SOGIN

SUSTAINABILITY REPORT
2019

Sogin Group - Sustainability Report 2019
Approved by Sogin's BoD on 25 June 2020

SO.G.I.N. S.p.A. – Company limited by shares for the management of nuclear power plants
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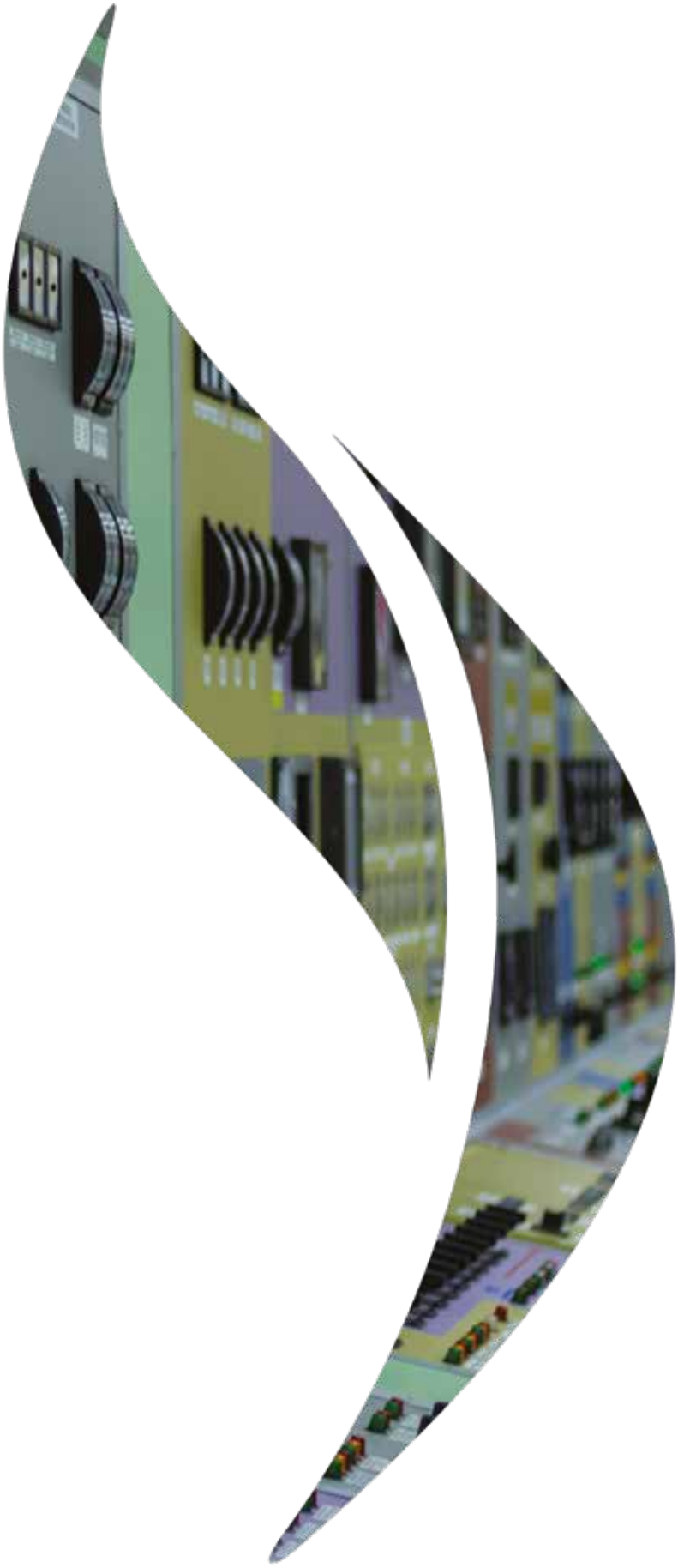

Sommario

Letter to Stakeholders

The 2019 edition of the Sustainability Report is a special one, as it does not only provide accounting details of the Group activities, but it also offers an opportunity to retrace the steps of the Group over the last 20 years.

We are proud to share with you the milestones of our development process which led us to grow in a sustainable way, placing the attention on environment and safety, a strong presence on the territory and trusty relations with our Stakeholders, at the core of our strategy.

The current Board of Directors took office in December 2019, after a year which recorded a significant reduction in the volume of decommissioning activities and was marked by a strong management and operational discontinuity. Despite this scenario of contraction, at the end of last year, we have achieved an important goal: we have completed the reclamation of the reinforced concrete "monolith" containing radioactive waste and buried in Pit 7.1 of Rotondella ITREC plant. The success of this activity, unique in the international panorama, emphasizes the highly qualified know-how of the Group and constitutes a best practice in nuclear remediation.

Since we took office, we have significant efforts to stimulate the Group's business operations. We started by revising the decommissioning programme according to the instructions provided by the IAEA within the Artemis Programme, and we continued by changing our organizational structure, to be more effective and create more synergies among our sites.

We worked intensively to prepare a soon to be published new Business Plan, aimed at the recovery of efficiency and focused on the core business, through the reopening of large construction sites and the launch of big environmental reclamation projects, which place the Sogin Group on the path to achieving ambitious undertakings in line with the New European Green Deal.

For the first time, our Sustainability Report describes the efforts undertaken by the Sogin Group to achieve the UN SDGs, with the implementation of decommissioning and radioactive waste management programmes, and, with the adoption of voluntary measures to ensure sustainability in the relations with Stakeholders and in the protection of the environment.

Year 2019 also showed a strong drive towards innovation with the development and launch of the AIGOR software. This software will enable to extend the stringent procedures adopted in the radioactive waste management to any sources and materials, including releasable ones, which account for previously produced materials, or those that will result from future nuclear decommissioning activities, thus generating a complete and certified set of data available to the future generations.

Moreover, once again, in 2019, the doors of our plants have opened to the public during a "green" edition of Open Gate, an event which combined the dialogue with our Stakeholders with the principle of environmental awareness. The plastic free initiative received moral support from the Ministry of the Environment and gathered thousands of citizens, families and young people interested in knowing more about our commitment in closing the nuclear fuel cycle.
Finally, since February 2020, we have had to face the COVID-19 emergency, which has posed a serious and unprecedented challenge for our country. In this framework, we have proved our readiness to action, with the adoption of timely measures not only to guarantee the safety of our employees and staff, but also to show our local commitment, especially in the most impacted areas, by putting our competencies and skills at the service of the national institutions.

Luigi Perri
Chairman

Emanuele Fontani
Chief Executive Officer

Our sustainability

Although sustainability has always played a major role in the activities of Sogin Group, over time, it has gained more and more importance in terms of core business management.
According to Sogin, being sustainable means combining the principles of sustainability within the business and corporate processes to improve the organization and, to increase the trust of the Stakeholders, both inside and outside the Company, by specifically meeting their expectations.
This is a journey of continuous improvement towards the achievement of the 2030 Agenda SDGs, and it requires the cooperation of all the Stakeholders involved.

Principles

1. **Transparency**, in the processes and decommissioning of the nuclear power plants in providing information concerning the dismantling work progress, the management of nuclear fuel and radioactive waste, and the environmental monitoring.

2. **Information**, through direct and indirect channels to promote the knowledge of Sogin's activities among its Stakeholders, including information concerning the management of possible critical situations.

3. **Engagement**, by fostering a structured dialogue with the Stakeholders to promote their actual participation and improve the economic, environmental, and social performance of Sogin Group.

4. **Accountability**, in addition to the first three principles, as the reporting responsibility of the Group towards its Stakeholders, in terms of management regularity and efficiency.

5. **Enhancement of the corporate know-how**, to maintain constant corporate development, strengthen corporate skills, and ensure the knowledge transfer among generations, through a system of cross training.

Processes

Sustainability underlines every corporate, decision-making, and operational process of Sogin Group, thus creating long-term sustainable value for all Stakeholders, both internal and external.

Sogin regularly evaluates and defines the priorities of its Stakeholders (materiality analysis) to draft a comprehensive sustainability reporting and to guide the strategic choices of the Group.

A sustainable approach is observed in every corporate process and in the main activities which contribute to the company core business, to always ensure the maximum nuclear safety of the Country.

- **Decommissioning** – the group of activities designed, authorised by competent authorities, and implemented in the nuclear sites, by evaluating their impact under an economic, social and environmental perspective;
- **National Repository** – the national project to protect future generations and finally close the nuclear cycle; the localization and construction of the Repository involve the engagement of local areas, as well as local and national institutions;
- **Environment** – any activity intended to perform the conventional and radiological monitoring of the areas where the nuclear power plants are located; these activities provide information to competent authorities and local communities;
- **Circular Economy** – implementing a strategy to minimize the quantity of waste produced and send a high proportion (approx. 89%) of dismantled materials for recovery;
- **Supply chain** – the adoption of green procurement and social responsibility, by also actively contributing to the development of a national decommissioning supply chain;
- **Human Resources** – the set of measures intended to protect the employees' health and safety and the staff management policies aimed at developing stronger know-how and professional skills;
- **Innovation** – the study and implementation of innovative technology solutions, often prototypical, to carry out nuclear decommissioning and foster sustainable development.

Stakeholders

Over the years, the Sogin Group has defined specific corporate structures and established several working groups to monitor the business processes with an impact on sustainability.

- The **Board of Directors**, in charge of evaluating and approving the business and industry plans to promote a sustainable business model and lay the foundations to create long-term corporate value. Moreover, the BoD approves the Sustainability Report and signs the Quality, Environment and Safety Business Policy.
- The **External Relations Office** identifies the expectations of its Stakeholders and guides the sustainability strategy, by adapting it to the specific needs of the areas in which the Company operates in.
- The **Sustainability Report Working Group**, part of the External Relations Office, drafts the yearly reporting document on corporate economic, social, and environmental performance for the Stakeholders.
- The **Circular Economy Working Group**, which is composed by professionals from different sectors, defines and implements circular economy strategies, in line with the guidelines provided by the Company's top managers.
- The **Joint Bilateral Committee on the Safety of Workers** composed by corporate and union members working to constantly improve the Company's safety standards.
- The **Committee for sponsorships**, which promotes sustainable initiatives in the territories where the Company operates in.

- The **Corporate Offices for risk management and control** in charge of identifying the main risks reported the Sustainability Report and, of verifying the corporate regulations and procedures for internal control and risk management on behalf of the Stakeholders.
- The Officer in charge of preventing corruption and ensuring transparency, who monitors the actual implementation of the measures to prevent corruption and the fulfilment of the transparency, information, and disclosure requirements.

Network

Sogin is constantly engaged in an open dialogue with its Stakeholders at various levels: national (Parliamentary Committees, Ministerial Round Tables, Environmental Associations, Associations representing consumers and businesses); Local (Regional Round Tables, Schools, Environmental Associations, Local Businesses); International (Round Tables with international trade organisations, especially those involved in adopting the principles of sustainability and circular economy to decommissioning and radioactive waste management).

Methodological note

Reading guide

Each year, the Sogin Group issues its Sustainability Report, a useful instrument to provide information about the Group's activities, achievements, and future economic, social, and environmental perspectives.
The document mainly refers to the 2019 financial year (01/01/2019 – 31/12/2019) and to some relevant activities carried out in the first half of 2020. The Report was approved by Sogin Board of Directors on 25 June 2020.

The 2019 reporting scope of Sogin Group Sustainability Report includes:

- Sogin (Parent Company) in charge of the safe maintenance and dismantling of Italian nuclear power plants and of radioactive waste management;
- Nucleco (of which Sogin holds 60% of its share capital), in charge of the treatment and interim storage of radioactive waste and sources resulting from medical and hospital activities and scientific and technological research activities.

The Sustainability Report is an official source of information of Sogin Group, it is intended for all its stakeholders and it includes data on the Company economic, industrial, social, and environmental performance.
To guarantee the comparability of data and information, and provide a clear picture of the Group's activities, the data and figures contained in the Report are compared, where possible, to those collected in the two previous financial years.
The figures provided in the Report were accurately calculated according to the results of the financial accounts and other information systems used by Sogin Group.
The use of estimates for the definition of indicators is limited, where used, the modality applied for their quantification is indicated.
In case of figures related to the Group single companies, reference is respectively made to "Sogin" and "Nucleco". Vice-versa, information concerning both companies and consolidated data are collected under the term "Sogin Group".
No limitations and changes have been adopted that can relevantly affect the comparability among periods.

Accounting principles and standards

The report was prepared to provide reliable, complete, balanced, accurate, understandable and comparable information, in line with the Global Reporting Initiative Sustainability Reporting Standards requirements issued by the Global Reporting Initiative (GRI) in 2016, and according to the "in accordance-core" option.

Starting from this year, the latest 2018 version of the GRI 303 (Water and Effluents) and the GRI 403 (Occupational Health and Safety) was adopted in the report.

Moreover, the document also complies with the principles of inclusiveness, impact, materiality, and compliance provided for in the AA1000 AccountAbility standard.

2030 Agenda

The 2030 UN Agenda for Sustainable Development, adopted in September 2015, defines 17 Sustainable Development Goals (SDGs), a new set of global goals to face the complex social challenges of our world.
Sogin adopts these goals as a reference in performing its strategic activities and ensuring the national safety.
For the first time, in this Sustainability Report, Sogin highlights the projects and activities that concur to the implementation of the 2030 Agenda and endorses a set of future commitments.

The following Table shows the Group's past (2019/2020) and future projects and activities with an impact on 5 out of 17 SDGs.

SDGS	DESCRIPTION	2019/2020 SOGIN'S ACTIVITIES	FUTURE COMMITMENTS
 **Health and Well-Being**	Establish Good Health and Well-Being for all	• Updating of the Organisation, Management and Control Model, comprising the new special "Environment, Health and Safety" section • Quality, Environment and Safety Policies • Information and training projects for the Stakeholders • Corporate Welfare	
 **Quality Education**	Provide Quality, Inclusive, and Equal Education to all	• Information and training projects for the Stakeholders • Training offered to the staff of Sogin Group, with a focus on safety, radioactive waste, and nuclear fuel management • Knowledge Management between men and women, for knowledge integration, enhancement and sharing • Partnership with Universities and Training Centres to train "future operators", namely young students and graduates in fields related to decommissioning and radioactive waste management • Traineeship Agreements • Subsidies for the educational needs of the children of the employees • Training on Green public procurement	

SDGS	DESCRIPTION	2019/2020 SOGIN'S ACTIVITIES	FUTURE COMMITMENTS
 **Sustainable Cities and Communities**	Making Cities and Communities more inclusive, safe, durable and sustainable	• Supply of PPE to the healthcare operators of the areas most impacted by COVID-19 among those in which Sogin operates in • Employee Volunteering (Team of Volunteers for COVID-19) • Sampling activity and specific radiological monitoring plan for each site • Verification of compliance with the limitations and/or reference levels of the current regulations and with the values of the discharging procedure of each site • Prompt reporting of risky situations, in terms of environment and health	• Employee Volunteering • Corporate giving Projects for COVID-19
 **Responsible consumption and production**	Guaranteeing sustainable production and consumption models	• Decommissioning and radioactive waste management activities • Digitalisation to promote the traceability and integrity of data related to radioactive waste, aiming at creating a set of data available to future generations. • Circular Economy Plan: minimisation of produced waste and maximization of the materials to be sent for recovery • "Plastic free" Project • Participation in the EWWR (European Week for Waste Reduction) • Green procurement • Environmental Sustainability Actions	• Construction of the National Repository and Technology Park • Completion of the decommissioning programme • Waste decontamination and treatment techniques • Development of a public blockchain-integrated software for the management of radioactive waste
 **Life on Earth**	Protecting, restoring and promoting the sustainable use of the Earth ecosystem	• Decommissioning Actions Plan to reduce the long-term environmental impact • Management of protected lands within the sites • Prompt interventions in case of environmental violations • Prompt reporting of risky situations, in terms of environment and health • "Plastic free" Project • Forest restoration around Latina nuclear power plant • Environmental Sustainability Actions	• Forest restoration

Facts sheet 2019

MISSION

DECOMMISSIONING OF THE ISPRA-1 REACTOR

Appointed by the Italian Government, Sogin ratifies the “Take-over Agreement” with the Joint Research Centre (JRC) of Ispra (Varese) and launches the dismantling works of the ISPRA-1 Reactor.

GOVERNANCE

NEW BOARD OF DIRECTORS

On 12 December 2019, the Shareholders’ Meeting renewed Sogin’s Board of Directors (BoD) for the three-year period 2019 – 2021. The new BoD is the following: Chairman, Luigi Perri; CEO and Deputy Chairman, Emanuele Fontani; Directors: Raffaella Di Sipio, Luce Meola and Enrico Zio.

DECOMMISSIONING

REMOVAL OF THE MONOLITH FROM PIT 7.1

In December 2019, Sogin completed the reclamation of the reinforced concrete “monolith” containing radioactive waste and buried at a depth of 6 metres in Pit 7.1 of Rotondella ITREC plant. The success of this activity, unique in the international panorama, emphasizes the highly qualified know-how of the Group and constitutes a best practice in nuclear remediation.

WASTE MANAGEMENT AND INNOVATION

BLOCKCHAIN APPLIED TO RADIOACTIVE WASTE MANAGEMENT

Sogin launched the development of a new blockchain-based software for the management of radioactive waste, the AIGOR (acronym for IT Software for the Management of Radioactive Materials) software. This public and free software will guarantee the traceability and safe storage of data on the Italian radioactive waste, thus creating a set of data available to the future generations.

STAKEHOLDER ENGAGEMENT

OPEN GATE'S THIRD EDITION

On 13 and 14 April, Sogin organised the third edition of Open Gate: a two-day public event dedicated to transparency and information. The event gathered about 3,000 people who visited the nuclear power plants of Trino, Caorso, Latina and Garigliano undergoing decommissioning. Given the high level of involvement and the broad participation of the Stakeholders, this is the biggest communication event held by the Company.

INTERNATIONAL

IAEA COLLABORATING CENTRE

Alongside the 63rd General Conference, Sogin was appointed IAEA (International Atomic Energy Agency) *Collaborating Centre* for the promotion of technical innovations, knowledge transfer, and nuclear decommissioning education and training.

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SOGIN GROUP

About us

Sogin is the State-owned company responsible for the Italian nuclear power plants decommissioning and radioactive waste management, including that produced by industrial, research and nuclear medicine activities. All these activities aim at guaranteeing the citizens' safety, safeguarding the environment, and protecting future generations.
Entirely owned by the Italian Ministry of Economy and Finance, Sogin works according to the strategic guidelines provided by the Italian Government.

Nucleco

In 2004, Sogin becomes a Group by acquiring 60% of Nucleco, the company engaged in the integrated management of waste and radioactive sources, in the decommissioning of nuclear installations and in the decontamination of industrial sites. For the remaining 40% of share capital, Nucleco belongs to ENEA, the National Agency for new technologies, energy and sustainable economic development.

Nuclear power plants and facilities

In addition to the four Italian nuclear power plants of Trino (Vercelli), Caorso (Piacenza), Latina and Garigliano (Caserta) and the FN of Bosco Marengo (Alessandria), Sogin manages the decommissioning of the former fuel cycle research facilities: EUREX of Saluggia (Vercelli), OPEC and IPU of Casaccia (Roma) and ITREC of Rotondella (Matera).
The Company is committed in closing the entire Italian nuclear power cycle.
With the 2018 Italian Budget Law, Sogin was appointed for the decommissioning of the ISPRA-1 reactor, located in the Joint Research Centre (JRC) complex of Ispra (Varese).

National Repository and Technology Park

Sogin is responsible for siting, designing, building, and operating the National Repository, an environmental surface facility for the safe long-term storage and disposal of all radioactive waste. Along with the National Repository, a Technology Park will be also created to host a research centre, open to international cooperation, in the field of nuclear decommissioning and radioactive waste management.

International presence and acknowledgments

Thanks to more than 20 years' experience in the field, the Group is involved in several nuclear decommissioning and radioactive waste management projects abroad, and it operates through its foreign offices in Moscow (Russia) and Bratislava (Slovakia).
The Group's main working areas are:

- Development of relationships and collaborations with international bodies and foreign, public and private, operators, to foster the exchange of applicable know-how in the decommissioning of Italian nuclear power plants;

- Commercial development with the acquisition of projects, studies, consultancies and technical services on the dismantling of the plants, the management of radioactive waste, as well as on safety and radiological protection;
- Support to Italian institutions to comply with the provisions of international treaties and commitments.

In 2019, the International Atomic Energy Agency (IAEA) awarded Sogin a prestigious acknowledgement including it among its Collaborating Centres.
The Company commits in providing its support to the IAEA, within the "Nuclear Power, Fuel Cycle and Nuclear Science" programme, through: research and development activities in the field of robotics and characterisation systems, in partnership with international bodies and organisations; knowledge transfer and training; implementation of innovative instruments to plan, schedule and carry out nuclear decommissioning and radioactive waste management activities. This acknowledgment is an international capstone of Sogin's 20 years' international experience, and partnership with the IAEA. Said partnership has strengthened over the last three years, with the 2017 Peer Review on the entire Italian nuclear decommissioning programme, carried out by the Agency upon request of the Italian Government. The collaboration with the IAEA continued in 2018 with a Technical Review carried out on the dismantling operations of the reactors of Trino and Garigliano nuclear power plants. Year 2019, instead, focussed on sustainability and the adoption of the principles of circular economy in decommissioning operations; these topics were discussed during a workshop held in Rome and attended by experts from Sogin and the IAEA and other industry professionals.

PROTECTING THE PRESENT

Carrying out the decommissioning and the safe maintenance of Italian nuclear power plants, to restore the “green field”, a condition free of radiological restrictions, and return the site to the community for its reuse.

Managing the radioactive waste generated by electricity production, nuclear power plants decommissioning operations, industrial activities and nuclear medicine and scientific and technological research activities.

Closing the Italian nuclear power cycle by siting, designing building and operating the National Repository and Technological Park for the long-term safe storage of radioactive waste.

Reducing the environmental impact of decommissioning activities by minimising the amount of radioactive waste and by implementing production procedures that allow the recycling and reuse of recyclable materials.

ENSURING THE FUTURE

20 years of Sogin

Sogin's history started 20 years ago, but our roots lie in a pioneering era. In 1999, we took up the torch of a challenge launched – back in the Thirties - by a group of young Italian physicians: the Via Panisperna Boys. In 1942, the research carried out by this group of scientists, led by Enrico Fermi, allowed perfecting the first nuclear reactor in the world.

From the late Fifties to the early Sixties, this extraordinary experience led Italy to the construction of three nuclear power plants – the first and most powerful in Europe at that time -, thus becoming the third international power in the field of civil nuclear technology. A fourth nuclear power plant was opened in 1981, but the Chernobyl accident in 1986 and the following referendum held in 1987, marked the permanent closure of the nuclear experience in Italy.

In this framework, the Country launched a programme of "passive protective custody" for its nuclear facilities and power plants, namely a set of measures to ensure the safe maintenance of the facilities, and enable the natural decay of most of the radioactivity in the power plants.

Only in 1999 Italy decided to face a new pioneering challenge, acting as a forerunner in the decommissioning of its four nuclear power plants.

Against this backdrop, the Sogin Company was first established to manage the safe maintenance, decommissioning and radioactive waste management of both, the Italian nuclear power plants, and the fuel cycle research facilities.

At that time, we were only 591 employees. Some of us felt the weight of dismantling their place of work; many others were thrilled to be involved in a new adventure; all of us felt the responsibility to serve their Country.

In the first years, our activities focused on the safe maintenance, the design of interventions and the management of the authorization procedures.

The objective of our work was the dismantling of facilities and power plants which were never intended to be deactivated. Once again, we had to deal with design and technological challenges, as in the past.

We were among the first in the world to face complex issues such as the fuel management approach, from the initial dry storage to the reprocessing treatment abroad; difficult authorisation procedures involving national and local entities and institutions; the age of the facilities which often required extraordinary investments and unexpected maintenance works. Along with these issues, the Company had to face the procurement process, which often proved to be more complex than originally expected, requiring changes in terms of regulations, resources, and know-how to carry out the operational and decommissioning activities.

These criticalities have been overcome. We managed to send almost all the nuclear fuel – which accounts for more than 99% of the radioactivity of a power plant - abroad for reprocessing. All the decommissioning requests have been approved and many authorisations have been obtained. The extraordinary maintenance works and many prototype projects, which enabled the dismantling of the systems needed to operate the nuclear power plants, have been successfully completed.

Since 2004, thanks to Nucleco, we are involved in the management of radioactive waste resulted from nuclear medicine, industry, and research activities. We are at the forefront of the remediation of contaminated sites, such as the Cemerad repository in Statte (Taranto).

Furthermore, we are working to build the National Repository, a facility intended for the safe storage of all Italian radioactive waste. To this end, we will guide the first public consultation, required by law, to reach a common agreement on the definition of the best Italian location to build this strategic facility.

We have been through countless ups and downs in this journey started at the end of the last century, but we have never stopped.

Thanks to this fruitful experience, we took part in international projects and events in the field of nuclear decommissioning and radioactive waste management, and we have opened two operational offices abroad, in Moscow and Bratislava.

Our decommissioning programme was the first to be reviewed by the International Atomic Energy Agency (IAEA) and it is now a landmark for those countries that intend to dismantle their nuclear power plants.

Over the last 20 years, our community has grown, changed, and it now accounts for 13 offices in Italy and abroad.

Our growth came hand in hand with our commitment towards sustainable development. Since the very beginning, we have paid attention to sustainability, by ensuring the safety of our staff and the protection of the generations to come.

Through the implementation of structured projects and initiatives, we have improved transparency, information, and dialogue with the communities of the areas we operate in. The same applies to the relationships with our business partners - with which we have established strong synergies aimed at creating an Italian nuclear decommissioning sector -, and with the environmentalist associations that share our commitment towards the protection of the environment.

The release of the first social report triggered a structured sustainability accounting process. Similarly, we defined and launched a plan to reduce the consumption of plastics in our workplaces, thus promoting good environmental practices and more awareness among our employees, as everyone can do their part for the planet.

We supported our staff in acquiring new skills, improved their unique know-how, and promoted a widespread diffusion of the safety culture among younger generations, through schools and universities.

We built trust among our stakeholders and opened the doors of our power plants to all: institutions, associations, and citizens. The Open Gate initiative totally proves it.

As we deal with the Italian nuclear panorama, we also look ahead, by adopting "greener" decommissioning solutions, which reduce the environmental impact, produce less waste and use available resources, such as adapting pre-existing buildings to repositories, instead of building new ones.

We have made of innovation our cornerstone, through the implementation of prototypical projects to face the challenges posed by decommissioning and sustainable development. Now, we are exploring the chances of the blockchain applied to the radioactive waste management, to store this useful data and make it available to future generations.

Thanks to our treatment and decontamination techniques, we are now able to recover almost 90% of dismantled materials, thus proving that the good practices of circular economy can be adopted in complex sectors such as the sector of nuclear decommissioning.

Finally, as those appointed to build the National Repository, we are also carriers of a model of social, economic, and environmental sustainability for the promotion of the area that will host the new facility. Our mission is far from being completed. Although the path we are walking in proved to be harder than expected, our resolve and commitment are the same as ever.

Below, a list of the main achievements carried out by Sogin over the last 20 years, including relevant actions in terms of sustainability divided by type and year.
For further information on the decommissioning activities, please refer to the chapter “Closing the Italian nuclear fuel cycle” that provides the specific details of each nuclear site, and a focus on the most sustainable projects (works #SoginSostenibile).

This document also provides detailed information on the sustainable actions carried out in 2019; further information on previous activities is available on the official website sogin.it, in the section dedicated to the previous Sustainability Reports.

	Istitutional
	Decommissioning
	Corporate Social Responsibility
	National repository and technology park
	International

20 YEARS OF SOGIN

1999		• Originally established on 31 May, Sogin starts operating on 1 November, with the conferment of the Enel nuclear branches.
2000		• Following the sale of the Enel shares, the Company becomes fully owned by the Ministry of Economic and Financial Affairs.
2001		• The Ministry for Economic Development provides its strategic-operational guidelines to Sogin. • Sogin presents a decommissioning programme for Trino, Caorso and Garigliano power plants.
2002		• Sogin presents its decommissioning programme for Latina power plant.
2003		• Sogin is appointed the decommissioning of the Casaccia, Rotondella and Saluggia plants.
		• The dismantling of the cooling towers of Trino power plant is completed.
		• Sogin obtains the first UNI EN ISO 9001 certification.
2004		• The Sogin Company acquires the 60% of Nucleco’s share and becomes Sogin Group. A Ministerial Decree is issued to update the strategic-operational guidelines of the Company.
2005		• Sogin acquires the ownership of the Bosco Marengo Nuclear Fabrications (FN) plant to carry out its decommissioning.
		• The dismantling of the thermal cycle of Trino power plant is completed and the barrier of the Po river is demolished.
		• The Ministry for Economic Development appoints Sogin the coordination of the activities provided for in the Italy-Russia Cooperation Agreement (Global Partnership) and a Sogin office opens in Moscow.
2006		• Italy and France ratify an Agreement for the treatment of irradiated fuel; the contract between Sogin and Areva (now Orano) is also ratified.
		• The construction of the New Waste Storage Tank Facility, a bunker structure for the storage of liquid radioactive waste in Saluggia, is completed.
		• Sogin issues the first Social Report and launches a structured process of sustainable accounting for the Stakeholders.
2007		• The fuel of the EUREX plant is transferred to the Avogadro Storage Facility of Saluggia, to be subsequently sent to France.
2008		• Sogin obtains the authorisation for the deactivation of the Bosco Marengo plant.
		• The dismantling of the cooling towers of Caorso power plant is completed. • The emptying the pool of the Saluggia EUREX plant is completed
		• The Radwaste Management School is established. • The technical and behavioural corporate competences are assessed, and the HR development and training programmes are defined. • Sogin promotes the enhancement of local communities through cultural, social, and environmental corporate giving events (donation of obsolete PCs to local schools and associations). • The “Infopoint” project is implemented with the opening of information kiosks in the Municipalities that host the nuclear power plants. • Sogin implements the initiative “Immaginario Nucleare”, comprising a publication and a photo exhibition on the history of the Italian nuclear facilities realized by the artist Armin Linke and written by Tommaso Pincio.

2009		• The construction works of the new substation in Rotondella are completed, as well as the demolition of the old substation; the new substation is connected to the discharge pipe at sea. • The Material Management Station implemented in the premises of the turbine building that previously hosted the thermal cycle system in Caorso, starts operating.
		• The nuclear power plants open for the first time to the public, with guided tours offered to institutions, media, associations, and schools. • The "Progetto Scuola" (School Project) is launched; it starts with a pilot project in Caorso about the implementation of decommissioning training and involvement programmes among primary schools.
2010		• The transfer operations of the nuclear irradiated fuel of Caorso power plant to France are completed.
		• The Decree Law n. 31/2010 appoints Sogin the task of localizing, designing, implementing and managing the National Repository and Technology Park (NRTP).
		• A Stakeholder engagement process dedicated to businesses and trade unions is launched in the areas in which Sogin operates for the qualification of suppliers and the promotion of the procurement programme. • Sogin ratifies the Charter of Principles on Environmental Sustainability of Confindustria.
2011		• Sogin signs the Legality Protocol with seven Police Headquarters in the areas undergoing decommissioning activities.
		• The nuclear fuel production plant of Bosco Marengo is dismantled. • The pier in Latina power plant is demolished.
		• Sogin becomes a full member in the CARBOWASTE project of the European Commission for the characterisation and treatment of irradiated graphite. • For the first time, Sogin takes part in the Forum on Stakeholder Confidence (FSC) of the OECD-NEA to share relevant international experiences on the Stakeholders engagement in decommissioning activities.
		• Launch of the "People Care" Project, namely events dedicated to the employees and aimed at promoting a better balance between private and professional life. • Sogin reconfirms its implementation of its "Quality, environment and safety policies".
2012		• Sogin obtains the authorisation for the deactivation of Trino and Garigliano power plants.
		• The first set of contaminated Glove Boxes in Casaccia IPU plant is dismantled. • The turbine of Caorso power plant is dismantled. • Launch of the treatment and conditioning of the radioactive waste resulted from the dismantling of the Fuel Elements Manufacturing Plant in Saluggia.
		• First sustainable mobility initiative: the employees of Sogin's main headquarters benefit from free public transportation.
2013		• The demolition of the chimney of the Off-Gas building in Caorso nuclear power plant is completed. • The demolition of the turbine building of Latina nuclear power plant is completed. • The new interim storage facility (D1) and the former diesel storage facility of Garigliano power plant start operating.
		• Sogin obtains the first UNI EN ISO 14001 certification. • Sogin broadens its participation in national and sector events (i.e. Ecomondo) to share its activities and promote reclamation and environmental protection projects. • Within the framework of the experimental project for the biological control of natural parasites in green public areas, Sogin, in partnership with the Municipality of Latina, hold an event to set 10,000 ladybugs free in Latina's public gardens.
2014		• Sogin obtains the authorisation for the deactivation of the Caorso plant.
		• Sogin wins the international bidding to provide technical assistance to JAVYS for the dismantling of the Bohunice nuclear power plant.
		• The actions provided under the GTRI are completed, the US nuclear materials contained in the Casaccia, Saluggia and Rotondella plants are repatriated. • The reclamation of Trenches 2 and 3, containing low-level radioactive waste, of Garigliano nuclear power plant is completed.
		• Following the introduction of the localisation criteria on behalf of ISPRA (now ISIN), Sogin carries out an analysis of the Italian territory and drafts the National Map of Potentially Suitable Areas (CNAPI) in partnership with Universities and research centres. Launch of the information, transparency, and engagement activities in preparation for the public consultation on the NRTP.
		• Sogin obtains the OHSAS 18001 certification. • For the first time, Sogin takes part in the "European Researchers' Night", the EU event to promote scientific research among citizens. • Launch of the "Learning and Working" project. This training project on decommissioning, radioactive waste management, environmental protection, safety, and energy involves the schools located in the areas in which the Sogin Group operates in.

2015		• Sogin starts the operations in Bohunice and opens an office in Bratislava, Slovakia.
		• The transfer of the irradiated nuclear fuel from Trino to France is completed. • The new interim storage facility of Latina power plant starts operating.
		• The proposal for the National Map of Potentially Suitable Areas (CNAPI) is submitted to ISPRA (now ISIN), a validation investigation is carried out with subsequent communication to the competent Ministries to obtain the authorisation for its publication.
		• First edition of Open Gate, the event provides for the opening of the sites under decommissioning to the public. We are now at its third edition. • Sogin obtains the first EMAS registration for the Caorso power plant. • Awareness-raising and training activities on safety on the workplace are provided to the corporate employees (Safety Walk; Information campaign “Sicurezza mezza bellezza”).
2016		• The removal of the underground tanks (Waste A and B) in the Casaccia OPEC plant is completed. • The RE.MO. portal containing figures on the environmental monitoring of nuclear plants and decommissioning works is online.
		• Launch of the project “NoiSogin” (WeSogin) to engage the corporate employees in the strategies and objectives of the Group. The event includes a Convention in the main headquarters and information campaigns online. Launch of the Talent Pool Project for the development and enhancement of junior and senior professionals.
2017		• Launch of reclamation works in the Cemerad storage facility in Statte (Taranto). • Completion of the dismantling of the chimney in Garigliano nuclear power plant. • First transfer of radioactive sludge and resin tanks and casks outside Caorso power plant for treatment in Slovakia. • The reclamation of the KCFC pit in Latina is completed. • Launch of the transfer of solid radioactive waste from the Bosco Marengo plant to Nucleco for treatment and conditioning.
		• The International Atomic Energy Agency (IAEA) carried out a peer review on Sogin’s entire decommissioning programme.
		• Launch of the “Mentoring” Project, aimed at developing a leadership model and transfer the know-how, with the participation of the Valore D association. • Launch of the “Supply Chain” Project, in partnership with Confindustria, regarding the organization of workshops for businesses and meetings with local entrepreneurs.
2018		• The hot tests and radioactive sludges conditioning in LECO facility (Latina Extraction and COnditioning) are successfully concluded. • The turboalternator of the thermal cycle of the turbine in Garigliano power plant is dismantled. • Development of the Executive Project to melt the metals resulted from the decommissioning of Trino power plant abroad. • The interim storage facility OPEC-2 of Casaccia obtains the operating authorisation.
		• Sogin takes part to the Week of Business Culture – held by Confindustria and Unindustria Roma Frosinone Rieti Viterbo Latina – and to the European Campaign “2018-19 Healthy Workplaces Manage Dangerous Substances”, promoted by EU-OSHA and Inail, and opens the doors of the Latina power plant to 150 visitors. • First event “Children at work with mum and dad”, a day intended to make the children discover their parent’s workplace. • Launch of the “Plastic Reduction” Project to foster the reduction of disposable plastics in the workplace and to raise awareness towards good environmental practices. • First participation of Sogin to the EWWR (European Week for Waste Reduction) with an event on circular economy in nuclear decommissioning.
2019		• Sogin ratifies the “Take-over Agreement” with the Joint Research Centre (JRC) of Ispra (Varese) and it is conferred the ISPRA-1 Reactor. The documents needed to submit the request for deactivation are drafted, which will be submitted in 2020.
		• Successful reclamation of Pit 7.1 with the removal of the “monolith” in Rotondella ITREC plant; the bidding to complete the construction of the interim storage facility DCUBIC METRES3 of the Final Product Cementation Plant (ICPF) is published. • The interim storage facility D2 of Saluggia obtains the authorisation to operate; Sogin launches the works to complete the D3 interim storage facility, included in the CEMEX Complex. • The adaptation of premise B106 in Bosco Marengo to interim storage facility for radioactive waste is completed. • The major structural and infrastructure works of the building for the Cutting Facility in Latina power plant are completed. • The intake works of Garigliano power plant are completed.
		• Sogin is appointed IAEA (International Atomic Energy Agency) Collaborating Centre. • Sogin organizes the first IAEA workshop on circular economy in the field of nuclear decommissioning with international businesses and professionals.
		• Open Gate, at its third edition, becomes a plastic free event, and it receives the moral sponsorship of the Ministry of the Environment. The online campaign “Il mio impegno plastic free” (My plastic free commitment) is promoted during the event.

