ENVIRONMENTAL INITIATIVES LINKED TO THE CAMPUS DEVELOPMENT

Mar CAPEANS

"CERN Year of Environmental Awareness: outcome and future perspectives"

15 September 2022

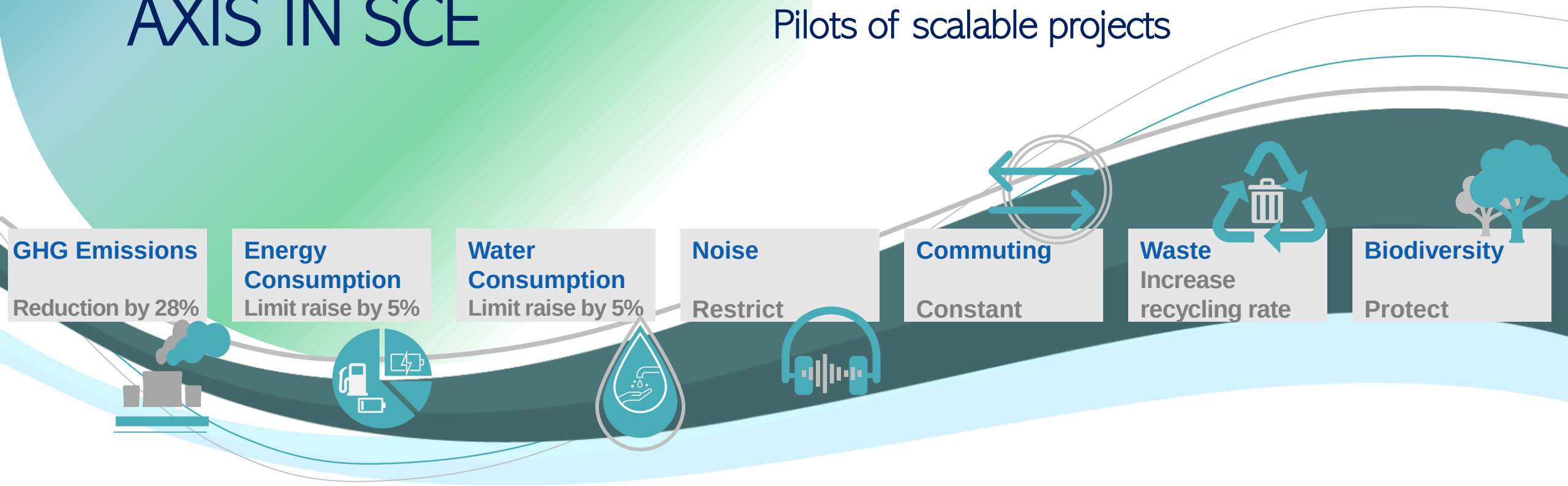
SCE
Site and Civil Engineering

3 IMPLEMENTATION AXIS IN SCE

Sustainability integrated into operations

Projects of large impact

Pilots of scalable projects



GHG Emissions	Energy Consumption	Water Consumption	Noise	Commuting	Waste	Biodiversity
Reduction by 28%	Limit raise by 5%	Limit raise by 5%	Restrict	Constant	Increase recycling rate	Protect

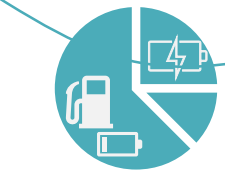
Sustainability integrated into operations

GHG Emissions

Reduction by 28%

Energy Consumption

Limit raise by 5%



Site Consolidation programme

The mission is to plan capital investments and carry out, in a rolling time window of 10 years, the pre-emptive repairs and improvement of infrastructures assets that are essential for CERN's scientific programme

40% invested into environmental actions:

- Global renovation of 2 buildings/y with energy efficiency improvement >60%
- Building envelope actions: roofs, windows, facades
- Change of indoor and public lighting, HVAC systems, automation, monitoring

Energy saving on Campus

Target: **5%** reduction of electricity & gas consumption on campus operations

Actions: optimization of district heating, reduced public lighting, accelerated replacement to LED lighting, sleep-mode for unoccupied infrastructures…

