



HEALTH, SAFETY AND ENVIRONMENT



TOPICS

Health, Safety and Radiation Protection

- The INFN Organization
- The coordination activities
- Safety Training
- Results (!)

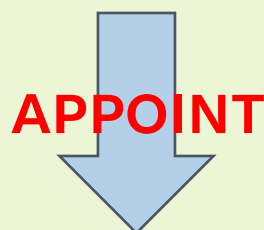
The Environmental Report 2024

- What next...

Conclusion

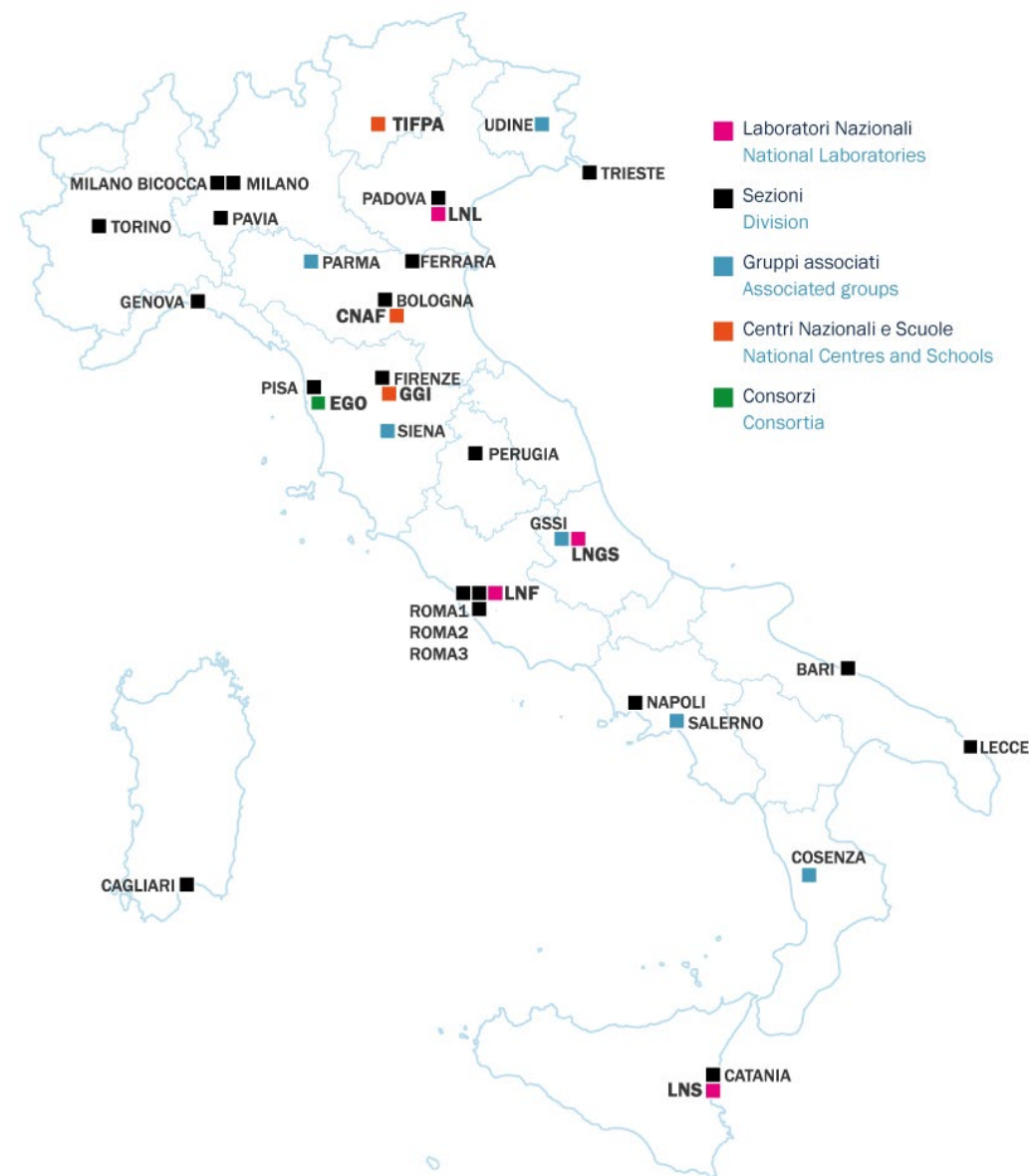
THE INFN ORGANIZATION

THE EMPLOYERS ARE
THE DIRECTORS



- 1) THE PROTECTION AND PREVENTION SERVICE AND ITS HEAD:
THE RSPP or H&S OFFICER
(DIRECTIVE 89/391/ECC)
- 2) THE RADIATION PROTECTION EXPERT
(2013/59/EURATOM)
- 3) THE OCCUPATIONAL PHYSICIAN

IN EACH DIVISION OR LABORATORY THERE IS
AT LEAST ONE WORKERS' SAFETY REPRESENTATIVE
(RLS or OHS REPRESENTATIVE)



**COORDINATION
ACTIVITIES ARE
PERFORMED BY THE
CNPISA AND THE
HEALTH, SAFETY AND
ENVIRONMENT
OFFICE OF THE AC**

**ALL WORKERS'
SAFETY
REPRESENTATIVES
ELECT A NATIONAL
REPRESENTATIVE**

The INFN President has established (first time in 1998 with the 7828 disposition) the Permanent National Commission for Health, Safety and Environment.

The Commission acts as an advisory body to the Directors on the application of current health and safety legislation.

The Commission:

- develops common guidelines for INFN policy on safety;
- identifies objectives and programmes for improving worker health and safety;
- promotes models of safety organisation and management;
- suggests health promotion actions.

The Health, Safety and Environment Office is responsible for verifying the implementation of directives and the application of current legislation.

**COORDINATION
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OFFICE OF THE AC**

The Health, Safety and Environment (SSA) Office coordinates the activities of the following in particular:

- the Heads of the Prevention and Protection Service (RSPP),
- the Occupational Physicians,
- the Radiation Protection Experts.

The SSA Office provides:

- guidance on the application of current legislation on health, safety, radiation protection and environment;
- technical support to the activities of the National Workers' Representative for Safety;

The SSA Office collaborates with the National Training Commission and the Guarantee Committee for Equal Opportunities (CUG).

The Head of the Health and Environment Service is a member of the CNPISA.

THE SOFTWARE FOR RISK ASSESSMENT AND SAFETY MANAGEMENT

In collaboration with the Local Team Leaders (or with the Heads of Offices), we evaluate the risks associated with each experiment and office activity, as well as each employee's activity. This concerns, not only activities within INFN workplaces, but also activities wherever performed by our workers.

After evaluating the risks associated with each employee's activities, we plan his or her safety training and health surveillance and we determinate the necessary PPE.

The screenshot displays the INFN Safety Management Software interface. The top section shows a list of activities with columns for selection, copying, general information, specific service codes, and numerical values. Below this, a sidebar on the left lists filters for document status (e.g., Aperto, In approvazione RSPP). The main content area shows a list of employees, with Michele Sacchetti selected. To the right of the employee list, a detailed profile for Michele Sacchetti is shown, including his name, matricola number (0001987), position (RSPP INFN), birth date (05-10-1968), and other details. The interface also includes a search bar, a language selector (IT), and a user profile icon.