Radwaste Management School

Structure and objectives

The Radwaste Management School is the training centre of the Sogin Group which ensures high-level professional updating and promotes managerial and technological innovation based on the experience and specialized know-how related to the issues of decommissioning and waste management radioactive, which make the Group a major player in the national and international industrial panorama.

Founded in 2008, it is also open to professionals coming from institutions and companies and represents a reference point for safety management in industrial processes.
The RMS is part of the strategic assets for achieving the mission of Sogin and Nucleco. The development of a highly specialised know-how is part of the Sogin strategy to guarantee maximum safety and implement an integrated knowledge management, education, and training system. This is done to transfer skills to future operators and satisfy the increasing - international and national - demand for specialized knowledge in this sector.

Training

Training: train the resources of the Sogin Group, with special attention to the safety, management of radioactive waste and nuclear fuel

Managing awareness

Knowledge management: ensure integration, enhancement and sharing of the *knowledge management* system

Dialogue

Dialogue: dialogue with universities and training centres to strengthen the training network

New excellence

New excellence: Train "future operators", for example, university and high school graduates in subjects related to the decommissioning and radioactive waste management

The training programme of the Radwaste Management School (RMS) ensures the best standards of innovation, multi-disciplinarity and a specific focus on decommissioning and radioactive waste management. Programmes are constantly updated, to meet the mandatory requirements and training obligations of the Sogin Group, mostly in accordance to the integrations of the Consolidated Act on the protection of health and safety in the workplace (Legislative Decree No. 81/2008) and, for the subjects specifically related to nuclear activities, according to the Legislative Decree No. 230/1995 and subsequent amendments and integrations.
The courses offered, both general and specific, focus on technical and scientific subjects, such as technologies of nuclear power plants or radiological protection.

Certifications

The School is certified with UNI EN ISO 9001/2015 (Quality Management system), ISO 14001/2015 (Environmental Management System), OHSAS 18001/2007 (Safety and Health in the Workplace) for sector EA37 (training). It is also recognized by the National Nuclear Safety Authority (ISIN) as a qualified organization, in accordance with Article 58-ter of Italian Legislative Decree No. 230/1995, to provide specific training courses for Sogin staff and suppliers involved in nuclear decommissioning, safe maintenance and management of spent fuel and radioactive waste. The certification issued by the RMS is valid in Italy.
The School also provides special and specific training courses for suppliers with specific needs.

Partnerships and collaborations

The School is also constantly committed in developing partnerships with accredited bodies, universities, scientific associations, research, and development bodies, also at an international level. The institution is involved in university training, through seminars and graduate and post-graduate courses.

Areas	Activities
Advanced Training in Italy	• First level master's degree on decommissioning and hazardous radioactive waste management with the University of Eastern Piemonte (UPO) and the "Aldo Moro" University of Bari, with master's degrees awarded to the students who joined the two courses. • Training support in the first and second level international master's Degrees in "Protection from CBRN events" at Tor Vergata University, through an ongoing partnership (2014-2019). • Teaching assignment in the second edition of the "Strategy Energy Management Systems" Master at "La Sapienza" University of Rome. • Collaboration Agreement with the Chemistry Department in the field of radiological characterisation of nuclear sites and optimisation of the reclamation strategy. • Partnership with CIRTEN (National Intra-university Association for Nuclear Technological Research), to train Sogin staff on nuclear safety and to perform studies and research on the correct management of radioactive sources and waste, and on technological and engineering issues connected to decommissioning activities. • Launch of shared programmes with INAIL, for research, training, and technological innovation on the decommissioning of nuclear power plants and on radioactive source and waste management, aimed at promoting protection and prevention for workers and population. • Partner of the Highly Specialised Competence Centre managed by "Sant'Anna" School of advanced Studies. • Partner in school projects and specific graduate and post-graduate courses, especially at "La Sapienza" University of Rome, LUMSA and LUISS in Rome.
International Advanced Training	• Partnership with the International Summer School on Nuclear Decommissioning and Waste Management managed by the Joint Research Centre of the European Commission with the IAEA, Milan University of Studies, and the Italian Association on Radiological Protection (IRPA - AIRP). • Partnership with the European Project ELINDER (European Learning Initiatives for Nuclear Decommissioning and Environmental Remediation), sponsored by the JRC, which aims at training professionals to be employed in decommissioning and waste management activities. • Teaching assistance at Politecnico di Milano in 2018 to provide a three-week course on radioactive waste management to the representatives of the safety authority and nuclear staff of the People's Republic of China within the framework of the "Cooperation program for environmental protection" programme, ratified by Italy and China. • Decommissioning and Waste Management international course, held in 2019, for the representatives of the South-Korean company Doosan entitled "Technical advice on the field of project management for NPP Decommissioning". • Participation to the NEST Project organized by the NEA/OECD, led by ROSATOM, which provides for the delivery of, in kind, training on the job courses for young professionals and students from Europe; the courses included in the project named "i-graphite RWM", cover the three-year period 2020-2022.
Local Advanced Training	• Technical and scientific seminars and courses in the nuclear plants and facilities, for young high-school graduates and students in line with the "Learning and Working" project.

The RMS educational offer has been adapted to the regulatory changes, as for the mandatory training, and to the following updates concerning the tasks of the employees of the Group. The changes adopted in the offer resulted in an increase of 30% in the number of training courses over the last three-year period.

2019 RMS PERFORMANCE

More than 800 individuals employed in Sogin and Nucleco took part to 227 mandatory corporate training courses in 2019 provided by the RMS (with an increase of 22% compared to the courses provided in 2018). Total teaching hours amount to 2,803, of which approximately 98% provided for the training of the Sogin Group staff. 96 teachers from Sogin worked for a total of 1,159 hours.

Training hours provided in 2019

Hours divided by type and target	Hours
Nuclear Safety	**16,350**
Hours provided to Sogin Staff	15,267
Hours provided to Nucleco Staff	322
Hours provided to the staff of external companies and organizations	761
Safety in the Workplace	**7,216**
Hours provided to Sogin Staff	7,093
Hours provided to Nucleco Staff	61
Hours provided to the staff of external companies and organizations	62
TOTAL	**23,566**

Hours divided by gender

	Nuclear Safety	Safety in the Workplace	Total
Women	**4,627**	**1,239**	**5,866**
Sogin	*4,497*	*1,235*	*5,732*
Nucleco	*130*	*4*	*134*
Men	**10,962**	**5,915**	**16,877**
Sogin	*10,770*	*5,858*	*16,628*
Nucleco	*192*	*57*	*249*
TOTAL	**15,589**	**7,154**	**22,743**

Hours divided by professional profile

	Nuclear Safety	Safety in the Workplace	Total
Managers	**214**	**42**	**256**
Sogin	214	42	256
Nucleco	0	0	0
Executives	**3,300**	**781**	**4,081**
Sogin	3,252	781	4,033
Nucleco	48	0	48
White Collars	**9,916**	**3,783**	**13,699**
Sogin	9,742	3,763	13,505
Nucleco	174	20	194
Blue Collars	**1,877**	**2,436**	**4,313**
Sogin	1,777	2,395	4,172
Nucleco	100	41	141
Fellowship/Traineeship	**60**	**18**	**78**
Sogin	60	18	78
Nucleco	0	0	0
Employees seconded by ENEA	**222**	**94**	**316**
TOTAL	**15,589**	**7,154**	**22,743**

Authorisation system and recognition of incurred costs

The activities implemented by Sogin are subject to the approval and authorisation of several institutions: national and local authorities, and the Supervisory Authority (ISIN), National Authority for Nuclear Safety and Radiation Protection. Moreover, Sogin is subject to the controls and regulations of the Italian Regulatory Authority for Energy, Networks and Environment (ARERA), implemented through a regulatory system based on the approval of an annual budget and its final balance.

Authorisation system

Any activity carried out by Sogin is subject to systematic controls performed by competent authorities and institutions (i.e. MiSE – Ministry for Economic Development; ISIN; MATTM – Ministry of Environment, Territory and Sea Protection; Regional and Municipal Authorities) in compliance with the guidelines provided by the International Atomic Energy Agency (IAEA) and the national regulation, among the most stringent in Europe.

The main authorisation to be obtained to carry out the dismantling of a nuclear power plant is the Deactivation Decree, issued by the Ministry for Economic Development, after consultations with the Ministries of Environment, Territory and Sea Protection, Interior, Work and Social Policies, Health, the Regional Authorities involved and ISIN.

This whole procedure, defined under art. 55 (authorisation for the dismantling of nuclear power plants) and art. 56 (procedure to issue the authorisation for deactivation – execution of the operations) of Decree Law n. 230/1995, starts with the submission of the request for deactivation made by Sogin.

Moreover, Decree Law n. 1/2012 amended by law n. 27/2012, pursuant to art. 24, par. 4, also introduced the opinion of the Municipal Authorities concerning the issue of the deactivation decree. Pending the issue of the Decree, other authorisations can be obtained to carry out individual projects to progress in dismantling activities and the construction of interim works and structures finalized to the final decommissioning.

More specifically, authorisations for individual projects can be obtained by applying art. 148, par. 1 bis of Decree Law n. 230/1995 for specific operations and actions, provided they relate to deactivation, intended to guarantee radiation protection for employees and citizens.

After the issue of deactivation decrees and authorisations provided by art. 148 of Law Decree n. 230/1995, Sogin is required to submit specific operational plans or detailed project plans to ISIN, featuring a description of the works and any other appropriate assessment concerning safety and radiation protection.

Along with the main authorisations related to the nuclear field, Sogin is required to obtain further authorisations, such as those matters that fall strictly within the remit of Local Authorities, which are needed to carry out the works.

Recognition of incurred costs

Sogin operates according to the addresses issued by the Ministry for Economic Development pursuant to art. 13, par. 4, of Decree Law n. 79/1999 implementing Directive n. 96/92/CE concerning regulations on the internal market in electricity.

All the activities related to the decommissioning of nuclear power plants are financed by the $A2_{RIM}$ tariff, through a regulatory framework defined by ARERA.

The current regulatory framework for the recognition of the incurred costs for nuclear commissioning, defined for 2013-2016, has been defined by the Regulatory Authority with resolutions 194/2013, 632/2013, 384/2014, 374/2015. The validity of this framework was corrected and extended to2017, 2018 and 2019.

This system is based on a mechanism which recognizes both estimated and final costs. In this framework, Sogin yearly submits the following documents to the Regulatory Authority for approval:

- by 31 October, the estimated costs for the following financial year and an update of the following four-year programme;
- by 28 February, the financial statements of the previous year.

ARERA approves the estimated costs of the activities and recognises the final incurred costs according to efficiency and effectiveness criteria, provided that they are included in the coverage for nuclear expenses as stated under the inter-ministerial Decree of 26 January 2000 (as amended by the inter-ministerial Decree of 3 April 2006).

In the event of delays in achieving milestones, the payment of a penalty - that cannot exceed the profit of the financial year – was added to the classic incentive scheme.

Said penalty, however, cannot exceed the business operating profit.

Possible surplus in the profits of the financial year is distributed in the following years of the same regulatory period.

The current system divides the costs for nuclear operations in different categories, to which different recognition modalities apply.

ARERA defines nuclear costs to be covered by the electricity tariff (A2RIM component, former A2), and ensures the coverage of Sogin's financial needs through specific allotments of the Fund for Energy and Environmental Service.

Economic outcomes

Sogin drafts:

- the **Group Financial Statements** – approved by the Shareholders' Meeting by the deadlines defined under the Civil Code;
- the **Consolidated Financial Statements** – document published starting from the acquisition of 60% of Nucleco Company, it is approved together with the Group Financial Statements.

A summary of the economic reporting of 2019 is reported below. The full texts of the two documents are available at sogin.it.

Financial and economic trend

The 2019 Group Financial Statements recorded a value of the production equal to EUR 212.4 million (vs. EUR 215.9 million in 2018).

The value of the activities proportional to the progress of the dismantling of nuclear power plants, equals to EUR 48.3 million (vs. EUR 77 million in 2018).

The EBITDA of the Group's operations amounted to EUR 27.1 million (vs. EUR 30.9 million in 2018). The Group's net profit equals to EUR 1.2 million (vs. EUR 6.1 million in 2018).

The market operations carried out by Sogin Group in 2019, both in Italy and abroad, have generated an EBITDA equal to EUR 5.5 million (vs. EUR 2.3 million in 2018). This outcome confirms the quality of the Italian know-how in the field of nuclear decommissioning and radioactive waste management.

Group value creation and distribution

The chart below shows the creation and distribution of the economic value generated by the Group in the 2017-2019 period.

The chart below is drafted in compliance with the GRI Standard requirements and it is based on a reclassification of the Group income statement reported in the Group Consolidated Financial Statement as of 31 December 2019. It reports:

- The generated economic value corresponds to the measurable economic wealth, produced by the Group over the year (it includes the value of production, income from participating interests, income and financial charges, changes in ongoing commissioned works and capitalized costs and expenses);
- The distributed economic value is a qualitative-quantitative indicator of the Group social impact and of the distribution of value among different Stakeholders;
- The economic value retained within the Group corresponds to the wealth ensuring economic sustainability, and it is reinvested in innovative instruments and services to foster continuous improvement.

SOGIN GROUP VALUE CREATION AND DISTRIBUTION

Figures in EUR million	2019	2018	2017
Generated economic value	**213.71**	**216.50**	**416.51**
Fuel Management and Reprocessing activities	29.3	20.2	221.9
Distributed Economic Value	**189.95**	**195.05**	**393.00**
Operating costs (value distributed along the supply chain)	98.36	98.15	298.09
Value distributed to employees	86.98	86.90	89.05
Value distributed to the providers of capital	0.03	0.04	0.04
Value distributed to the Public Administration	1.82	6.51	5.12
Value distributed to Shareholders	2.75	3.45	0.70
Value distributed to the Community	0.00	0.00	0.00
Retained economic value	**23.76**	**21.45**	**23.51**

The distributed economic value of 2019, equal to approx. EUR 189.95 million is in line with the one recorded in 2018 (approx. EUR 195.05 million). More specifically, the value distributed by the Group includes the following entries:

- Operating Costs (value distributed along the supply chain)": approx. EUR 98.36 million, it is the share of value distributed to the Group suppliers. The entry includes the purchase costs of raw materials, ancillary and consumables, costs for the use of services, for the execution of works and for the use of third-party assets;
- "Value distributed to the employees": equal to EUR 86.98 million, it is the share of generated economic value distributed to employees, via salaries and wages, social security contributions, severance schemes and services provided to employees (meal services, tickets). Year 2019 maintains the same positive efficiency trend recorded over the previous years;
- "Value distributed to capital providers": equal to approx. EUR 30 thousand, it corresponds to the interest due from Sogin Group to its capital providers. Compared to the previous Financial Statements the value has slightly decreased;
- "Value distributed to the Public Administration": equal to approx. EUR 1.8 million, it corresponds to the share of economic value allocated to the Government, by means of tax and social security levy (direct, indirect taxation and paid taxes). The 2019 value has decreased (in 2018 the recorded value was EUR 6.5 million).
- "Value distributed to Shareholders": equal to approx. EUR 2.75 million, it is the economic value share distributed by the Company's sole Shareholder, as dividends. The 2019 value has decreased compared to year 2018 due to a decrease in distributed dividends (EUR 3.45 million in 2018).

The Group value that was not distributed to the Stakeholders, was internally retained as amortisations (including depreciations) and allotments for risk funds and reserves, and it is used to ensure the Group sustainable growth.


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POMPE CIRCOLAZIONE AP 3A
POMPE CIRCOLAZIONE AP 3B

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GOVERNANCE

Corporate bodies

Sogin Group governance system includes the Shareholders' Meeting, the Board of Directors, the Chairman, the Deputy Chairman, the Chief Executive Officer, the Board of Statutory Auditors. Information on the main Sogin governance bodies and its subsidiary company Nucleco are reported below. For further details please refer to the websites sogin.it and nucleco.it.

Sogin and Nucleco Shareholders' Meetings

L'Assemblea degli Azionisti di Sogin è composta da un unico socio, il Ministero dell'Economia e delle Finanze.
L'Assemblea degli Azionisti di Nucleco è costituita da Sogin, che detiene il 60% del capitale sociale, e da ENEA, che detiene il restante 40%.
L'Assemblea approva il Bilancio di esercizio, nomina e revoca i membri del Consiglio di Amministrazione e del Collegio Sindacale, e ne determina i compensi, conferisce l'incarico di revisione legale dei conti, stabilendone il corrispettivo economico.

Sogin board of directors

The Board of Directors (BoD) consists of five members, appointed by the ordinary Shareholders' Meeting, and elected according to the applicable law on gender balance.

The BoD is responsible for the definition of corporate and Group strategies, and guidelines of the internal control system, it approves the Draft Budget, updates the Organisation, Management and Control Model, adopts the Tree-year Programme for Corruption Prevention, appoints the members of the Supervisory Body and defines their salaries, appoints the Manager in charge of drawing up the corporate accounting documents and the Manager for the Prevention of Corruption and Transparency.

The current Bod was appointed on 12 December 2019, for the financial years 2019-2020, and it will remain in charge until the approval of the 2021 Financial Statements.

2019-2021 Sogin BoD Members

 Chairman	**Luigi Perri**
 Deputy Chairman and CEO	**Emanuele Fontani**
 Non-Executive Directors	**Raffaella Di Sipio** **Luce Meola** **Enrico Zio**

Nucleco Board of Directors

Nucleco's Board of Directors (BoD) consists of three members, appointed by the Shareholders' Meeting on 11 May 2018 for the 2018-2020 financial years.

The Chairman of the Board of Directors is the company's representative and has signatory powers, he chairs the Shareholders' Meeting, summons and chairs the Board of Directors, establishes its agenda and verifies the implementation of the resolutions.

Upon the approval of the Shareholders' meeting, the BoD conferred full powers for the management of the Company to the Chief Executive Officer (CEO) in office, except for those solely conferred to the Chairman and to the Board of Directors. The BoD also appointed the Chief Executive Officer (CEO) as Deputy Chairman of the Company, to replace the Chairman when the latter is absent or prevented from performing his office according to the legislation and to the company's articles of association, without additional compensation.

On 6 March 2020, the Shareholders' Meeting appointed Nadia Cherubini Chairman of the BoD; she will remain in charge until the approval of the 2020 Financial Statements, as the other members appointed on 11 May 2018.

2018-2020 Nucleco BoD Members

Chairman	**Alessandro Dodaro** **Nadia Cherubini** (starting from 6 March 2020)
Deputy Chairman and CEO	**Lamberto D'Andrea**
Non-Executive Director	**Fernanda Di Gasbarro**

Sogin Board of Statutory Auditors

The Board of Statutory Auditors is the Supervisory body which monitors the Company's compliance with laws, with the articles of association, the principles of correct administration, the suitability of the Company in terms of organisation, administrative accounting system and its correct functioning.

The Board of Statutory Auditors, as under the law and the articles of association, consists of three Statutory Auditors and two Substitutes, appointed by the ordinary Shareholders' Meeting on 14 July 2017, according to the applicable law on gender balance. Their office will end upon the approval of 2019 Financial Statements.

2017-2019 Sogin Board of Statutory Auditors Members

Chairman	**Luigi La Rosa** Starting from 9 August 2018
Statutory Auditors	**Angela Daniela Iannì** **Salvatore Lentini** Statutory Auditor from 9 August 2018
Substitute Auditors	**Maurizio Accarino** **Luisa Foti**

Nucleco Board of Statutory Auditors

Nucleco's Board of Statutory Auditors consists of three Statutory Auditors and two Substitutes, appointed by the Shareholders' Meeting on 23 May 2017, according to the applicable law on gender balance.

The Chairman of the Board of Statutory Auditors and a Substitute Auditor are appointed by Sogin Shareholders while two Statutory Auditors and a Substitute Auditor are appointed by ENEA's Shareholders.
Their office ended upon the approval of the 2019 Financial Statements.

2017-2019 Nucleco Board of Statutory Auditors Members

Chairman	**Cesare Carassai**
Statutory Auditors	**Valentina Vaccaro** **Roberto Iaschi**
Substitute Auditors	**Marcellino Datoaddio** **Lorena Serafinelli**

Company appointed for the Statutory Audit

The Company appointed to perform the Statutory Audit of Sogin Group for 2017-2019 financial years is PRICEWATERHOUSECOOPERS S.p.A. The office was conferred by the Shareholders' Meeting of Sogin and Nucleco, following a European procurement procedure and on a reasoned proposal by the Boards of Statutory Auditors of Sogin and Nucleco.

The office of the audit Company expired upon approval of the 2019 Financial Statements.

Judge from the Court of Auditors

AS a wholly owned subsidiary of the Ministry for Economic and Financial Affairs, Sogin is subject to the supervision of the Court of Auditors. The office of Delegate Control Officer is assigned to the Magistrate Mrs. Rossana De Corato, while the Magistrate Mrs. Maria Gabriella Dodaro is appointed Substitute Control Officer.

The Delegate is entitled to take part in the meetings of the Shareholders' Meetings, BoD, Board of Statutory Auditors and Supervisory Body. With the functions of rapporteur, the Delegate drafts the Report through which the Court reports to the Parliament the outcomes concerning the supervision of the Company's financial management.

Supervisory Body

The Supervisory Body consists of three components, of which two external members and an internal one, in charge of monitoring the functioning, effectiveness and compliance with the Organisational, Management and Control Model (OCUBIC METRESM), as well as of updating it. This Body also shares the offices of the Independent Evaluation Body (OIV).

The Supervisory Body appointed by Sogin on 7 October 2016, remained in office for year 2019. In 2019, the Supervisory Body held 8 meetings, and devoted specific attention to the OCUBIC METRESM review actions carried out by the Company.

The members of the Supervisory Body hold office for the duration of the mandate of the Board of Directors under which it was appointed. Following a corporate reorganization, in a meeting held on 31 March 2020, Mr. Pierfrancesco Baldassarri - Manager of the "Internal Audit, Risk Management and Supervision 231" Office was appointed internal member of the Body, in place of Mr. Mariano Scocco, Lawyer and Manager of the Legal and Corporate Office.

2016-2019 Supervisory Body Members

 External Member acting as Chairman	**Francesco Santangelo**
 External Member	**Alessia Fulgeri**
 Internal Member	**Mariano Scocco** **Pierfrancesco Baldassarri** (starting from 31 March 2020)

Organisation, Management and Control Model

Sogin and Nucleco are provided with an Organisation, Management and Control Model (OCUBIC METRESM) to prevent and tackle the perpetration of predicate offences of administrative liability (under Legislative Decree No. 231/2001) and the phenomena of corruption and maladministration under law No. 190/2012. An integral part of this Model consists of the Ethical Code, namely the Charter of Principles to direct and rule the organisational and individual behaviours to be complied with on behalf of those engaged in the Company's mission and have an interest in pursuing it.

The goal of the Organisation, Management and Control Model and the Ethical Code is to promote a good work performance, adapt the corporate regulations and strengthen protection against the most relevant risks

PRINCIPLES OF SOGIN'S ETHICAL CODE	
	Health, Safety, Environment and Quality
	Legality, Fairness and Integrity
	Efficiency, effectiveness and cooperation
	Dignity of the person, professional development, and equal opportunities
	Transparency in decision-making processes, corporate policies, and procedures
	Information, Communication, and Engagement

The two documents consist of recommendations of the Board of Directors. The task of monitoring the functioning, effectiveness, and compliance with the OCUBIC METRESM, as well as the update of the latter, are appointed to the Supervisory Body.

In 2019, Sogin strengthened the actions of the Organisation, Management, and Control Model. Driven by the Supervisory Body, the Company drafted and implemented the review of the Special Sections of the Model; thanks to this review, the Model was further developed in terms of Risk Management System, including the risks connected to the offences specified under Decree Law n. 231/2001 and law n. 190/2012.

In 2019, the BoD approved the new Special Section of the Model on "Environment, Health, and Safety" and, in 2020, the review of the Special Sections will focus on the offences against the Public Administration, corporate crimes and further crimes of type "231" related to the corporate profile.
On 27 January 2019, the Board of Directors approved the special Section of the Organisation, Management and Control Model concerning Sogin's Slovakian office, to protect the Company from the administrative liability of legal persons introduced in the Slovakian legal system by Law n. 91/2016.

Prevention of Corruption and Transparency

Sogin and Nucleco have their own Manager for Corruption Prevention and Transparency (CUBIC METRESPT).

In 2019, the BoD of Sogin and Nucleco have updated and approved their Three-Year Plans for Corruption Prevention for the period 2019-2021.
The Three-Year Plan for Corruption Prevention is intended to prevent cases of corruption and acts of maladministration, resulting from acts of commission or omission contrary to the legal provisions in force, and to the principles of legality, impartiality, sound administration, economy and effectiveness, which apply to the persons who carry on activities of public interest. The Plan is included in the Company's Organisational, Management, and Control Model (OCUBIC METRESM), and it is intended to foster full accessibility to Sogin's and Nucleco's figures and information, available in the "Business Transparency" section of the Group's official websites.

In 2019, Sogin received a single request to access its data (the so called FOIA - Freedom of Information Act); the Company submitted a reply to the request within the deadlines stated under Decree Law n. 33/2013. Nucleco has not received any request, neither simple nor general.
During 2019, neither Sogin nor Nucleco have been reported for cases of alleged commission of criminal offences.

To encourage whistleblowing, pursuant to art. 54-bis of Decree Law n. 165/2001 (introduced by law n. 179/2017) and to protect the disclosers (whistleblowers) who raise a report. In 2019, Sogin and Nucleco have adopted IT platforms for the management of reports, which guarantee the anonymity of the disclosers.

Over the past years, Sogin has already provided basic and advanced training to all its employees on Law n. 190/2012 (Anti-corruption law) and Decree Law n. 33/2013 (Transparency); the company will arrange new trainings upon issue of the new European regulation on the matter and the update on the whistleblowing regulation. A 40-hours training course on these matters has been already provided to the Manager and staff of the Corruption prevention and Transparency Office, while the remaining corporate staff will be updated during the first quarter of 2020.

In 2019, the Manager of the Corruption Prevention and Transparency Office of Nucleco organised a training on prevention and anti-corruption.

Protection of personal data

Back in 2018, Sogin appointed a Data Protection Officer, in line with the EU standards defined in the General Data Protection Regulation, GDPR n. 679/2016 concerning the protection of personal data (Data Protection Officer, DPO).

During 2019 the following actions to adapt to the GDPR have been carried out:

- Mapping of personal data processing, through the analysis of the processing operations implemented in the Company, meetings with competent officers, and monitoring and updating activities;
- The record of the Controller containing information on each mapped processing activity, and other relevant monitoring and updating activities;
- Assessment of risks deriving from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to personal data processed, to guarantee an appropriate level of security in personal data processing;
- Impact assessment for personal data processing procedures that are likely to result in a high risk to the rights and freedoms of natural persons, by virtue of their nature, their scope and/or their purposes;
- Drafting and adaptation of the personal data protection forms provided to third parties, and, if necessary, drafting of the necessary consent forms;
- Continuous adaptation of corporate forms, procedures and policies to the GDPR;
- Permanent training on the GDPR;
- Management of requests submitted by the concerned parties.

Internal Control System

The Internal Control System is a set of rules, procedures, and organisational structures that, through an appropriate system of identification, measurement, and risk monitoring, allows to attain the following objectives:

- Efficiency and effectiveness of corporate processes;
- Protection of the value of the assets;
- Reliability and integrity of accounting and management information;
- Legal compliance with internal procedures.

As defined in the General Section of the Organisation, Management and Control Model, the Internal Control and Risk Management System carries out controls on the Board of Internal Auditors, the Board of Directors, the Supervisory Body and the Manager for Preventing Corruption and Transparency. Moreover, the Internal Control and Risk Management System performs different controls, in line with the benchmark best practices:

- Line checks – appointed to all corporate offices and regularly performed in the business processes by those who carry out, manage or coordinate a given activity (more specifically, as for the executive and supporting processes carried out in the central headquarters or in local production branches);
- Second-level checks - regularly carried out by the offices of risk management, compliance, verification of the Integrated Management System for Quality, Safety and Environment, Management Control, Executive in charge and Data Protection Officer;
- Independent or third-level checks- carried out by the Internal Audit function which directly reports to the Senior Management on the design and overall functioning of the system.

Again in 2019, Nucleco's Internal Control and Risk Management System was entrusted to a specific corporate office and to the Supervisory Body. The latter, established pursuant to Decree Law n. 231/2001, consists of three members: two external and one internal.
On 16 April 2019, the Sogin's BoD approved the annual audit plan, which accounts for 5 audits (1 of which requested by Nucleco), 9 follow-ups, and 3 investigations.

Two investigations were made upon request of the Supervisory Body, to assess, in turn, the adequacy of the contractual terms in the Organisation, Management, and Control Model, and, the award and performance of supply contracts; the third investigation, requested by the Corruption Prevention and Transparency Officer, aimed at including a term on public-to-private sector crossover in works, services and supply procurement contracts.

The audit activities have also interested some corporate processes, among which: the management of in-process variations, the direct procurement to external consultants and, the staff management. The outcomes of audits and follow-ups have been submitted to the corporate top management, the control bodies of corporate governance, and the concerned offices, to carry out improvement actions, where needed.

The audits and internal control actions carried out in Nucleco during 2019 showed positive outcomes. This underlines the adequacy of the control system in terms of correct and permanent enforcement of internal rules, regulations, and procedures, and in terms of compliance with the provisions of the Organisation, Control and Management Model.

Both, Sogin and Nucleco, are provided with a reporting system available to the concerned parties. Such system – directly connected to the Supervisory Body – is intended to detect possible anomalies within the Internal Control and Risk Management System, and/or conducts in breach of the provisions of the OCUBIC METRESM.

The reporting guidelines are available on the official websites of Sogin and Nucleco.
In 2019, no anomaly or report was submitted to Sogin or Nucleco SBs concerning the Internal Control and Risk Management System, the OCUBIC METRESM and the Ethical Code; thus, no sanctions or provisions have been undertaken pursuant to Decree Law n. 231/2001 and Law n. 190/2012.

Risk Management System

The Sogin's Risk Management System is structured according to the public nature of the Company and the specific features of the sector in which it operates.

The main purpose of the Sogin's Risk Management System is to ensure the control of compliance, strategic, and operational risks, as well as environment, security, and health-related risks. Said risks include internal and/or external events which may affect the implementation of processes and the development of projects, with consequences on the achievement of the corporate objectives and reputation.

During 2019, the Risk Management System was further improved in terms of process and project-related risks:

- As for the **process-related risks**, the Company's action focused on assessing the perpetration of the offences defined under art. 25-septies and art. 25-undecies of Decree Law n. 231/2001, intended for the definition and implementation of the Special "Environment, Health, and Safety" Section of the OCUBIC METRESM.;
- As for the **project-related risks**, instead, the action focused on the analysis of the critical processes – licensing, design, procurement and implementation – for the execution of the strategically relevant projects included under the four-year programme, yearly submitted to ARERA.

During 2019, the Company launched a review of the Risk Management Model, mostly for the assessment of the risks connected to the Special Sections of the Organisation, Management, and Control Model and the management of project-related risks. Both, process and outcomes, of the new approach have obtained a positive outcome on behalf of the Body in charge of issuing the quality, environmental and security certifications.

Sogin Classification of Risks

Strategic Risk	Risks generated by changes in the institutional, political, social, economic and industrial frameworks, legislative and regulatory framework or changes in the business ability to take correct decisions and implement them in an appropriate way, especially concerning the achievement of milestones, task drivers and effectiveness objectives set out by the Italian Regulatory Authority for Energy, Networks and Environment (ARERA).
Reputational Risk	Risks generated by conditions which may cause serious injury to the Company ability to react to external changes and/or to affect change in the desired direction and to develop solid and long-lasting relationships with stakeholders, based on mutual trust.
Economic (financial and asset risks)	Risks generated by events that might affect business profits, balance of cash inflows and outflows and/or corporate assets.
Compliance and Integrity Risks	Risks generated by irregular situations, violations of internal or external rules, and/or by illegal or fraudulent conducts performed by the Company, its employees, collaborators, contractors and/or suppliers which may lead to a misalignment with corporate directives and objectives, or result in judicial or administrative sanctions for the Company.
Operational Risk	Risks generated by organisational anomalies due to scarce or inappropriate allocations of resources and competencies, dysfunctions in technological and IT corporate systems and procedures, especially concerning the Cyber Threat Model.
Reporting Risk	Risks generated by inadequacy and/or anomalies in qualitative and quantitative internal flows, of financial, physical, technical, social and environmental nature, which may cause erroneous representations of the corporate reality or single cases detected in financial statements or in the reports addressed to the internal management; thus, negatively affecting decision-making processes, performance planning and assessment of ARERA and other stakeholders.

Nucleco Classification of Risks

	Risk Factor	Mitigation Actions
Technological and Market Risks	Specific nature and age of power plants and equipment	Regular replacement of equipment and instruments
	Waste treatment processes and progressive reduction of space in storage facilities	Constant verification of the possibility to extend the coverage of waste treatment technologies through agreements with other stakeholders, to access existing foreign systems and technologies
Economic (credit risks)	Exposure to potential losses resulting from the failure of the parties (mainly Sogin and ENEA shareholders) to comply with their payment obligations	Although credit risk is a real factor in the general economic crisis, it does not affect the business continuity because: over 80% of due receivables is from Sogin, approx. 10% from ENEA and the residual part (approx. 10%) is due from private clients and Public Institutions
Economic (liquidity risk)	Insufficient financial resources to cover cash-flow requirement	The risk of liquidity is not relevant since cash flows resulting from corporate management along with the current financial and asset structure enable managing cash commitments without borrowing from banks. No risks for the customer portfolio. Contract's payment terms ensuring the financial exposure of sustainable activities.
Industrial Risks	Possible external release of radioactive material	Constant review of working procedures and methodologies, in line with the best international practices and based on a continuous dialogue with the regulatory body. Implementation of an environmental and radiological monitoring network
	Progressive saturation of interim storage facilities both in terms of overall radiological level and available volumes	Constant monitoring of available volumes within the storage facilities to arrange alternative solutions when approaching the critical threshold
Regulatory Risks	Greater restrictions in technical, general and sector regulations which may result in a failure to comply with the new obligations, both in terms of activities and results	Constant monitoring of reference regulatory framework, including sector and general regulations, also through the support of Sogin and ENEA competent structures
Reputational Risks	Gap between the perceived image of Nucleco and the Company's identity	Maintaining certifications on Quality, Environment, Workplace Health and Safety and Social Accountability Internal and external monitoring of Nucleco perceived image
	Loss of trust on behalf of public opinion and main stakeholders.	Taking part in relevant environmental and research events Accurately complying with national laws on transparency, ethics, and corruption prevention

Nucleco Classification of Risks

	Risk Factor	Mitigation Actions
Administrative Risks	Failure to comply with fiscal and budgetary law requirements	Adoption and regular updating of Model 231/2001, administrative and management processes review, adoption of organic procedures, implementation of integrated IT management systems, also through Sogin systems to enhance the internal control
Exogenous Risks	Changes in technical, sector and general regulations (regulatory risk) Possible redefinition, on behalf of Sogin, of nuclear power plants and fuel cycle facilities decommissioning strategies	Risks related to low exogenous factors, since legislative actions connected to the tasks appointed to Sogin – also concerning the creation of the National Repository and Technological Park – ensure business continuity

Compliance System

Art. 14 of the new regulation on corporate crisis under Law 155/2017 states the need to "establish appropriate organisational set-ups to promptly detect possible crisis and the loss of business continuity". Said provision aims at avoiding an overlapping among different offices, in charge of monitoring the corporate internal compliance.

Sogin has a specific structure to manage the compliance risk, evaluate and monitor the corporate compliance with sector regulations, control their effective enforcement, and check progress and outcomes.