Sustainability integrated into operations

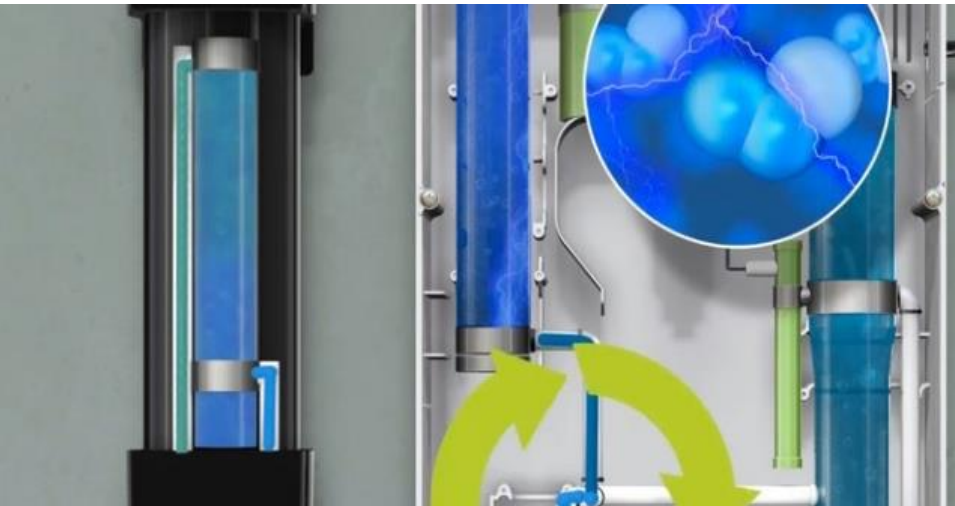
Biodiversity

Protect

Biodiversity conservation included into every new project

Analysis of impact on Biodiversity for all construction projects

Green compensation fund



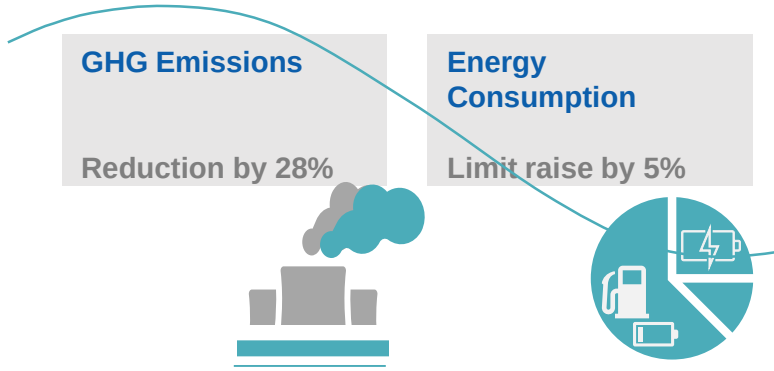
Chemical-free cleaning

Ozone water treatment

The cleaning process begins with the creation of ozone in a generator which is then injected into water, and immediately starts oxidizing and eliminating contaminants, such as bacteria and rust.

Piloted in Prévessin, moving to Meyrin at the end of 2022

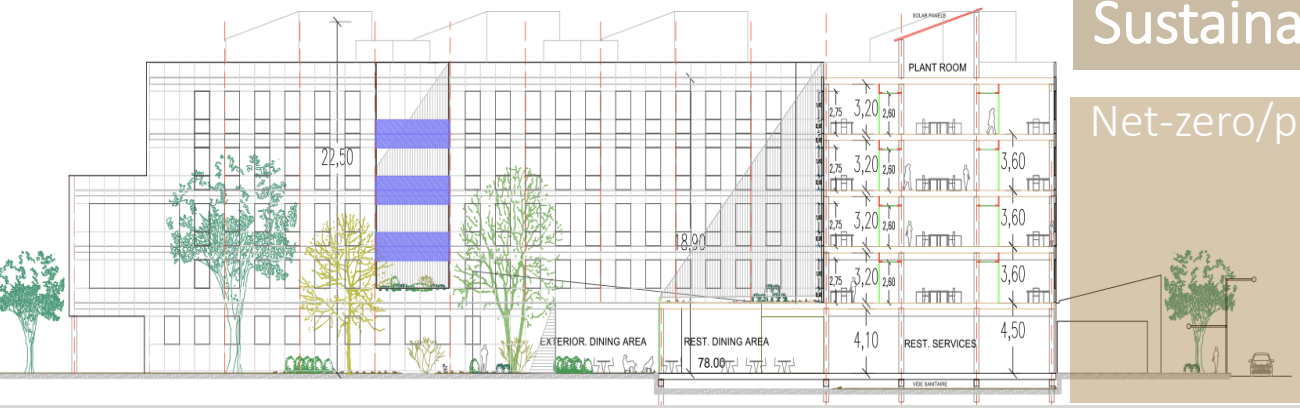
Projects of large impact



Sustainable heating plants from 2026/27

Prévessin: up to 4 MW recovered from the new PCC (~**100%** reduction of CO2 emissions at full capacity)

Meyrin: up to 10 MW recovered from LHC cooling towers at Point 1 (~**80%** reduction of CO2 emissions at full capacity)



Sustainable buildings

Net-zero/passive buildings as compared to conventional buildings:

- **5%** more expensive at construction
- **25-35%** less energy consumption
- **15%** lower maintenance costs
- **20-85%** less GHG emissions

Average figures in the field

Pilots of scalable projects

GHG Emissions

Reduction by 28%

Waste

Increase recycling rate

80 shared e-bikes
Car Fleet reduction (25% target) in 2024

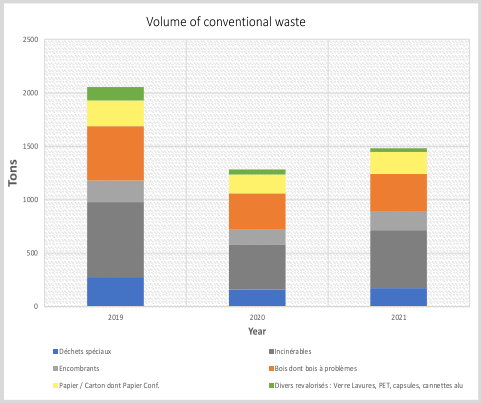
- 500 tCO_2e/y

Gradual replacement of thermal cars by e-cars

2022

3 kyburz e-Trolley for mail delivery
2 e-transit vans for internal transport
1-2 shuttles for people transport
1 truck for waste collection
5 to 8 e-cars for the sharing scheme

-15.4 tCO_2e



Waste: global and local actions

Reduce, Reuse, recycle

- Central collectors of office waste (8 buildings)
- Laboratory waste pilot (2 buildings)
- Biowaste pilot (R3 and 2 office buildings)
- Coffee capsules

Measure

SCE AMBITIONS