

ESA CSR and Strategy for overcoming CLIMATE and SUSTAINABILITY challenges

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2022 Clean Space Industry Days

10-13 October 2022
ESTEC



Astronautic Engineer



https://issuu.com/azionemigroscopicino/docs/azione_13_2022

PhD candidate – Geo Information

Climate and Sustainability Coordinator

International Relations



<https://100esperte.it/search?id=526>

STEM

Systems and Cost Engineering

ISU SSP09/NASA Ames /The World Bank-DREAM Project

Agenzia Spaziale Italiana-PRISMA Project

In ESA supporting more than 60 Missions

Earth Observation



ESA – A role model for the space community



ESA is regularly reporting on its activities in support of sustainable development



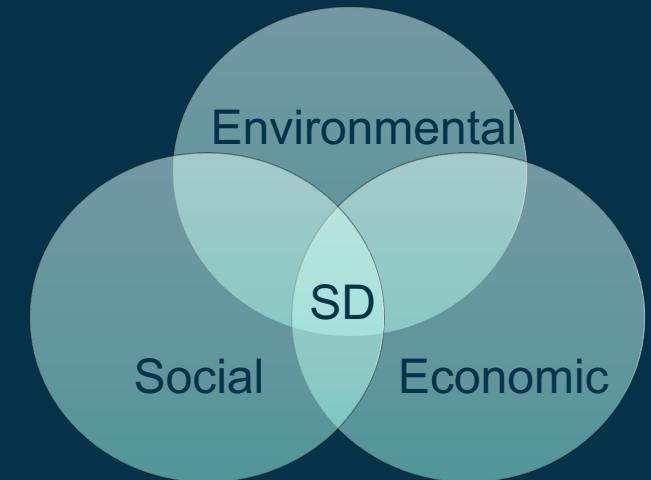


The list of ESA's activities supporting the UN Sustainable Development Goals (SDGs) is accessible online

[SDGs Portal \(esa.int\)](https://esa.int/sdgs)

Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs

Our Common Future, Brundtland Report, United Nations, 1987



Latest news



Satellites improve national reporting of greenhouse gases

Wed, 27/04/2022 - 15:02

With the climate crisis continuing to tighten its grip, nations around the world are making efforts to reduce emissions of climate warming gases....

[Read more](#)

Prosperity Planet



Satellites support latest IPCC climate report

Tue, 15/03/2022 - 15:08

Human-induced climate change is causing dangerous and widespread disruption in nature, affecting the lives of billions of people around the world, ...

[Read more](#)

Planet



Going hyperspectral for CHIME

Tue, 28/09/2021 - 11:13

With Covid restrictions a little more relaxed, scientists from Europe and the USA were finally able to team up for a long-awaited field experiment ...

[Read more](#)

People Prosperity Planet



Sentinel-6 returning most precise data ever on sea level

Tue, 21/12/2021 - 09:45

Sea-level rise is one of the most immediate consequences of climate change, as highlighted recently through urgent pleas from leaders of island nat...

[Read more](#)

Planet



— SP-1340 ESA Corporate Responsibility and Sustainability Report 2020-21

Reporting on corporate responsibility and sustainability enables ESA to consider its impacts across a wide range of topics and issues

This is a necessary step before considering how the organisation can deal with these challenges and understand where and how to move forward

CSR: ISO 26000: 2010



All reports available:

https://www.esa.int/About_Us/Responsibility_Sustainability

2020-2021 Report available:

<https://esamultimedia.esa.int/multimedia/publications/SP-1340/SP-1340.pdf>

ESA is regularly reporting on its activities in support of corporate responsibility

European framework to fight against climate change

Climate Action - 2030 climate & energy framework

- Raising the ambition Greenhouse gas emissions
- In September 2020: as part of the European Green Deal, the EC proposed to raise the 2030 greenhouse gas emission reduction target (..) to at least 55% compared to 1990

[2030 climate & energy framework \(europa.eu\)](https://european-council.europa.eu/media/1000000/attachment/data/2020/10/2030-climate-energy-framework.pdf)

Climate neutral Europe by 2050

- With the European Climate Law ratified by the European Parliament on 24 June 2021 the goal of a climate neutral Europe by 2050 has become a legal requirement for ESAs
European Union Member states and their respective industries

[EUR-Lex - 32021R1119 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2021/1119/oj)

Two lines of action in the ESA Agenda 2025

①

Increase the contribution of space projects to the sustainable development of society