This structure, operating in line with the principles of awareness, reputation, accountability, risk mitigation, and risk management, carries out a set of precautionary activities to ensure that the Company complies with sector regulations, protect it from regulatory and reputational risks, strengthen the corporate reputation and ensure competitiveness and trust from the Stakeholders. By defining several best practices, this structure can bolster the corporate Offices and help them achieving corporate goals, by constantly ensuring compliance with the current regulations. In this regard, throughout 2019, this body supported the definition and drafting of 28 corporate documents of different nature (technical, general, environmental, administrative, human resources, procurement, and quality).

Integrated Management System for Quality, Environment and Safety

Instruments and standards

To better pursue its corporate mission and reach institutional objectives, Sogin has an Integrated Management System, certified for Quality, Environment, and Safety, which allows a controlled and consistent management of processes, by integrating quality, environmental protection and the workplace health and safety.

The Integrated Management System also applies the provisions of the IAEA GSR Part 2 "Leadership Management for Safety" standard, and those defined in the EU-EMAS regulation No. 1221/2009.

Such tools are included in the Corporate Policy for Quality, Environment, and Safety which formalises the Company commitment in ensuring the health and safety of staff and community, the protection of the environment, measures to prevent pollution, and in guaranteeing the maximum safety and health workplace standards, based on the principle of continuous improvement.

The certification ensures the correct management of the aspects related to Quality, Safety, and Environment in Sogin, thus, increasing the Company's reliability for all the Stakeholders, i.e. Local Authorities, Associations, Trade Unions, and Supervisory and Control Bodies.

Therefore, the Policy underlines Sogin compliance with national and international sector regulations, in addition to the IAEA (International Atomic Energy Agency) guidelines and standards. The Integrated Management System is, therefore, also intended as a Nuclear Safety Management System as for the monitoring of nuclear safety aspects.

The principles and purposes of the Policy are included in training and learning activities provided to the staff, moreover, they create an opportunity for constant dialogue with the Stakeholders, including the contractors who take part in decommissioning activities.

OUR CERTIFICATIONS

QUALITY SYSTEM	ENVIROMENTAL SYSTEM	SAFETY SYSTEM
UNI EN ISO 9001, Quality Management Systems: the regulation outlines the requirements of a management system for the quality of an organisation. The requirements are of "general nature" and may be implemented by any kind of organisation.	UNI EN ISO 14001, Environmental Management Systems: the standard certifies that the organisation has an appropriate management system for monitoring the environmental impacts of its activities, and systematically seeks to improve it in a consistent and efficient way.	BS OHSAS 18001, International Standard for managing the health and safety of workers. In 2019, Sogin continued migrating towards the new ISO 45001:2018 standard.

The ability of the Integrated Management System for Quality, Environment, and Safety to maintain adequate standards is subject to regular verification on behalf of a third certified body, in charge of assessing and certifying the Company's compliance with the current regulations in terms of activities and processes.

Again in 2019, the verification carried out by the certifying body, ended on 29 November, had a positive outcome.

During the assessment, performed on the sites of Bosco Marengo, Saluggia, Rotondella and the offices in Rome and Bratislava, the certifying body ascertained compliance with the regulations on decommissioning processes, market activities, as well as, engineering, management and support procedures, which also include the training on radiological protection and nuclear safety.

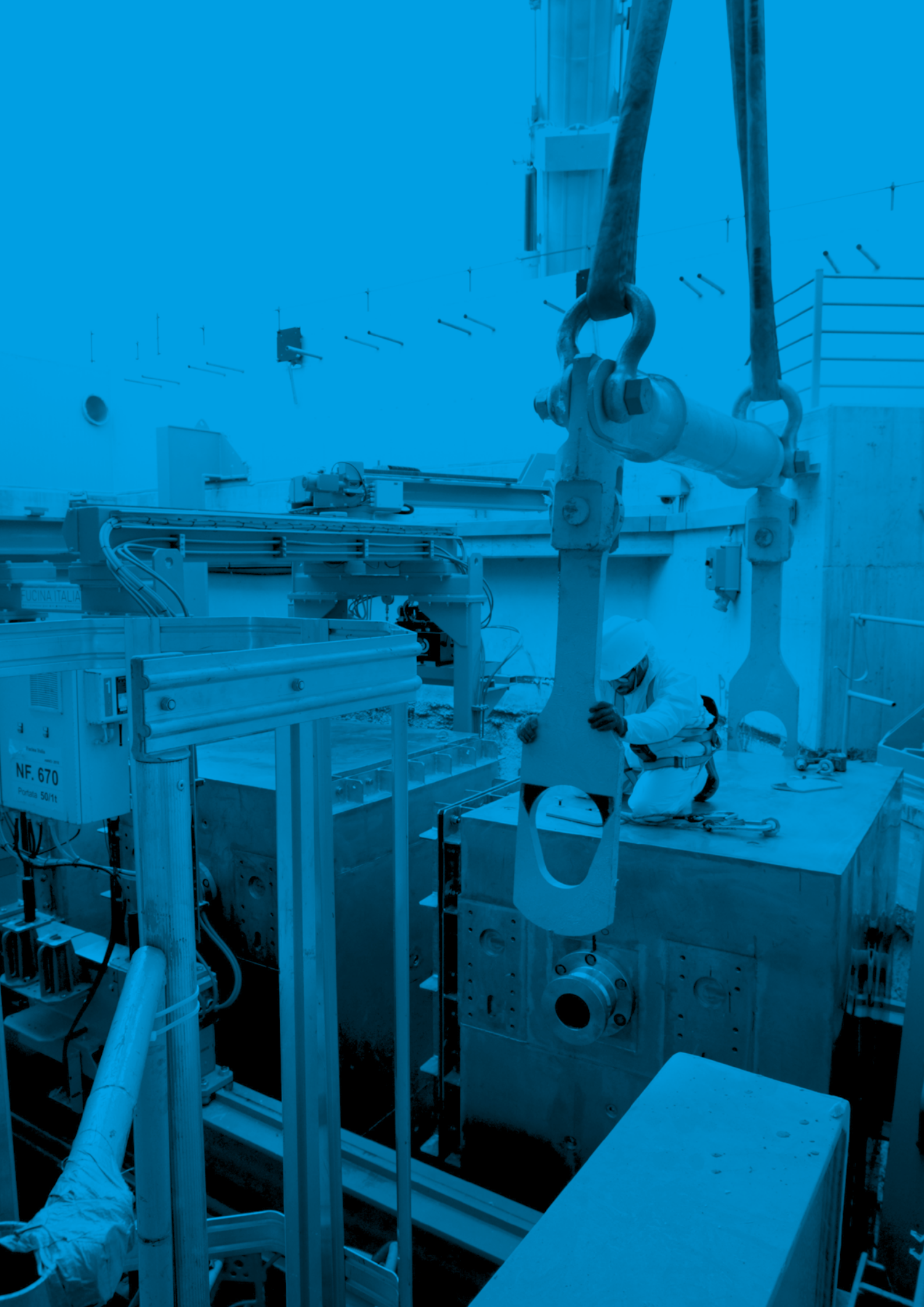
The certification of the Integrated Management System is also promoted in the union agreement for the improvement of productivity/quality in Sogin.

In 2019, Nucleco preserved the certification for social responsibility in compliance with the SA8000 standard; this certification was verified during two audits carried out by the Certifying body. It is also based on the principles stated under the ILO (International Labour Organization) convention and the Universal Declaration of Human Rights. In 2019, the subsidiary company also renovated the certification resulting from its compliance with the provisions of the ISO 14001 regulation, concerning the Environmental Management System.

Process upgrade

Throughout 2019, Sogin continued monitoring its corporate processes and reviewing its procedures of the Integrated Management System, according to the requirements stated under ISO 9001 and ISO 14001 regulations (corporate context analysis, leadership, risk management and Risk Based Thinking); the Company has also continued integrating the criteria of the IAEA GSR Part 2 and adapting to the new regulations (Procurement Code and Information Security); along with the above, it has launched an analysis of corporate processes to migrate to the UNI ISO 45001 standard. To better achieve this migration, the Company has implemented specific training programmes which involved the Quality, Environment, and Safety Managers and the Worker's Health and Safety Representatives. An analysis of the corporate procedures was also carried out, to finalise the migration process.

In the first half of 2019, Nucleco successfully completed the migration from the BS OHSAS 18001 standard to the UNI ISO 45001 one, by obtaining the specific certification after a joint Safety and Environmental audit carried out by the certifying body.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CLOSING THE ITALIAN NUCLEAR FUEL CYCLE

Closing the Italian nuclear fuel cycle is necessary to free the areas and lands of the nuclear power plants from radiological restrictions and return them to the community; this complex task can be achieved through the decommissioning programme and the safety storage of the resulting radioactive waste.

Decommissioning

The decommissioning (dismantling) procedure is the last stage of a nuclear power plant lifecycle, after its building and operation stage. This last procedure generally involves removing fuel, carrying out the facility radiological characterisation, the decontamination of structures and, lastly, the site radiological characterisation. Any of these operations is carried out in a safe working place. This process also involves managing the radioactive waste stored in specific interim storage facilities, and all other materials resulting from dismantling operations such as iron, copper or concrete, which will be then reused or removed from the site to be recovered and recycled. The demolition of the power plant, the conditioning and storage of radioactive waste in interim storage facilities - to be later transferred to the National Repository - turn the land to the stage of "brown field".

After the gradual transfer of radioactive waste to the National Repository, the interim storage facilities are also dismantled. At this stage, after having verified that no radiological risks are present, the brown field becomes a "green field" and the site can be reused by the community.

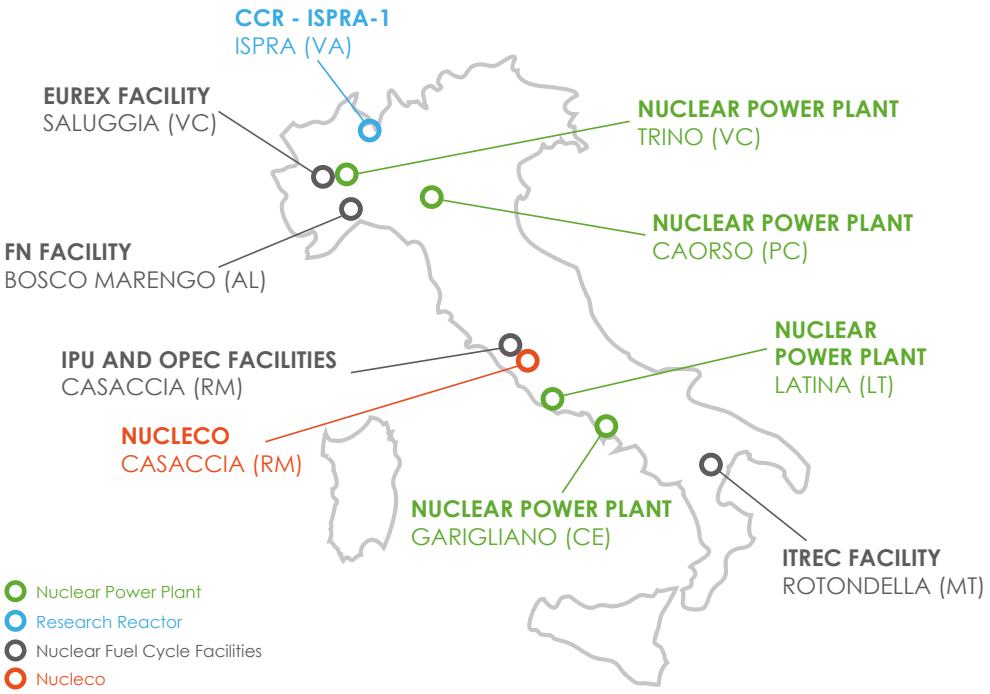
The decommissioning procedure is an engineering challenge since the Italian nuclear power plants, differing one to one to another, were designed without considering the need to dismantle them at the end of their lifecycle. This requires a complex planning to implement decommissioning programmes in parallel and to develop specific technology solutions, also prototypes, non-replicable on an industrial scale.

Nuclear sites under decommissioning

The Italian nuclear plants and facilities under decommissioning are: the four nuclear power plants of Trino (VC), Caorso (PC), Latina and Garigliano (CE) and the nuclear fuel cycle facilities FN in Bosco Marengo (AL), EUREX in Saluggia (VC), OPEC and IPU in Casaccia (RM) and ITREC in Rotondella (MT). In 2019, the decommissioning procedure was also extended to the ISPRA-1 reactor, located in the European Joint Research Centre (JRC) of Ispra (Varese).

The following section includes a description of each nuclear site, with details on the main decommissioning and radioactive waste management activities launched and implemented during 2019. Each site also presents a focus on circular economy, with information and figures on the materials sent for recovery; said information may vary according to the specific features of the sites (i.e. safe maintenance, decommissioning progress, etc.).

Please note that the value of decommissioning for each power plant refers to the value of the activities carried out to achieve the status of brown field. The year of the brown field and the overall value of the activities may vary according to the submission of the updates on the entire decommissioning plan.



Trino

Location	Reactor Type	Launch of commercial operations	Plant shutdown	Transfer to Sogin	Brownfield	Decommissioning Value
Vercelli	PWR - Pressurised Water Reactor	January 1965	March 1987	1999	2031	242 M€

History of the nuclear power plant

Trino nuclear power plant "Enrico Fermi" was built by a business consortium headed by Edison. Its construction started in 1961. After three years, in 1964, the nuclear plant started producing electric power. The facility, equipped with a PWR (Pressurized Water Reactor), had a power of 270 MWe. In 1966 the ownership passed to Enel and in 1987, following the referendum on nuclear power, the power plant was halted. In 1990, the power plant was finally deactivated. The plant has produced a total of 26 billion kWh of electric power, reaching the world production record at full power operation.

Transfer to Sogin

In 1999, the ownership of the plant was transferred to Sogin to carry out the plant's decommissioning. In 2008, the Company obtained the EIA Decree issued by the Ministry of Environment, Land and Sea Protection. Trino nuclear power plant was the first Italian plant to obtain the Deactivation Decree issued by the Ministry for Economic Development in August 2012; this Decree allows the completion of dismantling and decontamination works to free the site from radiological restrictions.

Main decommissioning activities

One of the first decommissioning activities implemented in the site was the demolition of the auxiliary cooling towers.

The cooling towers, built in the Seventies, were used during the operations to ensure compliance with the Merli Law concerning the thermal discharges into the Po River in case of extraordinary low water periods. The towers were made up of 16 cells with a total length of 220 mt. The operations, ended in 2003, allowed to remove about 160 tons of iron materials, 61 tons of plastic, and 40 tons of cables.

Further decommissioning activities included the decontamination of the steam generators and the dismantling of the buildings of the emergency diesel generators. Moreover, in 2005, the barrier of the Po river was also removed and, the elements of the secondary thermal circuit in the turbine building (high- and low-pressure turbine, alternators, condenser, valves) were dismantled. As for the reactor and turbine buildings, the facilities were adapted to carry out the dismantling of the plants and systems. A control station for the management of materials was also implemented and any uncontaminated component or system of the controlled area (radwaste building, auxiliary and reactor buildings) was removed.

In addition to the previous operations, the Company has launched a repackaging and super-compaction campaign on previous radioactive waste, and the mock-up tests for the treatment of resins have been carried out. Moreover, the Radwaste Disposal premises were emptied from the contaminated components to make room for the WOX plant.

The "Test Tank" premise was adapted to an interim storage facility for radioactive waste and it now stores 300 380-litres overpacks, which are part of the existing waste located in the two interim storage facilities of the site. This operation enabled the adaptation of the two storage facilities to comply with the current safety standards (more details available in the box "Cantiere #SoginSostenibile"). The most complex decommissioning activity of Trino power plant is the dismantling of internals and vessel, due to high radiation levels and the physical limitations of the areas where the operations are to be conducted.

The project consists of 4 stages:

- Preliminary activity (worksite preparation and reactivation of plants and systems);
- Vessel opening, removal of "fake elements", disassembly of systems and handling of control rods and rod guide tubes;
- Characterisation and dismantling of the vessel upper part and internals;
- Dismantling of the vessel and the neutron and primary screen.

So far, the asbestos removal operations in the upper part of the vessel was completed along with further preliminary operations to arrange the final dismantling; these operations include: designing and planning the radiological characterisation, restoring the insulation of the emergency flooding tanks, and launching maintenance works on the auxiliary systems.

Main progress and authorisations in 2019

The operations to arrange the vessel dismantling have continued during year 2019. Specifically, the final project for the dismantling of the primary system – excluding large components - is currently being finalised, and the metal samples collected from the auxiliary systems of the reactor have been analysed.
In addition to that, further preliminary operations to arrange the opening of the vessel and launch its characterisation have been completed, along with other preparatory works to allow the flooding of the reactor cavity and prepare its dismantling.
In the first part of the year, within the framework of the operations intended for the partial dismantling of the turbine building, the tendering documents were approved and the executive project for civil and engineering works was finalised. In the second half of the year, said works were launched. The project aims at reducing the plant volumes and minimise the structure's maintenance costs.

In the advanced stage of the power plant decommissioning a modular waste conditioning station, called SiCoMoR, will be also implemented. This station will allow the cementation of the radioactive waste resulted from the treatment of resins and sludges, resulted, in turn, from treating the water of the pools. The great engineering feature of the SiCoMoR station lies in the modularity of each process, which apply from the pre-treatment stage up to the transfer of the final product. Thanks to its modularity and flexibility, in fact, the station can be easily moved to other sites as soon as the cementation operations in Trino are completed.
The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Trino power plant.

Main authorisations obtained	Authorising/approving body
Approval of the Operational Plan for the implementation of the stage 1-preliminary activities, namely, the dismantling of the vessel and internals.	ISIN
Approval of the radiological characterisation plan and the radiological verification plan required for the transfer of the materials resulting from the repackaging activity performed on the tanks (from 350 up to 450 litres).	ISIN
Approval of the Operational Plan for the removal of activated components in the pool of purifiers and for the decontamination of the tank within the framework of the deactivation and dismantling project of the primary and auxiliary systems.	ISIN
Resolution n. 18 of 04/12/2019 by the one-stop-shop for productive activities' (SUAP) to issue the Single Environmental Authorisation – substantial modification, pursuant to art. 4 of Presidential Decree n. 59/2013 and subsequent amendments and modifications.	Municipality
Approval of the characterisation plan for the materials resulting from the changes implemented in the ventilation system of the reactor building.	ISIN
Approval of the characterisation plan for the materials of lot 1, lot 2, and lot 3.	ISIN
Approval of the characterisation plan for the materials resulted from the removal of systems and components of the waste disposal and the container buildings.	ISIN

Fuel management

The irradiated fuel resulted from the operations of Trino power plant (487 elements) was shipped abroad to be gradually reprocessed. The last 47 elements in the plant have been transferred abroad in the period between June and September 2015, in two different shipments. The waste resulted from reprocessing, will return to Italy after being conditioned in glass matrix, to be temporarily conferred to the National Repository.

Radioactive waste management

The radioactive waste stored in Trino as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 - amounts to 1,141 cubic metres.
Both, conditioned waste, and the waste to be treated and conditioned, are in the two interim repositories and in an interim "buffer" (Test Tank). This Tank now stores the radioactive waste previously located in the interim storage facility n. 2, which needs to be adapted to comply with the new safety standards.
Repository n.1

- Volume of the storage area: 6,500 cubic metres
- Max. storage capacity: 3,800 cubic metres
- Amount of stored waste: 707 cubic metres
- Surface: 1,000 square metres

Repository n. 2

- Volume of the storage area: 4,320 cubic metres
- Max. storage capacity: 2,000 cubic metres
- Amount of stored waste: 307 cubic metres
- Surface: 779 square metres

Interim Buffer Test Tank

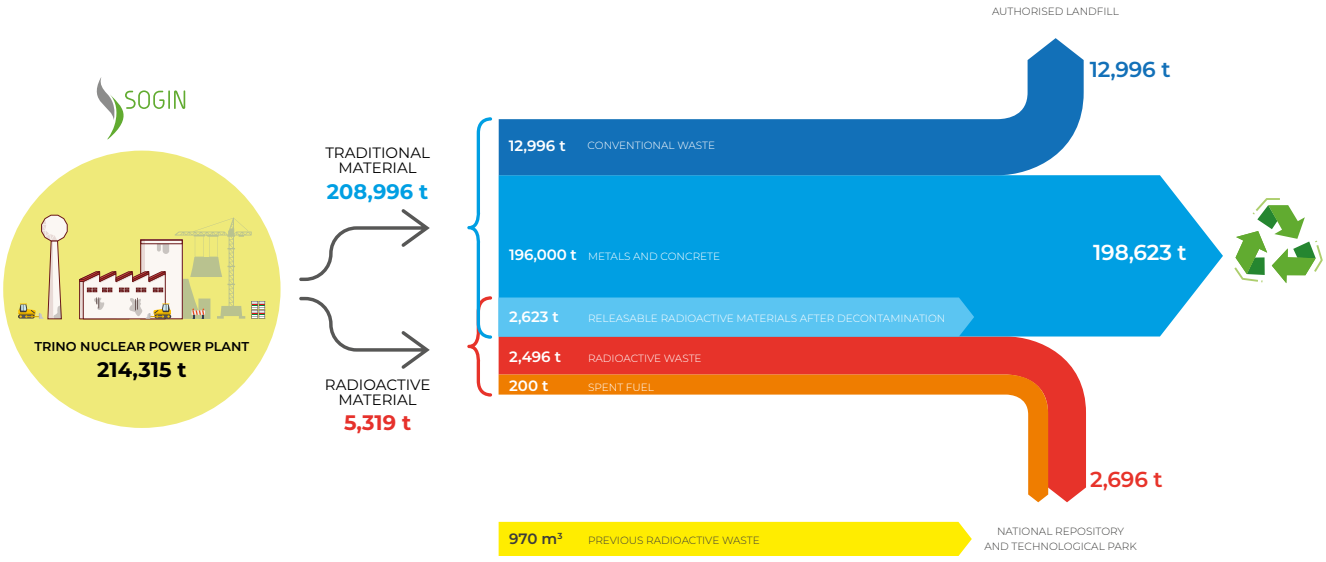
- Volume of the storage area: 913 cubic metres
- Max. storage capacity: 822 cubic metres
- Amount of stored waste: 127 cubic metres
- Surface: 88 square metres

The treatment of solid radioactive waste continued in 2019 with the installation of the station to perform the mid-term monitoring of materials; a specialised company was also appointed for the shipment of metals to be melted abroad. Moreover, 684 320-litres tanks have been successfully repackaged and treated, to be later retransferred in 380-litres tanks belonging to the "overpack 1994" lot. After characterisation, these volumes have been stored in repository n. 2.

Circular economy

Overall, the dismantling operations of Trino power plant will result in approx. 214,000 tons of materials. About 198,000 tons (approx. 93%) – mostly metals and concrete – will be sent for recovery.

WASTE DESTINATION



As in other sites, the adaptation works carried out in Trino power plant made it possible to reuse the existing buildings and structures for decommissioning purposes and for the management of radioactive waste, adopting a circular economy strategy. As an example, between 2016-2017, the

adaptation works on the Test Tank building allowed collecting approx. 5 tons of metal materials to be sent for recovery, and approx. 850 tons of non-radioactive concrete which was partly reused as secondary raw material to fill the excavations, and partly sent to third disposal installations.

CANTIERE #SoginSostenibile

METAL MELTING

Metal melting can be defined as the decontamination process used on the metals collected during the dismantling operations; this strategic process has a double result: it decontaminates the materials and it significantly minimises the amount of final waste to store in the plant's interim storage facilities. More specifically, the melting procedure is used with the metallic materials resulted from the dismantling operations of primary and auxiliary systems, as well as those collected from all the support systems of the nuclear island (i.e. pools, radioactive liquid and gas treatment systems, maintenance instruments, etc.).

The melting procedure results in contaminated metal ingots and metal scraps which contain most of the radioactivity of the overall materials sent for treatment. Due to the lack of Italian foundries authorised for the treatment of radioactive metallic materials, the melting procedure is carried out abroad. Foundries only treat the materials that comply with their acceptability requirements, which include both radiological and physical-chemical features (i.e., foundries refuse to treat materials containing organic substances, asbestos or rubber).

The products sent for melting include:

- Recyclable materials: ingots that can be recycled in the Country in which the foundry is located (said ingots are not shipped to Sogin, as stated in the contract terms);
- Non-recyclable materials: the estimated overall quantity of non-recyclable materials is equal to 1 cubic metre per 10,000 kg melted materials. These materials are returned to Sogin and they include: non-releasable ingots free of radiological restraints in the Country in which the foundry is located; secondary conditioned waste (such as slags, powders, refractories).

In 2018, Sogin developed the executive project for the operation, which launch is directly connected to the dismantling process of the primary circuit. The material is to be sent to the foundry by the end of 2021, to carry out the melting process.

Caorso

Location	Reactor Type	Launch of commercial operations	Plant shutdown	Transfer to Sogin	Brownfield	Decommissioning Value
Piacenza	BWR – Boiling Water Reactor	1981	1986	1999	2031	333 M€

History of the power plant

Caorso nuclear power plant, the largest in Italy, with a capacity of 860 MW, was designed and built in the early Seventies by Enel, Ansaldo Meccanica Nucleare and GETSCO pool of companies. The plant, of the BWR (Boiling Water Reactor) type, belongs to the second generation of nuclear plants. Its connection to the national electricity grid took place in May 1978 and it started operating in December 1981. In October 1986, the plant operations stopped for the periodic re-fuelling and they have never restarted, also following the outcome of the 1987 referendum on nuclear power. Although its short period of operation, the nuclear power plant produced approx. 29 billion kWh.

Transfer to Sogin

In 1999, Sogin acquired the ownership of the nuclear power plant to launch decommissioning operations. Preliminary decommissioning activities started in early 2000, when the Company obtained the approval through Ministerial Decree of 04/08/2000 issued by the Ministry for Industry, Trade and Handicraft (now Ministry for Economic Development). In 2008, the power plant also obtained the Environmental Compatibility Decree for decommissioning issued by the Ministry for Environment, Land and Sea Protection. Subsequently, in 2014, Caorso nuclear power plant was the third Italian plant to obtain the Deactivation Decree on behalf of the Ministry for Economic Development; said decree enables the completion of dismantling operations and decontamination intended to release the site free of radiological restraints.

Main decommissioning activities

The most relevant decommissioning activities carried out in Caorso include: the removal of turbines, turboalternator and all the components and systems of the thermal cycle located in the turbine building. In 2009, a Material Management Station was installed in the area resulted from the dismantling operations; this facility is used to cut, decontaminate, and perform the radiological check of metallic materials. The dismantling of the turbine, ended in 2012, resulted in more than 10,000 tons of removed materials, among which 8,500 tons of metals and disused equipment and 1,000 tons of concrete and building materials. All the metals, after radiological examination, have been sent for recovery.

In 2008, the removal of the RHR (Residual Heat Removal) auxiliary cooling towers was completed; these facilities used to contain the security systems required to remove residual heat in case of shutdown of the reactor. The overall volume of demolished civil works is more than 3,000 cubic metres.

The metal stack of the power plant was removed, and the Off-Gas building was demolished after the dismantling of internal components.
The systems and components of the primary circuit within the reactor building were decontaminated, thus reducing the radiation levels of the areas where the next decommissioning operations will be carried out.

The two interim low-level storage facilities of the site have been adapted to comply with new security standards. Within the framework of the project to adapt the turbine building into a "buffer" storage and waste treatment area, works have been carried out on the civil structures of the facility, and the super-compaction system has been successfully tested.
The resins and radioactive sludges to be sent to Bohunice (Slovakia) for incineration are being treated before their final shipment abroad (further details available in the "Cantiere #SoginSostenibile" box).

Main progress and authorisations in 2019

Works on the systems of the turbine building have been launched to adapt it into an interim storage facility for radioactive waste ("buffer" areas), needed to host the waste while the interim storage facility of the site undergo renovation works. The turbine building already contains the Material Management Station. Moreover, the 1,500-ton super-compactor of the Waste Treatment Station has been installed and tested; this facility will allow reducing the production of solid waste, both existing and resulting from decommissioning operations.
During the first half of 2019, a remote-controlled system to recover the tanks from their storage position was implemented and tested according to the current technology and quality standards. This system allows the extraction of approx. 1,600 tanks of radioactive waste from the hot cells to

be sent for treatment and conditioning to Slovakia. In addition to this, the executive project of the Waste Route was also completed in 2019; this facility, which connects the turbine building with the reactor and the auxiliary buildings, will allow the safe transfer of produced materials during the performance of dismantling operations in the reactor.
Among the preliminary activities required to dismantle the reactor building, the adaptation of the electric system was also carried out. Moreover, changes in the closed-loop cooling system of the reactor building have been launched; this operation will result in relevant energy saving and reduction of the volume of water taken from the river.
The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Caorso power plant.

Main Authorisations obtained in 2019	Authorising/approving body
Authorisation, pursuant to art. 55 of Decree Law 230/1995 and subsequent amendments and integrations, to perform the operations connected to the interim storage of low-level waste in ISO containers in Caorso site, in line with the provisions of "CA G 00009 - rev. 02 of 19 December 2018 "Integration to the Deactivation Plan. Interim storage of low-level waste".	MiSE (Ministry for Economic Development)
Approval of the Operational Plan for the "Treatment and conditioning of spent ion exchange resins and sludges to be carried out in third installations (JAVIS plant of Bohunice – Slovakia)".	ISIN
Approval of the Characterisation Plan and radiological verification for the adaptation of the interim repository n.2 for radioactive waste.	ISIN
Approval of the Characterisation Plan and radiological verification for the adaptation of the interim repository n.1 for radioactive waste.	ISIN
Interim amendment to Technical Provision n. 3.6.1.1 – Operability of power supplies.	ISIN
Provision for the Single Contact Point for Productive Activity (SUAP) n. 264 of 16/12/2019 to release the Single Environmental Authorisation (AUA), art. 3 Presidential Decree n. 59/2013 – substantial modification.	Municipal Authorities

Fuel management

The 1,032 elements of irradiated fuel of Caorso nuclear power plant have been shipped to France for reprocessing.

The shipment operations, started in 2007, have been finalised in June 2010. The waste resulted from reprocessing operations will return to Italy and will be temporarily conferred to the National Repository.

Radioactive waste management

The radioactive waste stored in Caorso as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to 2,366 cubic metres.

The site hosts three interim radioactive waste repositories with the following features.

Interim Repositories n. 1 and n. 2

- Volume of the storage area: 9,791 cubic metres
- Max. storage capacity: 1,690 cubic metres per repository
- Amount of stored waste: 1,928 cubic metres
- Surface: 1,542 square metres

Interim Repository n. 3

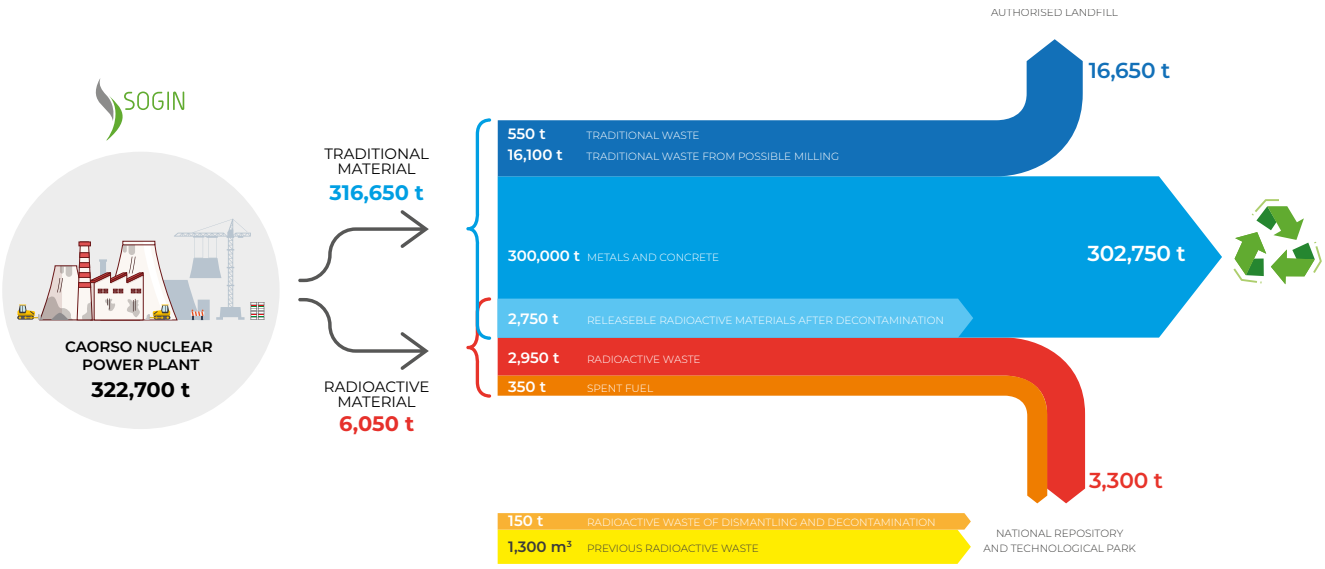
- Volume of the storage area: 21,941 cubic metres
- Max. storage capacity: 1,100 cubic metres
- Amount of stored waste: 438 cubic metres
- Surface: 1,557 square metres

By now, the repositories contain the waste conditioned and the waste that requires treatment and conditioning (i.e. radioactive resins and sludges).
The existing Repositories will be adapted to comply with the new safety standards. Moreover, adaptation works are in progress in the premise of the turbine building, to arrange the area for the construction of the Waste Treatment Station.

Circular economy

Overall, the dismantling operations of Caorso power plant will result in approx. 320,000 tonnes of materials. About 300,000 tonnes out of the total (94%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



For example, between 2013 and 2014, the dismantling operations of the Off-Gas building produced approx. 350 tonnes of metallic materials to be sent for recovery and about 7,000 tonnes of non-radioactive concrete, which became primary and secondary raw materials and was reused to fill the excavations resulted from the dismantling of the underground systems adjacent to the building (former hold-up building).

Thanks to the adaptation operations carried out on the plants and structures of Caorso power plant (like in other sites), the existing buildings can be used for decommissioning operations and radioactive waste management activities, following the principle of circular economy. One good example of this approach is provided by the adaptation of the three interim repositories to comply with new safety standards, to avoid building new storage facilities. More specifically, two repositories will be demolished and rebuilt, while the third will be adapted after dismantling the structures contained in its premises.

CANTIERE #SoginSostenibile

TREATMENT OF RADIOACTIVE RESINS AND SLUDGES

The project focuses on the treatment and conditioning of about 800 tonnes of spent ion exchange resins and about 60 tonnes of radioactive sludges in the installation of Bohunice (Slovakia).

The project aims at reducing the waste volume by 90%, and creating of final conditioned artifacts, ready to be conferred to the National Repository. Treatment will primarily involve incineration, while conditioning operations will be carried out in pods containing radioactive ashes incorporated in a cement matrix within stainless-steel tanks with a capacity of 440 l. After treatment and conditioning, all waste, final products, will return to the site where it will be temporarily stored before being shipped to the National Repository.

This project also includes the tanks of radioactive resins resulted from the emptying of the radwaste pools and reactor building; this procedure was carried out over the past years through direct casking, to reduce the radioactivity level in some premises of the nuclear power plant. The first tanks containing resins have been sent to Bohunice facility in 2017 to run the “cold tests” on the pre-treatment system and the incinerator’s power supply.

Between 2017 and 2018, the site was prearranged for the recovery of tanks from the interim repository, to allow the handling, packaging and characterisation of the tanks extracted from hot cells to be sent abroad.

The project continued over 2018 with the shipment of 336 tanks, containing resins and radioactive sludges, to the Slovakian facility to run hot tests for incineration and conditioning and producing the first final artifacts. The hot tests carried out between January and June 2019, showed the effectiveness of all the stages of the process, including the conditioning of scraps into final artifacts ready to be conferred to the National Repository.

The successful outcome of the tests, obtained in the second half of 2019, led to the approval of the operational plan and the authorisation for the shipment and treatment of the remaining waste starting from 2020.

The shipment of resins and sludges, which occupy a volume equal to 70% of the waste currently stored in the site, will allow emptying the three interim repositories to complete their adaptation to the new safety standards, thus avoiding the construction of new storage facilities. During the operations, the interim storage of low-level waste is also provided under the integration to the global deactivation plan.

The shipment of spent resins and radioactive sludges for treatment, and the emptying of the interim repositories will allow speeding up the decommissioning of the plant, while also ensuring compliance with the highest safety standards.

Latina

Location	Reactor Type	Launch of commercial operations	Plant shutdown	Transfer to Sogin	Brownfield Stage-1	Decommissioning Value
Latina	GCR - Gas Cooler Reactor	1964	1986	1999	2027	279 M€

History of the nuclear power plant

La Latina nuclear power plant was the first built in Italy, it is a first-generation nuclear facility, equipped with an English reactor with GCR-Magnox graphite-gas technology. The construction of this nuclear plant started in 1958 under the Company Eni. Five years later, in May 1963, the nuclear plant started the production of energy, with a total power of 210 MWe that made it the largest nuclear power plant in Europe. In 1964, it was acquired by Enel and its activities were halted in 1987, following the referendum against nuclear energy. In its operating period, the nuclear plant produced 26 billion kWh of electricity. In the early Nineties, all the nuclear fuel was sent abroad for reprocessing.

