



Director-General report

Fabiola Gianotti, Council, 15 December 2022

Second edition of Sparks! the Serendipity Forum at CERN



- Sparks! is a multidisciplinary platform to foster innovation on challenges relating to science, technology, engineering and maths, reflecting on their relevance in society and how to collaborate to address them.
- Following the inaugural edition on *Future Intelligence* in 2021, this year's edition focused on ***Future Technology for Health***.

<https://sparks.cern/welcome-cern-sparks>

- The annual Sparks! event comprises three elements:
 - a **podcast series** grounding some of the key aspects of the topic
 - a series of **public talks** to spark ideas, and
 - a **forum** to allow those ideas to be nurtured and grow together.
- The 2023 edition is expected to take place at the CERN Science Gateway and will complete the pilot phase of three editions.

Sparks! is an Education & Outreach activity funded by the CERN & Society Foundation, supported by individual donors



CERN & Society
Foundation



ROLEX



Fondation
Didier et Martine
Primat

Sparks! Talks – 17 November

- 14 public talks and interviews at the Globe on ***Future Technology for Health***
- All talks have been recorded and will be released individually for wider reach.



Podcasts: <https://sparks.cern/podcast>
 With participation of Jennifer Doudna, Jeremy Farrar, etc.

Sparks! Forum – 18 November

- The academic element of Sparks! with 50 participants attending, all in person, to take part in the specially-tailored discussion sessions, allowing for in-depth conversations and individual participation.
- Several participants have manifested interest in co-authoring papers based on the Forum discussions.
- Participants included: 11 people from *CERN*, 17 local participants from *Genève internationale* and EPFL, CHUV, 22 distinguished thinkers from across the world, including from DeepMind, Human Cell Atlas, Snyder Lab and EMBL, amongst others



12-13 October 2022

CERN AND THE ENVIRONMENT WORKSHOP

Session 1: Energy Management

Session 2: Towards environmentally-friendly detector coolants and detector gases

Session 3: Water Management

Session 4: Mobility, procurement and food

Session 5: Local Environmental impact

Session 6: A look ahead

<https://indico.cern.ch/event/1193771/>

Organizing Committee

Mar Capeans Garrido

Serge Claudet

Benoît Delille

Christopher Hartley

Sonja Kleiner

Manfred Krammer

Roberto Losito



HSE

Occupational Health & Safety
and Environmental Protection unit

Example : GHG emissions

Reducing emissions of fluorinated gases from experiments

Objective: - 28% of Scope 1 emissions at the end of RUN3

→ Replace fluorinated gases by CO₂ cooling systems during LS3.

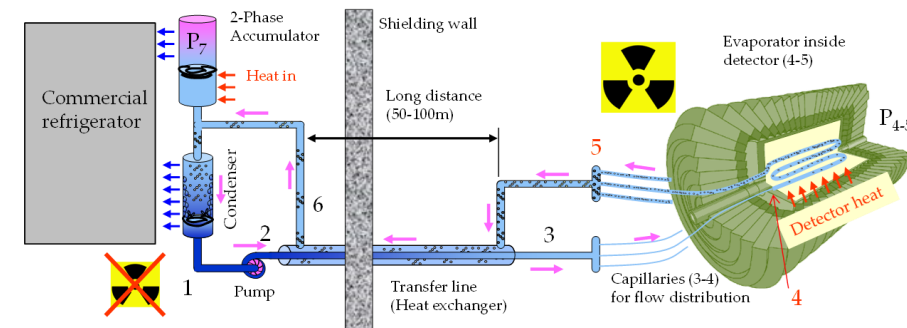
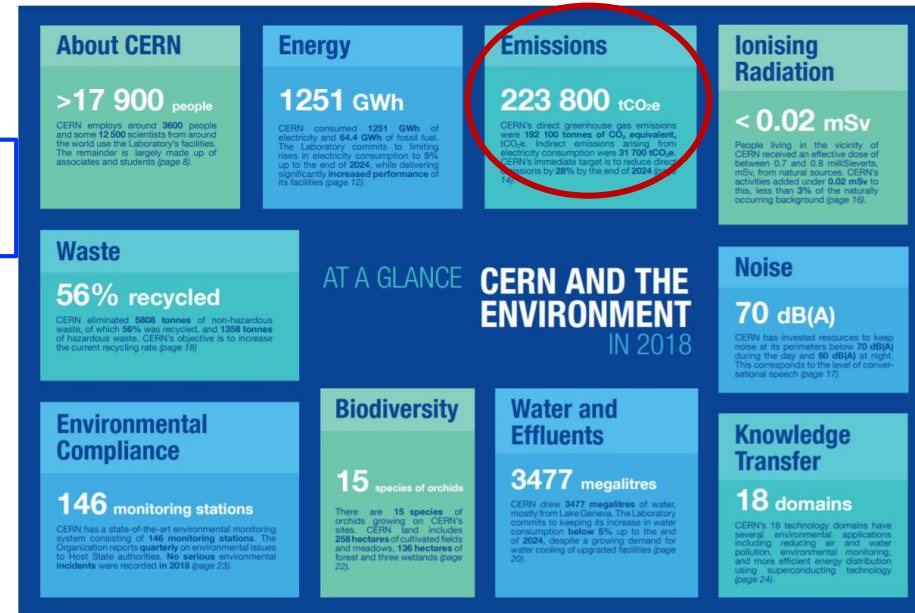
Reduction potential : ~ 40'000 tCO₂e/y