*"(...) ensure that ESA and European space programmes can support the **implementation** of the **Paris Agreement** and the **European Green Deal** to the fullest extent."*

②

Improve the socially & environmentally responsible management of space sector activities

*"The Agency will improve its own environmental responsibility, to contribute to the climate neutrality of Europe. **By 2030, ESA's GHG emissions will be decreased by 46.2%** compared to 2019*."*

ESA greenhouse gas (GHG) emissions for 2019

Estimate the
environmental impact of
ESA activities

CH₄

SF₆

CO₂

N₂O

Scope 1

Scope 2

Indirect

Scope 3

Indirect

Scope 3

Indirect

PFC₅

HFC₅

NF₃

Minimise negative
impacts (e.g., GHG
emissions,...)

Phase 2

Purchase of technical and general
goods and services

Capital goods and
leased assets

Transportation
and delivery

Waste in
operation

Upstream Activities

Phase 1

Employee
commuting

Business
travel

ENERGY
FROM THE
GRID

GAS HEATERS
& BOILERS

DIESEL
GENERATORS

OWNED
VEHICLES

ESA

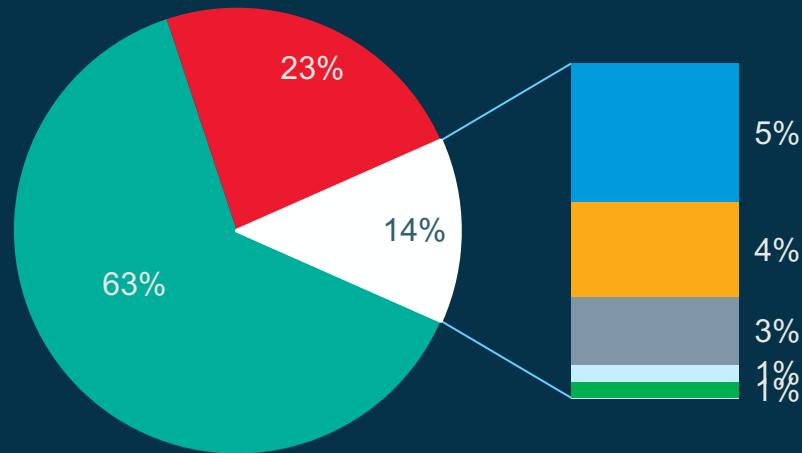
Phase 3

Use and process of space data

Downstream Activities

- Evaluation of the greenhouse gas (GHG) emissions generated in the year 2019 - baseline year