Transfer to Sogin

In 1999, Sogin acquired the ownership of the plant to implement its decommissioning. The Ministry for the Environment, Land and Sea protection issued the EIA (Environmental Impact Assessment) Decree for the plant in 2012. Latina nuclear power plant was the last to obtain, on 20 May 2020, the deactivation decree from the Ministry for Economic Development. The provision authorises the operations of the first decommissioning stage, among which: lowering the reactor building from 53 to 38 metres, providing a new skyline to the site. As soon as the National Repository will be ready, the second and last stage of decommissioning operations will be launched; these operations involve the GCR-Magnox graphite-gas reactor dismantling and the completion of the activities needed to release the site without radiological restrictions.

Main decommissioning activities

The main decommissioning activities implemented in Latina power plant involve the decommissioning of the fuel handling and loading system; the removal lower and upper pipes of the primary circuit in the reactor building; the nearly complete reclamation of spent fuel pools; the demolition of the blower rooms and emergency diesel.

In 2011, the reinforced concrete pier was removed. The structure, 750 metres long, allowed the access to the intake structure to perform maintenance activities. Thanks to the technique of controlled demolition, the operation was carried out without discharging any structural element at sea or in the surrounding environment.

Subsequently, the dismantling of the turbine building – a reinforced concrete structure which hosted the 5 turbines of the plant during its operation - was completed. This operation resulted in the conferment of about 14,000 tonnes of concrete waste to licensed installations for disposal.

In 2015, the new interim repository was completed, and the radioactive waste resulted from the emptying operations carried out in the KCFC pit was successfully stored. This waste consisted in concrete tanks containing the filters previously used for the treatment of the water of the fuel pool. Recently, the cases of the boilers' blowers were removed, a working site for the creation of a Cutting Facility – to ease the boilers' cutting and dismantling operations.

The works for the reclamation of the fuel pool are currently in progress. In 2018, hot tests on the LECO facility (Latina Extraction and COnditioning) have been completed; this facility was designed by Sogin to carry out the extraction and conditioning of the radioactive sludges resulted from the previous operations of the nuclear power plant (further details are available in the box "Cantiere #SoginSostenibile").

As for the management of radioactive solid waste, the implementation of the super-compaction system is currently in progress, and preliminary civil works for the installation of the confinement structure have been completed.

Main progress and authorisations in 2019

During 2019, the implementation works of the Cutting Facility have continued, and the structure of the building was finalised. This facility will enable the treatment of slightly contaminated metallic materials which will result from the dismantling of the six boilers, for a total weight of 3,600 tonnes of waste. The remaining metal waste to be treated, are those resulting from the premises of the liquid effluent treatment facility (approx. 20 tonnes among pipeline, tanks and metal structures) and the structures of the premises and areas of the reactor building (approx. 130 tonnes).

To improve the site's safety, waterproofing works to protect the soil and the ground water have been also finalised. In conclusion, surveys have been carried out to perform the radiological characterisation of the soil of the areas located within the protection fence of the nuclear power plant and the encapsulation, removal and reclamation of materials containing asbestos were also implemented.

Upon issue of the authorisation to operate the LECO facility, Sogin will launch the extraction and conditioning campaign for radioactive sludges. More specifically, after complying with the provisions of the Supervisory Body, remote visual inspections on the sludges covering the bottom of the tank to verify their homogeneity and consistency, have been carried out.

The next planned operations include the creation of a new Treatment Installation for the Active Effluents (ITEA) resulting from the decontamination of decommissioning components and the cleaning of workers' PPEs. In this regard, the executive project for the operations was approved in 2019 and the tanks for the storage of liquid waste have been completed.
The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Latina power plant.

Main Authorisations obtained in 2019	Authorising/approving body
Authorisation to carry out a campaign of radiometric investigation on the metal materials classified as very low-level radioactive waste.	ISIN
Approval of the detailed project for the implementation of a new Treatment Installation for the Active Effluents (ITEA).	ISIN
Approval of the radiologic characterisation plan for the areas covered by the abandoned discharge pipeline for active liquid effluents.	ISIN
Ministerial Decree of 27 March 2019 – Request for authorisation to modify the system intended for the demolition of the screens in the upper pipelines of the primary circuit (art. 148 Decree Law n. 230/1995 and subsequent amendments and integrations and art. 6 Law 1860/62 and subsequent amendments and integrations).	MiSE

Fuel management

The 125,036 irradiated fuel elements of Latina power plant were shipped to the UK for reprocessing. 22,441 elements out of the total were on-site when the power plant was halted. Shipments were finalised in the early Nineties. The scraps resulting from reprocessing will return to Italy to be temporarily stored in the National Repository.

Radioactive waste management

The radioactive waste stored in Latina as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to 1,794 cubic metres.

By now, the repositories contain the waste conditioned and the waste that requires treatment and conditioning (i.e. radioactive resins and sludges). The new Interim Repository for the storage of radioactive waste (D1 repository) received the authorisation to operate in February 2015.

Interim Repository D1

- Volume of the storage area: 20,000 cubic metres
- Max. storage capacity: 1,500 cubic metres
- Amount of stored waste: 113 cubic metres
- Surface: 2,000 square metres

The site also hosts another repository for radioactive waste, which was used during the previous plant operations.

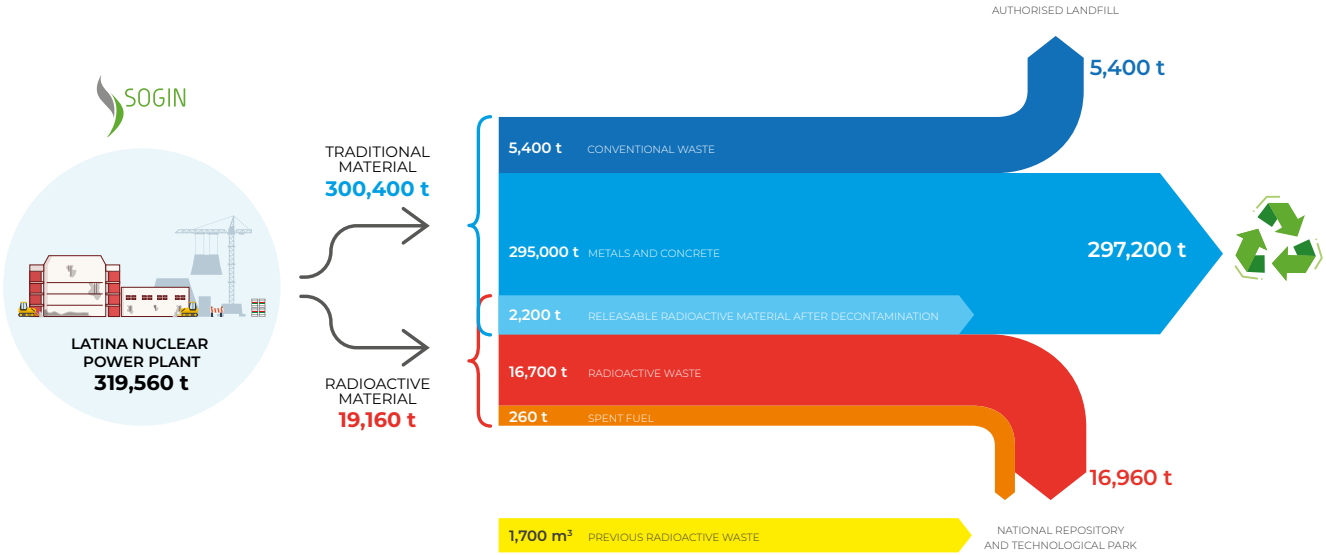
Interim Repository

- Volume of the storage area: 8,500 cubic metres
- Max. storage capacity: 650 cubic metres
- Amount of stored waste: 567 cubic metres
- Surface: 1,000 square metres

Circular economy

Overall, the dismantling operations of Latina power plant will result in approx. 319,000 tonnes of materials. About 297,000 tonnes out of the total (93%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



In 2012-2013, the demolition operations of the turbine building resulted in 1,483 tonnes of metallic materials (iron, cooper, aluminium) sent for recovery, plus the 4,200 tonnes resulted from the dismantling of the internal components and systems, also sent for recovery.

CANTIERE #SoginSostenibile

LECO FACILITY FOR THE CONDITIONING OF RADIOACTIVE SLUDGES

LECO (Latina Extraction and COnditioning) is the facility designed for the extraction and conditioning in cementitious matrixes of the radioactive sludges generated by the active effluent treatment facilities.

Part of these sludges, about 1.5 cubic metres, are located at the bottom of the fuel pool, while other 13 cubic metres are stored in an underground stainless-steel tank under a 1-meter head of water. LECO facility, built between 2009 and 2017, includes a system for the extraction of the sludges from the underground tank, a plant for the conditioning of the sludges in cementitious matrixes in 440-litre cylindrical tanks and a tunnel connecting the two systems. Between 2017-2018 the systems were installed, and functional tests and inspections were carried out. More specifically cold tests were performed, by simulating the whole process to obtain final products, using non-radioactive material, as well as hot tests that led to the production of a radioactive final product. The successful outcome of these tests allowed requesting the authorisation to operate the plant.

All the operations of extraction, transfer, and conditioning in cementitious matrix of radioactive sludges will be carried out remotely through a specific control room.

The 120 final products resulted from the plant's operations will be moved to the new interim repository. At the end of the operations, the extraction building, and the sludge pit will be reclaimed and demolished.

Garigliano

Location	Reactor Type	Launch of commercial operations	Plant shutdown	Transfer to Sogin	Brownfield	Decommissioning Value
Caserta	BWR – Boiling Water Reactor	1964	1978	1999	2026	383 M€

History of the nuclear power plant

Garigliano nuclear power plant of Sessa Aurunca was built in four years (1959-1963) by SENN, National Electro-nuclear Company, based on the project of the engineer Riccardo Morandi; the plant started producing electric energy in April 1964. The plant, equipped with a BWR (Boiling Water Reactor) belongs to the first generation of nuclear plants, with an electric capacity equal to 160 MWe. This reactor was the first BWR built in Europe. In 1965, the plant was acquired by Enel. The plant continued being operating until 1978, when it was halted for maintenance operations. In 1982, the nuclear plant was closed.
Since then, structures and plants have been kept under safe maintenance to ensure people and environment protection.
The plant has produced a total of 12.5 billion kWh of electricity.

Transfer to Sogin

In 1999, Sogin acquired the ownership of Garigliano nuclear power plant to carry out its decommissioning. The Ministry for the Environment, Land and Sea protection issued the EIA (Environmental Impact Assessment) Decree for the plant in 2009. The provision provides for the maintenance of the reactor and turbine buildings after the dismantling of their internal structures and systems. According to the Ministry for Cultural Heritage and Activities, these structures are part of the "Architectural heritage of the Country". Garigliano power plant was the second Italian nuclear power plant to obtain the deactivation decree from the Ministry for Economic Development in September 2012. This decree allows the completion of dismantling and decontamination activities to release the site without radiological restrictions.

Main decommissioning activities

The main decommissioning activities in Garigliano have involved the removal of asbestos from the turbine and reactor buildings; the refurbishment of the chemical and radiological laboratories; the creation of two facilities for the safe storage of radioactive waste (the new Interim Repository D1 and the adaptation of the building of the emergency ex diesel plant. More details about the two repositories, operating since 2013, are reported below.

In 2014, two out of the three trenches (no. 2 and no. 3) were reclaimed, while the works for the reclamation of the remaining trench (no. 1) were launched. The three trenches previously contained buried very low-level and low-level radioactive materials. The recovered radioactive waste has been safely stored in the Interim Repository D1. Part of the surface soil (free of radiological restrictions) was used to fill the empty spaces of the excavations.

In 2017, the decontamination and dismantling works of the 95-metre stack were finalised (further details in the box "Cantiere #SoginSostenibile"), and the old structure was replaced by a lower (on third of the previous) new steel stack operating since 2018.

After having carried out the preliminary activities for the dismantling and restoration of the auxiliary systems, the dismantling of the rotor and the stator of the turbine alternator was completed, thus finalising the operations on the biggest component of the thermal cycle.

Recently, the dismantling of the old (GECO) facility for the treatment of radioactive slurry waste and part of the old radwaste treatment facility (liquid effluents) were implemented to make room to a new installation required for decommissioning purposes. The installation will be equipped with a system for the evaporation and drying of liquid effluents. So far, the construction of external walls of the new facility has been completed.

Sogin is now arranging the reactor dismantling operations, the most complex decommissioning activities in terms of operations and engineering design. Due to the high radioactivity level within the various components and the logistic restraints, these operations will be performed under heads of water, therefore the previous flooding systems have been restored for this purpose. In 2018, to allow access to the vessel (the cylindrical case containing the reactor), the canal of the reactor was opened, and the biological screen removed. This allowed for the full recovery of the equipment and materials that remained in the vessel after the implementation of passive safety measures in the early Nineties.

Main progress and authorisations in 2019

During 2019, the preliminary activities to dismantle the reactor continued. More specifically, the auxiliary systems and the pool flooding and filtering systems were restored and new preliminary design have been drafted.

Preliminary activities to complete the dismantling of the thermal cycle are currently in progress in the turbine building, the operations mainly concern the installations located in the "control floor" of the turbine building. This structure will house the station to treat the materials resulted from the reactor dismantling operations. A cutting machine for big metal components and a sandblast cabinet have been installed for this purpose.

In 2019, the reclamation works of the last trench have continued (trench n. 1) with the removal and radiological characterisation of the soil covering the radioactive waste buried in the trench.

As far as the new system to treat radioactive liquid effluents (Radwaste) is concerned, further operations for the implementation of preliminary civil works to install the new systems have been carried out; the line connecting the new tanks to collect the effluents to be treated has been implemented, as well as the new electric and ventilation systems.

The restoration of the water intake structures – previously used to feed the turbine condenser – is currently used to feed the fire protection service and the effluent discharge system has been completed. The works, which started in 2017, included the restoration of the water taking and filtration systems, the removal of the pool sludges and the restoration of deteriorated concrete structures. About 75 tonnes of iron and steel have been cleared and sent for recovery.

During 2019, the preliminary operations to arrange the shipment of radioactive metals resulting from decommissioning activities for melting were implemented. Moreover, adaptation works have continued in the former compactor building to enable the storage of radioactive waste, and the design of a new Interim Repository, called D2, have also continued.

The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Garigliano power plant.

Main Authorisations obtained in 2019	Authorising/approving body
Approval of Deactivation Project n.1 – Interim Repositories for radioactive waste and Detailed Project for the "Adaptation of the Former Compactor".	ISIN
Authorisation to the radiometric verification programme to be performed on the soil resulting from the reclamation of trenches n. 2 n. 3.	ISIN
Approval of the operational plan for the shipment and treatment of metal radioactive materials.	ISIN

Fuel management

The 523 irradiated fuel elements of Garigliano have been gradually cleared from the plant. Thanks to the clearance operations, which ended in 1987, most of the elements were sent to the UK for reprocessing, while the remaining part was shipped to the Avogadro Repository in Saluggia, and will be reprocessed in France. The scraps resulting from reprocessing operations will return to Italy to be temporarily conferred to the National Repository.

Radioactive waste management

The radioactive waste stored in Garigliano as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to 2,967 cubic metres.

The site houses several interim repositories for the storage of radioactive waste (two of which were implemented between 2007 and 2013); the specifications of these two repositories are reported below.

Interim Repository D1

- Volume of the storage area: 10,000 cubic metres
- Max. storage capacity: 1,100 cubic metres
- Amount of stored waste: 424 cubic metres
- Surface: 1.320 square metres

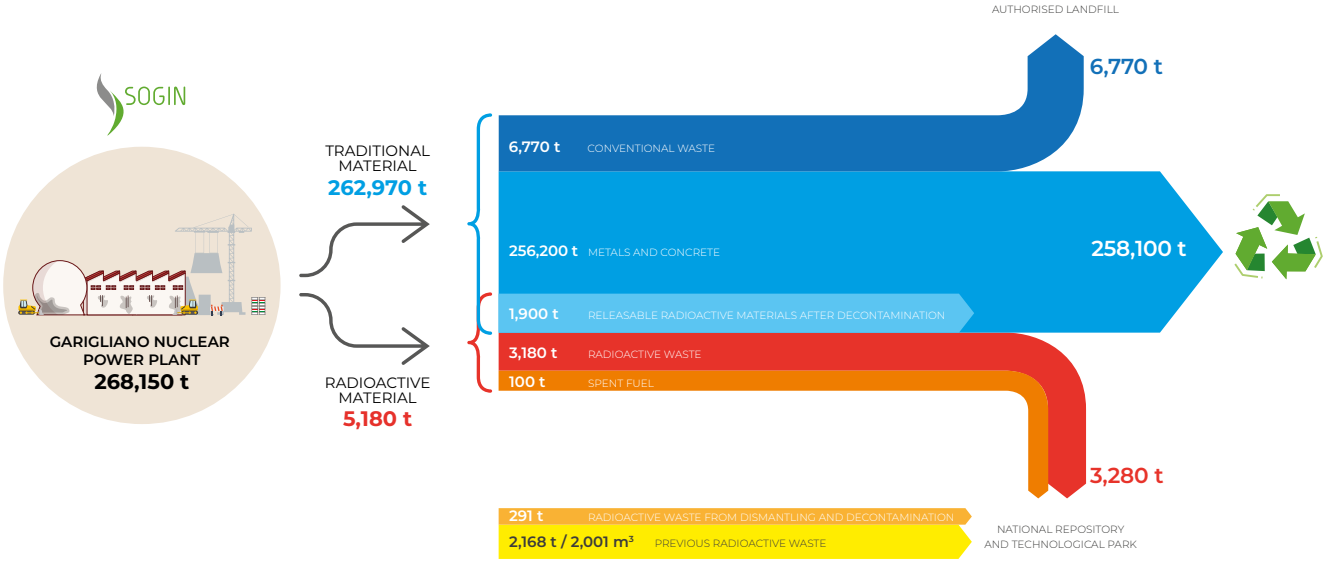
Ex-diesel Interim Repository

- Volume of the storage area: 5,000 cubic metres (net of the artifacts, concrete protection screens and earthquake-proof structures)
- Max. storage capacity: 960 cubic metres
- Amount of stored waste: 957 cubic metres
- Surface: 649 square metres

Circular economy

Overall, the dismantling operations of Latina power plant will result in approx. 268,000 tonnes of materials. About 258,000 tonnes out of the total (96%) – mostly metal and concrete scraps - will be sent for recovery

WASTE DESTINATION



For example, between 2016 and 2018, the dismantling operations of the turbine stator and alternator of Garigliano power plant have resulted in about 400 tonnes of material. 96% of which (mainly plastic, copper and iron) was shipped to licensed recovery installation and subsequently moved to specific manufacturing centres (i.e., foundries for iron).

In 2019, the amount of solid materials, classified as waste, cleared from the site, and sent to third installations amounted to 285 tonnes.

CANTIERE #SoginSostenibile

STACK DISMANTLING OPERATIONS

In 2017, Sogin completed the decontamination and decommissioning of the stack. Thanks to the most advanced Italian solutions and technology, the operations were successfully carried out by guaranteeing the maximum safety for people and the absence of environmental impacts.

The stack was a truncated cone structure made of reinforced concrete, 95 metres high and having a diameter ranging from 5 metres of the base and 2 metres at the top. The stack was used to gradually channel the discharge of the nuclear plant gaseous effluents into the atmosphere. Although it could have been useful in the performance of the current decommissioning operations, this facility, built in line with the engineering criteria of the Sixties, could not meet the modern safety standards. This factor is even more relevant given that the power plant is built on an area subject to high seismic risk, as stated after the earthquake occurred in Irpinia in 1980.

In March 2014, the stack demolition operations were started to allow the opening of the working site and the demolition according to conventional procedures.

The first stage included preliminary works and verifications: building consolidation; waterproofing of areas; construction of a first flush rainwater tank. Moreover, the systems and machines have been tested on a 12-metres high chimney mock-up, built outside of the site.

The internal walls of the stack were subsequently decontaminated, through scarification. This operation was carried out by a remote-controlled anthropomorphic robot, designed in Italy, which moved inside the walls of the stack. The robot performed the progressive removal of slightly contaminated thin concrete layers for a total thickness of 1 centimetre. The air flow was monitored and channelled through specific shutters to avoid the release of powders and debris in the air.

Following the decontamination, Sogin has started the conventional demolition operations. The demolition technique used was the controlled crushing, appropriate to ensure the best safety level and to avoid possible damages to the structures located near the chimney, amongst which there is the reactor building.

The demolition activities produced 830 tonnes of material, among which 800 tonnes of concrete and 30 tonnes of metal. The minimum quantity of non-releasable material resulted from the scarification was safely stored in the D1 Interim Repository.

Bosco Marengo

Location	Reactor Type	Launch of Operations	Halt of fuel manufacturing operations	Transfer to Sogin	Brownfield	Decommissioning Value
Alessandria	Installation for the manufacturing of fuel elements	1974	1995	2005	2020	36,5 M€

History of the plant

Bosco Marengo (Fabbricazioni Nucleari) Nuclear Fabrications plant, built in the early Seventies, takes its name from the building company "Fabbricazioni Nucleari S.p.A.". The plant activities, started in 1973, have produced fuel elements to supply Italian and foreign nuclear plants.

Since 1987, after the closing of the nuclear programme in Italy, the plant has gradually switched its production to advanced ceramic products such as: arthroplasty elements, porous components for industrial fuel cells, cutting-tools units, and similar products.
In 1989, ENEA acquired the plant and, in 1995, all nuclear activities were halted. Since then, traditional technological activities have been implemented and the safe maintenance of the structures was ensured.
In 2005, Sogin acquired the plant to carry out its decommissioning and in 2008 the plant obtained the deactivation Decree (issued by the Ministry for Economic Development on 27 November 2008).

Main decommissioning activities

The decommissioning programme of Bosco Marengo is well underway. It will be the first Italian nuclear power plant decommissioned by Sogin.

Main decommissioning operations carried out so far have involved the decontamination and dismantling of the fuel production plant, the "heart" of the plant during its operation period. Moreover, the auxiliary systems have been dismantled (namely, ventilation system, decontamination tank and the drainage systems for radioactive liquid effluents). The fireproofing system was, instead, adapted with the implementation of a new water reservoir which allowed increasing the quantity of stored water of more than 1,000 cubic metres.

As for the safe maintenance operations, the special maintenance works conducted on 611 overpacks containing radioactive waste resulted from the plant previous operations have been successfully completed. The auxiliary systems of BLD1 and BLD2, located within the controlled area, have been completed, enabling the implementation of the characterisation procedure to declassify the areas.

Another operation involves the adaptation of the B106 premise into an interim repository for the radioactive waste of the site. During the performance of the operations, the existing waste was stored in the interim "buffer" facility adapted in premise BLD11. Upon issue of the authorisation to operate, the waste will be safely move to the new repository in the B106 premise.

Main progress and authorisations in 2019

During 2019, the adaptation of the B106 premise into an Interim Repository was completed, and tests of the civil structures was concluded. At the same time, all the authorisation procedures for the operation were carried out. Operational tests are expected to be completed by the first half of 2020. The treatment of solid radioactive waste, shipped to Nucleco, continued over 2019 (further details in the box "Cantiere #SoginSostenibile").

As for liquid radioactive waste, in the first half of 2019, "cold tests" have been carried out on the conventional waste having the same chemical and physical features of radioactive waste, to assess the effectiveness of the solidification techniques. The Operational plan for the shipment, treatment and conditioning of liquid radioactive waste was submitted to the Supervisory Body in February. Upon request of ISIN, Sogin implemented further studies on the radiological concentration of the liquid waste. These operations were carried out safely, after the interruption of any structural work and clearance operations, intended to declassify the premises of the controlled areas.

Within the field of the safe maintenance operations, in September 2019, all switchgears were replaced to comply with the existing regulatory framework.

The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Bosco Marengo.

Main Authorisations obtained in 2019	Authorising/approving body
Approval of the operational and characterisation plan for the removal of man-made materials from Bosco Marengo clearance area.	ISIN
Approval of the characterisation plan for the premises of Bosco Marengo site for their subsequent release.	ISIN

Fuel management

The fuel resulted from Bosco Marengo previous operations was shipped abroad for reprocessing. When the operations were halted, the plant housed approx. 112 tonnes of nuclear fuel. Il materiale è stato tutto allontanato e trasferito all'estero, con un ultimo trasporto avvenuto nel novembre 2006.

Radioactive waste management

The radioactive waste stored in Bosco Marengo as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to è 512 cubic metres. Almost all the radioactive waste of the site is solid, while 0.7% (3.7 cubic metres) is liquid.

The BLD11 premise was adapted into an interim "buffer" station to allow the safe interim storage of solid radioactive waste, pending the operation of the new B106 Interim Repository, having the features reported below. Part of the solid waste was shipped and conditioned in Nucleco facilities.

BLD11 Interim Buffer

- Volume of the storage area: 4,492 cubic metres
- Max. storage capacity: 510 cubic metres
- Amount of stored waste: 508 cubic metres
- Surface: 562 square metres

New B106 Interim Repository

- Volume of the storage area: 4,420 cubic metres
- Max. storage capacity: 525 cubic metres (equal to 1,376 380-litre overpacks)
- Surface: 568 square metres

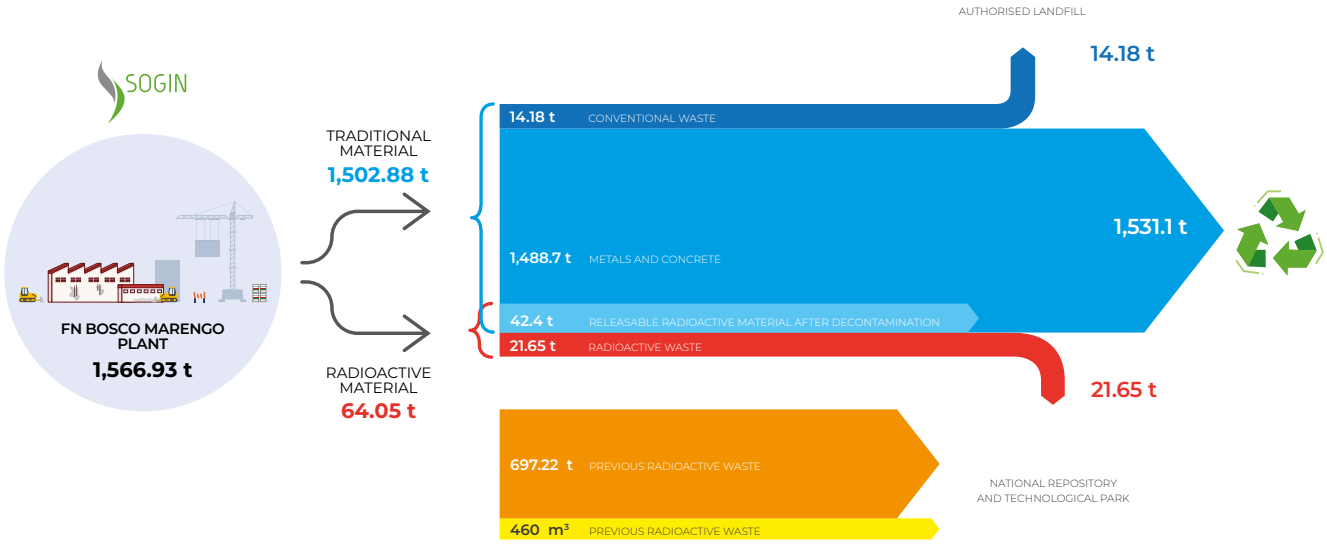
The minimum quantity of very low-level (VLLW) and low-level waste (LLW), produced during the site operations, are safely stored in the site pending approval of the operational plan for their treatment and conditioning.

The artifacts resulted from waste treatment and conditioning, will be temporarily stored in Bosco Marengo, pending their conferment to the National Repository.

Circular economy

Overall, the dismantling operations of Bosco Marengo will result in approx. 1,570 tonnes of materials. About 1,530 tonnes out of the total (98%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



The value of releasable materials includes those resulted from decommissioning operations carried out before 2019, specifically:

- Demolition of BLD10 premise, with a total amount of 986.8 tonnes;
- Concrete scraps and soil taken from outside the B106 premise (adaptation into an Interim Repository for radioactive waste), for a total amount of 59.2 tonnes.

Bosco Marengo, like other sites under decommissioning, provides a good example of circular economy approach, with the re-adaptation and reuse of existing premises for decommissioning and radioactive waste management purposes. For example, the B106 Interim Repository, obtained by adapting the existing premise to enable the storage of the radioactive waste located in the site, pending their conferment to the National Repository.

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TREATMENT OF SOLID RADIOACTIVE WASTE

The decommissioning programme of the Bosco Marengo site entails the treatment and conditioning of 1,429 tanks containing radioactive waste in the Nucleco facilities: 390 tanks resulted from previous operations, in addition to 1,039 tanks resulted from the decommissioning activities carried out up to 2019. These operations involve the supercompaction to reduce the volume of waste, which will later be solidified through a special polymer and cement dust that will make the waste ready for the safe shipment, storage, and disposal. Most of the solid radioactive waste has been sent to Nucleco. More specifically, from November 2017 to May 2019, 1,244 220-litre tanks were shipped to Nucleco. The conditioned waste returned to the site and it is temporarily stored in the BLD11 premise. By 2020, it is expected that the remaining 220-litre tanks will be shipped to Nucleco to undergo the super-compaction treatment (about 185).

Saluggia

Location	Type	Operation	Halt of Research Activities	Transfer to Sogin	Brownfield	Decommissioning Value
Vercelli	Research Facility on the Nuclear Fuel Cycle	1970	1984	2003	2036	475 M€

History of the plant

The EUREX (Enriched URanium Extraction) plant was built in 1965. The facility was made operational in 1970 and performed research activities on the reprocessing of irradiated fuels. The plant operation lasted until 1984. Since then, the safe maintenance of plants and structures has been implemented to protect people and environment. In 2003, Sogin acquired the management of the plant to carry out its decommissioning. By the end of 2014, a request for decommissioning was submitted under art. 55 of Decree Law n. 230/1995

Main decommissioning activities

The decommissioning programme of Saluggia power plant entails the dismantling of the structures of the EUREX facility and the safe storage of the radioactive waste located in the site, through the design and construction of the facilities required for the waste interim storage.
One of the main decommissioning operations carried out so far involved the emptying and reclamation of the pools that, during the site operation, contained the fuel elements for reprocessing. This is one of the first experiences of "dry" removal applied to fuel elements in the world, which is more complex due to the limited size of the pool (further details in the box "Cantiere #SoginSostenibile").
Moreover, the piezometric tower was dismantled and the new water supplied system was operated, after closing and dismantling the old wells intended for protecting the deep groundwater. In 2018, the new switchgear, created by Sogin to meet the technical requirements of decommissioning operations, was also operated.
As for the safe storage of radioactive waste, the New Tank Facility (NPS), to store high radioactive waste, was built along with a new Interim Repository (D2) for the storage of conditioned solid waste (further details are provided below).
One of the main activities in progress is the creation of the CEMEX (EUREX CEMentation) complex, which will enable the cementation of liquid radioactive waste, and the storage of the resulting artifacts. All the operations that will be carried out in the CEMEX complex involve a remote management system to ensure maximum safety.
Treatment and conditioning of radioactive waste are still being implemented, to reduce its volume and confer it to the National Repository. Among the stored waste, there are 135 tonnes resulted from dismantling operations of the IFEC plant (Fuel Elements Manufacturing Plant), carried out in the Nineties. About 70% of this waste has already undergone treatment and conditioning. The remaining tonnes, consisting of the so called "anomalous" IFEC waste, are currently undergoing more complex cutting and decontamination procedures, to be later treated and conditioned. Finally, the decontamination and dismantling of the UCUBIC METRESP (Manual Plutonium Conversion Unit) was also carried out.

Main progress and authorisations in 2019

In 2019, the works to finalise the civil works of the D3 Interim Repository for the CEMEX Complex have been launched. The construction of structural walls and the concrete slab - built at a height of 13 metre above the ground – was also completed at the end of year. A tensile structure was installed to cover and protect the works under implementation. Pending the new tendering procedure to finalise the works, Sogin has reviewed the engineering design, which was submitted for verification and validation according to the provisions of the new Procurement Code.
In July 2019, the D2 Interim Repository D2 was operated with the storage of the first conditioned overpacks.

The decontamination and dismantling programme of the UCUBIC METRESP (Manual Plutonium Conversion Unit), launched in the first half of 2018, also continued. The first stage ended with the authorisation to modify issued by the Ministry for Economic Development, subject to the approval of the Operational Plan on behalf of the Supervisory Body. Moreover, a plan to carry out the mock-ups of the decontamination and dismantling operations of the obsolete Glove of the UCUBIC METRESP. To carry out this test, a testing environment is being created with all the necessary equipment, instruments, and a mock-up of the UCUBIC METRES facility to train the concerned operators.

To support the decommissioning programme of the site, an environmental chemistry laboratory, equipped with the most advanced instruments, has been implemented.
Again over 2019, the characterisation and conditioning of previous radioactive waste have continued. Moreover, the operators have carried out a sampling programme on the organic liquid

waste taken from the storage tank through a specifically designed system. The samples taken were characterised in the laboratories of the site, to be ready for the prequalification tests of the matrixes and the subsequent treatment procedure.
The following table lists the main authorisations obtained in 2019 for the decommissioning programme of the EUREX plant.

Main Authorisations obtained in 2019	Authorising/approving body
Authorisation to modify the EUREX plant to implement a system for the extraction of organic liquid waste, pursuant to art. 148, par 1-bis of Decree Law n. 230/1995 and subsequent amendments and integrations and to art. 6 of Law 1860/1962 and subsequent amendments and integrations.	MiSE (Ministry for the Economic Development)
Authorisation to modify the EUREX plant of Saluggia to implement a new system for the collection of the facility liquid effluents pursuant to art. 6 of Law 1860/1962 and subsequent amendments and integrations and to Decree Law 1/2012, as converted and amended by law 27/2012.	MiSE
Landscaping authorisation to install a thin covering structure to protect the civil works of the CEMEX Complex from adverse weather conditions pending the resumption of works.	Municipal Authorities
Authorisation for operation for the solid radioactive waste D2 Interim located within the EUREX complex of Saluggia.	MiSE
Authorisation to modify the time provision under art. 2, par. 1, sec. 2) of the Ministerial Decree of 23.12.2010.	MiSE
Authorisation for the dismantling of obsolete Glove Boxes located in the UCUBIC METRESP (Manual Plutonium Conversion Unit) of the EUREX plant in Saluggia, pursuant to art. 148, par. 1-bis of Decree Law 230/1995 and subsequent amendments and integrations and to art. 6 of Law 1860/1962 and subsequent amendments and integrations.	MiSE

Fuel and nuclear materials management

The fuel originally located in the pool of the EUREX plant was inserted in special highly resistant containers (casks) and moved to the Avogadro repository of Saluggia in 2007. Most of this fuel was later sent to France in five different shipments for reprocessing. The clearance operations will be completed with three further shipments abroad.

In 2014, the GTRI (Global Threat Reduction Initiative) allowed the repatriation of the US nuclear materials sent to the Italian power plants in the Sixties for research, Saluggia was among these plants.

Radioactive waste management

The radioactive waste stored in Saluggia as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to è 2,943 cubic metres.

Almost all (90%) this radioactive waste is solid, while the remaining part is liquid.
The new D2 Interim Repository was implemented to carry out the safe storage of solid radioactive waste. Designed in line with the best international practices, the D2 repository started operating in 2019, with a large surface that allows to easily carry out remote inspections and casks handling.

Interim Repository D2

- Volume of the storage area: 25,000 cubic metres
- Max. storage capacity: 2,500 cubic metres
- Amount of stored waste: in loading
- Surface: 2,100 square metres

The gradual storage of solid radioactive waste in the new interim repository increases the safety of the site. The waste intended to be stored in the D2 repository were previously stored in the 2300 interim repository, built in the Seventies. This facility, which is now full, requires adaptation to the new safety standards. The remaining solid waste will be stored in other buffer areas of the site.

As for the intermediate-level waste, the Waste Management Facility will be implemented. This facility, which is currently being designed, will allow reducing the waste volume to proceed with the conditioning operations. 300 cubic metres of liquid radioactive waste, resulted from the previous fuel reprocessing campaigns, are also located in the site. Since 2009, 125 cubic metres out of the total, consisting of waste with a higher radioactivity level have been stored in the New Tank Facility, designed according to the best international engineering and infrastructure standards. The remaining liquid low-level radioactive waste are safely stored within the original tanks, located in thick concrete cells, and stored, in turn, in a specific area of the site.