	Copia da	Generale					
☐	☒	☒	[1-521] Servizio Prevenzione e Protezione	3	5		
☐	☒	☒	[1-6905] Servizio Fondi Esterni	4	3		
☐	☒	☒	[1-554] Servizio Tecnico Generale	5	11		
☐	☒	☒	[1-633] Servizio Calcolo e Reti	6	4		
☐	☒	☒	[1-652] Servizio Elettronica	7	8		
☐	☒	☒	[1-672] Servizio Officina Meccanica	8	17		
☐	☒	☒	[1-544] Servizio Progettazione Meccanica	9	4		
☐	☒	☒	[166-99] Laboratorio DIAM	10	6		
☐	☒	☒	[1-6001] BELLE2	101	10		

INFN Sicurezza Salute Ambiente

Cerca una scheda

Filtri

STATO

- Aperto
- In approvazione RSPP
- In approvazione Lavoratore
- In approvazione Direttore
- Da classificare
- Conclusa
- Conclusa Ente Esterno
- Conclusa e classificata A
- Conclusa e classificata B
- Conclusa e classificata NE
- Annullata
- Cessata

Sacchetti Michele ☒ Aperto

Lamura Antonio ☒ Aperto

Triloki Triloki ☒ Conclusa e classificata NE

Das Debmalya ☒ In approvazione Direttore

Millio Davide ☒ In approvazione Direttore

Ali Muhammad ☒ Aperto

Ali Aaqib ☒ Aperto

Bhusal Diwa ☒ In approvazione Direttore

Maggiolino Tommaso ☒ In approvazione Direttore

Conservo Francesco ☒ In approvazione Direttore

Minello Giorgia ☒ In approvazione Direttore

Lavoratore: Sacchetti Michele
Sede: Sezione di Bari
Inquadramento: Dipendente Tecnico/Collaboratore Tecnico E.R.

Scheda di destinazione lavorativa Scheda di radioprotezione Sito formazione e visite mediche

Riepilogo scheda

- Rischi**
Non sono presenti rischi associati
- Dispositivi di protezione**
Non sono presenti DPI associati
- Sostanze chimiche**
Nessuna sostanza chimica associata

Dati Lavoratore

Nome	Sacchetti Michele	Matricola	0001987
Mansione	RSPP INFN; Addetto Attività di Base; Addetto Carrelli eleva...	Centro di Costo	-
Nascita	05-10-1968 (55 anni)	Assunzione	Non indicata
Responsabile	Non indicato		

Scheda anagrafica Compiti (0)

FOTO NON PRESENTE

Numero scheda: 265

THE SOFTWARE FOR RISK ASSESSMENT AND SAFETY MANAGEMENT

The software includes safety instructions that can be linked to QR codes applied to equipment, systems, workplaces, and more. Employees can use the software to access information about safety training courses, medical visits, safety data sheets for hazardous chemicals, etc.



SAFETY DATA SHEET
Hydrogen Sulfide

Documento di Valutazione dei Rischi
Emissione 8/23/05/2023
Rev. n. 1
Pag. 4 di 10

Sezioni di traliccio di macchinari o veicoli;
il sollevamento ed il trasporto dei carichi sopra le zone di lavoro e di transito;
sia essere assolutamente evitato avvertire con apposite segnalazioni l'inizio
effettuare il passaggio con il carico, attendere che tutte le persone si siano
abbandonare la gru anche per brevi momenti con carico sospeso;
o flessibile a terra assicurarsi che durante le manovre il cavo stesso non

unovatore deve alzare il gancio ad una altezza opportuna onde
oggetti, ritirare il carrello e trascinare il carro nella posizione di riposo
lavora disinserire il telecontrollo di linea montato sulla gru agendo sul
chiave e asportare la chiave estraibile solo in posizione di riposo,
linea principale posizionata nel locale mettendo fuori tensione la

no;
Voci e i tamponi ammortizzati;
750.

Interventi fuori dalle protezioni fisse;
750.

di tipo Fisso INAIL
VZZA

Section 1. Identification

GHS product identifier : Hydrogen Sulfide
Chemical name : hydrogen sulphide
Other means of identification : Hydrogen sulfide (H2S); Sulfuretted hydrogen; Sewer gas;
Product use : Hydrosulfuric acid; dihydrogen sulfide
Synonym : Synthetic/Analytical chemistry.
SDS # : Hydrogen sulfide; Hydrogen sulfide (H2S); Sulfuretted hydrogen; Sewer gas;
Supplier's details : Hydrosulfuric acid; dihydrogen sulfide
: 001029

Section 2. Hazards identification

Emergency telephone number (with hours of operation)
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : FLAMMABLE GASES - Category 1
ACUTE TOXICITY (inhalation) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements
Hazard pictograms

Signal word : Danger
Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May cause frostbite.
Fatal if inhaled.
Extended exposure to gas reduces the ability to smell sulfides.
May cause respiratory irritation.
Very toxic to aquatic life.

Precautionary statements

Effetti	Danno	Riduzione	Livello
Acute	Molto grave	-2 livelli	Medio
Acute	Grave	-1 livello	Medio
Acute	Grave	-1 livello	Medio
Acute	Grave	-2 livelli	Basso
Acute	Grave	-2 livelli	Basso
Acute	Grave	-2 livelli	Basso
Acute	Grave	-1 livello	Molto basso
Acute	Grave	-2 livelli	Molto basso
Acute	Grave	-1 livello	Molto basso
Acute	Grave	-1 livello	Molto basso