- Phase 1 – Evaluation **COMPLETED**, January 2022



■ Energy consumed on site

■ Capital goods

■ Industrial activities

■ Direct Waste

■ Transporting people

■ Facility Management Contractual Services

■ Purchase of goods

■ Air-conditioning

185 600 tCO₂e
emitted in 2019

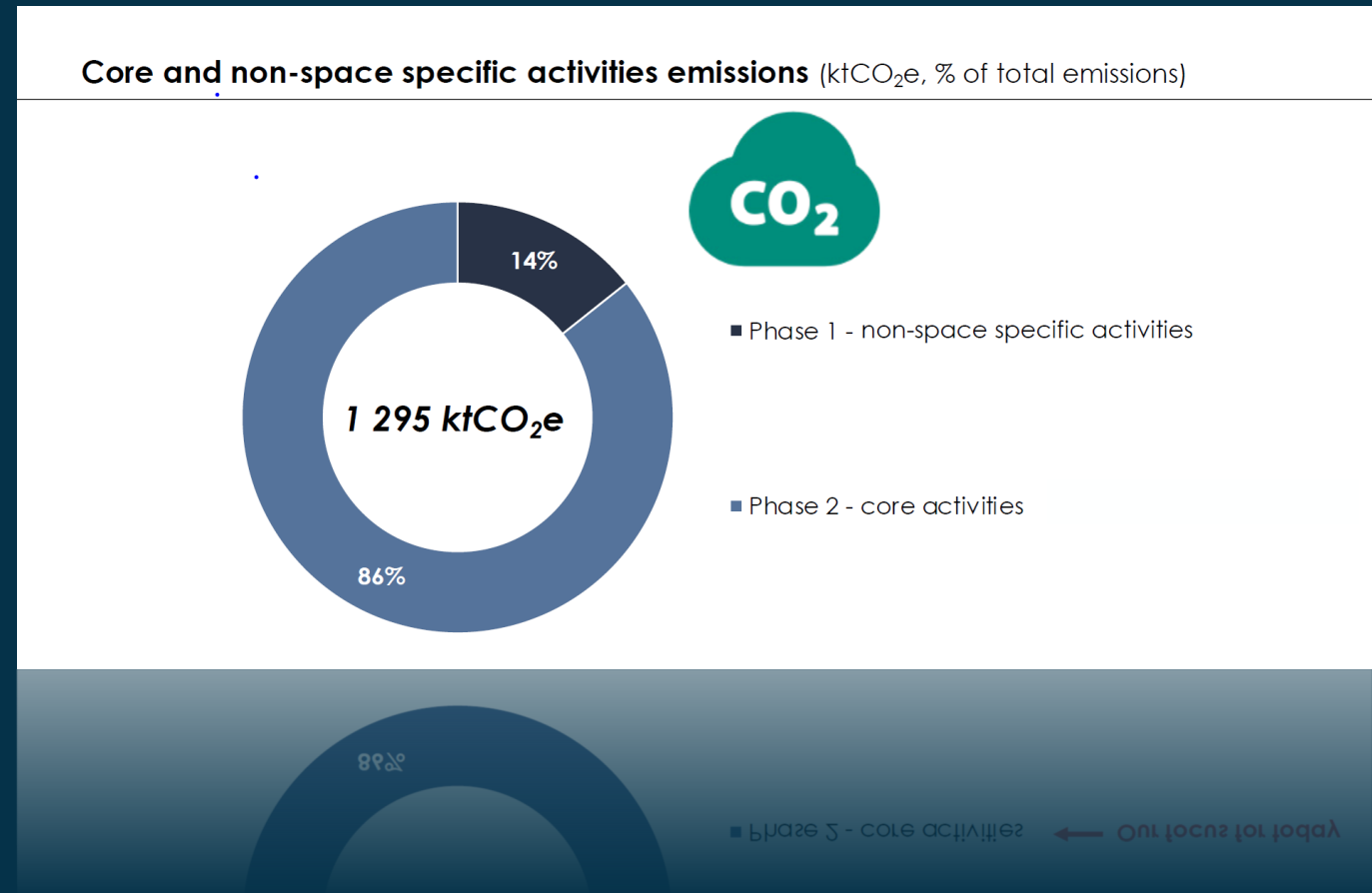


The large majority of the above emissions are due to energy consumption and transporting of people

Evaluation of the greenhouse gas (GHG) emissions generated in the year 2019 - baseline year

- Phase 2 – Supply chain (upstream)