With the operation of the CEMEX complex, a new Interim Repository, called D3, will be implemented. This facility is a rectangular building in reinforced concrete, with a surface of 17.4 x 35.7 metres and a height of about 13 metre. The main features of the D3 repository are reported below.

Interim Repository D3

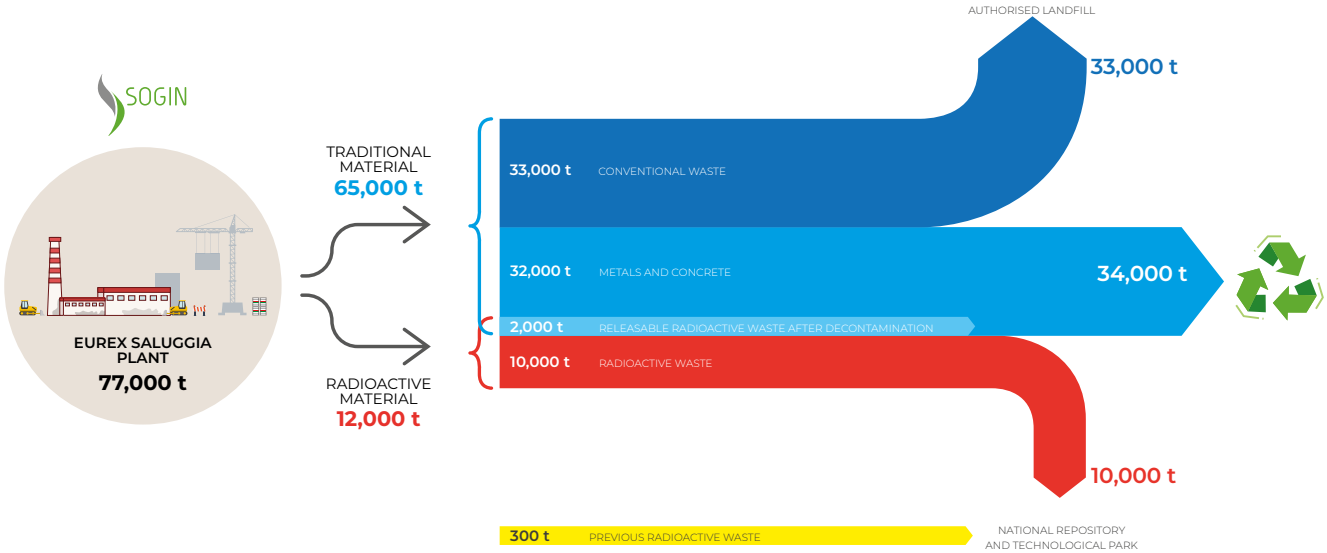
- Volume of the storage area: 9,000 cubic metres
- Max. storage capacity: 600 cubic metres of radioactive waste
- Surface: 621 square metres

For the smallest part of liquid radioactive waste that will not be solidified in the CEMEX plant, about 15 LL liquid radioactive waste of organic nature, a system to directly collect the samples for the characterisation from the tank has been implemented. This system will be used to define the best treatment and conditioning procedures to be adopted.

Circular economy

Overall, the dismantling operations of Saluggia will result in approx. 77,000 tonnes of materials. About 34,000 tonnes out of the total (44%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



Saluggia, like other sites under decommissioning, provides a good example of circular economy approach, with the readaptation and reuse of existing premises for decommissioning and radioactive waste management purposes. For example, the CEMEX complex, designed with an innovative system, will allow reducing the final volume of the overpacks resulting from the solidification of liquid radioactive waste by 5%.

Another example of sustainable practice consists in reusing an area previously covered by other buildings, for the implementation of the D2 Interim Repository D2, without exploiting the untouched soil located within the site area.

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POOL RECLAMATION

One of the most complex challenges faced by Sogin in the Saluggia decommissioning programme, was the reclamation of the pool of the EUREX facility, performed through the “dry” removal of the irradiated fuel located in the premise (52 irradiated elements coming from Trino nuclear power plant and 48 semi-rods from the Garigliano nuclear power plant).

This operation, which only took 2 years, was made more complex due to the limited surface of the pool, and the presence of contaminated sludges on the bottom of the structure. In the first stage of the operation, started in 2006, the pool was removed and the safe assurance of about 80 tonnes of obsolete metal equipment was carried out.

Subsequently, the “dry” removal of the fuel was launched and implemented with the use of advanced technology and design procedures and after the performance of an accurate assessment of the radiological aspects. Due to the shallow depth of the pool, the 52 fuel elements coming from Trino (about 3 metres in length) were placed horizontally within the pool and inserted in 9 tilting “quivers” (cases). Therefore, the operation required to first move the quivers in the loading areas, tilt them, and extract the 6 irradiated elements from each quiver one by one, using a specific screened protection. Each element was later inserted in a special container defined “containment bottle” and designed for this purpose.

After loading the six elements in the containment bottles, they have been extracted and introduces in the cask one by one. The casked elements were finally moved to the Avogadro Repository located nearby.

After the complete removal of irradiated fuel, Sogin carried out the pool reclamation. First, the operators carried out the safe removal and assurance of the contaminated sludges located at the bottom of the pool, then, the water of the pool was purified and released in the environment without radiological impacts.

Casaccia

Location	Type	Launch of Operations	Halt of research activities	Transfer to Sogin	Brownfield	Decommissioning Value
Roma	Research Centre on Nuclear Fuel Cycle (Plutonium and Hot Cells Operations)	Plutonium Plant - 1968 Hot Cells Operation Plant 1 – 1962 Hot Cells Operation Plant 2 – never operated	1987	2003	2029	224 M€

History of the plants

Since 2003, Sogin has managed the OPEC (Boilers Operations) plant and the IPU (Plutonium Plant) plant located in the ENEA Research Centre of Casaccia.
OPEC-1 activities were originally launched in 1962; this was the first Italian facility to carry out research and analysis on nuclear post-irradiated fuel elements. The structure is now used as a temporary repository and it contains an inventory of irradiated materials resulted from different research processes and to be used in destructive tests.
OPEC-2 repository, located next to OPEC-1, was built in the Seventies to expand nuclear research, control and analysis activities previously carried out in OPEC-1; unfortunately, its activity has never started. Today, OPEC-2 has been readapted into a temporary repository for radioactive waste coming from the Plutonium plant.
The IPU plant was designed and built in the Seventies and its activities started in 1968; it mostly carried out research activities on nuclear fuel elements production technologies. In 1990, after closing the Italian nuclear programme, research activities were halted.

Main decommissioning activities

The main decommissioning activities of the IPU and OPEC plants of Casaccia include five projects.
The new OPEC-2 repository was built to temporarily house the radioactive waste resulted from previous IPU (Plutonium Unit) and decommissioning operations.

The dismantling of the 56 Glove Boxes (SaG) is the most complex decommissioning operation of the IPU facility. These boxes are divided into four levels of complexity, related to size and radiological content. The dismantling of the Glove Boxes of 1°, 2° and 3° level have been completed, while the dismantling of 4° level Glove Boxes are under implementation (more details in the box “Cantiere #SoginSostenibile”).

The Waste A and B Dismantling” project entails the removal and decontamination of the underground system used to collect liquid radioactive waste during the previous OPEC-1 operations. The buried tanks, pipelines and systems have been dismantled, and a radiological mapping was performed on the remaining structures. Previously removed materials have been sent outside of the site for treatment and conditioning. The next stage of the operation is being designed, and it will include the demolition of civil underground works, to complete the reclamation of the area.

A further undergoing project is the treatment of the liquid radioactive waste resulting from the research activities previously performed in the site. The operation entails the solidification of a small volume of liquid, organic and aqueous waste, stored in the IPU plant and in Nucleco interim repositories. Liquid aqueous waste obtained the qualification for the cementation procedure, that will be carried out in an experimental Glove Box designed by Sogin. Further feasibility analysis for the treatment and conditioning of organic liquid waste is still ongoing.

The implementation of the Waste Management Facility will allow the treatment of solid intermediate radioactive waste, both previous waste and the waste that will result from future decommissioning operations. This facility, designed by Sogin, will reduce the volume of the casks containing the radioactive waste before their conditioning in containers suitable to be conferred to the National Repository.

Main progress and authorisations in 2019

One of the main progresses achieved in 2019 was the authorisation to operation for the OPEC-2 and the loading Interim Repository, by shipping the Plutonium radioactive waste previously stored in Nucleco repositories.
As for the OPEC-1 repository, adaptation works to equip the C14 building for the interim characterisation of potentially releasable materials have been launched and the remote controls of hot cells have been restored.
The final project to finalise the Waste A and B dismantling and carry out the reclamation and restoration of the area is under drafting.
The treatment and conditioning operations on the radioactive waste located in the OPEC and IPU plants have been implemented over the year.
The dismantling of fourth-level Sag (Glove Boxes) of the IPU plant has continued. By the end of 2019, 51 Glove Boxes were dismantled. The final design of the new storage systems of one of the premises of the Interim Repository was finalised. Moreover, the procurement procedures for the adaptation of the electric system of the controlled area and the supply of a new SaG for the cementation of liquid aqueous waste were launched. Civil and system restoration works in the IPU offices have also started.

As for the implementation of the Waste Management Facility, the feasibility study to identify the suitable areas to build the facility for the compaction of radioactive casks has been completed.
The following table lists the main authorisations obtained in 2019 for the decommissioning programme of Casaccia plant.

Main Authorisations obtained in 2019	Authorising/approving body
Ministerial Decree for the interim amendment of the management provisions related to the unconditional clearance of solid materials.	MiSE
Authorisation to launch the first loading campaign of the OPEC-2 Repository	ISIN

Fuel and nuclear materials management

The irradiated fuel located in Casaccia, will undergo dry storage in metal screened casks suitable for handling and storing the waste in the National Repository.

In 2014, the GTRI (Global Threat Reduction Initiative) allowed the repatriation of the US nuclear materials sent to the Italian power plants in the Sixties for research, Saluggia was among these plants.
The operations to prepare the waste to be shipped, are carried out in a new operational area of the IPU plant, equipped with three Gove Boxes designed for this purpose. The procedures comply with the best national and international safety standards and guidelines.

Radioactive waste management

The radioactive waste stored in Casaccia as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to è 251 cubic metres.
Almost all the radioactive waste is solid (less than 1% is liquid). The radioactive waste currently located in the site and resulted from the previous operation and decommissioning of the installation, are temporarily stored in adapted areas: the premises of the Plutonium Plant, the OPEC-1 and the OPEC-2 Interim Repository.

Premises of the Interim Repository in the Plutonium Plant

- Volume of the storage area: 1,300 cubic metres
- Max. storage capacity: 190 cubic metres
- Amount of stored waste: 185 cubic metres
- Surface: 300 square metres

Premises of the OPEC-1 Interim Repository

- Volume of the storage area: 120 cubic metres
- Max. storage capacity: circa 20 cubic metres
- Amount of stored waste: 9 cubic metres
- Surface: 250 square metres

OPEC-2 Interim Repository

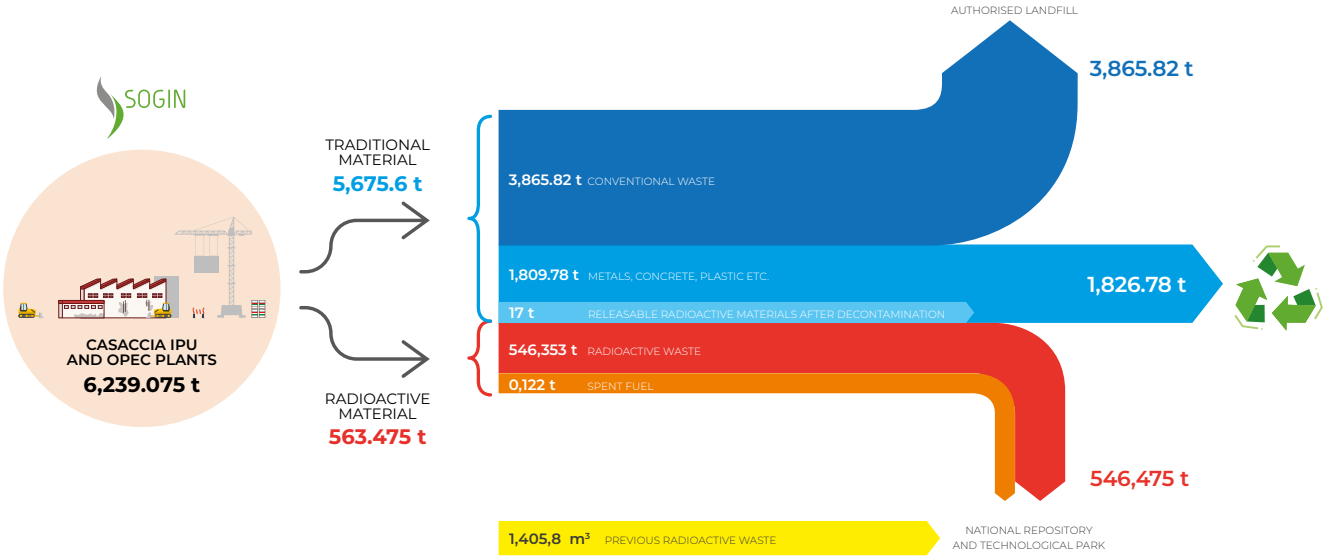
- Volume of the storage area: 3,800 cubic metres
- Max. storage capacity: 660 cubic metres of radioactive waste (about 2,300 casks)
- Amount of stored waste:57 cubic metres
- Surface: 930 square metres

After the shipment of the waste to the National Repository, all the interim repositories will be demolished, excluding the OPEC-2 Interim Repository that will return to the Casaccia Research Centre to be reused.

Circular economy

Overall, the dismantling operations of Saluggia will result in approx. 6,000 tonnes of materials. About 1,800 tonnes out of the total (30%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



The value of the releasable materials, compared to last year, includes a 30% share of directly releasable waste to be sent for recovery, in line with the guidelines issued by the Ukaea (United Kingdom Atomic Energy Authority).
Casaccia, like other sites under decommissioning, provides a good example of circular economy, with the re-adaptation and reuse of the existing premises for decommissioning and radioactive waste management purposes. For example, the OPEC-2 interim repository, operating since 2018, resulted from the adaptation of an existing area previously intended to house the “hot cells”.

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GLOVE BOXES DISMANTLING OPERATIONS

The Glove Boxes (SaG) dismantling is the most relevant operations implemented during the decommissioning of Casaccia site.
The Glove Boxes are the confined safety cabinets used to manipulate the Plutonium for the production of nuclear fuel elements during the operation of the Plutonium Plant. Overall, there are 56 obsolete Glove Boxes, divided in four levels of complexity, related to size and radiological content. Few Glove Boxes will remain in operation for the management of residual nuclear materials.
The dismantling of obsolete Glove Boxes is carried out in alpha sealed containment curtains (TATA) supplied with gloved tunnels to allow the performance of the operations from the outside.

The Sogin staff will carry out the following activities:

- Intervention and equipment design (containment curtains, cutting machines, handling systems);
- Staff training and cold tests with mock-ups.

The dismantling of a Laboratory Glove Box requires the performance of several steps: the preliminary reclamation and preparation of the Glove Box; the installation of the dismantling location and equipment; handling and moving the Glove Box within the containment curtain; dismantling of the Glove Box and curtain used for the previous operation; disassembly of the dismantling equipment. These operations involve the management of solid radioactive waste to be supercompacted in existing super-compaction installations of Sogin Group or in the Waste Management Facility, according to their Plutonium concentration, to reduce in volume (1:3) and be suitable to be conferred to the National Repository.
The first Glove Box was dismantled in 2020. From 2012 to 2014, the site was cleared from first and second-level Glove Boxes. In 2016 third-level Glove Boxes were also dismantled and operations were started for the most complex remained (fourth-level SaG).

Rotondella

Location	Type	Launch of operations	Halt of the research activity	Transfer to Sogin	Brownfield	Decommissioning Value
Matera	Nuclear fuel cycle research facility	1975	1987	2003	2036	282 M€

History of the facility

The ITREC plant (Treatment and Re-manufacturing Plant for fuel elements) is located within the Trisaia Research Centre ENEA in Rotondella (MT) and it was built between 1960 and 1970 by CNEN (National Committee for Nuclear Energy). Between 1968 and 1970, 84 irradiated Uranium-Thorium fuel elements were shipped to the plant from the experimental reactor Elk River (Minnesota).
Subsequently, research was conducted on reprocessing and remanufacturing operations for the Uranium-Thorium cycle to assess the technical and economic viability of the latter compared to the traditionally implemented Uranium-Plutonium cycle. In 1973, CNEN acquired the ownership of the 84 fuel elements from Elk River and reprocessed 20 of these elements. In 1987, following the referendum on nuclear power plants, all activities have been suspended. Since then, the safe maintenance of the site has been implemented. In 2003, Sogin acquired the plant to carry out its decommissioning.

Main decommissioning activities

The main decommissioning operations implemented so far have involved the construction of the new control booth and the decontamination of the discharge pipe at sea. The implemented decontamination and characterisation technique allowed the release of 100% of the discharge pipeline, equal to about 120 tonnes of iron materials.

A chemical and radio-chemical laboratory was implemented to perform the environmental radiological monitoring of the site; the lab is supplied with specific instruments to monitor the level of contamination among exposed workers, as stated under Legislative Decree n. 230/1995.

The reclamation of Pit 7.1 – an underground structure used to contain and dispose intermediate active solid waste during the site operation - is well underway (further details in the box “Cantiere #SoginSostenibile).

The working site to implement the ICPF, namely the facility intended for the cementation of the liquid Uranium-Thorium solution (approx. 3 cubic metres), called “final product”, that results from the experimental reprocessing operations performed on fuel during past operations. The ICPF project involves the construction of a building, which will host remote-controlled systems for the cementation of the liquid solution (final product) and of an Interim Repository (DCUBIC METRES3) for the safe storage of the final products.

The SIRIS (Solid Waste Storage) Project for the characterisation, treatment and conditioning of the solid radioactive waste resulted from the site’s safe maintenance previous operations. The first stage of the project entailed the treatment and conditioning of solid waste (stored in 21 containers) resulted from the site operations. As part of the project, the reclamation of premise 115 (the so-called “corridor”) from potentially contaminated materials and equipment was completed and resulted in about 50 tonnes of materials sent for treatment.

Main progress and authorisations in 2019

Relevant progress was achieved in the reclamation of Pit 7.1, with the successful extraction of the four wells forming the reinforced concrete “monolith” filled with radioactive waste. During 2019, the works to continue the civil works of the ICPF process building have been finalised, and the contract for the construction of the DCUBIC METRES3 interim repository was awarded via tendering procedure. Monitoring campaigns on groundwater and conventional environmental campaigns have also continued, in line with the provisions of the EIA Decree.

As for the SiRiS project, 160 casks containing solid radioactive waste from safe maintenance and decommissioning operations have been characterised, and 47 casks, containing VLL solid waste, have been super-compacted and resulted in 7 super-compacted artifacts suitable to be stored in the National Repository.

The following table lists the main authorisations obtained in 2019 for the decommissioning programme of the ITREC site in Rotondella.

Main Authorisations obtained in 2019	Authorising/approving body
Authorisation for the interim movement of the units stored in storage facility 9.3.	ISIN
Approved removal of the former Magnox pipeline located in Sogin's area – preliminary characterisation report and executive radiological characterisation plan.	ISIN
Approved radiological characterisation of the Pit 7.1 surrounding area to allow the opening of the working site for the implementation of the ICPF process building.	ISIN

Management of fuel and nuclear materials

The pool of the ITREC plant contains 64 irradiated fuel elements resulted from the Uranium-Thorium cycle of the US experimental reactor Elk River, which will undergo dry storage in two casks, to be suitable for shipment and storage operations.

The casks have been designed and will be soon manufactured. Moreover, a team is specifically working on the specifications of the project for the Elk River dry storage, to comply with the integrations requested by ISIN after the release of the authorisation in March 2020. To ease the movement of fuel elements within the casks, the handling systems of the pool have been adapted and the area was cleaned. After the movement of the casks, the fuel elements will be stored in the site, pending their conferment to the National Repository, and the pool will be emptied.

In 2014, the GTRI (Global Threat Reduction Initiative) allowed the repatriation of the US nuclear materials sent to the Italian power plants and sites in the Sixties for research, Rotondella ITREC was among these facilities.

Radioactive waste management

The radioactive waste stored in Rotondella as of 31.12.2019 - classified according to the Inter-ministerial Decree of 7 August 2015 – is equal to è 3,361 cubic metres.
This waste is safely stored in the site. The main repositories of the site and the amount of radioactive waste stored are reported below.

Interim Repository 9.1

- Max. storage capacity: 2,100 cubic metres
- Amount of stored waste: 249 cubic metres

Interim Repository 9.2

- Max. storage capacity: 2,100 cubic metres
- Amount of stored waste: 395 cubic metres

Interim Repository 9.3

- Max. storage capacity: 811 cubic metres
- Amount of stored waste: 253 cubic metres

Interim Repository 9.4

- Max. storage capacity: 2,400 cubic metres
- Amount of stored waste: 347 cubic metres

Interim Repository 9.5

- Max. storage capacity: 2,400 cubic metres
- Amount of stored waste: 280 cubic metres

TMT

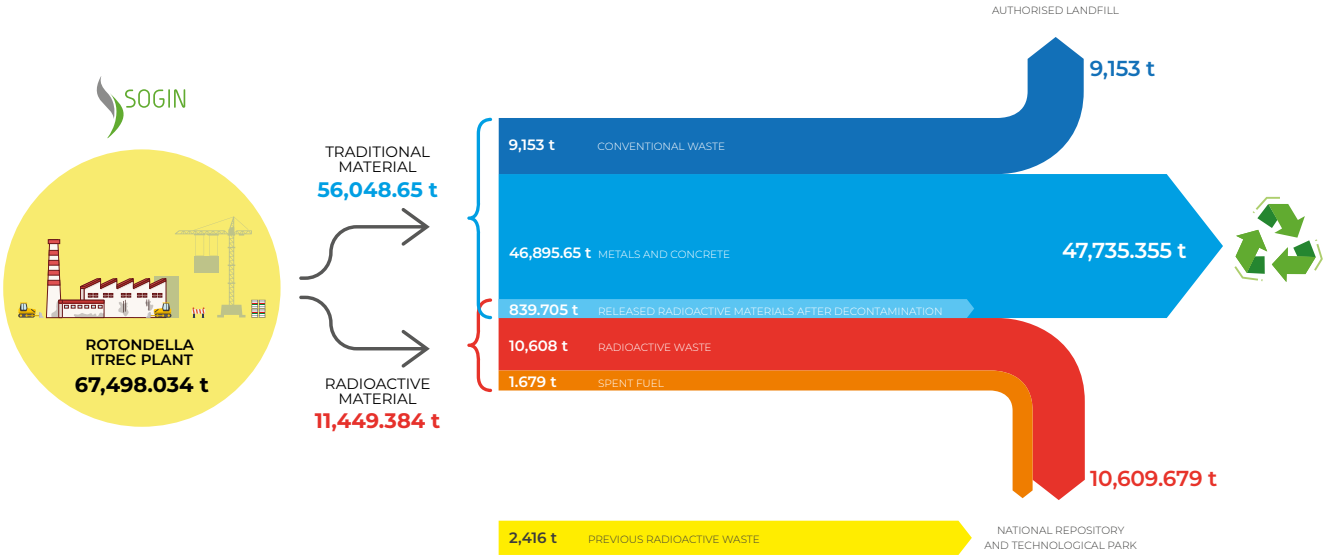
- Max. storage capacity: 1,600 cubic metres
- Amount of stored waste: 451 cubic metres

After its implementation, the repository DCUBIC METRES3 of the ICPF plant will store the overpacks resulted from the cementation of the “final product”. The nitric solution of the final product is currently stored in an underground premise of the plant.

Circular economy

Overall, the dismantling operations of Rotondella ITREC plant will result in approx. 67,000 tonnes of materials. More than 47,000 tonnes out of the total (more than 70%) – mostly metal and concrete scraps - will be sent for recovery.

WASTE DESTINATION



An example of circular economy in Rotondella ITREC plant is the reuse of the Pit 7.1 area, which, after reclamation, will house the ICPF process building.

Like in other sites under decommissioning, the re-adaptation and reuse of existing premises for decommissioning and radioactive waste management purposes have avoided the construction of new facilities. In Rotondella, a good example is provided by the reuse of the “remanufacturing cells” laboratory, intended for the remanufacturing of fuel elements and never operated. This laboratory has been adapted to house the prototype of the cementation cell used to train the operators and staff of the ICPF plant.

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RECLAMATION OF PIT 7.1

Pit 7.1 of Rotondella ITREC Plant was an area designed and built at the end of the Sixties to host the reinforced concrete "monolith" containing the radioactive solid waste resulting from fuel reprocessing activities.

It is a vertical prism-shaped structure weighing 130 tonnes, with a volume of 54 cubic metres, located at a depth of 6 metres.

Within this prism are stored the tanks containing intermediate level waste, enclosed in cementitious mortar, and located within four square-section wells. To carry out the reclamation of this complex facility, Sogin has designed a prototype engineering solution that ensures the maximum safety during the operations. In the first stage of the works, preliminary activities have been implemented, i.e. the construction of a hydraulic defence system, the implementation of a structure to allow the static and dynamic confinement of the working site, and the safe performance of excavations and support works around the monolith. Studies and investigations to locate the tanks in the wells have been carried out and detected liquid (about 800 litre) have been drained.

The second stage involved the well stabilisation and cutting, to allow their lifting and removal.

The monolith was stabilised with specially designed metal supporting structures and encapsulated within a steel structure. In addition to this, special shifting systems (crossbars) have been installed to handle and move each well (weighing 45 tonnes with the steel container). These structures allowed to perform the horizontal and vertical cutting of the wells in total safety, in a confined space and through remote-controlled devices.

The horizontal cut was made through a core drilling machine with disposable drills. Subsequently, vertical top-down diamond cuts have been implemented to split the four wells.

The last stage of the operation involved the lifting and extraction of the wells. A crane was used to latch, lift, and extract each well confined in a metallic container.

The four wells have been stored in an interim repository of the site, to complete the release and clearance of Pit 7.1

The positive outcome of this operation reaffirms the know-how of Sogin Group and constitutes a best practice in the international panorama of nuclear reclamation.

ISPRA-1 reactor

Location	Reactor Type	Gross Electric Power	Launch of Operations	Halt	Produced Energy (MWd)	Transfer to Sogin
JRC – Varese	Chicago Pile 5	5 MW	1959	1973	13,500	2018

History of the reactor

Ispra-1 is a 5MW research reactor, the last version of the Chicago-Pile 5 series developed by Enrico Fermi, built by the National Nuclear Research Council - later CNEN, finally ENEA - between 1957 and 1958. Becoming operational in 1959 and used until 1973, it was the first Italian research reactor.

With the establishment of the European Atomic Energy Community (CEEA), in 1957, the Ispra Nuclear Studies Centre was assigned to the CEEA by Italy in 1959, for a period of 90 years, while the Ispra-1 reactor was entrusted to the management of EURATOM starting from 1 March 1963.

The reactor was used to carry out studies and researches on core physics, new materials for the construction of commercial reactors, neutron fluxes and their interactions with living matter, and it played a role in training a new generation of technicians for Italian and European nuclear programmes.

Following the CEEA decision to dismantle obsolete nuclear installations, on 27 November 2009, an agreement between the Italian Government and the CEEA was signed, through which the Ispra-1 reactor returned to the Italian management for its decommissioning.

Transfer to Sogin

In 2018, the Italian Government ratified Law 205/2017 (2018 Budget Law) that stated the definitive assignment of the plant and its ownership to Sogin and appointed the Company for the ISPRA-1 decommissioning.

The Settlement Agreement, ratified in 2009 by the Italian Government and EURATOM, was finally enforced with law 40/2019.

Therefore, Sogin launched the first activities to take charge of the ownership of the facility. On 26 September 2019 Sogin and the Ispra JRC ratified the final agreement establishing the transfer to the Company.

Decommissioning programme

Back in 2018, Sogin launched the first activities to take charge of the plant. Said operations included perimeter and identification of the industrial area and assets together with a cognitive survey of administrative and technical nature, more specifically the legal details, accounting and administrative analysis of the costs incurred by the JRC for the safe maintenance of the facility between 2009 and 2019.

While performing the above operations, Sogin also drafted the necessary documents to submit the decommissioning request. The documents have been submitted to the competent Ministries on 29 April 2020.

According to Sogin plan, the decommissioning operations of the ISPRA-1 reactor will be divided in three stages: preliminary stage, reactor dismantling and final reclamation of the site. These operations will be carried out after the release of the decommissioning authorisations on behalf of competent authorities.

Project for the reclamation of the pool

After acquiring the ownership of the ISPRA-1 reactor, Sogin launched the project for the reclamation of the pool, to clear it from the 200 cubic metres of water contained in it. This operation follows the works implemented in recent years by the Ispra JRC to remove the activated metal components and the sludge and metal sediments.

The pool will be emptied after the water has undergone a specific purification through filtering and treatment. This purification system, the same adopted for the reclamation of Saluggia pool, is based on the selectivity of the ion exchange resins for radionuclides. Emptying operations will be carried out on lots of 5 cubic metres, a volume suitable to the size and performance of the liquid effluent treatment plant. The final water discharge will comply with the discharge formula of the site.

Management of nuclear fuel and materials

Nuclear spent fuel

The operations of the nuclear power plants and research reactors involve the "burnup" of nuclear fuel resulted from nuclear fusion, namely the interaction between neutrons and the substances contained in the "fresh" fuel which happens in the reactor. This interaction is defined nuclear fission. At the end of its lifecycle the fuel is defined "irradiated" and it contains about 97% of the radioactivity of the nuclear site.

The operation which precedes the most complex decommissioning activities of a nuclear power plant involve performing the dry storage or reprocessing (back-end stage) of the spent fuel after its burnup in the reactor and cooling in the pools. In the first case, the spent fuel is stored within special casks inside the interim storage facilities, and subsequently disposed of in a specific site (Once-through Fuel Cycle). In the second case, instead, the reprocessed spent fuel can be reused in a nuclear power plant (Closed Fuel Cycle).

Irradiated fuel sent abroad

The overall amount of the irradiated nuclear fuel resulted from the operation of the Italian nuclear power plants amounts to about 1,864 tonnes, 99% of which was sent abroad for reprocessing.

Approximately 913 tonnes out of the total amount have been reprocessed abroad under the terms of former contracts ratified with Enel, while the remaining nuclear substances have already been transferred. The remaining 951 tonnes are included under the terms of the reprocessing contracts in force ratified among Sogin, the French Company ORANO (previously AREVA) and the British Company Nuclear Decommissioning Authority (NDA).

NUCLEAR IRRADIATED FUEL SENT ABROAD UNDER THE REPROCESSING CONTRACTS IN FORCE

Destination	Mass*	Number of elements/Type	Origin	N. of executed shipments
UNITED KINGDOM (Sellafield - Dounreay) 1969-2005**	716.3 t***	50893 + 19 rods/ BWR, PWR, MAGNOX	Garigliano, Trino, Latina	102
FRANCE (La Hague) 2007-2015	190.4 t	1032 + 6 rods/ BWR	Caorso	16
	16.8 t	• 52 cruciform fuel PWR elements Trino • 48 squared fuel PWR elements Trino • 48 BWR semi-rods Garigliano	Avogadro Repository	5
	14.5 t	47 PWR fuel elements of which: • 39 UO_2 elements 8 MOX	Trino	2
TOTAL	**938 T**			

** Mass (in tonnes) of heavy metal before radiation..

*** In 2014, the NDA finalised the treatment of the last Sogin fuel batch located in Sellafield, in the UK.

*** The reported quantity includes the fuel resulted from Garigliano 19 rods sent to Dounreay (Scotland) by ENEA: the contract was terminated in July 2017 in during the negotiations with the NDA on the agreements for replacement, minimisation and return of residual materials.

NUCLEAR IRRADIATED FUEL MANAGED BY SOGIN STILL LOCATED IN ITALY

Destination	Mass	Number of elements/Type	N. of shipments to be carried out
FRANCE (La Hague)	13.2 t *	64 fuel elements • 63 MOX BWR Garigliano • 1 square PWR fuel element Trino	3
To be defined	0.115 t**	Rods, pieces, and samples	To be defined
National Repository	1.679 t***	64 Elk River elements (enriched Uranium and Thorium)	To be defined

* Mass (in tonnes) of heavy metal before radiation.
** Mass of heavy metal after radiation. Value according to the Euratom report.
*** Mass of heavy metal after radiation. Value according to the Euratom report.

Waste resulted from reprocessing

Based on the contracts ratified with the French company ORANO and the English Company NDA, the waste resulted from reprocessing will return to Italy to be temporarily stored in the interim storage area for highly-radioactive waste of the National Repository (CSA).

Waste from France. based on the agreements ratified with ORANO, 16.3 cubic metres of highly radioactive vitrified waste and 50.4 cubic metres of compacted metal waste, net of transport and storage casks, is expected to return to Italy.

Waste from the UK. Following the agreement ratified between Sogin and NDA on 17 July 2017 about the replacement of waste resulted from the reprocessing of Italian fuel in the UK (subject to the guidelines of the Ministry for Economic Development of 10 August 2009), Italy will only receive the highly-radioactive vitrified waste with a volume ranging between 18.7 and 20.2 cubic metres, net of the weight of the shipment and storage casks.

Irradiated fuel from fuel cycle facilities

The management of fuel cycle facilities, appointed to Sogin in 2003, involved the management of the fuel located in the sites of Casaccia and Rotondella facilities. The current programmes provide for the conferment of the fuel – stored in casks – to the National Repository for the dry storage. Almost all this material consists of 64 Elk River fuel elements of US origin for a total weight of approx. 1.7 tonnes.

Sogin nuclear materials resulted from reprocessing abroad

The following table reports the quantities of Uranium and Plutonium recovered from foreign reprocessing facilities and shipped to Sogin.

NUCLEAR MATERIALS

	Allocated quantities		Estimated total quantity at the end of the allocation to UK in case of transfer completion and implementation of reprocessing procedures in F	
	Uranium	Fissile Plutonium	Uranium	Fissile Plutonium
	[t]	[kg]	[t]	[kg]
UK (Sellafield)	700	1027 *	700	1041**
FR (La Hague)	187.6	0***	228	164****

* Total quantities allocated to Sogin by NDA as of the date of allocation.

** Quantity estimated as of 31/12/2019, considering the decay of quantities already allocated to Sogin by NDA, for the reprocessing agreements in force (excluding the *Service Agreement*, which is pending the allocation of the last batch). The reported figures are taken from Enel reports upon the reactor unloading.

*** The total quantity of plutonium resulting from the reprocessing of nuclear fuel delivered to France at 31/12/2019 was transferred for valuable consideration based on the agreements ratified between Sogin and ORANO.

**** Quantity calculated as of 31/12/2019 considering the decay based on the Enel figures upon the reactor unloading. The quantity reported in the table corresponds to the estimated quantity of fissile plutonium which ownership was not transferred to ORANO. Figures rounded to the nearest integer value.

According to the Directive of the Ministry for Productive Activity n. 5023/2006, the fissile materials resulted from the reprocessing in France and the UK should be transferred for valuable consideration.

Sogin no longer holds fissile plutonium in France, following the implementation of the Plutonium Management Contract and corresponding Amendment and Supplementary Agreement of 5 December 2017, with which an agreement was ratified to transfer the ownership of the total fissile plutonium (205 Kg) to France. The agreement was performed starting from 12 January 2018 with the countersignature of ESA (Euratom Supply Agency).

Among the materials allocated to Sogin after reprocessing in the UK, there are the materials allocated according to the agreements ratified with NDA in 2017 (agreement of "Replacement and Minimisation" and virtual fuel reprocessing in Dounreay) and in 2019 (non-standard virtual fuel reprocessing of Trino and Garigliano).

In February 2019, the NDA communicated to Sogin the availability of all the Uranium and Plutonium recovered from the reprocessing of irradiated nuclear fuel of Trino under the 1974 agreement.

Global Threat Reduction Initiative

The GTRI (Global Threat Reduction Initiative) was a programme aimed at restoring the control of the US government on some sensitive nuclear materials that were previously exported to several Countries for industrial (energy production) or research purposes to avoid their use in possible terrorist attacks.

These materials include the plutonium-based materials or the high-enriched uranium which were safely within three Italian facilities: EUREX in Saluggia, IPU and OPEC in Casaccia and ITREC in Rotondella.

Italy has, therefore, joined the GTRI programme to implement the functional decommissioning of nuclear power plants. The clearance of nuclear materials stored on the national territory ended in 2014.

To reach this outcome, GTRI and Sogin have overcome technical challenges, such as the coordination of transports and the development of new plutonium repackaging gloveboxes and a new process to turn high-enriched uranium from a solution into an oxide.

