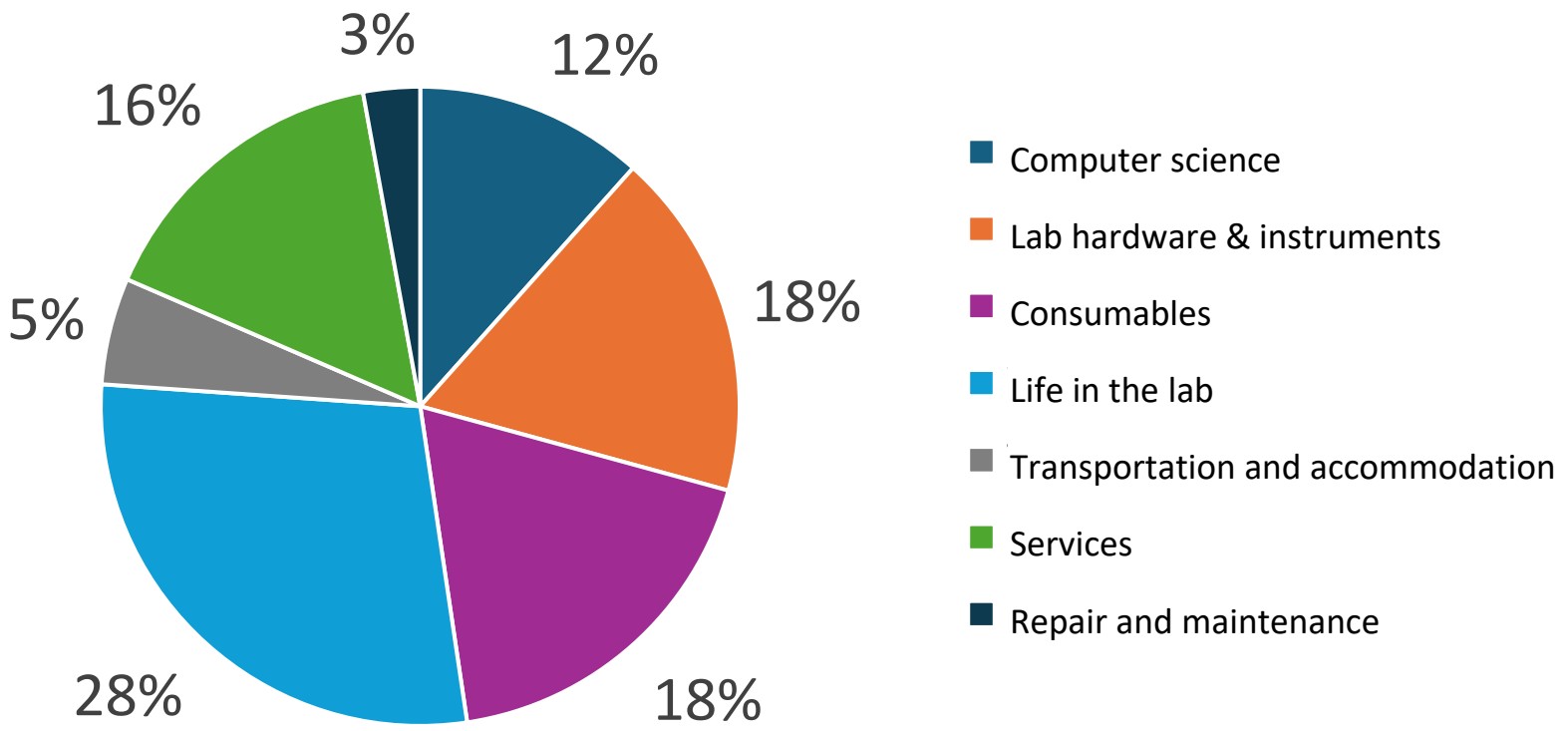
402 tCO_2e



Distribution of the carbon impact due to research activities in 2023

Carbon footprint of purchases

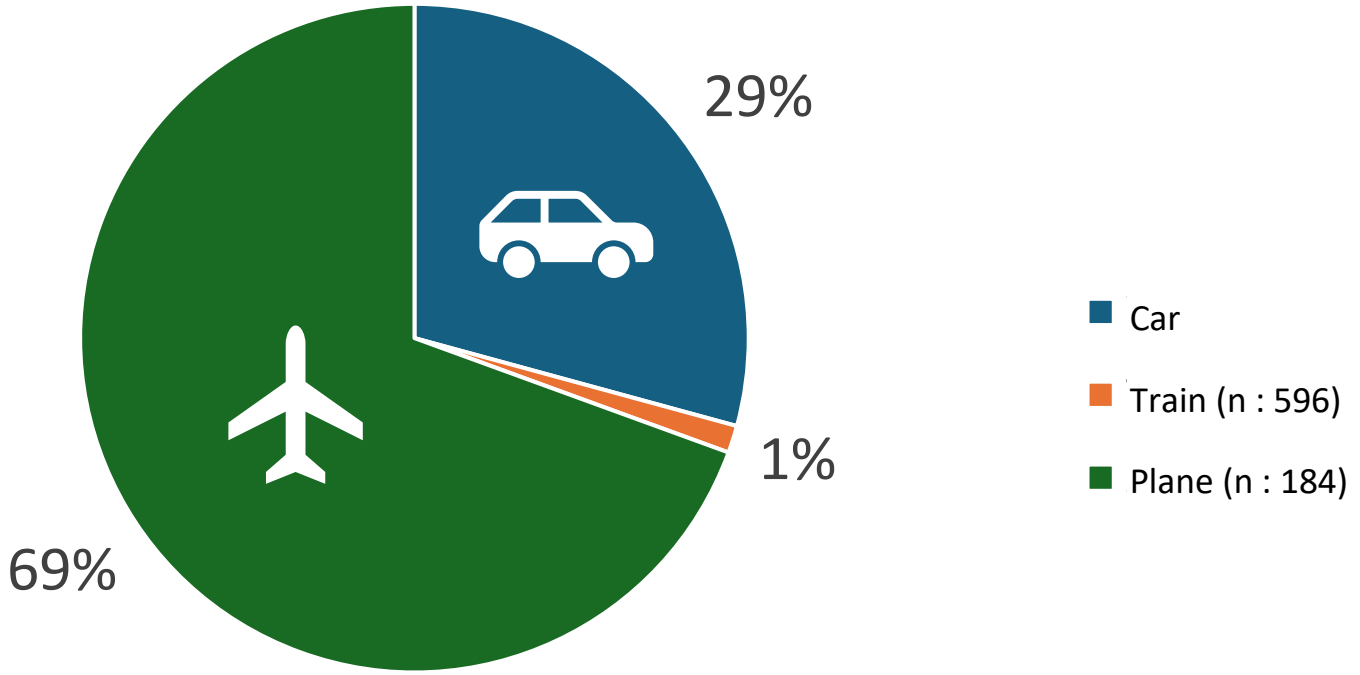
254 tCO_2e



Breakdown of the carbon impact of LBBE purchases in 2023

Carbon footprint of missions

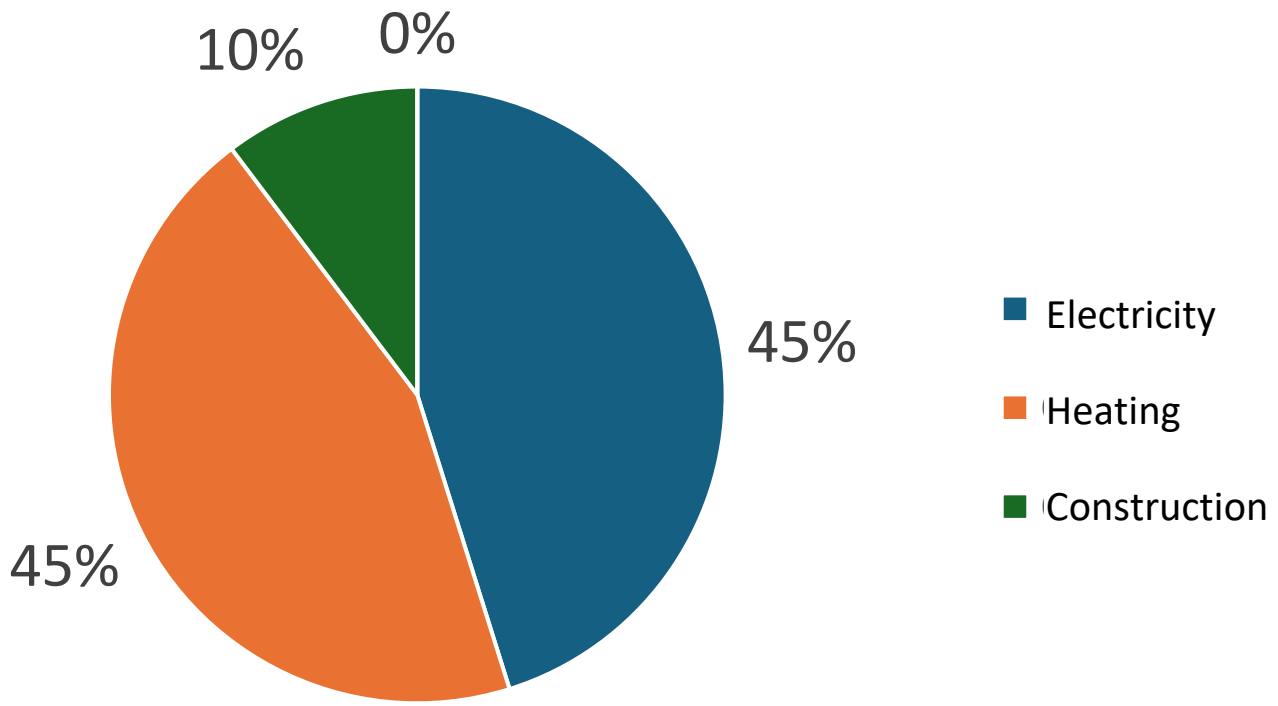
96 tCO_2e



Breakdown of the carbon impact of LBBE missions by mode of transport in 2023

Carbon footprint of the building

50 tCO_2e



Breakdown of the carbon impact of the LBBE building in 2023

2. Maturity and initiatives of the LBBE

Today

Maturity of practices at LBBE

Impactful actions already in place

- Pooling of equipment (scientific equipment, vehicles, servers)
- Creating a Consumables Store

Maturity on real issues

- Shopping, travel, digital...
- Some teams have thoughts on their movements, the impact of the calculations...

A need for awareness on certain subjects

- Travel
- Impact of AI and computation

The identification of multiple levers for action

- Travel for conferences/juries
- Field: travel and waste
- Optimization of calculations
- Rationalization of livestock farms
- Redirection of Year-End Expenses
- Training of new
- Reducing plastic waste

Ideas for actions to be implemented at the LBBE

Regulating travel	Question your purchases	Pooling your equipment	Reduce consumable purchases and recycle them