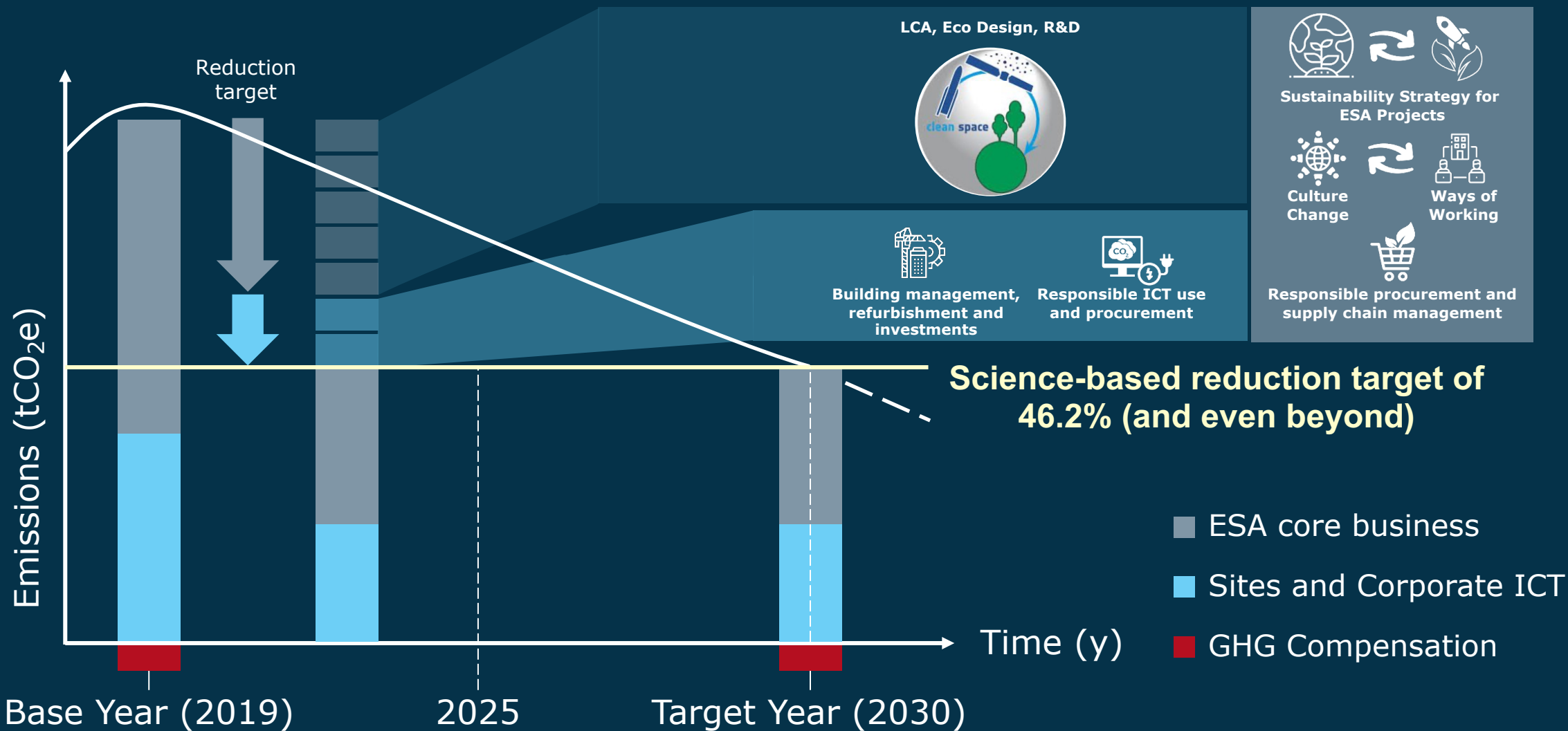
Evaluation **COMPLETED**, June 2022



Evaluation of the greenhouse gas (GHG) emissions generated in the year 2019 -
baseline year

- Phase 3 – **KO of the activity planned in October 2022.**
- This aims also at evaluating the emissions (negative impacts) and benefits (i.e., GHG emissions avoided/positive impact) generated by the exploitation of space assets in other sectors (downstream)

ESA greenhouse gas emission reduction target*



*Schematic overview

ESA Green Agenda- from strategy to action



ESA must increase the contribution of space activities to the sustainable development



Sustainability Strategy for ESA Projects



ESA must reduce the environmental footprint of its activities



LCA, Eco-Design and R&D activities





Facility and Asset Management





Procurement and Supply Chain





Culture and ways of working



Actions in place-WGs/ Workshops/ Joint Statement

- Promote collaboration and data/best practices sharing among space actors on sustainability and responsibility issues
- About 30 organisations participating to the definition of principles and values
- Working groups - Identified priority areas for common action at European level
 - ❑ Decarbonisation of the European space sector (ongoing)
 - ❑ Discussions and iterations considering the deployment of a spin-off workshop about emissions by propulsion systems
 - ❑ Responsible procurement (ongoing)
 - ❑ **NEW!** LCA, Eco-Design, and Green Technologies (workshop-planned for mid November)
- Joint Statement adopted and signed at ESA Council meeting at ministerial level in November 2022



EGA WP 3 contains task on “Life Cycle Assessment and Eco-Design”, with the goal of driving the European Space Industry towards the design of space products and services that have a minimum impact on the environment throughout their life cycle.

With regards to this common objective, a joint-workshop on the Benefits and drawbacks of the use of LCA/Green Technologies/eco-design for space products: the Industrial perspective will be announced for mid-November.

The floor will be given to participants. A special focus will be made on the “industrial” perspective , in order to get views from industry, satellite operators and space agencies, about:

- LCA and eco-design in their respective Organization
- What has been done so far (performed LCA, eco-design in projects and reviews, Roadmap)
- Actions in place
- Challenges, show-stoppers and expectations

SAVE THE DATE!

10th November

Conclusion and next steps

- Leading by example: ESA Agenda 2025 contributes to the climate neutrality of Europe, and it leads the entire European space sector to promote common values
- ESA Green Agenda will be finalised by end-2022, as based on the year 2019 results. Aiming at:
 - Increasing the contribution of space activities to the sustainable development
 - Reducing the environmental footprint of its activities
- International Collaboration: a reinforced collaboration among public and private actors of the European space sector, plus the collaboration with the European Commissions (FFPA Art 30 on Environmental Policy), is crucial to the achievement of ESA objectives.



Thank you!

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