Waste management

During the lifecycle of a nuclear power plant, that includes the operation period and the decommissioning stage, two main type of waste are produced:

- Radioactive waste, with a radiological content, that is classified according to categories according to the concentration of radionuclides and the radioactivity decay time;
- Conventional waste, resulting from standard industrial processes, which, in turn, is divided into several categories (i.e. hazardous, special waste, etc.).

Radioactive waste management

Radioactive waste is collected and subsequently isolated from the surrounding environment for the time necessary to allow the decay of their radioactivity levels until they are no longer dangerous for the human health and the environment.
Sogin safely manages the radioactive waste resulted from the previous operation and decommissioning activities of nuclear power plants. In each power plant, the waste is characterised, treated, conditioned, and stored in interim storage facilities until it is ready to be transferred to the National Repository.

After the gradual transfer of radioactive waste to the National Repository, the interim storage facilities will be dismantled. The subsidiary company Nucleco daily collects and manages radioactive waste resulting from nuclear medicine, industrial and research activities.

The radioactive waste management includes several activities:

Characterisation – the characterisation procedure entails a series of analysis and measurements to identify the waste chemical, physical and radiological features. This activity has several purposes, according to the different stages of the waste management process;

Treatment – At this stage, the radioactive waste undergoes specific operations to alter its physical shape and/or chemical composition. The aim of these operations is to reduce the waste volume or to prepare it for the next conditioning stage. The kind of treatment depends on the waste features;

Conditioning – this procedure turns the waste into a final product (conditioned radioactive waste + container) ready to be moved, stored in the interim storage facility, and lastly transferred to the National Repository. Conditioning generally involves a cementation process, through technologically advanced cementitious materials according to the type of waste;

Storage – Storage of the treated waste in specific interim storage facilities before its radiological content decays to lower levels, until it is ready to be disposed of in the most appropriate way;

Disposal – The final stage of the radioactive waste management process, in which the radioactive waste is sent to a final storage facility (surface or geological repositories) according to the specific waste radioactivity level.

Radioactive wastte classification

There are several categories of radioactive waste, which correspond to different management procedures, depending on the concentration of radionuclides and the period of radioactivity decay.

The radioactive waste in Italy is classified under the ministerial decree of 7 August 2015 which divides it into 5 categories according to its radioactivity content (short-lived waste, very low-level waste, low level waste, intermediate level waste, high level waste) and its specific disposal solution.

The radioactive waste resulted from the plants' previous operations, safe maintenance activities and dismantling operations is safely stored by Sogin Group in specific interim storage facilities located in each site, to be later sent to the National Repository

Aigor software

AIGOR
A SOGIN PRODUCT

In 2019, Sogin developed AIGOR (IT Software for the Management of Radioactive Objects), which enables the extension of the stringent procedures adopted in the radioactive waste management to any sources and materials, including releasable ones, which account for previously produced materials, or those that will result from future nuclear decommissioning activities.
The purpose of this new software is to optimise the management of materials, by accurately monitoring all the adopted procedures and their outcomes (i.e., final volumes and related radioactivity), or checking the progress of the management procedures related to each kind of waste.
The development of AIGOR software is part of a wider review of the corporate processes for waste and radioactive waste management, which provides for the adoption of innovative systems to reduce the risks connected to the data related to the human factor.
AIGOR is at the "heart" of this new management process, since it deals with the waste and material management and treatment systems on the one hand, and with the positioning system on the other hand.
To update the information contained in the software, Sogin has adopted a permission-less validation mechanism based on the public blockchain. This ensures the integrity of data and processes, and the safety of information, to create a database available to future generations.
The development of AIGOR is part of a continuous improvement in the planning and control of the treatment, conditioning, characterisation and storage of radioactive waste and materials, as well as in the assessment of the overall management performance, in line with the principles of circular economy.

Radioactive waste inventory

The inventory of Sogin's radioactive waste on 31 December 2018 is reported below.
From this year on the inventory also includes data related to the radioactive waste of the ISPRA-1 site.
The waste reported in the table are divided into "to be treated", namely the waste that needs to undergo treatment and conditioning before being conferred to the National Repository, and "final products", namely the waste ready to be conferred to the National Repository. These definitions have been originally introduced in the 2017 Sustainability Report, replacing the old ones "non-conditioned" and "conditioned" waste.

SOGIN INVENTORY OF RADIOACTIVE WASTE AS OF 31.12.2019

Classification of the Ministerial Decree 7 August 2015

Unit of measurement: cubic metres

	Short-lived radioactive waste		Very low-level waste		Low-level waste		Intermediate level waste		High level waste		Total		Ref.
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	
Caorso	**0**	**0**	**781**	**781**	**1,585**	**1,584**	**0**	**0**	**0**	**0**	**2,366**	**2,365**	
Final products	0	0	103	103	8	8	0	0	0	0	111	111	
To be treated	0	0	678	678	1,577	1,576	0	0	0	0	2,255	2,254	1
Garigliano	**0**	**0**	**1,728**	**1,583**	**1,149**	**1,292**	**90**	**90**	**0**	**0**	**2,967**	**2,965**	
Final products	0	0	55	55	921	923	90	90	0	0	1,066	1,068	
To be treated	0	0	1,673	1,528	228	369	0	0	0	0	1,901	1,897	2
Latina	**0**	**0**	**868**	**852**	**489**	**483**	**437**	**421**	**0**	**0**	**1,794**	**1,756**	
Final products	0	0	18	18	1	1	89	89	0	0	108	108	
To be treated	0	0	850	834	488	482	348	332	0	0	1,686	1,648	3
Trino	**0**	**0**	**874**	**764**	**202**	**275**	**65**	**72**	**0**	**0**	**1,141**	**1,111**	
Final products	0	0	48	255	56	156	3	8	0	0	107	419	
To be treated	0	0	826	509	146	119	62	64	0	0	1,034	692	4
Bosco Marengo	**0**	**0**	**183**	**120**	**329**	**309**	**0**	**1**	**0**	**0**	**512**	**430**	
Final products	0	0	138	99	321	297	0	0	0	0	459	396	
To be treated	0	0	45	21	8	12	0	1	0	0	53	34	5
Casaccia	**0**	**0**	**0**	**0**	**3**	**3**	**248**	**186**	**0**	**0**	**251**	**189**	
Final products	0	0	0	0	0	0	0	0	0	0	0	0	
To be treated	0	0	0	0	3	3	248	186	0	0	251	189	6
Saluggia	**0**	**0**	**1,534**	**1,408**	**891**	**958**	**518**	**552**	**0**	**0**	**2,943**	**2,918**	
Final products	0	0	276	248	79	67	34	34	0	0	389	349	
To be treated	0	0	1,258	1,160	812	891	484	518	0	0	2,554	2,569	7
Rotondella	**0**	**0**	**2,810**	**2,709**	**357**	**285**	**194**	**220**	**0**	**0**	**3,361**	**3,214**	
Final products	0	0	882	869	220	220	163	163	0	0	1,265	1,252	
To be treated	0	0	1,928	1,840	137	65	31	57	0	0	2,096	1,962	8
Cemerad	**204**	**665**	**83**	**71**	**103**	**112**	**0**	**0**	**0**	**0**	**390**	**848**	
Final products	0	0	0	0	0	0	0	0	0	0	0	0	
To be treated	204	665	83	71	103	112	0	0	0	0	390	848	9
ISPRA-1	**0**	**NA**	**90**	**NA**	**3**	**NA**	**0**	**NA**	**0**	**NA**	**93**	**NA**	10
Final products	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	
To be treated	0	NA	90	NA	3	NA	0	NA	0	NA	93	NA	
TOTAL	**204**	**665**	**8,951**	**8,288**	**5,111**	**5,301**	**1,552**	**1,542**	**0**	**0**	**15,818**	**15,796**	
Final products	0	0	1,520	1,647	1,606	1,672	379	384	0	0	3,505	3,703	
To be treated	204	665	7,431	6,641	3,505	3,629	1,173	1,158	0	0	12,313	12,093	

1) CAORSO: changes due to the production of electronic waste and the placement of waste tanks to be treated in overpacks.
2) GARIGLIANO: changes due to the production of low-level and very low-level non-conditioned solid waste, to the reclassification and revaluation of the interference volumes of the storage containers for very low and low-level waste and to the shipment of very low and low-level non-conditioned waste to Nucleco for treatment.
3) LATINA: changes mainly due to the production of solid waste (e-materials, iron, wood, soil, concrete scraps, mineral wool, filters, etc.), to the collection and repackaging of existing electronic and metallic waste to prepare them for the next stages of their management (i.e. shipment and treatment).
4) TRINO: changes due to the production of waste, to the new chance of treatment for the waste that was previously considered conditioned, to the shipment of waste to Nucleco for new super-compaction campaigns and to the return of previously produced overpacks, the collection and repackaging of existing waste.
5) BOSCO MARENGO: changes due to the production of low-level and very low-level conditioned waste resulted from the treatment in Nucleco, and of low and very low-level waste for treatment purposes.
6) CASACCIA: changes due to the production of medium-level solid waste and of intermediate-level solid waste resulted from Nucleco.
7) SALUGGIA: changes due to the production of low-level and very low-level conditioned waste resulted from the treatment in Nucleco, and to the production of intermediate, low and very-low level waste, as well as to the shipment of low and very-low level non-conditioned waste to Nucleco, for treatment.
8) ROTONDELLA: changes due to the production of waste resulted from maintenance, reclamation, and treatment operations (Magnox operations, TAF plant, E-waste, concrete scraps, and the reclamation of Pit 7.1).
9) CEMERAD: changes due to the shipment of radioactive waste to external facilities and to the production of very low-level waste (secondary resulted materials) resulted from the management of the site.
10) ISPRA-1: not included in the 2018 Sustainability Report since its ownership was acquired in 2019.

The following table reports the inventory of Nucleco's radioactive waste as of 31 December 2019, which includes the waste which is directly managed by the subsidiary company, as well as the waste resulted from decommissioning operations in Casaccia site and from industrial, research and medical and health activities. After being treated and conditioned, this waste belongs to ENEA, according to the guidelines of the integrated service, established by the CIPE resolution of 1 March 1985, with the purpose of managing the medical, industrial and research waste produced in the Country.

The waste produced by Sogin and managed by Nucleco, return to its origin sites after treatment and conditioning. Exception is made for the waste produced in Casaccia, which is stored in Nucleco storage facilities and reported in the inventory of the subsidiary Company.

RADIOACTIVE WASTE STORED IN CASACCIA AND MANAGED BY NUCLECO AS OF 31.12.2019

Classification pursuant to the Ministerial Decree of 7 August 2015

Unit of measurement: cubic metres

	Short-lived waste	Very low-activity waste	Low activity waste	Intermediate activity waste	High activity waste	Total
Conditioned	0	2,216	1,718.2	221	0	4,155
Non-conditioned	381	1,189	2,100	402	0	4,072
Transited	0	147	28	2	0	177
TOTAL	**381**	**3,552**	**3,846**	**625**	**0**	**8,404**

Conventional waste management

The decommissioning of nuclear plants results in both radioactive and conventional waste: the latter is classified according to an EWC (European Waste Code) which enables a stabilization of management and transfer processes to licensed bodies, by prioritizing waste recovery and final disposal, when it cannot be reused.

In this matter, Sogin along all the stages of the waste production processes, to minimise the production of waste intended for disposal and to maximize the share of waste to be sent for recovery. The Company ensures the traceability of all waste, from dismantling or demolition operations to the recovery or disposal facility.

National Repository and Technology Park

The most advanced European countries provide for the centralised management of their nuclear waste and are equipped with repositories for their disposal. The Italian Decree Law n. 31/2010 set the guidelines for the construction of a National Repository and Technology Park (NRTP), an environmental surface facility intended for the safe storage of the Italian radioactive waste. The creation of this facility will allow completing the decommissioning of Italian nuclear power plants and radioactive waste management, including the waste resulted from nuclear medicine, industrial and research activities: it will, thus, support the closing of the Italian nuclear cycle. The Decree appoints Sogin for the siting, design, execution, and management of the infrastructure.

Objectives and purposes of the project

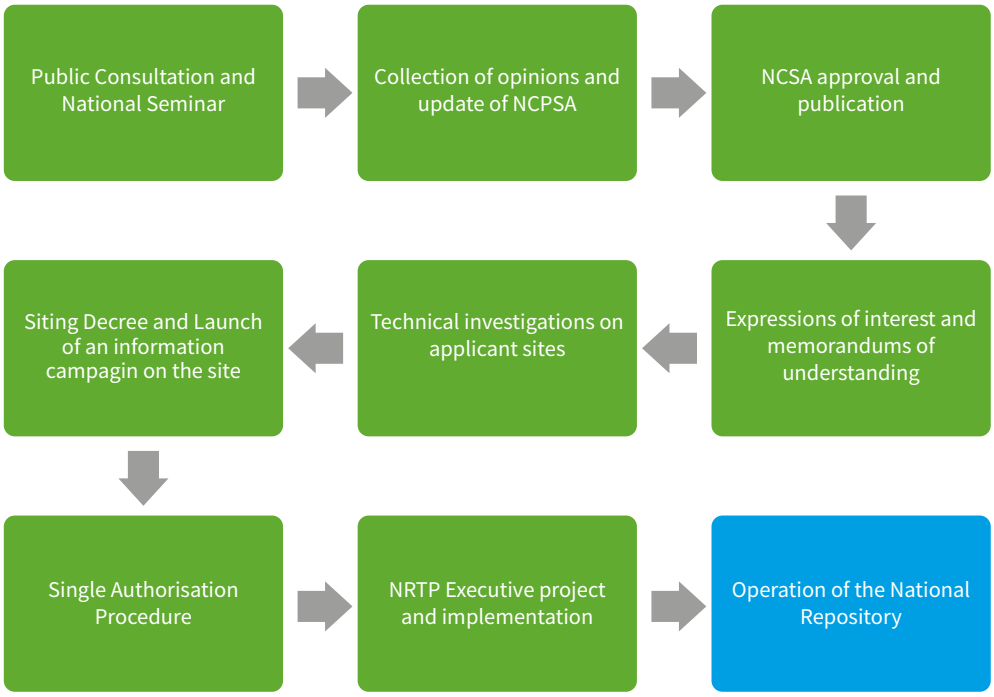
The National Repository will enable to arrange low-level and very low-level waste and the interim storage of intermediate and high-level waste, before their shipment, for disposal, to a geological repository.
The National Repository will consist of a structure with engineering and natural barriers, arranged to contain radioactivity, and designed in line with the best international practices and the most recent IAEA standards (International Atomic Energy Agency).
The shipment of radioactive waste to a single structure will ensure its safe, efficient and logic management, and will enable completing the decommissioning of nuclear power plants, thus, releasing the sites free of radiological restrictions.
The implementation of the National Repository will also allow to comply with European Directives, thus resulting into a better alignment of Italy to other Countries presenting similar repositories.
Along with the National Repository, a Technological Park will be implemented, which will house an applied research centre, open to international collaboration in the fields of decommissioning, radioactive waste management, radioprotection and environmental protection, which may be in line with local necessities and communities, according to the area in which the facility will be built.

The NRTP will cover a surface of about 150 hectares, 110 of which will be occupied by the Repository and 40 by the Park. Within the 110 hectares of the Repository, 20 will house facilities for the final storage of low and very low-activity waste, about 10 hectares will be dedicated to the interim storage facilities of intermediate and high-level waste, the remaining 80 hectares will be occupied by auxiliary plants and buffer zones.

The National Repository will store approx. 95,000 cubic metres of radioactive waste. Out of this amount, approx. 78,000 cubic metres consist of very low-level and low-level radioactive waste intended for disposal. The remaining 17,000 cubic metre are intermediate and high-level waste which will be safely stored before their final disposal in a geological repository. A small percentage, 400 cubic metres, consists of non-reprocessable fuel and fuel scraps resulted from previous reprocessing operations abroad.
Details of the volumes of radioactive waste to be conferred to the National Repository are reported in the 2018 Sustainability Report.
60% of waste results from previous operation of nuclear power plants, the current safe maintenance operations, and the future dismantling activities; the remaining 40% stems from medicine, industrial, and research activities.

Siting procedures

The siting of the National Repository is based on a process that involves the territories concerned. The Legislative Decree No. 31/2010 provides for a public consultation aimed at identifying the area that will house the Repository through a structured engagement of stakeholders.



In 2014, with the publication of the Technical Guide n. 29 on behalf of Ispra (now ISIN) containing the siting criteria needed to Sogin to draft the proposal of National Charter of Potentially Suitable Areas (NCPSA) to house the facility, the first stages of the siting process have been launched, in view of a public consultation. In partnership with Universities and Research Centres, an analysis of the Italian territory was implemented to detect the most suitable areas – in terms of geological, morphological, environmental, and human features - for the siting of the NDTP.

In January 2015, Sogin submitted the NCPSA proposal and, in July, following the successful validation and investigation phase, the Ministry for Economic Development and the Ministry for Environment, Land and Sea Protection officially receive the NCPSA proposal from Ispra (now ISIN), which includes the technical reports requested by the Ministers. In the same month, the two Ministries (Economic Development and Environment, Land, and Sea Protection) state that the authorisation for issue would be released within the legal deadlines.

In several parliamentary hearings between September 2016 and the first half of 2017, the Ministries for Economic Development and Environment state that the authorisation would be issued upon approval of the national programme for the management of radioactive waste e and spent fuel pursuant to Decree Law n. 45/2014, which introduced the 2011/70/EURATOM directive in Italy.

The protracted time needed to issue the authorisation for issue led Sogin's NRTP Office to continue monitoring the databases of the territorial features identified for the application of the siting criteria, for the implementation of the NCPSA proposal and for following updates.

After the completion of the monitoring procedure, between 2018 and 2019, the NCPSA reviews were submitted to ISPRA/ISIN. After their validation, the Monitoring Authorities submitted said reviews to the competent Ministries to request the authorisation for issue.

In 2019, Sogin worked in the maintenance of the technical aspects of the NRTP project, updated the inventory entries and estimates, and developed safe analysis methodologies to adopt in the NRTP management and operations.

On 30 October 2019, the Presidency of the Council of Ministries issued a Decree to approve the National Programme for the management of spent fuel and radioactive waste. Sogin is now waiting for the NCPSA to release the authorisation for issue.

Information, trasparency, and engagement

Pending the launch of a public consultation to define the final siting of the National Repository and Technology Park, starting from 2014 Sogin has implemented several information, transparency, and engagement activities with the EU Member States; said events, held in line with the Project provisions of Decree Law n. lgs.31/2010 and the 2011/70/EURATOM Directive, have ensured transparency and strengthened the Stakeholders' engagement in radioactive waste and spent fuel management programmes.

To comply with the principles of information, transparency, and engagement outlined in Decree Law n. 31/2010 and bridge the information gaps found in the 2014 opinion survey on radioactive waste and nuclear sector distributed to the Italian citizens, Sogin implemented a programme to foster the Stakeholders' engagement of the NRTP project, also in view of the public consultation.
The activities were divided by target, with the goal of reaching all the Stakeholders concerned in siting the National Repository.

MAIN STAKEHOLDERS' ENGAGEMENT ACTIVITIES IMPLEMENTED

- Creation of a Scientific Board of experts to ensure the technical, social, and economic quality of the project.
- Visits to foreign radioactive waste repositories addressed to journalists, associations, national and local institutions to raise awareness about the facility and its environmental impact.
- Launch of the information website *depositonazionale.it* - available to the Stakeholders – hosting an official platform with updates on the NCPSA proposal publication, the preliminary project for the NRTP implementation, and the public consultation.
- Launch of the online information campaign "Scriviamo insieme un futuro più sicuro" (Let us write a safer future together) (640,000 views on YouTube in 2 months).
- Launch of the national information campaign in view of the release of the authorisation for issue by the NCPSA (370,000 views on *depositonazionale.it* and 1.5 M views of the spot son YouTube).
- Participation to national events to explain the NRTP project to the national public opinion (i.e., Ecomondo, RemTech, and ANCI Assembly).
- Launch of the competition for ideas "Officina Futuro" to collect suggestions for the architectural design of the Technology Park.
- Targeted meetings with Associations, Unions, Istitutions, Schools, Universities, etc. to give more details about the NRTP project.

Information events and campaigns on the NRTP have continued over 2019, engaging institutions, universities, associations, and professional unions in discussing the technical aspects of the project and the facility siting procedure.

Public consultation and spontaneous applications

Following the issue of the authorisation on behalf of the Ministries for Economic Development and Environment, Sogin will publish the National Charter of Potentially Suitable Areas (NCPSA), the NRTP preliminary project, and all the 300 technical reports on the website depositonazionale.it. For the following 4 months, every Stakeholder – citizens, businesses, associations, national and local institutions, universities, etc. – will have the chance to submit suggestions and technical proposals on the website depositonazionale.it, or take part to the event held by Sogin in the concerned areas and to the National Seminar (art. 27, par. 4, of Decree Law n. 31/2010), thus enabling the engagement of every interested party.

At the end of the consultation, and in line with the submitted proposals, Sogin will update the NCPSA proposal and submit it to the ISIN and Ministries validations to turn it into the National Charter of Suitable Areas (NCSA). At that stage, Sogin will request the Regional authorities and the concerned parties to express their – spontaneous and non-binding - expressions of interests and carry out any appropriate site survey.

Benefits for the territory

The implementation of the National Repository and Technological Park will result in direct and indirect benefits for the local communities that will host it, including not only compensatory measures for the long-term occupation of a piece of land, but also employment, economic, social and cultural development, added value for the communities who decide to take part to the implementation of a fundamental service for the national development.

Investments will be allocated and defined in agreement with local communities and in line with territorial needs.

The public consultation will give the chance to institutions and locals to suggest possible changes in the design of the National Repository, to orientate the research areas of the Technological Park and to agree the disbursement and allocation of the economic benefits to the territory. The purpose of these benefits is to better integrate the facility with the territorial features of the area that will house it, as in every other EU Country, by including social, environmental, and economic aspects, and in line with the local productive fabric.

Further details on the National Repository and Technological Park design are available at *depositonazionale.it*.

deposito nazionale

Scriviamo insieme un futuro più sicuro

95,000
CUBIC METRES OF RADIOACTIVE WASTE

4
YEARS FOR CONSTRUCTION

700
EMPLOYED FOR THE OPERATION

60
% OF WASTE FROM NUCLEAR DECOMMISSIONING

40
% OF NUCLEAR MEDICINE, INDUSTRIAL AND RESEARCH WASTE

28
LOCALISATION CRITERIA ESTABLISHED BY ISPRA

13
ANALYSIS CRITERIA

15
EXCLUSION CRITERIA

2,000
EMPLOYED IN THE CONSTRUCTION IN THE YEAR

1.5
BLN IN INVESTMENTS

4
ENGINEERING BARRIERS

40
YEARS OF SERVICE

300
DOCUMENTS TO PUBLISH FOR PUBLIC CONSULTATION

150
TOTAL HECTARES OF AREA, OF WHICH:

80
HECTARES FOR AUXILIARY PLANTS AND BUFFER ZONES

20
HECTARES FOR THE WASTE REPOSITORY

10
HECTARES FOR STORAGE

40
HECTARES FOR THE TECHNOLOGICAL PARK

4
MONTHS OF PUBLIC CONSULTATION

4

ITALIAN AND FOREIGN MARKET OPERATIONS

Operations in the Italian market

Due to its expertise in the field of decommissioning and radioactive waste management, the Sogin Group has been successfully working in the national market. The main projects launched, implemented, and completed in 2019 are listed below.

Reclamation of the Former Cemerad Repository (Taranto)

Appointed by the special Commissioner for the implementation of the safe maintenance and management of the Former Cemerad Repository, located in the Municipality of Statte (Taranto), Sogin is committed in carrying out the removal, safe maintenance, and hazardous and radioactive waste management operations, as well as in the reclamation and environmental restoration of the area.
The strategy outlined by Sogin aims at implementing the safe maintenance of the about 16,500 stored radioactive casks and the site release, including existing installations, without radiological restrictions.
The operations are divided into four main stages: preliminary works and opening of the working site; cask removal and clearance; waste characterisation and management; final reclamation and following release of the site. The clearance of radioactive casks from the site continued in 2019. The shipment of 292 casks containing non-decayed materials to the foreign incineration facility of Javys started in 2019. The 56th shipment was carried out in December, with a total of approx. 10,490 casks shipped, and the emptying of approx. 70% of the repository. The operators of the Integrated Service employed by Nucleco have started disposing the decayed waste. The full clearance of casks is expected by 2020.

Advice for radioactive materials - ENI

Sogin has provided ENI S.p.A. with its specialised advice and consulting service on the management of nuclear waste resulted from previous operation. More specifically, in 2019, the company carried out technical and legal surveys in line with the Italian and Community sector legislation, intended for the definition of nuclear liabilities. These first evaluations are required to draft a waste management programme.

Site characterisation - Acerra

Sogin has been appointed by the Municipality of Acerra to implement the characterisation plan for the polluted area in Calabricito Location. Works have been launched and completed during 2019.

Reclamation of “Punta della Contessa”

In 2017, the Sogin Group, through its subsidiary Nucleco, was awarded a contract with the NATO Support Procurement Agency (NSPA) for the environmental reclamation services (land and sea) of the shooting range facility of the Italian Air Force in “Punta della Contessa”. The areas subject to the reclamation are located in a site of national interest in the Italian province of Brindisi. The project for the operations of environmental restoration was submitted to the competent authorities and approved in 2019, during a Conference of Services. By the end of 2019, several tonnes of war materials were recovered. The completion of works is expected by December 2020, with an interruption from April to July to allow the movement of migratory species.

Foreign market operations

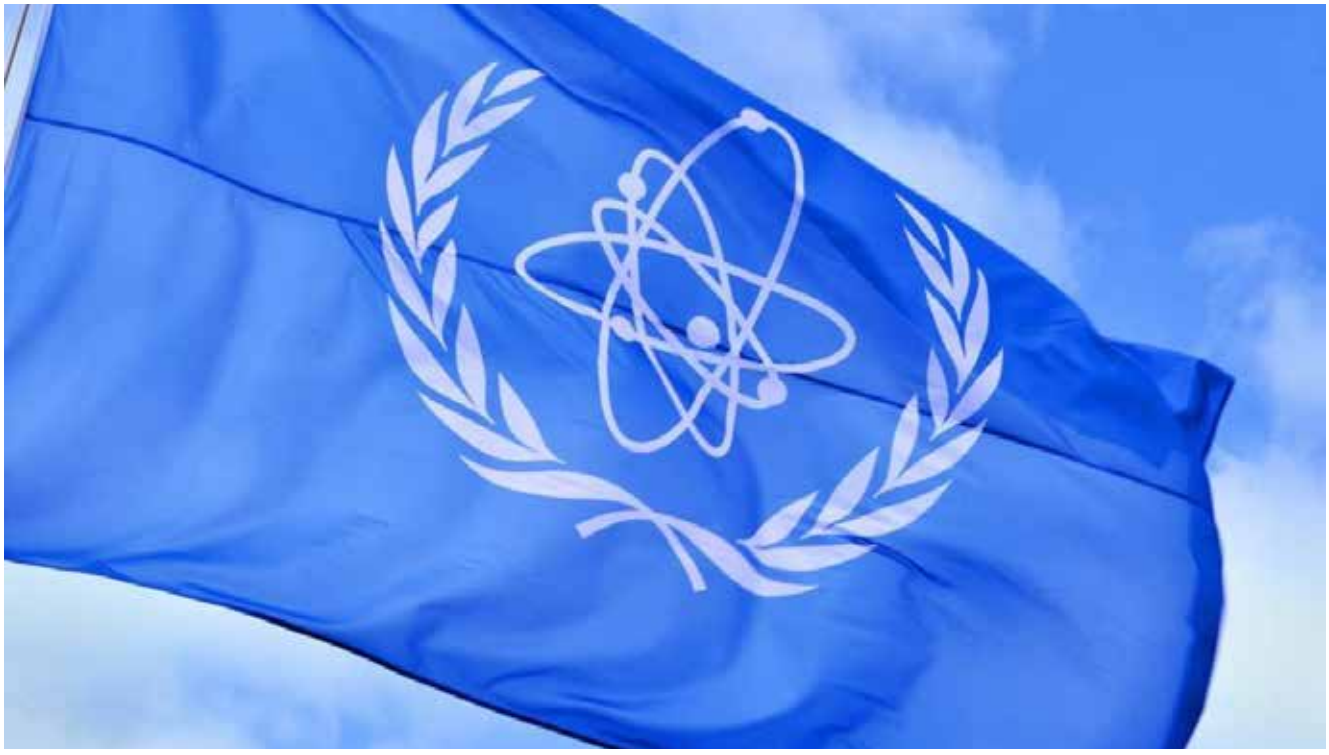
The Sogin Group offers highly specialised services in the field of nuclear decommissioning and radioactive waste management to public and private Authorities and entities of the international market.
Sogin operates abroad from its headquarters in Rome and through its foreign offices in Moscow (Russia) and Bratislava (Slovakia).
The main projects launched, completed, and/or under implementation in 2019 are listed below.

Services provided to the Ispra JRC-LMR

The Sogin Group, through its subsidiary Nucleco, was awarded a 4-year contract (with subsequent 8-year renewal) to provide assistance to the laboratory staff of the JRC in carrying out the measurements of the radioactive and potentially radioactive samples, the performance of chemical, radiological and radiometric analysis and "on site" measurements.

"Project implementation assistance" at the JRC of Ispra

Following an international tender procedure, Sogin was awarded the supply of highly qualified technical services to the EU JRC (Joint Research Centre) of Ispra (VA) within the framework of the "Decommissioning and Radioactive Waste Management (D&WM)" programme. Consequently, in 2019, Sogin supplied the Joint Research Centre (JRC) of the European Commission with highly qualified services to review the specific measures adopted in the field of licensing for decommissioning and radioactive waste management operations, as well as assistance to draft a set of guidelines and procedures for the waste management.



Support for radiological characterisation at the JRC/ ITU of Karlsruhe

In 2013, the Sogin Group, through the subsidiary Nucleco, was awarded a four-year contract with subsequent renewal in 2018, for activities of radiological characterisation with gamma-ray spectroscopy and neutron coincidence counting at the Institute of trans-uranium elements of the JRC/ITU of Karlsruhe of the European Commission. The contract also includes the maintenance and calibration of measurement systems, the analysis of measurement results and the integration of data from different systems.

Support for the radiological characterisation of the Belgian National Repository

As part of the operations for the disposal of the waste managed by the Belgian National Agency for Radioactive Waste and Enriched Fissile Material (ONDRAF /NIRAS), in 2015, Sogin Group, through the subsidiary Nucleco, was awarded a contract to supply technical assistance services in the characterisation analysis and study for the management of radioactive waste to be transferred to the Belgian Geological Repository.

Technical assistance to JAVYS for the decommissioning of the V1 nuclear power plant in Bohunice

The operations started in 2015 in Slovakia continued in 2019. The project, awarded to Sogin following an international tender procedure, envisages the supply of management and technical consulting services to the State-owned Slovakian Company JAVYS (Jadrová A Vyraďovacia Spoločnosť) for the dismantling of the V1 facility of the nuclear power plant of Bohunice, equipped with 2 pressurized reactors VVER 440-230. Sogin is especially supporting JAVYS in managing the dismantling operations, supporting the Project Management, procurement, and engineering aspects. More specifically, in 2019, Sogin continued monitoring any worksite activity, by analysing and reviewing the decommissioning programme, which entered the phase of removal and dismantling of the two reactors and the big components of the primary circuits and radioactive waste management.

Feasibility study on nuclear sunken objects in the Arctic Sea

At the request of the European Commission, Sogin leads an international group of companies (German, English, Norwegian) to carry out a study that will detect the hazardous nuclear sunken objects in the Artic Sea of Russian origin (nuclear submarines, nuclear reactors, etc.) and to draft and propose a project for their recovery, based on a feasibility study.
After the development of an inventory, classification and listing of the sunken objects according to their hazardousness for the people and the environment, THE Sogin consortium finalised the project surveys and analysis during 2019.
The findings of the study have been presented, and approved by the Russian Stakeholders, during a specific meeting held in Moscow in December 2019.

Technical support to Belgoprocess

Sogin was awarded a contract with the Belgian company Belgoprocess to provide technical and engineering support in the design of an interim waste repository for low and intermediate-level waste. This project was successfully completed in 2019.

European Commission – share project (Horizon 2020)

As part of the Horizon 2020 project of the European Commission, Sogin – and other relevant European players in the field of decommissioning and radioactive waste management - was awarded the "SHARE" project which aims at the definition of new Research & Innovation needs to be included – upon approval of the European Commission - in the European Roadmap in the field of nuclear decommissioning; this, to improve safety and minimise the expenditure and the environmental impact of such procedures. On 2 December 2019, the website of the project share-h2020.eu was launched online to provide all the information about the initiative and updates on the main progress achieved.

Nuclear & Radiation Safety Center (China)

In 2019, Sogin ratified a "Cooperation Agreement and Framework Agreement on Nuclear Safety, Operation, Decommissioning and Radioactive Waste Management" with the Chinese Nuclear Safety Centre (NSC). This agreement entails the performance of joint studies and research concerning the operations of nuclear plants, decommissioning, and the management of radioactive waste. Subsequently, Sogin was appointed its first task on the deactivation of spent fuel reprocessing plants and nuclear plants decommissioning.

Training on decommissioning (South Korea)

Sogin has been appointed an office by Doosan Heavy Industries (South Korea) to carry out a training in Italy to the employees of the Doosan Company on the Project Management aspects of nuclear power plants decommissioning. The operations were successfully completed in 2019.

GLOBAL PARTNERSHIP

Within the scope of the Global Partnership programme (G8 of Kananaskis, Canada, 2002), on 5 November 2003 the Governments of the Italian Republic and the Russian Federation ratified a cooperation agreement covering the dismantling of disused nuclear submarines of the Russian navy and radioactive waste and spent nuclear fuel safe management. This agreement - ratified by the Italian Parliament by Law n. 160/2005 - is one of the most successful international collaborations in the field of disarmament and non-proliferation. The operations defined in the agreement are managed by a Steering Committee made up of members of the Italian Ministry for Economic Development and Rosatom, which direct Sogin's actions and operations. More specifically, Sogin deals with activities of general coordination and manages the administrative and operative aspects of the projects.

In September 2019, works have started to request the authorisations for the construction of an installation for the treatment of the liquid radioactive waste of the Andreeva Bay site – both existing and resulting from future operations. This installation is required to tackle one of the most serious environmental challenges affecting the North Western Russian area. The existing waste results from the operations of a former naval submarine base operating from the Sixties to the Eighties and subsequently abandoned; this base is now used as an interim repository for radioactive waste, before its final shipment to the Saida Bay site, in the Kola peninsula. Works are expected to start by 2020 after all the tenders have been examined and the contract finalised.

Map of the main activities carried out by Sogin Group abroad since its establishment


Cooperation Agreement
General Nuclear Power Group
CHINA
Technical Assistance
Nuclear Decommissioning Research Center
Hangyang University
SOUTH KOREA
Training and capacity building
Doosan Heavy Industries
SOUTH KOREA
Training and capacity building
Nuclear Safety Authority
CHINA
Training and capacity building
TaiPower
TAIWAN
Training and capacity building
MOST/VINATOM
VIETNAM

5

STAKEHOLDERS' ENGAGEMENT STRATEGY

Stakeholders dialogue and mapping

Materiality analysis

In order to draft its 2018 Sustainability Report, Sogin has updated the materiality analysis, a process needed to identify the material topics that have been examined in the Sustainability Report, as required by the GRI standards used to draft the document.

The update aims at analysing the changes in the reference context – increasingly concerned with the ESG (Environmental, Social e di Governance) factors – and how said changes affect the Stakeholders expectations and the corporate priority objectives. The analysis featured a study of Sogin's operational context, including aspects of the national situation, global macro-trends and a comparison with similar Companies operating abroad.

According to the conducted analysis, a topic may be considered material if it is important to Stakeholders, whether internal or external, and it generates a potential or actual impact of social, economic, or environmental nature.

The update of the materiality analysis was carried out in the first half of 2019, starting from the elements collected to elaborate the materiality matrixes of previous financial years; this procedure aims at making the Sustainability Report as much useful as possible to Managers and Stakeholders of the Sogin Group.