Ban flying if it is possible to travel by train in less than 6 hours door to door	Questioning the purchase	Pooling scientific equipment with other laboratories	Experimental planning
	Repair scientific and computer equipment		Promote consumable-saving protocols
Promoting carpooling and long periods of time in the field		Create a common lab-wide store for info material	Identifying a recycling channel for all waste
	Buy second-hand		Replacing single-use plastic
24% of the footprint	**18% of the LBBE footprint**		**10% of the LBBE footprint**

III. CO-CONSTRUCTION OF ACTIONS

Stages of the co-construction process of the LBBE's low-carbon transition plan

Creation of 4 working groups (WGs)

WG Info	WG Manip	WG Transport	WG Lab's life
• Computer science • Digital • Purchases included	• Equipment Energy • Rubbish • Purchasing of consumables and scientific equipment • Links to research platforms	• All types of business trips (transport, housing, etc.) • Vehicle purchases	• Organization of events in the lab (catering) • Purchase and maintenance of equipment and consumables in break rooms, rest rooms, meetings, etc. • Maintenance of the premises

In parallel with these WGs, the GTEE will propose additional action sheets on the structuring and management of the approach

Objectives of the WGs

Define actions that could be implemented at the LBBE to reduce its GHG emissions by 2030

To do this, you will have to fill out action sheets!

Title of the action		Objective(s)	
Current internal situation	**External inspiration**	**Maintainer(s) and contributor(s)**	
Action sub-steps	**Resources (human and financial)**	**Deadlines**	**Monitoring indicators**
Gains	**Complexity of implementation**	**Cost**	**Acceptability**

Example of an action sheet

Title of the action			Objective(s)
Switch freezers to -80°C to -70°C and emergency freezers to -60°C			Reduce their energy consumption
Current internal situation	**External inspiration**	**Maintainer(s) and contributor(s)**	
6 freezers -80°C (Mendel and Eco-ressources)	Several laboratories in France and abroad	Corinne Régis David Lepetit	

Action sub-steps	Ressources nécessaires	Deadlines	Monitoring indicators
Identify whether the quality of the sample types of the LBBE teams may be degraded by the action	Human (time of Corinne, David and Clara)	Nov 2025	Energy consumption (kWh)
Redefining the procedure in the event of a freezer failure (shorter time)		Nov 2025	
Reducing the temperature of freezers		Dec 2025	

Gains	Complexity of implementation	Cost	Acceptability
Between 15 and 50% less electricity consumption per freezer Increased lifespan	Sample quality could be degraded Less delay in the event of a breakdown	X	???

Thank you for your attention!

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