Ruoli negli Esperimenti

EXPERIMENT	Spokesperson	Technical Coordinator	Site Manager	Local Responsible	Funds Responsible	GLIMOS	RAE	Computing Responsible
BULKID_DM	M. Vignati	A. Cruciani	A. D'Addabbo	A. D'Addabbo	A. D'Addabbo			
COSINUS	F. Reindl	K. Schäffner	L. Pagnanini	A. Puiu	A. Puiu	M. Balata	M. Balata	F. Reindl
COSMIC SILENCE	V. Dini	P. Morciano	P. Morciano	P. Morciano	P. Morciano	M. Balata	M. Balata	
CRESST	F. Petricca	P. Gorla	S. Di Lorenzo	P. Gorla	P. Gorla	P. Gorla	P. Gorla	F. Reindl
CUORE	C. Bucci	P. Gorla	S. Fu	C. Bucci	C. Bucci	C. Bucci	C. Bucci	B. Fujukawa
CUPID	K. Heeger M. Pavan	M. Biassoni	A. D'Addabbo	C. Bucci	C. Bucci	M. Biassoni	M. Biassoni	G. Benato
CYGNO	E. Baracchini D. Pinci	D. Fiorina	D. Fiorina	S. Piacentini	S. Piacentini	D. Fiorina	D. Fiorina	S. Piacentini
DAMA/LIBRA	R. Bernabei	V. Caracciolo	V. Caracciolo	V. Caracciolo	N/A	P. Belli	V. Caracciolo	V. Caracciolo
DARKSIDE	C. Galbiati	A. Zani	An. Ianni	R. Tartaglia	R. Tartaglia	An. Ianni	An. Ianni	V. Ippolito
DARWIN	L. Baudis M. Schumann	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GINGER	A. Di Virgilio	A. Di Virgilio	G. De Luca	G. De Luca	G. De Luca	A. Porzio	A. Porzio	G. Terreni
LEGEND	S. Schönert S. Elliot	B. Schwingenheuer	M. Laubenstein	M. Laubenstein	M. Laubenstein	M. Balata	M. Balata	M. Agostini
LUNA	A. Formicola	R. Depalo	F. Ferraro	F. Ferraro	F. Ferraro	D. Dell'Aquila	D. Dell'Aquila	Z. Elekes
LVD	A. Zichichi	S. Gazzana	W. Fulgione	W. Fulgione	G. Bruno			P. Antonielli
NEWS	G. De Lellis	N. D'Ambrosio	N. D'Ambrosio	N. D'Ambrosio	N. D'Ambrosio	N. D'Ambrosio	N. D'Ambrosio	N. D'Ambrosio
PTOLEMY	A. Cocco M. Messina C. Tully	A. Cocco	M. Messina	M. Messina	A. Cocco	A. Cocco	A. Cocco	A. Cocco
RESNOVA	L. Pattavina	A. Puiu	L. Pagnanini	G. Benato	G. Benato			G. Benato
SABRE	A. Ianni	C. Vignoli		C. Vignoli	C. Vignoli	C. Vignoli	C. Vignoli	G. Di Carlo
VIP	C. Curceanu	A. Clozza	M. Laubenstein	M. Laubenstein	N/A	A. Clozza	A. Clozza	A. Clozza
XENON	E. Aprile	A.P. Colijn M. Messina	R. Biondi	M. Messina	M. Messina	M. Messina	M. Messina	A. Ferella

NATIONAL LABORATORIES: ORGANIZATION FOR INTERNATIONAL COLLABORATION

For large-scale collaborations involving significant experiments with complex equipment, toxic or harmful materials and substances, etc., the organization of safety requires additional figures, such as technical coordinators and GLIMOS (Group Leader in Matters Of Safety), who collaborates with the RSPP of the laboratory in evaluating risks and defining prevention and protection measures.



INTERNATIONAL AGREEMENTS: WHAT WE REQUIRE

IN MATTER OF SAFETY

The Host Institution undertakes to implement measures to encourage improvements in the safety and health of workers at work. In particular, the Host Institution agrees to the following general principles of prevention: avoiding risks and evaluating the risks which cannot be avoided, combating the risks at source, adapting the work to individual, especially as regards the design of workplaces, the choice of work equipment and the choice of working and production methods, adapting to technical progress, replacing the dangerous by the non-dangerous or the less dangerous, developing a coherent overall prevention policy which covers technology, organization of work, working conditions, social relationships and the influence of factors related to the working environment, giving collective protective measures priority over individual protective measures, giving appropriate instructions to workers.

IN MATTER OF RADIATION PROTECTION

The Host Institution shall implement a system of radiation protection based on the principles of justification, optimisation and dose limitation in order to protect workers against the dangers arising from exposure to ionising radiation. In the case of activities in areas subject to special rules for the purpose of protection against ionising radiation where there is a possibility to exceed the effective dose limit of 1 mSv/year, the Host Institution undertakes to: establish, in cooperation with INFN, the dose constraint to be adopted for the purpose of optimisation of protection; provide information on the risks deriving from exposure to ionising radiation and on the prevention, protection and emergency measures to be adopted in relation to the conducted activities; provide workers with working instructions appropriate to the radiological risk and specific training in connection with the characteristics of the workplace and the conducted activities. It shall also be available to provide workers with personal dosimeters appropriate to the nature of the activities and to communicate the dose report to INFN.

HEALTH PROMOTION PROGRAM

We offer all INFN employees the opportunity to participate in a health promotion program that includes:

- ☐ blood tests every two years to monitor parameters that can help to prevent cardiovascular disease and diagnose other diseases at an early stage;
- ☐ the flu vaccine annually



SAFETY TRAINING COURSES

- ☐ General safety information
- ☐ Training on specific risks
(e.g. electrical, mechanical,
laser, gas, chemicals, load
handling, etc.)
- ☐ Use of overhead cranes,
lifting platforms, PPE, ect.
- ☐ Fire fighting and prevention
- ☐ First aid

SAFETY TRAINING COURSES In 2024, we issued 3233 certificates	
306 managers and supervisors	2927 workers
videoconferencing	816
in person	1100
e-learning	742
equipment and PPE	199
First Aid	226
Fire Fighting	150

TRAINING COURSES AND MEETINGS ORGANIZED BY THE HSE OFFICE

RSPPs

One monthly meeting

At least 2 training courses per year.

RADIATION PROTECTION EXPERTS

At least one meeting is held between the INFN RPE each year.

At least 20 hours per year are dedicated to studying and discussing topics of interest to the INFN.

OCCUPATIONAL PHYSICIANS

The INFN supports the participation of its physicians in a workshop on occupational medicine.

The annual coordination meeting between INFN physicians takes place during the workshop.

TRAINING COURSE FOR THE DIRECTORS

Next spring, we will organize a training course for all INFN directors:

- ❑ One online day focusing on the employer's role in health and safety and radiation protection.
- ❑ One day in person at the LNF with the RSPPs and RLSs focusing on the organization and management of safety. This will be a real team-building day focused on safety.



NUMBER OF ACCIDENTS AT WORK

	2022	2023	2024
During the commute (in itinere)	9	7	12
Hotel/restaurant		2	1
Slips and trips at work	2	4	4
Equipment/Load handling	2	4	2
other	2	1	1
TOTAL	15	18	20

RADIATION DOSE REPORT

	2022	2023	2024
EXPOSED WORKERS	998	1053	1037
NO Exposition	288	293	297
0 mSv	534	582	563
0 – 0.5 mSv	171	177	167
0.5 – 1 mSv	4	1	7
1-2 mSv	1	0	3



ENVIRONMENTAL REPORT 2024

**REPORTING PERIOD
2021-22-23-24**

ENERGY COMSUMPTION AND INDIRECT EMISSIONS (SCOPE2)