To update the analysis, the following operations have been carried out:

1. definition of a list of 19 material topics, divided in 4 sections (mission, accountability, vision, value creation), and definition of a list of concerned Stakeholders. The identification of topics and Stakeholders was based on several factors: sector benchmark, analysis of press release contents and documents of the Group (Ethical Code, Procedures, Integrated Management System, etc.);

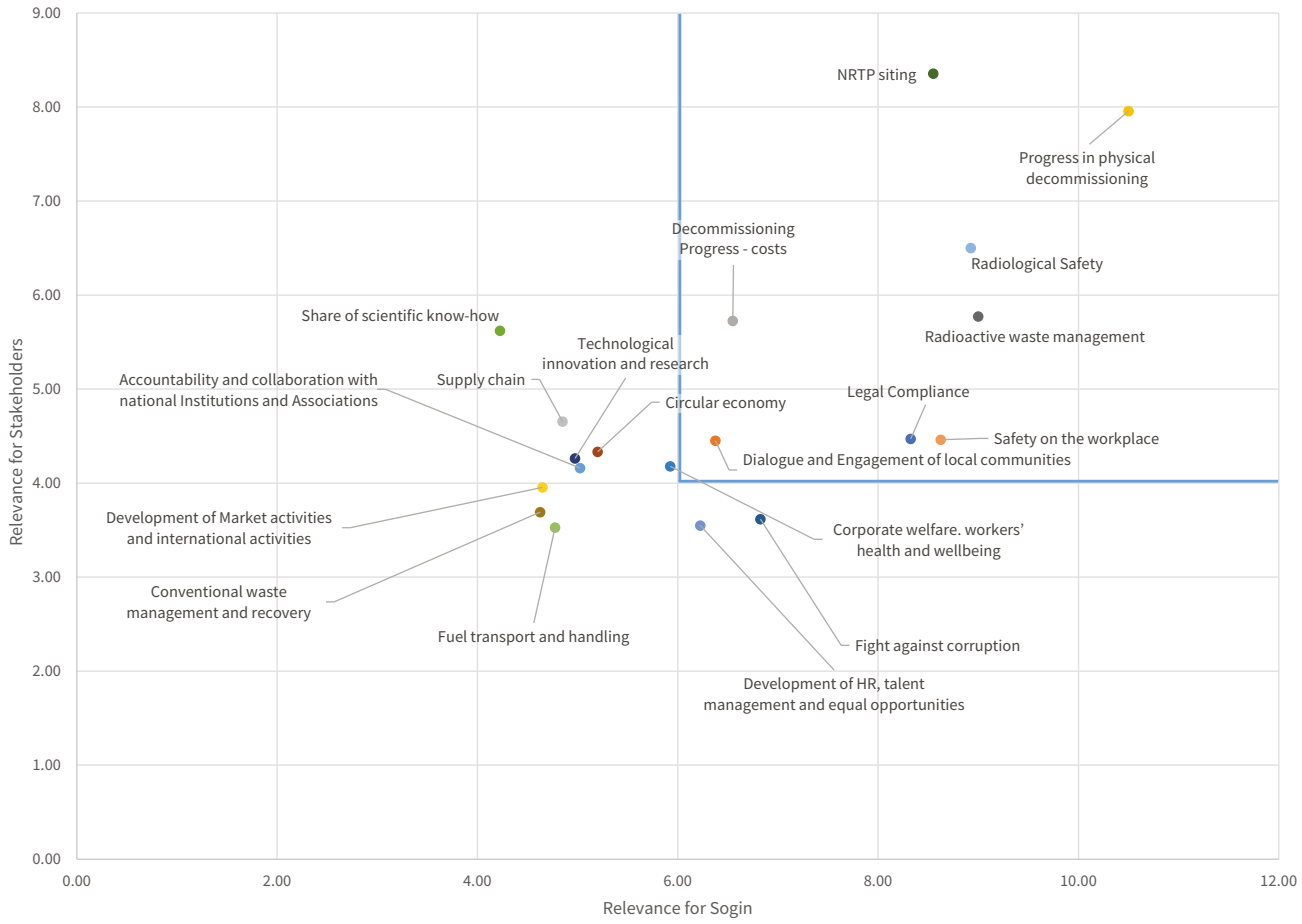
2. distribution of a qualitative survey to the Group's Managers to:
   - Carry out a qualitative analysis of the 4 main sections (mission, accountability, vision, value creation);
   - Prioritising the 19 detected material topics;
   - Providing different scores to the detected Stakeholders;
   - Identifying the 3 most relevant topics for each Stakeholder category.

The findings of the materiality analysis are reported in the following matrix: the relevant topics for Sogin and its Stakeholders are sited within the chart outlined in blue.

The material topics emerged are reported under the 2019 Sustainability Report along with other topics deemed relevant for the Group Stakeholders (although in the materiality analysis they are below the "high significance" threshold).

A reference table for the material topics found in the analysis and the GRI reporting standards can be found in the appendix. This table combines each topic with the identified reference standard and shows the reporting scope for each identifies topic.

STAKEHOLDERS' MAP



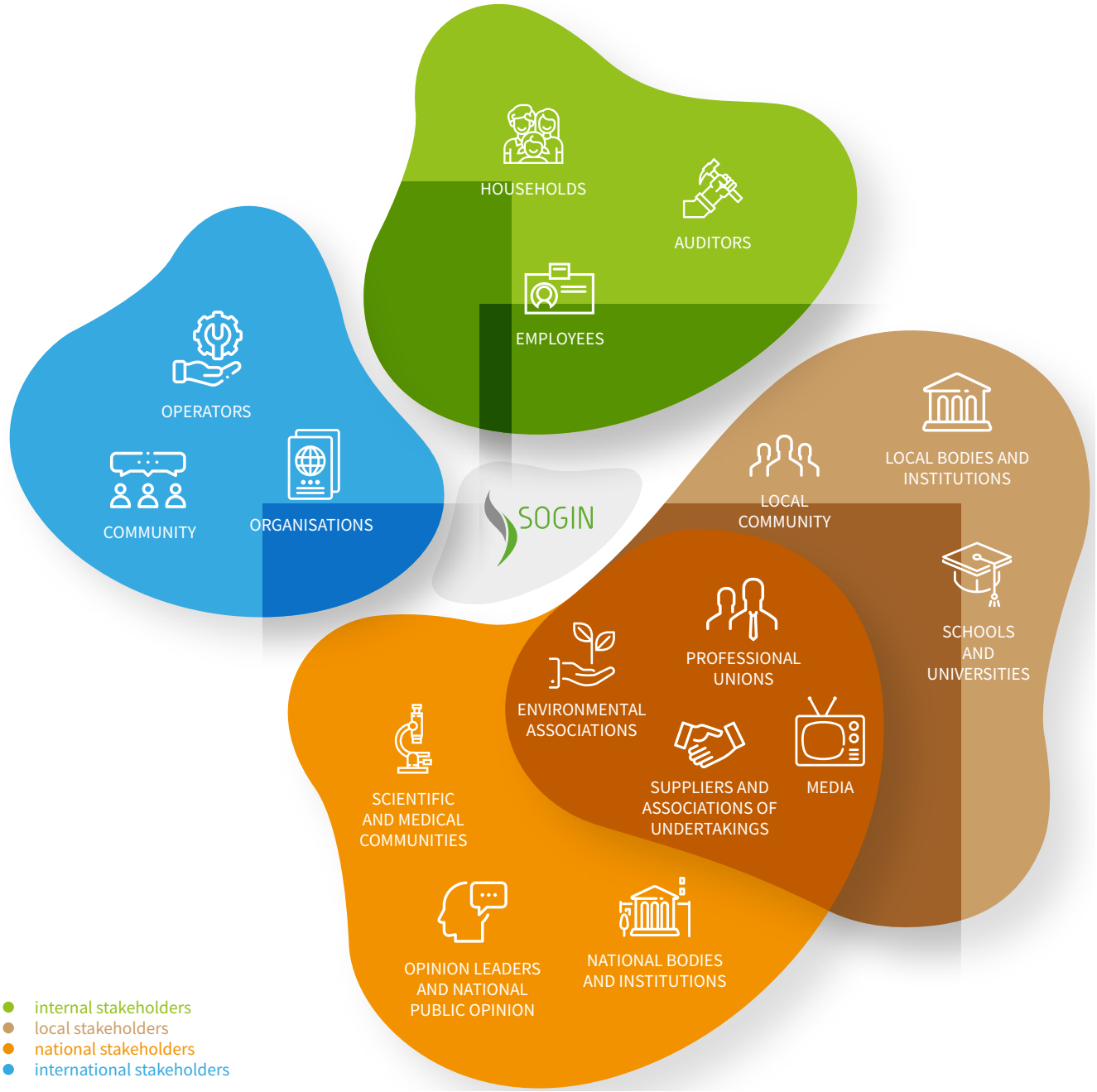
Stakeholders' map

The Group recognizes as its stakeholders all the engaged parties, institutions, organisations, groups, or individuals that may affect or be affected by the Group's objectives.

Stakeholders are identified and classified according to their degree of influence on corporate decisions and their interest on the Company's activities.

These two aspects are evaluated in terms of decision-making powers, legal or contractual obligations and connections with corporate strategies.

Relations with stakeholders are based on ongoing dialogue, sharing objectives and transparency.

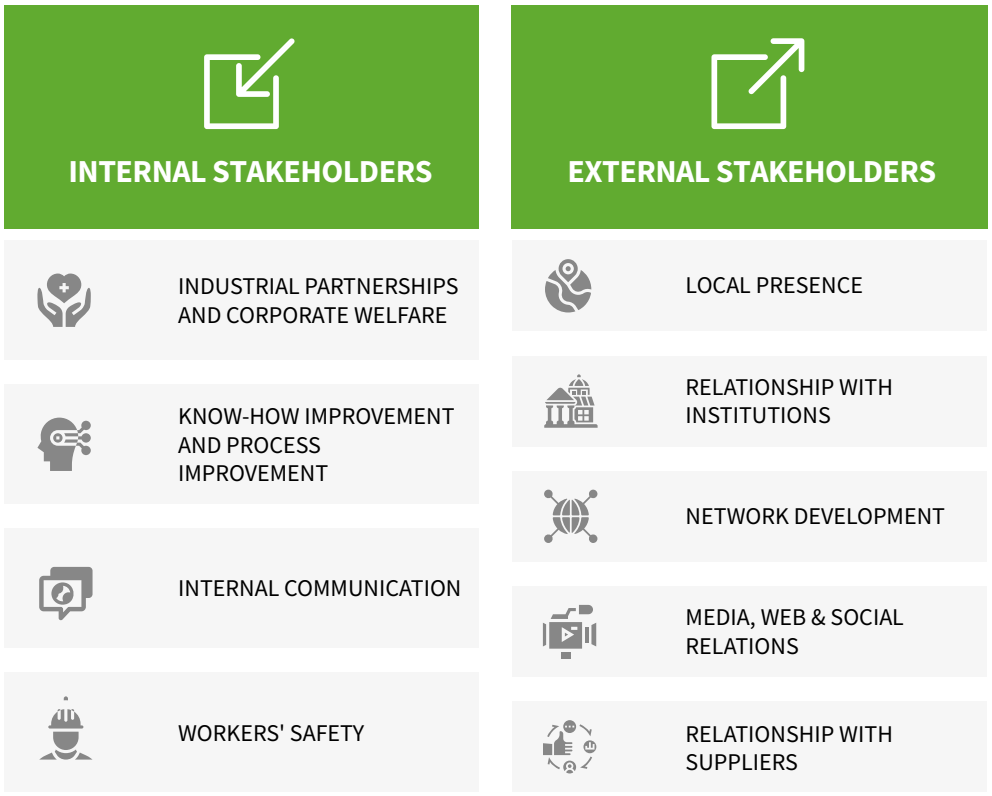


- internal stakeholders
- local stakeholders
- national stakeholders
- international stakeholders

Stakeholders' engagement drivers

To achieve our mission in a sustainable way, we adopt a strategy focused on the constant interaction with our Stakeholders, engaged through discussion, confrontation and feedbacks.

The following infographic shows the engagement activities implemented in 2019, divided in groups according to the various approaches adopted with each Stakeholders' category. The groups go from the simple information events up to the creation of partnerships, to maximise the creation of shared value.



6

INTERNAL STAKEHOLDERS

The policies adopted by Sogin Group in managing human resources consider the principles of the Ethical Code, thus ensuring dignity, equal opportunities, the chance to foster professional development for reasons relating to gender, religion, politics and personal beliefs, ethnicity, disability, age, sexual orientation or civil status, and the realisation of the full potential of each individual.

Sogin and Nucleco protect workers, their integrity and dignity, and tackle any kind of irregular work. Moreover, the relationships among workers and third parties are marked by mutual personal and professional respect, by avoiding conducts which hamper the workers' physical and psychological integrity, as well as any kind of discrimination by establishing an environment which allows the full expression of their potential.

Industrial relationships and corporate welfare

Work relations

Sogin confirms that maintaining the stability of work relations and investing on internal skills are two priorities in the corporate management approach. During 2019, the commitments ratified with trade unions through the agreements of 6 November and 5 December 2018 have been achieved. This shows the major strategic role played by industrial relationships in the industry policies of Sogin Group.

Joint Bilateral Committee on Safety

Aware of the importance of occupational safety and environment protection in the field of the energy sector, the Sogin Group recognises their relevance in fostering its industrial relationships, and implementing its activities in compliance with the principles of sustainable development and occupational health and safety.
Therefore, it established the "Joint Bilateral Committee on Safety", consisting of workers and corporate representatives. The Committee intends to discuss the launch of improvement actions and common initiatives to endure compliance with the highest safety standards.
In this regard, Sogin increased the number of the defibrillators located in the sites and strengthened the mobile network signal of the sites to improve communication in case of emergency.

Emergency Joint Committee for COVID-19

In the first months of 2020, the "Joint Committee under item 13 of the Protocol of 14 March 2020" was established to face the COVID-19 emergency, in line with the "Joint Regulation Protocol for measures to tackle and limit the COVID-19 outbreak in the workplaces", ratified by the Social Parties before the Presidency of the Council of Ministries on 14 March 2020 and subsequently updated on 24 April 2020. The Committee played a relevant role in promptly defining the enforcement of the special legal provisions adopted during the emergency, and to carry out a regular monitoring of the enforcement of the measures to ensure safety of workers.

Solidarity holidays bank

To face the health emergency caused by the COVID-19 outbreak, on 20 April 2020, Sogin ratified a new trade agreement to establish the Solidarity Holidays Bank. This agreement introduced new flexibility instruments and new offices that promote sustainability in the work organisation and foster solidarity among workers.

NoiSoginWelfare

In 2019, Sogin continued the implementation of the 2018 Result Bonus (PdR) 2018 – 2019 Fund, by improving the productivity share of the Result Bonus free of taxes, and reducing the tax wedge by 100%, through the creation of an on line platform called "NoiSoginWelfare".

Through the platform, the employee was able to select the "productivity" section of the 2018 Result Bonus – 2019 Fund to allocate to the welfare, thus creating a "budget welfare" to use for the assets and services made available to the employees during the previous year. The budget of each employee was increased by 14% of the overall welfare amount allocated by the Company.

The initiative, repeated for the second consecutive year, was successful and recorded an increase of 15% in the number of participants, against the number recorded in 2018.

To raise the staff awareness on the corporate contract welfare, the Company held 6 events in May 2019, to promote the initiative across the internal communication channels. The role of "Ambassadors" in the staff was also established. The Ambassadors are employees who inform and support their peers on the welfare services offered by the Company and foster the circulation of the project. The Ambassadors have been provided with a specific handbook and an identification pin and gadget.

The access to the platform was also confirmed by the new Agreement on the 2019 Result Bonus – 2020 Fund, ratified with National Trade Unions; this agreement partly amended the legal structure of the Corporate Result Bonus and aligned it to the new provisions of the regulatory system.

People Care

In 2019, Sogin continued providing support to its employees through services aimed at combining work and private life. In February 2019, the remunerations related to year 2018 and part of year 2017, have been allocated for a total amount of EUR 31,990.07 (EUR 1,850.22 for year 2017 and EUR 30,139.85 for year 2018).

In December 2019, the remunerations related to year 2019 and part of year 2018, have been allocated for a total amount of EUR 22,405.09 (EUR 2,021.24 for year 2018 and EUR 20,383.85 for year 2019).

The requested and allocated remunerations cover school meals (EUR 34,165.73 - 63% out of the total), university fees (EUR 11,267.66 - 21% out of the total), nursery (EUR 7,828.51 - 14% out of the total) and school books (EUR 1,133.26 - 2% out of the total).

Healthcare and occupational injuries

For Sogin Group employees and dependent family members, insurance coverage for health care is provided by the Enel Group's Supplementary Healthcare Fund for Employees (FISDE). In the field of accident insurance, the Company has taken out accident policies reserved for staff on duty. The same type of supplementary health care is provided for managers, but with the Associazione Sanitaria Integrativa Dirigenza Energia e Multiservizi (ASEM) (Integrated Energy and Multiservices Management Healthcare).

In response to the COVID-19 epidemiological emergency, in March 2020 an insurance cover was also activated to protect all employees, guaranteeing indemnity and assistance coverage in the event of a diagnosed COVID-19 contagion.

Sogin offers its employees, in implementation of the provisions of the National Collective Bargaining Agreement for the Electric Power Sector, insurance coverage for death or permanent disability as a result of non-occupational accidents and insurance coverage for the risk of death due to illness.

Pension funds

In addition to the usual pension schemes, as required by post-2007 regulations, Sogin and Nucleco provide for the possibility for their employees to receive supplementary pension benefits through membership of the Employees' Pension Fund (FOPEN) and the Managers' Pension Fund (FONDENEL). With this membership, the Company recognizes an additional contribution calculated on the employee severance indemnities, which is added to the employee's contribution calculated on the same basis. Employees may also join other supplementary pension funds (so-called "open-ended" negotiating funds), with the sole payment of the employee severance indemnity accruing.

As of 31 December 2019, 768 Sogin employees were enrolled in the pension funds (negotiated and closed end), while Nucleco 146 employees, for a total of 914 Group employees, were enrolled in supplementary pension funds.

ARCA services

ARCA, the leisure association of employees working in the electricity sector, has the task of promoting cultural and sporting initiatives and events aimed at providing moments of aggregation for employees and their families. It also organizes trips and holiday packages through preferential agreements with important tour operators. For managers, the service is offered by ACEM, Associazione Culturale Energia e Multiservizi, which takes care of all the recreational aspects of the category.

Loans and agreements

Sogin, in line with the actions taken in the electricity sector and within the limits of the available resources stated under the second level trade union bargaining agreement, grants preferential loans to employees for the purchase or renovation of owned homes and for special personal needs.

Like in the People Care project, many agreements have also been stipulated with commercial businesses (Food & Beverage, Healthcare & Wellness, Shopping, Facilities).

Know-how development & process improvement

Training

The management of human resources mainly aims to enhance the professional competences – both technical and managerial – in the field of nuclear decommissioning and radioactive waste management, and to foster individual's growth and development paths.

For this reason, Sogin implements training and learning programmes according to the office, skills, and potential of each resource, and to corporate needs. As in the past, Sogin complies with the learning and training needs which may vary according to the organisational changes, updates in the legal framework, and new technologies, or, more generally, in line with the changes in the reference context.

The training implemented in 2019 mainly focused on the transfer of internal corporate know-how, enhancing the expertise and competencies of senior workers.

The training courses planned and delivered in 2019, in fact, were addressed to Sogin internal staff and aimed at providing the necessary skills to achieve more autonomy and competitiveness.

Training areas 2019

Technical-specialised training – the training launched by the Radwaste Management School in 2018 on digitalisation of corporate processes and technical aspects of the core business have continued in 2019.
Main areas:

- administrative/management;
- corporate welfare;
- environment (remote sensing, environmental reclamations, environmental protection, monitoring);
- risk management;
- waste management;
- IPOD Works software;
- Certification of laboratories;
- Use of software for project management.

Soft Skills Training - to strengthen collaboration among teams, improve time management, and train public speaking skills.

Regulatory Updating - in the following areas:

- Contract management according to the procurement code, including a specific training on Green Procurement delivered to Staff and Business Officers for the adoption of the new procurement code and certification standards.
- UNI ISO 45001:2018 to provide regulatory updates to the staff operating within the Quality, Environment, and Safety Management Systems Office with a focus on system implementation and corporate safety audits;
- Construction Technical Standards (NTC 2018) for structural calculations;
- New European regulations, more specifically, updates on the Data Protection Officer;
- Administrative-financial;
- Staff administration;
- Anti-corruption and updates on the 231 organisational model.

On the job training - intended for the transfer of know-how to the staff operating in new offices and tasks, to enhance their competencies in new jobs. More specifically, training on safety, quality, and file management and storage.

Performance appraisal

Sogin adopts an internal awarding system based on individual merits and the achievement of yearly corporate outcomes. These awards may include salary increases, varying according to the case, such as individual and group incentives (result bonus), targeted development actions with horizontal or vertical career paths, and specific training activities. The corporate Top Managers and Officers are offered a Management by Objectives (MbO) system, based on the achievement of the corporate objectives linked to the business outcomes.

SOGIN PERFORMANCE APPRAISAL

Performance Appraisal 2018-2019
In 2018 the Sogin Group launched the Performance Appraisal project, aimed at the definition and enhancement of the workers' professional skills and commitment, by raising awareness on the growth and development opportunities in Sogin Group. As part of the project, each resource was evaluated to better define the set of competencies and conducts which reflect the corporate skills and values. The procedure was completed in 2019, and the findings were presented to each resource in a personal meeting with the competent Officer.

Talent management

In 2019, the junior and senior staff training project continued. The junior resources have completed the training and gained a complete overview of the Company, by also developing technical and soft skills needed for their personal growth. Some young talents participated in the "Wikidoceo" project and produced a video on the specific activities appointed to them. The three talented young resources have successfully completed their tasks and received an award at the end of the first half of 2019. In addition to this, a group of 20 senior employees was also involved in the project to strengthen their management and tutoring skills. More specifically, this group worked on the topic of organisational culture as a key element to change the behaviour of workers, as well as on the concept of leadership, which provides useful tools and basic knowledge for an effective management of collaborators. Finally, unconventional team building activities have also taken place which have helped the team discover their hidden skills in facing "unconventional" situations.

Membership in valore D

Again in 2019, Sogin renewed its membership in "Valore D", an association which promotes gender balance and an inclusive organisation to foster the corporate wellbeing and growth. Thanks to its membership, in 2019 Sogin had the chance to take part in three individual training courses - addressed to maturity, middle and senior managers – aimed at promoting the employee's professional career, corporate duty, and teaching new leadership models. The women employed in middle management roles have also participated to a series of meetings on mentoring which involved other member Companies. This initiative lasted six months and was repeated given the success of the 2018 edition. Lastly, Sogin also participated in the survey on corporate inclusion promoted by the Association in 2019.

Smart working

The emergency caused by the COVID-19 outbreak has provided Sogin with the opportunity to improve its corporate processes, culture, and organisation. In the first months of 2020, using the MS Teams software, the Company ensured the safe business continuity and the health of workers, thus maximising the use of communication instruments, and improving the team working skills of the Sogin Group.

After the launch of a smart working platform, the workers have been administered a survey ("Lavorare al tempo del COVID-19 nella stanza senza confini" – Working during COVID-19 in the borderless room") to know their opinions about this new working modality, also considering their feelings during the emergency.

The survey was completed by 41% of Sogin's employees. Among this percentage, 91% positively evaluated the solution of smart working (with a score from "rather adequate" to "totally adequate"). The results showed that the e-mail is still the most used instrument to communicate, although many employees have appreciated and are favourable to using MS Teams, and 80% of the interviewees admitted that they often or always use the software. Thanks to the IT instruments, the social interactions among the employees have remained the same for 44% of the interviewees and have improved for the 13% of them. 10% would like to share more with its colleagues. About 80% of the interviewees are proud of being part of a Group that has concretely supported the healthcare authorities and the Civil Protection during the COVID-19 emergency.

Technological innovation for corporate processes

Sogin is constantly committed in developing IT systems and applications and improving the technological skills of its corporate processes.
The following operations have been implemented in 2019:

- Test of the AI-based software for the budgeting procedure;
- operation of the new centralised platform for the management of emergency reports via text messages. During the COVID-19 emergency, this SMS-Alert service allowed the Company to promptly inform its employees on the safety and health measures implemented by the Group to limit the virus outbreak;
- Operations to increase the functions of the Primus software for accounting purposes, especially through the implementation of xml-generated reports;
- Launch of a new Business Intelligence and analytics system based on the non-relational databases Mongo DB and Qlik Sense. These systems will be also used in future applications for the IoT (Internet of Things);
- Development and introduction of new functions in the SAP (System Application and Product) software, such as depreciation recognition; virtual stamp duties on electronic invoices; headline issue for Purchase Request;
- Installation of a new Plotter system with advanced functions for the Engineering staff;
- Shipment of new notebooks purchased through the Consip Agreement;
- Definition of new purchase and procurement reports and launch of portability on the new Qlik Sense platform.

The most relevant innovation involves the implementation of the new IT system for the management of radioactive objects (called AIGOR) with functions connected to the blockchain technology; further details are provided in the section "Closing the Italian nuclear fuel cycle".

Internal communication

Children at the office with mum and dad

On 24 May 2019, the Sogin Group organised the second edition of "Children at the office with mum and dad" that involved 159 children aged between 3 and 11. For the first time this initiative, sponsored by Corriere della Sera, was extended to the nuclear sites and to Nucleco offices, thus involving all the Group staff.
The event gave the children of the Group's staff the chance to participate in workshops and games to better know their parents' job and workplace. More specifically, the 2019 edition included a workshop during which the children were involved in the creation of a small magazine "The newspaper of Sogin's kids" for SoginNews. The children described their experience in their parents' workplace with articles, photos, and drawings, and shared their "sustainable" ideas and proposals to reduce the use of plastic in daily life.

SoginNews

SoginNews published 4 quarterly magazines during 2019, one of which focused on the 20th anniversary of Sogin. Moreover, a special edition of Open Gate 2019 was also published. Since 2017, all the magazines have been available in a specific section of the corporate intranet.

NoiSoginGroup

The new NoiSoginGroup intranet was put online in the month of July. This new portal integrates all the systems of internal information of the Group, strengthening the integration between Sogin and Nucleco and enhancing the community dimension of the Group. Since 2016, the intranet section "News from Volunteering" has also been available online, and it collects news on the volunteering activities of the Group's employees.

A monthly communication on environmental policymaking is also published on the Group's intranet to raise awareness about the environmental aspects of corporate operations. This communication is one of the instruments to monitor the legislative and environmental compliance required by the UNI ISO 14001 standard and the EMAS regulation.
In 2019, the monthly publication of Legal News on the corporate intranet also continued. This tool informs the readers about the new regulations and legal updates. Moreover, the weekly publication "A tour to the newsstand – Press release extracts" to share the most relevant articles of the press review has also been continued.

Futsal tournament

In 2019 Sogin held the second edition of the "NoiSogin" futsal tournament. The competition saw the participation of 14 teams for 160 players: 3 teams from the Central Headquarters, 2 from Nucleco and 1 team from each site, apart from the Latina site which had 2 teams. The event was a great success in the Group and set an important opportunity to promote team building.

Sogin 20th anniversary

Sogin 20th anniversary was a chance to go through the last two decades of Sogin's operations in the field of nuclear decommissioning. For the anniversary, the Company created a special logo, a video, and a special edition of SoginNews dedicated to the 137 employees who started the operations back in 1999. The 137 stars of Sogin20 have been interviewed and photographed; the pictures and interviews were collected in the special edition of SoginNews and exhibited on cardboard installed in the central headquarters during the Christmas corporate party. Gadgets, books, presents, pins, water bottles, small casks depicting the Sogin20 logo were distributed to all the employees. A special section devoted to Sogin 20th anniversary was also created in the homepage of the website sogin.it.

Safety of workers

For Sogin, the safety and health of workers have always been a priority corporate asset.
Each operation is carried out in compliance with the existing legal framework on safety and in line with the sector specific guidelines on decommissioning and radioactive waste management.
Over the years, Sogin has spread the culture of safety among its employees and has developed an effective risk management system. This has enabled the Company to promptly face emergency situations such as the recent COVID-19 outbreak.
Safety is part of the training courses delivered to all the employees of the Group, which have to know both conventional safety measures and those strictly related to the radiological aspects of the operations they carry out in the sites with radiological restrictions.

AWARD FOR THE EUROPEAN CAMPAIGN "HEALTHY WORKPLACES" 2018-2019

The European Agency for Health and Safety at Work of Bilbao, of which INAIL is the National Focal point, has recognised Sogin as a national partner of the "2018-19 Healthy Workplaces Manage Dangerous Substances" European campaign.

Improvement plan

In 2019, the Company implemented the 8 points of the Improvement Plan for safety:

1. **COMMUNICATION**: Regular publication of safety bulletins to inform the employees about the new regulations in force and the safety measures adopted by the Company;
2. **IMAGE**: Regular maintenance and update of signs and panels, and adaptation of clothing and helmets to the corporate standards to keep the level of awareness among workers high.
3. **CULTURE**: Training courses on safety culture for workers and managers, such as the Company participation to the "PRINT" memorandum of understanding, ratified with the other companies of the electric sector (Enel, TERNA, Edison, etc.) to define the actions to be implemented in case of regulatory updates and procedures to adopt in the event of electric risk;
4. **INFORMATION, LEARNING AND TRAINING**: Events to raise the management awareness on the topics of health and safety, and training cycles on good practices and management of materials containing asbestos and glass fibres. Within the field of a constant update on health and safety, courses have been organised to train and update the operators of the Emergency Teams. On these occasions, the topics of first aid measures and management of emergency events have been also investigated;
5. **MONITORING**: Performed through a set of indicators and measured on a regular basis. Statistical indicators on Sogin work injuries and Sogin contractors' injuries are measured on a monthly basis;
6. **CORPORATE STANDARDISATION**: implemented through constant confrontation among Prevention and Protection Officers (RSPP), Safety Coordinators during Execution Operations (CSE) and corporate safety the methodologies adopted for risk assessment and on implemented and/or planned prevention and protection measures;
7. **SAFETY MANAGEMENT COMPUTERIZATION**: use a specific software to manage the health and safety in the Group's sites, especially in terms of equipment, machine and plant maintenance, management of personal protection equipment (PPE), assessment of chemical risk for health and safety, and injury management. Moreover, Sogin operates a common centralised platform for the distribution of PPE, that ensures time and cost efficiency and product quality in terms of compliance with applicable laws;

8. **CONTRACTORS' SAFETY**: qualification and monitoring process on Contractors' safety and health compliance, to maximise safety during the performance of the contract.

In 2019 the 2018 programme on healthy diet, correct lifestyle, and corporate wellbeing have also continued.
Sogin has also joined INAIL events on health and defined new food protocols for the corporate meal services. In addition to this, the Company has acted on the quality of the products supplied by the automatic vending machines in its offices, sites, and headquarters.

Throughout 2019 and in the first half of 2020, the Group regularly promoted the staff engagement in activities related to safety.

STAFF ENGAGEMENT ACTIONS ON SAFETY

SAFETY DAY 2019

On 17 April 2019, Sogin organised the Safety Day as part of the global campaign for the promotion of health and safety in the workplace. This campaign was established in 2003 by the International Work Organisation to raise attention on measures to prevent injuries and occupational illnesses, and on the need for a collective commitment to establish and promote a better health and safety culture at work.

The initiative, held in the new offices of Nucleco, saw the participation of the Group's Top Managers, the Deactivation Officers and those in charge of promoting safety and health in the workplace. During the event, the Company presented the combined Improvement Plan for Sogin and Nucleco and the Healthy Workplaces Campaign 2018-19. On the occasion, Nucleco's first Safety Walkdowns and the corporate goals for prevention and workplace improvement were also presented. On the same day, some of the workers employed in the dismantling of the Glove Boxes and in the reclamation of Pit 7.1 shared their experience and videos.

LIVE EVENT 2020 "HEALTH AND SAFETY DURING COVID-19: THE REACTION OF SOGIN GROUP"

On 7 May 2020, as part of the global campaign for the promotion of health and safety in the workplace, the Sogin Group held an online event on the Teams platform.

The event, which involved all corporate employees, was intended to share the safety measures implemented by the Group to face a difficult time like the COVID-19 emergency, including sanitisation measures and a new organisation of work. In this regard, the findings of the survey "Working during COVID-19", administered to the corporate staff in April 2020, were also presented.

Moreover, in the presence of the Group's Top Managers and Safety staff, the Group's commitment on the territory, specifically those most affected by the virus, was presented.

BULLETINS ON SAFETY IN THE WORKPLACE AND SMS-ALERT SYSTEM

Throughout 2019 the Company regularly published a bulletin on safety in the workplace on the corporate intranet to inform the employees on the latest updates in terms of safety and health in the workplace. Moreover, an instant messaging service was also made available to send information on safety in the workplace directly to the corporate and personal mobile phones of the staff, subject to their consent.

Conventional safety

As in the previous two years, in 2019, no occupational illnesses have been recorded among the employees of the Sogin Group and the suppliers that have worked in the sites. The following tables report the injury rates recorded by Sogin, Nucleco and third contractors.

The injury rates account for the total number of accidents occurred on the journey to or from work and at work during the period of reporting. Starting from 2018, the events which have resulted in up to 3 days of absence from work are also included among the injuries; said events, following the issue of Circular Letter n. 42 of 12 October 2017, must be communicated to INAIL. In the past, this communication obligation was only required for the accidents involving an absence of more than three days from work.

GRI 403-9: INJURIES AT WORK

INJURY INDICATIONS – SOGIN EMPLOYEES

	2019		2018		2017	
	N.	RATE	N.	RATE	N.	RATE
Registrable Injuries at work of Sogin employees (including accidents occurred on the journey to or from work) *Ratio between registrable injuries at work and the hours worked (multiplied by 200,000), which include:*	**6**	**0.87**	**9**	**1.31**	**10**	**1.44**
Injuries resulted in working days lost ratio between the number of registrable injuries at work with working days lost and the hours worked (multiplied by 200,000)	6	0.87	9	1.31	10	1.44
Injuries at work with significant consequences *Ratio between the injuries at work with significant consequences (excluding deaths) and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Deaths *Ratio between the number of deaths and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Accidents to and from work *(including accidents occurred on transportations not provided by Sogin)*	5	n.a.	6	n.a.	8	n.a.
Hours Worked	**1,382,367**	**n.a.**	**1,369,730**	**n.a.**	**1,392,710**	**n.a.**

INJURY INDICATIONS – NUCLECO EMPLOYEES

	2019		2018		2017	
	N.	RATE	N.	RATE	N.	RATE
Registrable Injuries at work of Nucleco employees *Ratio between registrable injuries at work and the hours worked (multiplied by 200,000), which include:*	**7**	**4.14**	**3**	**1.80**	**2**	**1.17**
Injuries resulted in working days lost *ratio between the number of registrable injuries at work with working days lost and the hours worked (multiplied by 200,000)*	7	4.14	3	1.80	2	1.17
Injuries at work with significant consequences *Ratio between the injuries at work with significant consequences (excluding deaths) and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Deaths *Ratio between the number of deaths and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Accidents to and from work	1	n.a.	0	n.a.	0	n.a.
Hours Worked	**337,877**	**n.a.**	**333,691**	**n.a.**	**342,062**	**n.a.**

INJURY INDICATIONS – CONTRACTORS' EMPLOYEES

	2019		2018		2017	
	N.	RATE	N.	RATE	N.	RATE
Registrable Injuries at work of third contractors' employees *Ratio between registrable injuries at work and the hours worked (multiplied by 200,000), which include:*	**6**	**1.35**	**8**	**1.75**	**1**	**0.25**
Injuries resulted in working days lost *ratio between the number of registrable injuries at work with working days lost and the hours worked (multiplied by 200,000)*	6	1.35	8	1.75	1	0.25
Injuries at work with significant consequences *Ratio between the injuries at work with significant consequences (excluding deaths) and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Deaths *Ratio between the number of deaths and the hours worked (multiplied by 200,000)*	0	-	0	-	0	-
Accidents to and from work	1	n.a.	0	n.a.	0	n.a.
Hours Worked	**889,941**	**n.a.**	**912,443**	**n.a.**	**803,651**	**n.a.**

REGISTRABLE INJURIES AT WORK – SOGIN EMPLOYEES – DIVIDED BY GENDER AND SITE

	2019			2018			2017		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
Total registrable injuries	**6**	3	3	**9**	2	7	**10**	7	3
Caorso	**0**	0	0	**1**	0	1	**0**	0	0
Garigliano	**0**	0	0	**1**	0	1	**1**	1	0
Latina	**0**	0	0	**0**	0	0	**2**	0	2
Trino	**0**	0	0	**0**	0	0	**1**	1	0
Bosco Marengo	**0**	0	0	**0**	0	0	**0**	0	0
Casaccia	**0**	0	0	**2**	0	2	**1**	0	1
Saluggia	**0**	0	0	**2**	1	1	**1**	1	0
Rotondella	**0**	0	0	**0**	0	0	**0**	0	0
ISPRA-1	**0**	0	0	**0**	0	0	**0**	0	0
Rome's Headquarters	**6**	3	3	**3**	1	2	**4**	4	0
Foreign Offices	**0**	0	0	**0**	0	0	**0**	0	0

REGISTRABLE INJURIES AT WORK – SOGIN'S CONTRACTORS' EMPLOYEES – DIVIDED BY GENDER AND SITE

	2019			2018			2017		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
Total registrable injuries	**6**	**1**	**5**	**8**	**0**	**8**	**1**	**0**	**1**
Caorso	2	0	2	1	0	1	0	0	0
Garigliano	2	0	2	0	0	0	1	0	1
Latina	1	0	1	0	0	0	0	0	0
Trino	0	0	0	1	0	1	0	0	0
Bosco Marengo	0	0	0	0	0	0	0	0	0
Casaccia	0	0	0	0	0	0	0	0	0
Saluggia	**0**	0	0	**1**	0	1	**0**	0	0
Rotondella	**0**	0	0	**5**	0	5	**0**	0	0
ISPRA-1	**0**	0	0	**0**	0	0	**0**	0	0
Rome's Headquarters	**1**	1	0	**0**	0	0	**0**	0	0
Foreign Offices	**0**	0	0	**0**	0	0	**0**	0	0

Radiological safety

Decommissioning and radioactive waste management operations are carried out according to specific rules and regulations aimed at guaranteeing the radiological protection of employees, people, and the environment, in line with the highest standards of nuclear safety. The potential radiological impact resulting from usual operations is constantly monitored under the Legislative Decree 230/1995 and subsequent amendments and integrations, through specific environmental and physical surveillance systems.