→ Upgrade detector gas recirculation systems

Reduction potential : ~ 13'000 tCO₂e/y

Multi-pronged strategy defined:

- Continue repairing leaks in connectors and pipes of ATLAS and CMS RPC. Big efforts in LS2, to be continued in the future.
- Gas recirculation systems: optimisation ongoing with upgrades beyond original design.
- Gas recuperation plants. Used when not possible to recirculate 100% of the gas mixture.
- R&D on alternative gases. Lot of work especially in RPC community on alternatives to C₂H₂F₄. Not easy to find new eco-friendly gas mixtures for current LHC detectors. Short-mid term possibility is to change mix of gases, doping them with CO₂ (up to 30%) to reduce their GWP.



132 Protocol visits or events since January 2022

Member States: 65

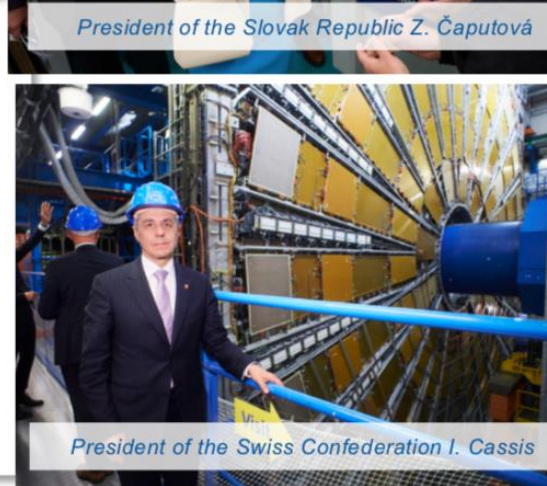
Austria	3
Belgium	2
Czech Republic	4
Finland	2
France	13
Germany	3
Greece	2
Hungary	2
Israel	3
Italy	4
Netherlands	2
Norway	1
Poland	2
Portugal	2
Romania	1
Serbia	1
Slovak Republic	2
Spain	1
Swiss Confederation	9
United Kingdom	6



President of the Republic of Hungary J. Áder



President of the Slovak Republic Z. Čaputová



President of the Swiss Confederation I. Cassis

Others: 12

ECB President	1
IOM DG	1
ASN FR/ENSI CH	1
ASEAN (NMS)	1
ITER Chief Scientist	1
SGW donors (IL, FR, US)	1
Visits for Delegates	3
BL4S (EG, FR, ES)	1
DSK Nuclear Safety (CH-DE)	1
IILA SG	1

Associates : 19

Croatia	4
Cyprus	1
Estonia	1
India	2
Latvia	2
Lithuania	3
Pakistan	1
Türkiye	2
Ukraine	2
Baltic Assembly (EE, LT, LV)	1

Observers : 10

Japan	3
Russian Federation (suspended)	2
UNESCO	1
United States	4

Non-Member States : 26

Brazil	1
Chile	2
China	1
Costa Rica	1
Dominican Republic	1
Egypt	1
Georgia	1
Holy See	1
Honduras	1
Ireland	1
Kazakhstan	1
Korea	1
Lebanon	1
Mexico	4
Morocco	2
Saudi Arabia	1
Singapore	1
Thailand	1
Timor-Leste	1
Uruguay	1
United Arab Emirates	1

To be compared with:

2018: 120 visits

2019: 148 visits

2020: 37 visits

2021: 79 visits

Date for CERN's 70th anniversary celebration: 1 October 2024



President of the Republic of Croatia Z. Milanović