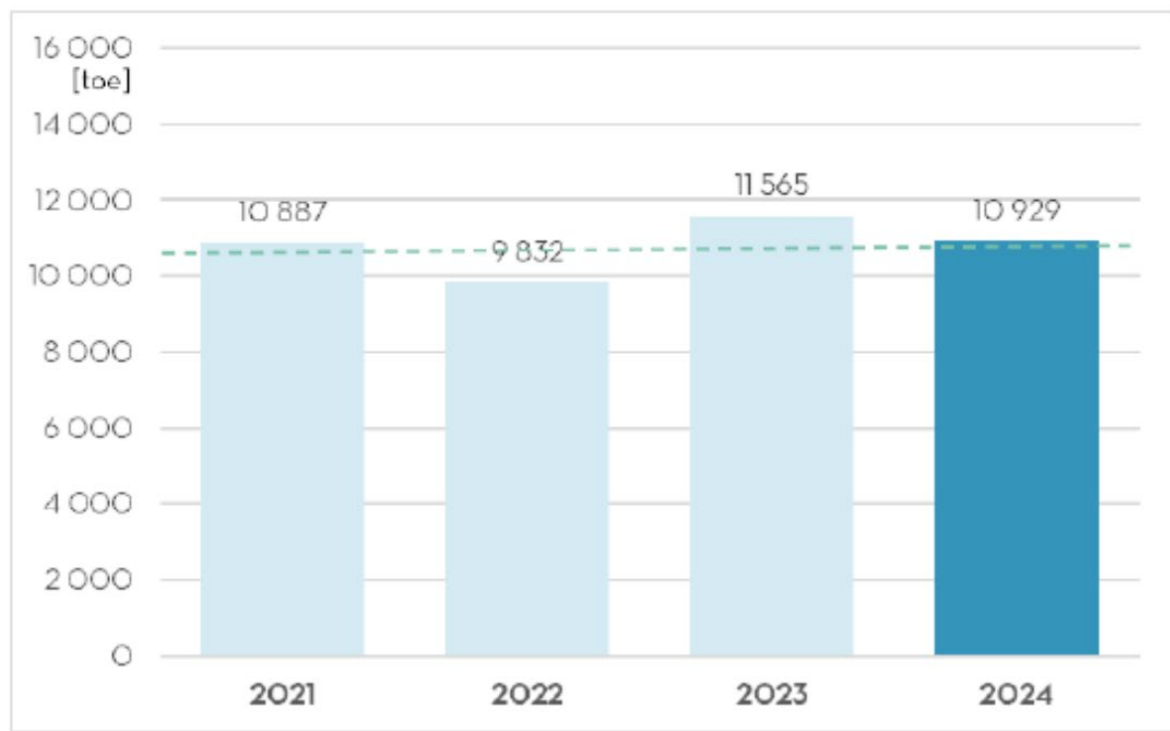


Figure 4. Trend of total energy consumption of INFN [toe].

Note: dashed line indicates the average energy consumption value calculated for the period 2021-2023.

By 2026, the LNF's photovoltaic plant will be operational. It will produce 1.5 GWh of energy per year, which is approximately 15% of the LNF's base-load energy demand.



CARBON FOOTPRINT

SCOPE 1

DIRECT FUGITIVE EMISSIONS FROM GHG

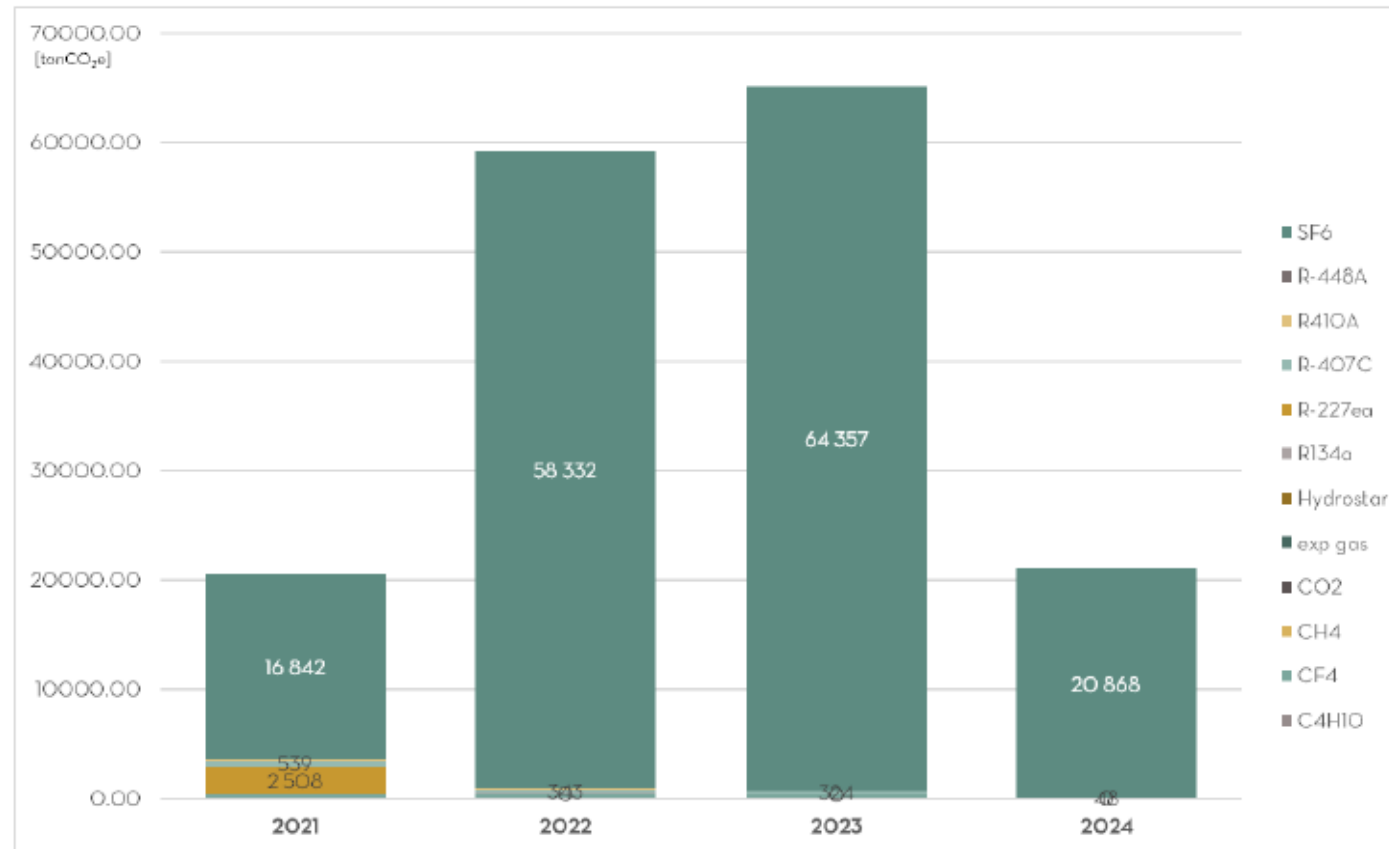


Figure 18. Trend of the direct fugitive emissions arise from the release of GHG [ton CO₂e].

CARBON FOOTPRINT

DIRECT FUGITIVE EMISSIONS: SCOPE 1

IMPROVEMENT TARGET

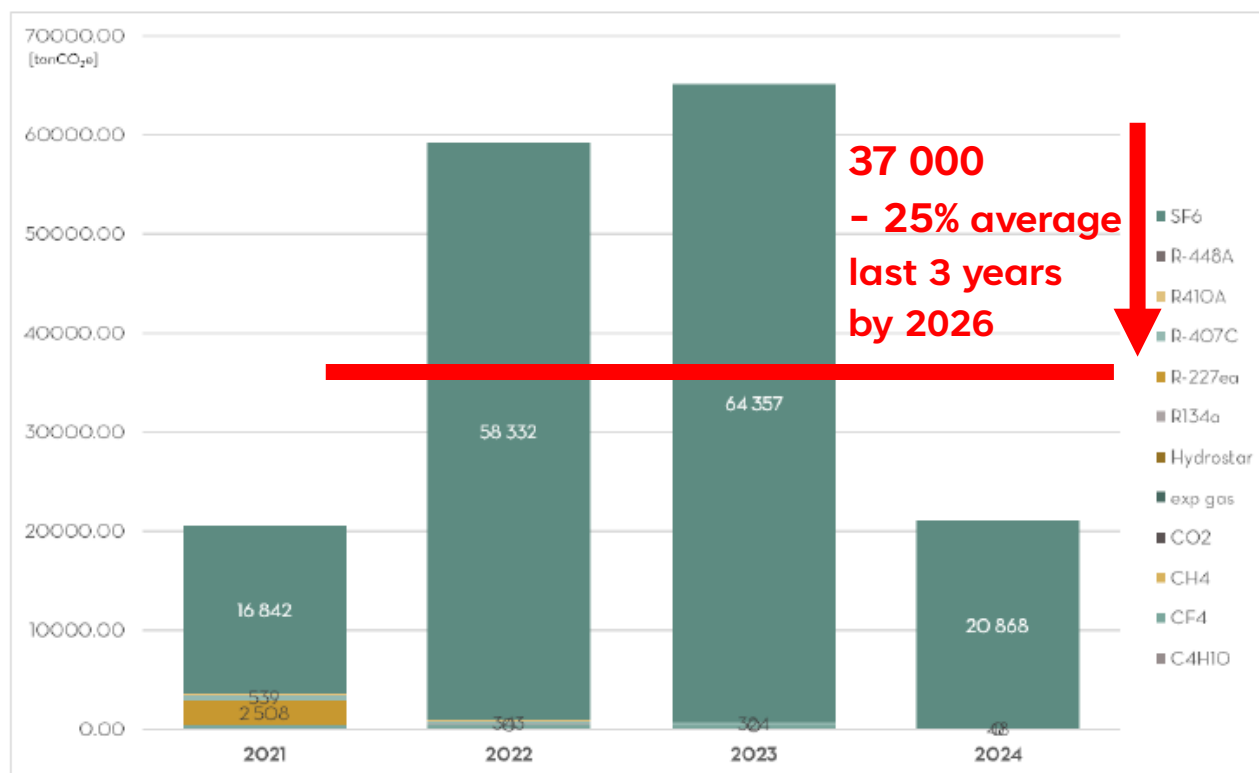


Figure 18. Trend of the direct fugitive emissions arise from the release of GHG [ton CO₂e].

	SF6 (Kg)
LNF	13
LNS	300
LNL	1000

CARBON FOOTPRINT

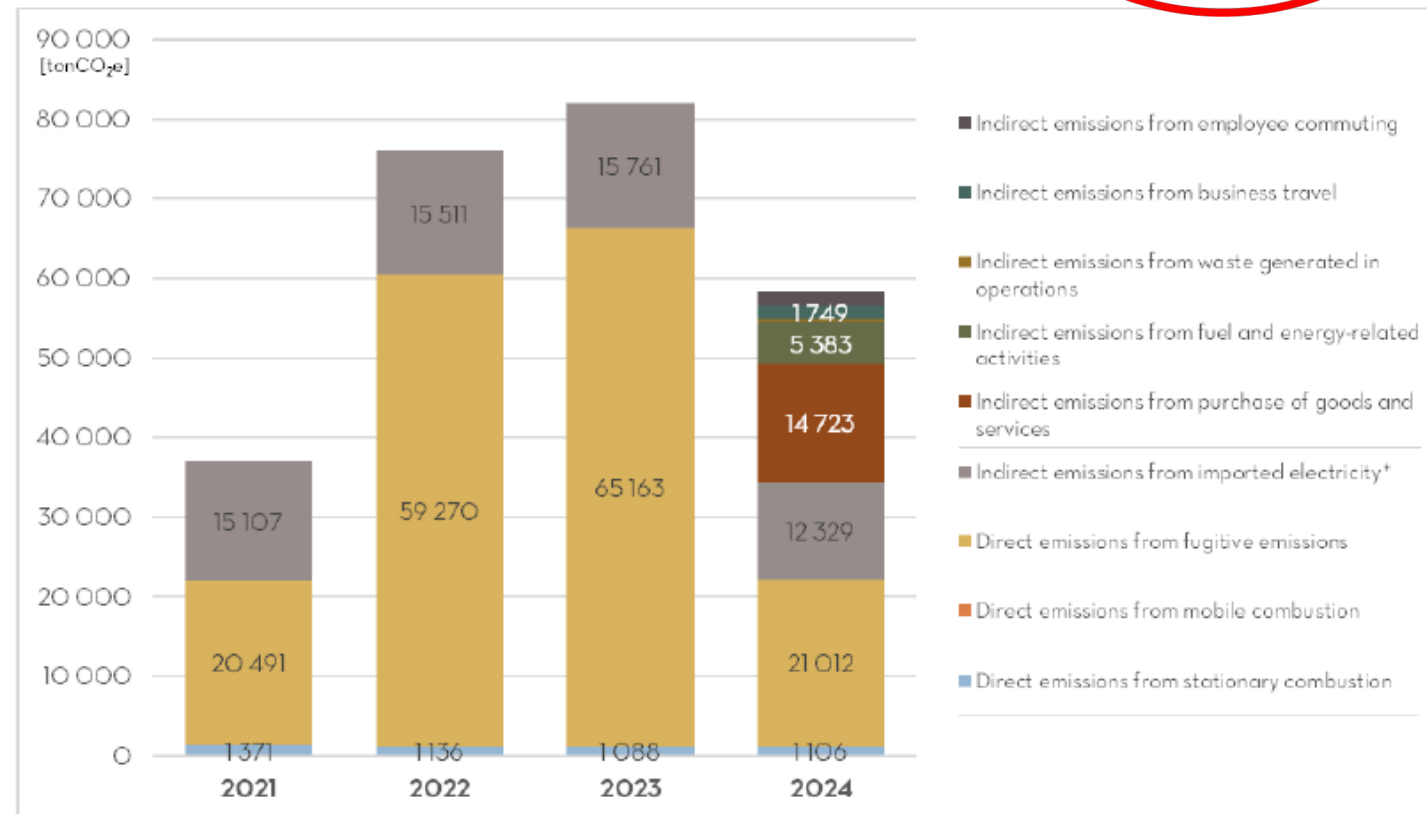
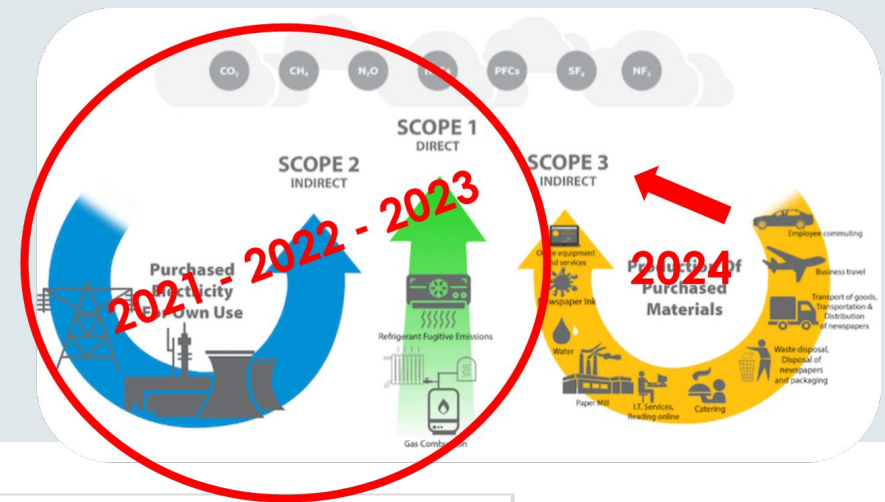


Figure 16. Trend of emission categories of INFN [ton CO₂e].

CARBON FOOTPRINT

SCOPE 3

INDIRECT EMISSIONS

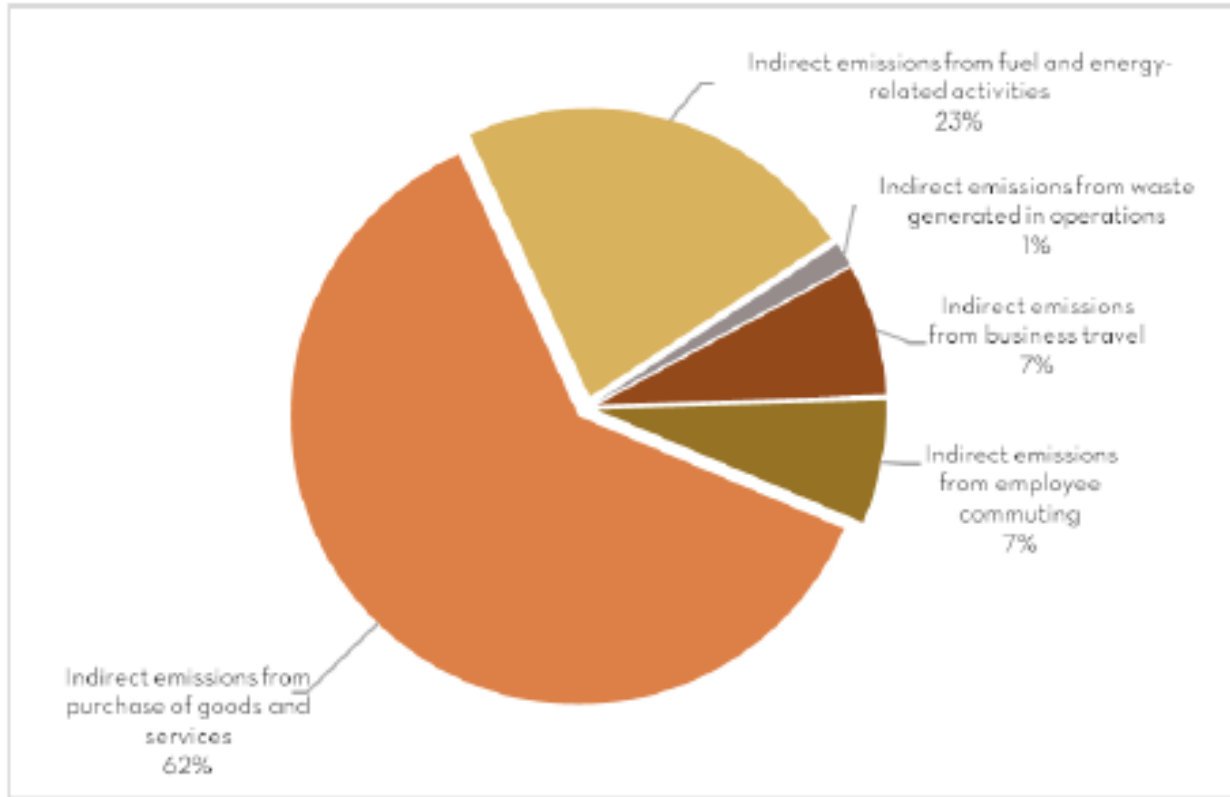


Figure 20. Breakdown of the indirect GHG emissions (Scope 3).

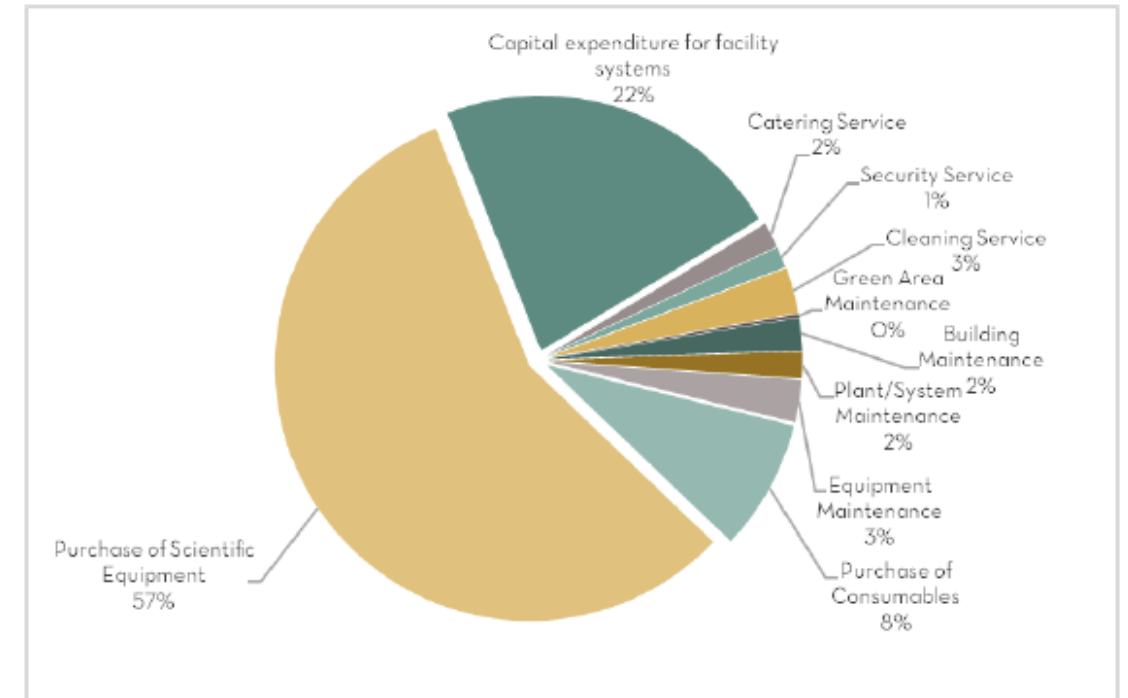


Figure 21. Breakdown of the indirect GHG emissions from purchase of goods and services.

COMPARISON WITH CERN

	2024		CERN 2022	% CERN
Direct GHG emissions (SCOPE 1)	22 137	38%	184 173	51%
Electricity indirect GHG emissions (SCOPE 2)*	12 329	21%	63 161	17%
Indirect GHG emissions (SCOPE 3)	23 826	41%	113 930	32%
TOTAL	58 292		361 264	

WATER FOOTPRINT

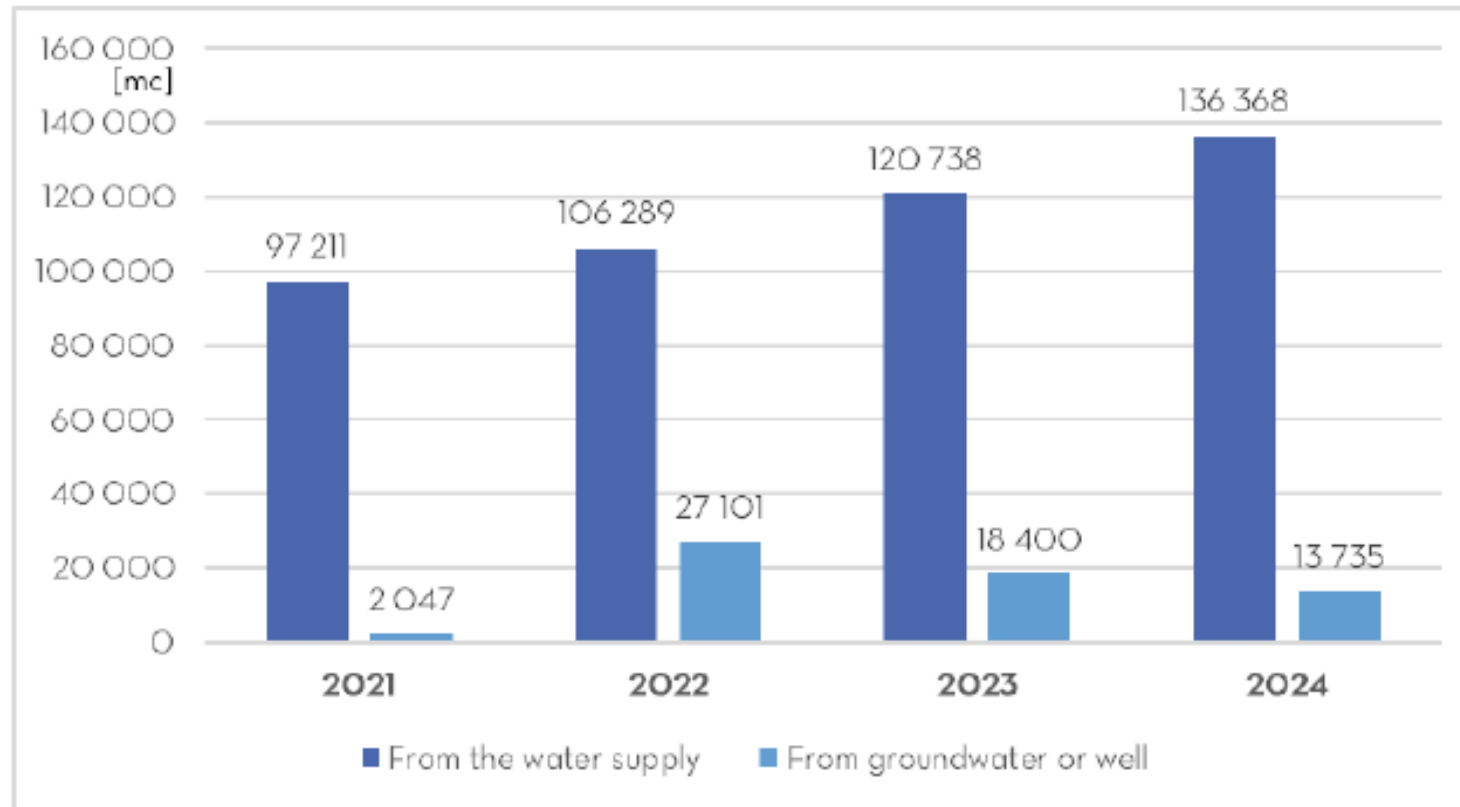


Figure 29. Total amount of water consumed [mc].

WATER FOOTPRINT IMPROVEMENT TARGET

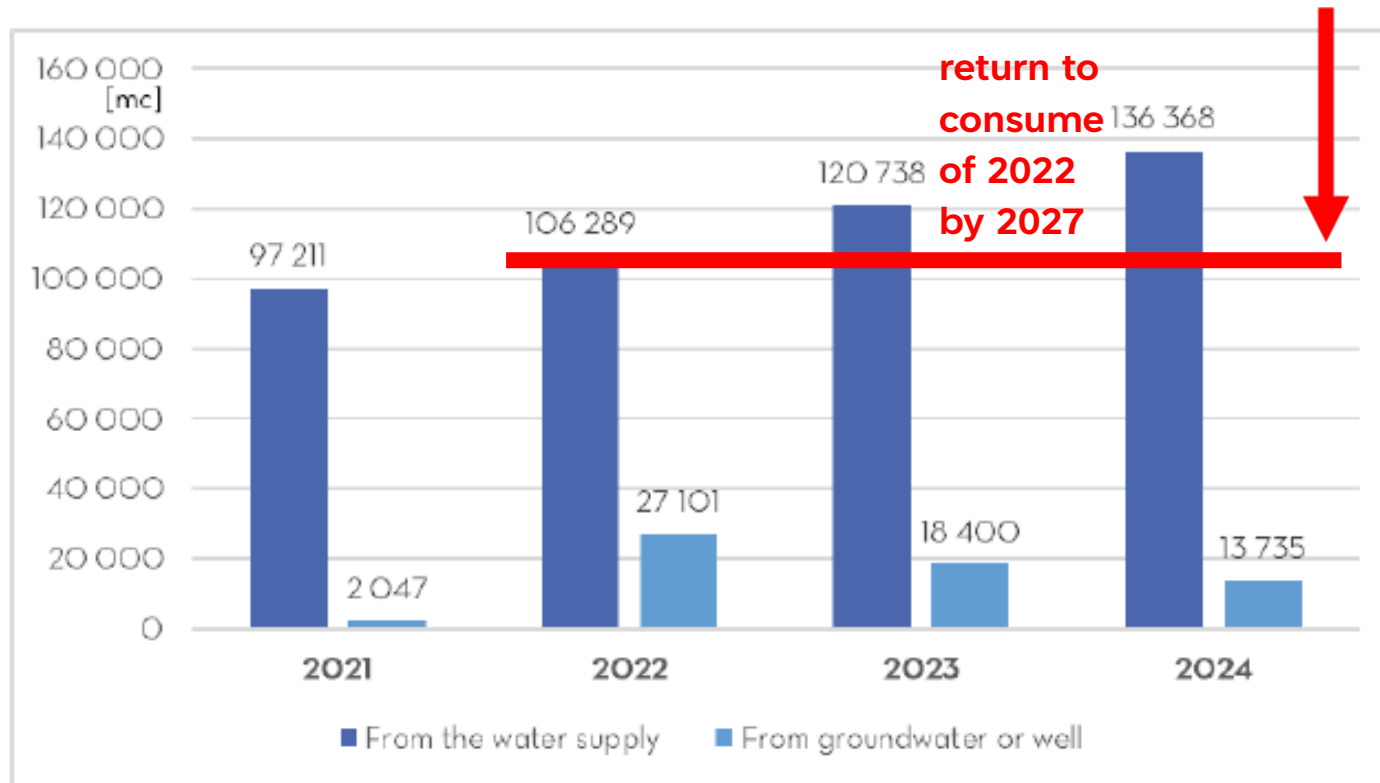


Figure 29. Total amount of water consumed [mc].

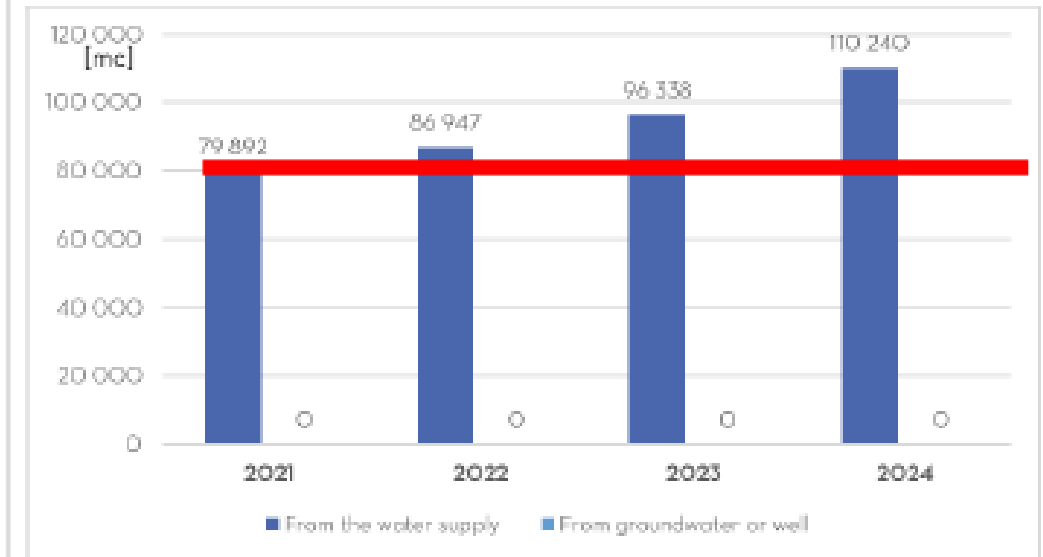
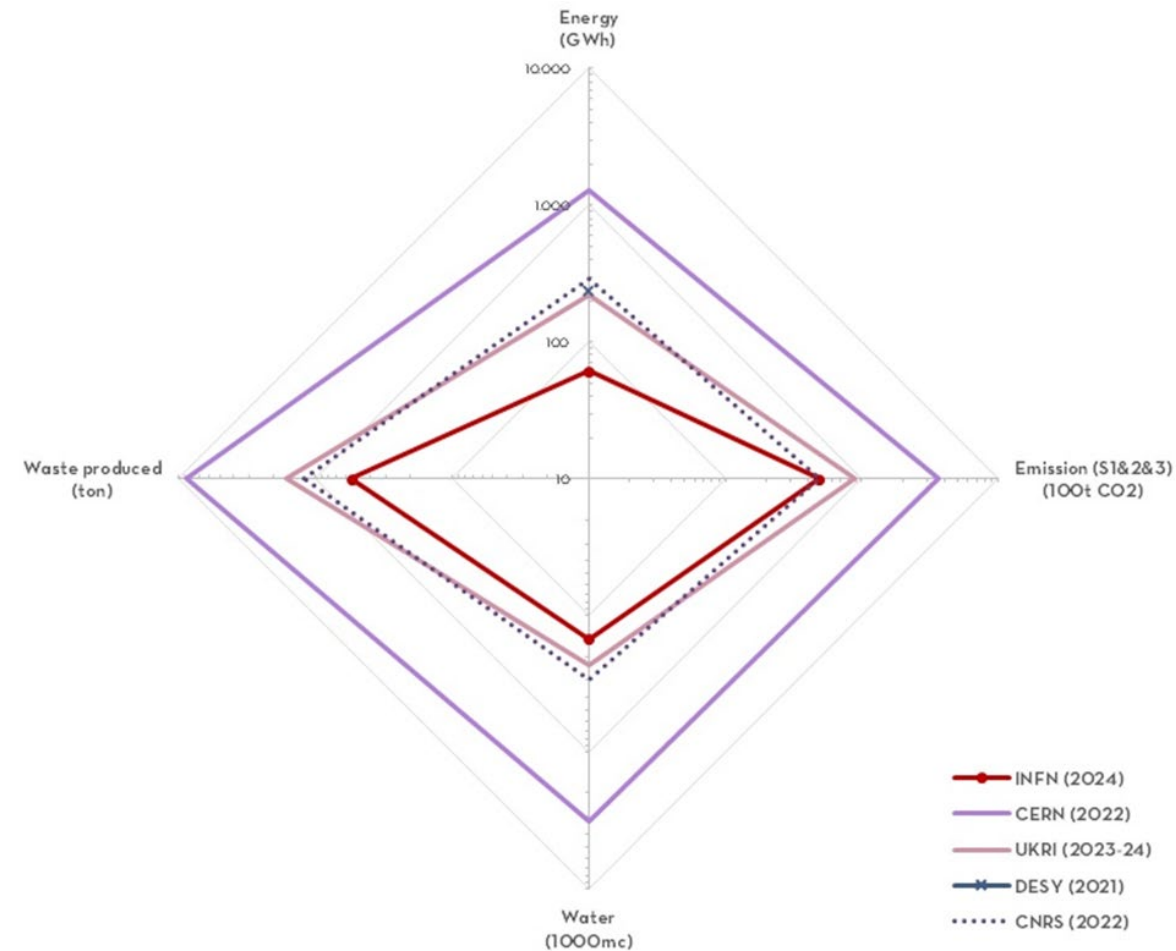


Figure 30. Water consumption by LNF [mc].

COMPARISON WITH OTHER RESEARCH INSTITUTIONS



	Energy (GWh)	Emission (S1&2&3) (100t CO2)	Water (1000mc)	Waste produced (ton)
INFN (2024)	61	583	150	546
CERN (2022)	1.270	3.613	3.234	8.822
UKRI (2023-24)	220	898	230	1.616
CNRS (2022)	287	489	300	1200
DESY	238			

CONCLUSION



ANY ADVICE IS WELCOME !

ENVIRONMENTAL CHALLENGES

- ☐ Map every environmental impact and most power-demanding systems.
- ☐ Improve our actions to reduce environmental impact and review more improvement targets.
- ☐ Collaborate with international research institutions, in particular CERN, to organise events and activities.

The INFN is funding a PhD fellowship on this topic

THANK YOU