The following tables summarise the doses of radiation exposure of the employees of Sogin sites. The reported doses have been defined by the Qualified Expert, namely the person appointed by the employer to ensure the health surveillance of corporate staff and the radiological safety of people and environment. He/she works in concert with the competent doctor who guarantees the workers' health surveillance on behalf of the employer.

The limit on the effective dose for workers' exposure is 20 mSv/year and it includes dose contributions from external radiations and internal contamination. The results of the physical surveillance on the employees working in Sogin sites are under the limits set out in the Legislative Decree 230/95 and subsequent amendments and integrations.

External radiation is produced by radiation sources that are external to the body, while internal radiation is caused by direct contamination of the body with radiological substances, ingestion, inhalation and/or dermal absorption.

The maximum effective individual dose is the dose absorbed by the exposed employee, which, due to the work performed over the year in the abovementioned site, was exposed to a greater exposure resulted from the sum of external and internal radiations.

A Millisievert (mSv) equals 0.001 Sievert (Sv). The Sievert is a derived unit of the effective dose, which results from the absorbed dose calculated on the type of incident radiation and the specific irradiated organ and/or body tissue, and it is used to calculate the biological effects of the exposure to ionizing radiations.

MAXIMUM EFFECTIVE INDIVIDUAL DOSE - SOGIN – 2019

	Maximum Effective Individual Dose	Type of Exposure
Site	**mSv/year**	**External/internal radiations**
Caorso	0.15	External
Latina	1.26	External
Trino	0.56	External
ISPRA-1	<0.05	External
Garigliano	0.50	External
Bosco Marengo	0.20	External
Casaccia	0.65	External
Saluggia	0.15	External
Rotondella	1.05	External

MAXIMUM EFFECTIVE INDIVIDUAL DOSE - NUCLECO – 2019

	Maximum Effective Individual Dose	Type of Exposure
	mSv/year	**External/internal radiations**
NUCLECO STAFF	2.65	External
THIRD CONTRACTORS' STAFF	2.25 mSv	External

Industrial safety

In line with current regulations and best international practices, Sogin manages nuclear and industrial safety for the following purposes:

- Protection of people and corporate assets;
- Physical protection of installations, materials and activities;

- Management of information, installations, technologies and materials under secrecy classification;
- Management of critical infrastructures subject to specific protection measures for reasons of public safety, order and civil protection;
- Mandatory training for employees with security clearance, on classified information and nuclear security, in partnership with institutions, public bodies, universities and research institutes.

In terms of cyber security and preventive IT measures, Sogin has introduced an information safety management model in line with the international standards and regulatory frameworks to ensure the protection of corporate information and adequate cyber risk management.

After having contributed to its design, Sogin has adopted and contextualised the national cyber security framework based on the NIST model "Framework for Improving Critical Infrastructure Cybersecurity", developed by CIS- Sapienza and by the National Laboratory of Cyber Security in partnership with the Italian Department of Information Security (DIS -Presidency of the Council of Minister).

To comply with the standards of Security Assurance and Resilience, Sogin has established an internal SOC (Security Operation Centre) and appointed a specific working team (CERT - Cyber Event Readiness Team).

Again, in 2019, Sogin held training courses on "Safety management in the nuclear field", pursuant to Prime Ministerial Decree n. 5 of 6 November 2015, and subsequent amendments and integrations. Training was held in Rome headquarters and in the sites.

Moreover, in 2019, Sogin continued its collaboration with the International CBRNe (Chemical, Biological, Radiological, Nuclear, and explosive), Master Courses of Tor Vergata University, under the guidance of the Radwaste Management School.

In terms of training, Sogin collaborates with several Research and Training Institutes, such as the Sant'Anna School of Advanced Studies in Pisa. This year, the training module: "Nuclear Security, the Italian context as case study: technical, legal and ethical implications" was also included in the school's Master Program in International Security Studies – (Corso Ethics of Security). This module focused on physical protection against "malicious acts", the national intelligence and security system, cyber security, and the new hybrid threats.

SECURITY DAY 2019

On 30 January 2019, upon completion of the review and improvement of the Information Safety Management model, the Company celebrated the Security Day. The event focused on the Business Continuity and Disaster Recovery Plans, which involve the corporate staff of Operational Teams/Office focal point.

NUCLEAR SECURITY

The term nuclear security refers to the measures to prevent intentional malicious actions such as theft, sabotage, non-authorised access, illegal transfer, related to nuclear materials, radioactive substances, nuclear power plants, facilities and infrastructures, and any relevant operations carried out also during the shipment of said substances.

NUCLEAR SAFETY

Nuclear Safety, based on principles set out by the international, community and national regulations, aims at protecting people, workers, and environment from the harmful effects of ionizing radiations. Thus, it also includes measures to avoid accidental hazardous events (such as, the release of radioactive material from a plant).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EXTERNAL STAKEHOLDERS

Sogin territorial coverage

Sogin is in connection with the local communities hosting the sites under decommissioning. Local communities consist of several stakeholders, such as environmental associations, institutions, families, media, or individuals. Each of them is involved by Sogin in discussions and events to share its activities and show the plants in which they are performed. Thanks to this approach Sogin builds long-lasting mutual trust.

Corporate giving

Sogin's care for local communities also involves the provision of practical support.
In 2019, Sogin continued its corporate giving activities, by donating 5 computers to the Caserma dei carabinieri of Sessa Aurunca and some items of industrial archaeology taken from the Latina nuclear power plant to the Politecnico of Milano.

LOCAL SUPPORT DURING THE COVID-19 EMERGENCY

The Sogin Group has supported local communities during the COVID-19 emergency, by offering its expertise and skills to the areas hardest affected by the virus:

- Supply of about 87,000 PPE (i.e., masks, safety shoe covers, gloves, tyvek suits and other PPEs);
- Active cooperation with the Ausl (Healthcare Unit) of Piacenza in carrying out the sterilisation operations of the premises of the Guglielmo da Saliceto Hospital. The operations have involved 4 teams, composed by two experts in health physics and radiation protection, for a total work of 700 hours. The activity has included the environmental sterilisation of the hospital premises.

Open Gate 2019

On 13 and 14 April, the Company organised the third edition of Open Gate: a two-day event on information and transparency with about 3,000 visitors involved in guided tours in the four decommissioning sites of Trino, Caorso, Latina and Garigliano.

Many local and national Stakeholders took part in the event and collected information about Sogin daily operations.

This edition received the moral sponsorship of the Ministry of the Environment; the event was Plastic Free, thanks to the use of water dispensers and biodegradable cups, which avoiding the waste of about 4,000 single-use plastic bottles.

During the initiative, which provided information on CIRCULAR ECONOMY and other environmental issues, the visitors have been involved in the campaign "My plastic free commitment". Participants were requested to write their opinions and impressions on a blackboard and post their "plastic free" commitments on their social networks.

European Week for Waste Reduction (EWWR)

For the eleventh anniversary of the European Week for Waste Reduction (EWWR), Sogin opened the site of Casaccia to a group of students from the Aerospace, Energy and Electric Engineering Department of la Sapienza University of Rome. The engineers-to-be, supported by a team of experts, went through the supply chain of the radioactive waste resulting from the dismantling of the obsolete Glove Boxes of the Plutonium Plant (IPU). During the tour of the premises of the IPU plant and the Nucleco facilities, all the stages (characterisation, treatment, and interim storage) of the dismantling operations of the plutonium-contaminated Glove Boxes were explained to the students, highlighting how these design and management operations result in a significant reduction of the amount of final radioactive waste intended to be sent for disposal.

Event for the reclamation of pit 7.1 (Removal of the monolith)

On 18 December 2019, Sogin held an initiative to celebrate the completion of reclamation works in Pit 7.1 of the Rotondella ITREC plant, which resulted in the successful removal of the reinforced concrete "monolith" containing radioactive waste. During the event, a delegation of journalists and authorities had the chance to know the details of the decommissioning project and participated in the extraction of the last well.

Local training programmes

In 2019, Sogin delivered training programmes on its decommissioning activities and projects in the schools of the areas in which it operates in. Furthermore, the Company has organised a series of visits for the students of the Italian and foreign universities who wanted to know more about its decommissioning and radioactive waste management projects. The students had the chance to visit the decommissioning sites and take part in specific lessons in partnership with the Radwaste Management School.
Moreover, again in 2019, the Company offered specialised training through corporate traineeships.
Starting from 2020, Sogin has started developing the PCTO - Percorsi per le Competenze Trasversali e per l'Orientamento (Training Programmes to promote cross-cutting skills and Orientation) – project in partnership with the Municipal Authorities of its sites of interest, aiming at meeting the needs of local schools and institutions, and the training and information obligations defined under national and international regulations.

Research Open Day

In 2019, for the fourth consecutive year, the Sogin Group took part in the Research Open Day with an exhibition in the Casaccia Research Centre and visits to the OPEC-1 repository. This event, launched in 2005 by the European Commission, involves thousands of researchers and research institutes across the EU countries in spreading science and knowledge to the citizens of all ages.

Meetings with environmental associations

Throughout 2019, the Group participated in a series of information and discussion events with environmental associations operating in the areas where the nuclear power plants and facilities are located.

In October 2019, at the Garigliano site, Sogin met the representatives of the environmental association Gruppo Sociale per San Castrese to discuss the activities planned by the nuclear power plant.

Institutional relationships

Sogin has built a solid relationship with local and national institutions; this relationship is subject to the reference legislation and are supported by a constant engagement in discussions based on information transparency and accuracy. For this reason, discussion and meetings are regularly held to investigate the most relevant aspects of decommissioning operations.

Institutional visits

Sogin periodically holds dedicated tours for the representatives of national and local institutions to spell out in detail the progress of the decommissioning activities in nuclear plants and radioactive waste management facilities..
In the framework of the Work No. 60 on the management and safe maintenance of nuclear waste, the tenth Permanent Commission on Industry, Trade and Tourism of the Italian Senate, on 31 January 2019, a delegation from the Commission inspected the site of Caorso. The purpose of this inspection, which followed the visits to Casaccia, Saluggia and Rotondella in 2018, was to monitor the progress of decommissioning and waste management operations of the power plant.
On 26 March, a delegation from the Ministry of the Environment visited Latina nuclear power plant. After a short presentation of the site carried out by Sogin's staff, the visit focused on the most relevant decommissioning and radioactive waste management activities implemented.

Discussion with independent bodies

Sogin keeps a dialogue with all independent bodies to promote the spread of accurate information on the Italian decommissioning operations.
Through Ministerial Decree, the Ministry for the Environment and Land and Sea Protection established an Environmental Monitoring Centre in Garigliano nuclear power plant. This permanent facility is engaged in monitoring the plant's decommissioning operations.

Visits to foreign repositories

Sogin holds regular guided tours with its stakeholders to other radioactive waste Repositories in Europe. These visits aim at: showing the functioning and activities of an infrastructure similar to the National Repository that will be implemented in Italy; collecting examples and testimonies of local CEOs and citizens; and investigating relevant aspects of the stakeholder engagement process, required for the repository implementation.

On 6 June 2019, Sogin took part to the visit of the undersecretary of the Ministry of the Environment in the *Centre de Stokage de L'Aube* (CSA), the French final repository for low and intermediate-level waste operated and manged by the public agency. The visit was a chance to discuss with the local authorities and learn more about possible approaches to engage the local communities in the construction of the National Repository.

Memorandum of understanding with the Commander of the Carabinieri Environmental Protection

In 2012, Sogin ratified a three-year agreement with the Commander of the Carabinieri Environmental Protection Section, that was renewed in 2018, aimed at collaborating in the operations of recovery and securing orphan radioactive sources, namely those whose origin and ownership are unknown.
After the identification of an orphan radioactive source and the request to competent authorities (judicial authority, Prefecture etc.) the Commander of the Carabinieri Environmental Protection Section, notifies the detection of the source to Sogin.

Sogin provides a competent technician to evaluate the best intervention to implement and the operation costs for the management and disposal of the radioactive sources.

The competent authority can exploit Sogin expertise to plan, coordinate and implement the transfer and safe maintenance of radioactive waste.
Moreover, with the memorandum of understanding, Sogin commits in the management and safe maintenance of the radioactive waste resulted from the personal protection equipment used by the Commander of the Carabinieri Environmental Protection Section during joint actions. As for training, the agreement provides for the participation of the Commander of the Carabinieri Environmental Protection Section in Sogin training programmes on safety and radioprotection.

Participation to the transparency roundtables

The Regions hosting nuclear sites under decommissioning, organise Transparency Tables and regular meetings based on specific provisions and regional regulations, to discuss the progress of the dismantling operations and radioactive waste management with Sogin and update local stakeholders (citizens, institutions and associations), especially in terms of safety and environmental protection.
During 2019, the following transparency roundtables have been held:

- 15 March 2019 – Piemonte Region;
- 28 March 2019 – Lazio Region;
- 17 May 2019 – Campania Region;
- 25 October 2019 - Emilia-Romagna Region.

All the meetings were an opportunity to promote a dialogue between Sogin and local Stakeholders of the areas in which decommissioning and radioactive waste management operations are carried out.

Relations with local authorities

In 2019, institutional and technical meetings were held to update the Municipalities, the Provinces and the Regions hosting Sogin sites on the progress of decommissioning activities. Among these meetings:

- 21 March 2019 – Technical Table on restoring and rebalancing environmental interventions under the EIA Decree of the deactivation project of the "E. Fermi" nuclear power plant in Trino under art. 24 of Law 27/2012;
- 26 March 2019 – Hearing of the 3^ Special *Terra dei Fuochi* Commission of Campania Regional Council;
- 13/14 April 2019 – Institutional meetings with local authorities and associations in Trino, Caorso, Latina and Garigliano, during the third edition of Open Gate;
- 13 June 2019 – Technical Roundtable on restoring and rebalancing environmental interventions in Latina nuclear power plant pursuant to art. 24 par. 4 of Decree Law n. 1/2012, as amended and modified by Law n. 27/2012;
- 26 September 2019 – Technical Roundtable of the Municipal Environment Commission of Trino;
- 27 September 2019 – Meeting with the Municipal Council of Saluggia for updates on the decommissioning of the EUREX plant.

Conferences of services

As provided for in the regulatory framework concerning the approval of reclamation operations in a contaminated site, during 2019, Sogin and the concerned local authorities have taken part in four conferences of services to discuss the reclamation procedures to adopt in Bosco Marengo, Rotondella and Trino.

Communication plans according to the EIA

In order to comply with the EIA (Environmental Impact Assessment) Decrees, Sogin should prepare communication plans, to submit to local bodies for approval.
Each communication plan includes different actions such as the development of the RE.MO. portal (Monitoring Network), the creation of leaflets, and carrying out guided tours in the sites, press conferences and transparency roundtables.

Development of national network

Ecomondo 2019

Sogin participated to the 2019 edition of Ecomondo - the international trade show on the recovery of materials and energy, and on sustainable development – with a speech on the reclamation of Pit 7.1 during the General Meeting on Demolition Works. During the trade show, organised by RECOVER Magazine, the design and engineering experimental solutions adopted for the cutting and extraction operations to dismantle the underground wells.

AIRP 2019

Sogin took part in the National Convention on Radiological Protection, organised by the Italian association on Radioprotection (AIRP) and the Regional Agency for Environmental Protection of Umbria Region (ARPA Umbria), and sponsored by Region Umbria and the Municipality of Perugia. The event, held in Perugia from 16 to 18 October, offered to sector experts and technician the chance to exchange opinions on issues related to the measurement of radiological protection, the optimisation of staff and citizen exposure, the environmental protection and other topics connected to the health, industry and nuclear scopes. During the convention, Sogin shared its experience on radiological protection, characterization and radiological monitoring related to the decommissioning of nuclear power plants.

RemTech 2019

Sogin took part to the 2019 edition of RemTech, the Italian event focused on reclamation of contaminated sites and land protection and restoration, which involves private companies, public bodies, universities, research centres, associations, professionals, and the industrial world.
Sogin presented a report called "Trisaia: the reclamation of Pit 7.1" during the presentation of the AIRP (Italian Association on Radiological Protection) study on the topic of "Ionising and non-ionising radiations: restoration and reclamation between new legal frameworks and new technology" at the presence of institutional representatives and sector professionals.

Industria Felix Award – a competitive Italy awarded to Nucleco

In 2019, Nucleco was selected as the best Company of the Environment Sector in Lazio Region and awarded best Medium Enterprise in the competition for the "Felix Industry – a competitive Italy" award, sponsored by Industria Felix Magazine and the Cultural Association Industria Felix, in partnership with Cerved Group S.p.A. and with the sponsorship of the University LUISS Guido Carli and Confindustria. Industria Felix is a networking event on economic and financial information, during which the best regional and local SME's are awarded for their budget performance (Budget indications), while SME's and large businesses are awarded for their best management performance (High Awards).

Industry associations

Sogin constantly cooperates with national and local industry associations. It is a member of Confindustria Basilicata, Confindustria Piacenza, Confindustria Novara Vercelli Valsesia, Confindustria Caserta and Unindustria Lazio; it also works in partnership with other pools of companies in the regions in which it operates.

StartupItalia Open Summit 2019

In 2019, Sogin took part in the informal meeting of the European Blockchain Partnership, held at the "Bocconi" University in the framework of the 2019 Open Summit of StartupItalia. During the event, Sogin had the chance to present the new blockchain-integrated radioactive management waste system, called AIGOR (IT Software for the Management of Radioactive Objects) which will ensure the waste traceability up to the closure of the Italian nuclear fuel cycle.

Development of international network

Sogin has built an international network of relations and collaborations with international organisations and foreign public and private operators specialised in the fields of nuclear decommissioning and radioactive waste management.

Institutional partnerships

Due to its public nature and its relevant expertise in the field of decommissioning and nuclear radioactive waste management in Italy, Sogin fosters the dialogue with top experts in the field, by taking part in the most relevant international forums and in initiatives and working groups of the main international organisations such as:

- The International Atomic Energy Agency – IAEA of the United Nations.
- The Nuclear Energy Agency - NEA of the OECD – Organisation for Economic Co-operation and Development;
- The bodies of the European Commission engaged in nuclear field, namely the Directorate-General Energy (DGENER), the Joint Research Centre and the EURATOM Supply Agency.

Moreover, Sogin represents the Italian Government, its bodies and other national institutions involved in the nuclear sector, by providing its expertise in international institutional meetings.

From 18 to 21 June, Sogin held the workshop “Application of Sustainability Principles and Circular economy to Nuclear Decommissioning” in Rome, in partnership with the UN International Atomic Energy Agency (IAEA). During the event, international experts (France, Germany, Japan, Italy, Slovakia, Spain, Sweden and the UK) had the chance to discuss the sector best practices and innovation in terms of CIRCULAR ECONOMY.

The workshop was structured in different sessions: a general assembly, technical sessions, and a site visit to Latina nuclear power plant. The subjects of the sessions focused on the European and national legal framework on CIRCULAR ECONOMY, with analysis on the pros and cons of the different approaches used to manage the radioactive waste resulted from decommissioning operations. On this occasion, Sogin presented its CIRCULAR ECONOMY strategy, described in the section “Environment” of this Report. According to the experts, the adoption of the principles of CIRCULAR ECONOMY is needed to turn the nuclear decommissioning into a long-term sustainable process, including the introduction of green engineering and green public procurement policies.

On 18 September 2019, during the General Conference held in Vienna and as a symbol of their fruitful collaboration, Sogin was appointed IAEA (International Atomic Energy Agency) Collaborating Centre.

During the General Conference, Sogin also supported the Italian delegation of the Ministry of Foreign Affairs and International Cooperation by providing its technical expertise on decommissioning and radioactive waste management.

Over 2019, the Company took part in the IAEA technical meetings on specific issues connected to decommissioning and radiological protection, such as the “GRAPA: International Project on Irradiated Graphite Processing Approaches”, on the management of irradiated graphite; “DACCORD: Data Analysis and Collection for Costing of Research Reactor Decommissioning”, on the estimate and benchmarking of decommissioning expenditure and “MODARIA: Modelling and Data for Radiological Impact Assessments”, on radiological protection.

In the same year, during the international peer review of the IAEA – ARTEMIS project (concerning the German national radioactive waste and spent fuel management programme), Sogin presented a topic leader in the “Cost & Financing” area.

In partnership with the OECD/NEA, Sogin joined the Steering Committee and participated in several technical roundtables on dismantling, waste management and disposal, and radiological protection.

Moreover, during 2019, Sogin took part in further meetings and technical roundtables such as the "Cooperative Programme for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects", which collects all the institutions and entities involved in decommissioning projects in the EU Member states, and the "Committee Decommissioning Legacy Management", which gathers experts from national agencies in charge of decommissioning, regulatory, decision-making, research and other relevant aspects.

Collaborations with foreign operators

Sogin establishes and consolidates relations with the most important foreign operators, in both public and private sector, aimed at sharing know-how and experiences and implementing beneficial synergies in the framework of the growing relevance of decommissioning in the global market.
The collaboration agreements ratified and implemented in 2019 with international bodies and organisations are listed below:

- EDF Collaboration Agreement (Electricité De France) to share scientific/technical know-how on subjects of mutual interest for the dismantling of nuclear reactors.
- Collaboration agreement with the research and consulting Company MRI (Mitsubishi Research Institute, Inc.), to launch future nuclear and industrial cooperation between Japan and Italy.
- Collaboration agreement with the Chinese Nuclear and Safety Radiation Center (NSC) to exchange know-how and launch operations for the decommissioning of nuclear plants and radioactive waste management;
- Collaboration agreement with SURAO, the Czech State-owned Company in charge of operating the Dukovany national repository for radioactive waste, to promote an exchange of information and know-how in the field of radioactive waste management.
- Collaboration agreement with ENRESA (Empresa Nacional de Residuos Radiactivos SA), the Spanish state-owned Company in charge of waste management and the implementation of a storage facility for low-level and intermediate-level radioactive waste, to promote an exchange of information and know-how in the field of radioactive waste management.
- Collaboration agreement with ANDRA (Agence Nationale Pour La Gestion Des Déchets Radioactifs), the French state-owned company in charge of radioactive waste disposal, to promote an exchange about radioactive waste management.
- Collaboration agreement with ONDRAF (Organisme National Des Déchets Radioactifs Et Des Matières Fissiles Enrichies), Belgian state-owned Company in charge of waste management and implementation of the Dessel Repository, to promote an exchange of information and know-how in the field of radioactive waste management.
- Collaboration Agreement with ITER (International Thermonuclear Experimental Reactor), the international megaproject run by the European Union, Russia, China, India, Japan, South Korea, and the United States for the implementation of an experimental thermonuclear reactor. The agreement, based on the exchange of technical and scientific know-how, includes several topics, such as radioactive waste management, nuclear infrastructures, and the review of nuclear engineering and nuclear safety projects.
- Collaboration agreement with CGN/CNPEC (China General Nuclear), to promote the exchange of know-how and experiences in the field of decommissioning of nuclear power plants and radioactive waste management.

Media, web and social relations

Information, listening, dialogue: these are the three fundamental drivers of Sogin's external communication. Through different media – newspapers, web, TV, and radio -, the Company offers a transparent and accurate picture of the corporate mission and operations. Moreover, Sogin publishes institutional contents reports for its Stakeholders through its websites:

- sogin.it
- nucleco.it
- depositonazionale.it

Through its LinkedIn, YouTube and Instagram accounts, the Sogin Group is also able to inform and communicate with its Stakeholders, by using these new spaces to share transparent information, and promote corporate environmental campaigns and events.

Relations with media

The Group's media relations in 2019 mainly revolved around the nature, management, and technology of nuclear decommissioning, including the activities operated by Sogin for third parties. For example:

- The press conference of 21 February to present the final figures of 2018, at the presence of 40 accredited journalists and more than 100 articles across different media;
- The press meeting held on 18 September in Vienna, during the IAEA General Assembly when Sogin was acknowledged IAEA "Agency's Collaborating Centre";
- The press release of 26 September when Sogin was appointed the decommissioning of the ISPRA-1 reactor;
- The press release of 12 December on the renewal of Sogin's BoD;
- The event of 18 December for the completion of the removal of the concrete "monolith" from Pit 7.1 in ITREC plant; during the event, 40 journalists have taken part to the extraction of the last well. About 200 articles and radio/television materials have been released.

Over the year, many journalists could visit the sites under decommissioning. One of these visits, resulted in the special documentary on the launch of the cutting operations of the monolith in Pit 7.1 in Rotondella, broadcasted during the programme *RAI-TGR Leonardo*, on 9 April.

In year 2019, the Sogin Group had 1,947 media appearances, 90% of which for descriptive-information purposes, or, anyway, having a positive tone. More specifically, there was a total of 613 press articles, 1,137 web articles and 197 radio and television appearances, (149 TV documentaries and 48 radio interviews). The Company published 16 press communications and releases and held 7 press conferences, with the participation of 160 accredited journalists and more than 600 reports.

The two-day event Open Gate 2019 was covered by the media, with 75 accredited journalists and 250 news broadcasted on several channels, recording a positive/neutral sentiment. Among these: the special reports on the sites in Northern Italy broadcasted in the news of La7 and RaiNews channels, an article in *Vero* magazine concerning the Caorso power plant and articles in *La* Stampa and *IlPost.it* concerning the Trino power plant. The facilities located in the Centre and South of Italy, instead, appeared in the news of TG2 and TG3 (Rai), in the article on Latina power plant published in the *Huffington Post* and in the articles concerning Garigliano power plant released on *Il Mattino*, *La Gazzetta del Mezzogiorno*, *il Messaggero* and *IlGiornale.it*. Media coverage in 2019 was also

insured to all institutional events, such as the press conference organised by the Prefettura (central government institution on county level) of Vercelli to present the new Plan for External Emergency of the Saluggia plant, parliamentary hearings, Transparency Roundtables and sector trade shows (Connext e Ecomondo). These actions came along with regular social media monitoring.

Web and social media

Year 2019 features a stronger presence online of the Sogin Group, specifically:

- the go-live of the new Sogin website "sogin.it"
- the launch of the Instagram account @opengate_sogin

In May 2019, Sogin put the new sogin.it website online, with new contents a new layout. The new mobile-friendly device is intended to strengthen the corporate presence online and enhance the corporate mission in a transparent and complete manner. The contents of the website, available in Italian and English, are the result of the efforts of all corporate branches. Each page embodies the values, the history, and the daily work of the Company. Moreover, different colours are associated with different aspects: grey stands for know-how and innovation; green, for the environmental commitment; blue is the Stakeholders' engagement. The homepage, built as a *One Page Website*, is design to offer the six macro-areas to the user at first glance: Sogin Group; Closure of the Italian Nuclear Fuel Cycle; Market and foreign activities; Sustainability; Suppliers; Media. The most relevant area in sogin.it is the "Nuclear Sites" section, which offers the users the chance to discover the details of each nuclear power plant and decommissioning operations. The website also works as an important showcase of the market services provided by the Company, both in Italy and abroad. The launch of the new sogin.it website, completed the renewal of all the Group's websites (following the creation of depositonazionale.it website in 2015 and the new nucleco.it website in 2016. On 21 February 2019, the Instagram profile @opengate_sogin was also opened concurrently with the launch of subscriptions to join the third edition of Open Gate. This profile is devoted to the Sogin Group and includes stories and multimedia contents related to the site visits held during Open Gate 2019. Each stage of the event, in fact, has been covered in the Instagram Sogin profile and in the visitors' profiles. The new profile has recorded 149 posts in 2019 and a total of about 150,000 views.

Beyond the Instagram profile of Open Gate there are the corporate profiles on LinkedIn and the YouTube channel, through which the Company shares contents of informative and general nature. In 2019, several multimedia contents were shared on the Youtube channel SoginChannel and Communication and information campaigns related to the most significant corporate events and operations have also been published on LinkedIn, accounting for 58 posts and more than 240,000 views. The Followers number is still increasing, and it accounts for more than 8,300 people on Sogin profile at the end of year 2019.

SOCIAL MEDIA PRESENCE TREND OF THE SOGIN GROUP

2012

SoginChannel - Objectives

- Information and transparency through multimedia contents on decommissioning, National Repository and Technology Park and other corporate initiatives;
- Increasing and enhancing the brand reputation.

2014-2015

Profiles: Sogin, Nucleco and RMS - Objectives

- Enhancing the activities and the skills of the Sogin Group on decommission & waste management;
- Increasing and enhancing the brand reputation;
- Stakeholders' engagement;
- Increasing the website traffic.

2019

Instagram - Objectives

- Encouraging subscriptions and give visibility to the events;
- Creating a space on social media to foster sharing and engagement;
- Increasing and enhancing the brand reputation;
- Increasing the website traffic.

Relations with suppliers

Sogin procurement policies comply with the "Code of Public Procurement" under Legislative Decree 50/2016 and subsequent amendments and integrations, the ANAC (Italian National Anti-Corruption Authority) guidelines and the principles enshrined in the Treaty on European Union on the protection of competition.
Sogin procurement lies on two main principles:

- Guaranteeing the maximum involvement of operators from the reference market, in line with the principles of free competition, equal treatment and non-discrimination;
- Procuring high-tech works, services and supplies from highly qualified suppliers, by its priority access to the qualification system.

Transparency and engagement

To implement its operations, Sogin works with national and international companies of excellence, renowned for their technological skills, know-how and specialisation, to build an Italian decommissioning supply chain that seizes the opportunities given by the operations connected to the closure of the nuclear fuel cycle.

CONNEXT 2019

The Sogin Group took part in Connext 2019, the first showroom and digital networking event organised by Confindustria and addressed national and international companies looking for new drivers for business growth.
The Group had a showroom on the circular economy in nuclear decommissioning, it took part in 25 B2B meetings focussed on circular economy, procurement system and qualification system, and held a specific event on sustainability and circular economy.
Moreover, during the event "Il Deposito Nazionale: un Progetto-Paese, valenze ambientali e di sicurezza e opportunità socio-economiche" (the National Repository: a national project with environmental value, safety and opportunities of social and economic nature) sponsored by Confindustria, Sogin explained the details of the NR project.

PRELIMINARY MARKET CONSULTATIONS

In 2019, in line with art. 66 of the Code of Public Procurement, Sogin held preliminary market consultations for some complex technical operations that the Company needed to procure. The purpose of the consultations was to identify the best available market solutions and allow a broader participation of third companies and, thus, a better tendering procedure for the two tenders: one for the implementation of a blockchain-based IT system for the management of radioactive objects, and one for the treatment (incineration) and conditioning of liquid (organic/aqueous) and solid radioactive fuels resulted from the operation of the Italian fuel cycle facilities.

To endure the utmost transparency and involve the highest number of companies in its operations, Sogin publishes online (sogin.it) the updated Procurement Plan, a document that collects all required information for the execution of tendering procedures. The Plan defines tendering times and costs, and is available online to ensure that Companies and associations of undertakings are constantly updated on tendering procedures and to foster the qualification of suppliers.
During the past year, Sogin also continued providing information and assistance on the qualification system to the economic operators through its business desk, active since 2016.

Green public procurement

In line with the provisions of the National Plan for Green Public Procurement, when implementing its calls for tender, Sogin includes the minimum requirements to promote the use of technologies with a low environmental impact and support more sustainable production and consumption models. Starting from 2017, the Company has adopted a specific provision to include the Minimum Environmental Requirements within its procurement calls. In 2018 and 2019, the provision was updated according to the new Ministerial resolutions.

On 2 July 2019, Sogin held an information and training event on green public procurement, with the participation of the corporate staff involved in the procurement process.

E-procurement process improvement

Sogin has an e-procurement system that allows the management of procurement procedures by computer, including the specific requirements of business areas, the execution stages of the contract (suspensions, extensions, variants), the qualification system for suppliers and the vendor rating.

The Public Procurement Code was amended in 2019 by the provisions of Decree Law n. 32/2019 amended by Law n. 55/2019; these provisions allowed to speed up the procurement and standardisation provisions, such as the performance of maintenance works on plants and green areas, and the supply of artefacts related to decommissioning and radioactive waste management operations.

To face the 2019 updates of the new Code of Procurement, Sogin has continued adapting its internal regulations and IT procurement system.

Project verification

As required by the Code of Public Procurement, Sogin runs independent validation checks on all procurement projects, regardless of their economic value.

These checks are reported in the corporate Policy and are part of the preliminary project verification for validation purposes, ratified in 2017, and intended to comply with the environmental and safety resolutions.

In 2019, the Company performed checks on 8 projects concerning the management of radioactive waste in the sites of Trino, Casaccia, Garigliano, Caorso and Saluggia.

Checks on the supply chain

Sogin accurately verifies the professional conduct of its economic stakeholders during qualification and tendering processes.

In application of the Legality Protocol, ratified in 2011 and renewed in 2016 between Sogin and the Prefetture of the Provinces involved in decommissioning operations (Alessandria, Caserta, Latina, Matera, Piacenza, Rome, Vercelli), the Company runs regular anti-mafia checks on its economic stakeholders involved in works, services, rentals, transportation or material supply. At the end of the invitations to tenders, Sogin evaluates the adequacy of bids and excludes, where possible, anomalous rebates which may affect labour costs, work quality and safety.

Sogin requires its suppliers to comply with the rules of the Ethical Code according to which Sogin shall not negotiate with economic stakeholders who failed to comply with safety regulations and other obligations required by labour relations.

Similarly, Nucleco requires its suppliers to submit statements in which they recognise the Ethical Code principles, and refrain from engaging in any behaviour that may induce the Company, its employees, or collaborators, to breach such principles.

Moreover, some specific terms defined under the contracts require:

- the supplier to submit a self-certification of compliance with specific social obligations (such as, measures ensuring the respect of the workers' fundamental rights, the principle of equal treatment and non-discrimination, the protection of working minors etc.);
- the chance for Sogin to run checks and verifications of the requirements declared in the production units or in the operation headquarters of the supplying undertaking.

In May 2020, Sogin ratified a MOU with three national Trade Unions that obliges all contractors to comply with the regulations on protection against wage dumping, and the health and safety requirements defined under the National Collective Labour Agreements.

Shared responsibility

In line with the best practices of the main Italian contracting authorities and in compliance with the existing regulatory framework, Sogin regularly monitors its contractors and sub-contractors to verify their respect of workers' rights and the principles of social ethics and transparency, thus, limiting "shared responsibility of the contracting party" risk.

Sogin operates an IT shared system which daily detects and monitors the presence of external workers under a procurement contract. Moreover, the Company runs massive checks on documents, aimed at assessing the correct fulfilment of payment, social security and insurance obligations on behalf of contractors and sub-contractors. This activity also includes sample checks performed on working sites. In the event of non-compliance on behalf of the contractor and/or the sub-contractor, the contracting authority, Sogin, launches substitution procedures, upon official request of the concerned parties, and directly provides the employee with the payment of the accrued amounts not paid by the contractor or sub-contractor.

Vendor Rating

The vendor rating process aims at analysing and improving the suppliers' performance, by allowing greater transparency between the contracting authority and the contractor. This process provides for the performance of checks on all ratified contracts by Sogin, excluding those whose amounts are less than EUR 10,000, professional assignments of trustee nature to self-employed professionals, subscriptions, rents, utilities, sponsors and collaborations with bodies and institutions. The evaluation is based on the following parameters: compliance with specific technique, flexibility and promptness, staff expertise, adequacy of means and equipment, compliance with implementation time and general performance evaluation. Further parameters, such as work safety and environmental management, were also included in the process.

In case the supplier' performance is not satisfactory, there may be consequences in terms of qualifications – or for the ratification of future contracts with Sogin. Negative assessments may result in the exclusion of a – qualified or non-qualified - supplier from future invitations to tenders, and in the rejection of possible qualification requests.

Qualification system

Since 2010, Sogin has resorted to a qualification system to identify economic stakeholders to invite in tenders. Sogin qualification requirements reflect the guidelines set out by the National Anti-corruption Authority (ANAC). Subscription has an unlimited duration.

The current "Regulation for the operation and management of the Procurement Qualification Process for services and supplies of Sogin S.p.A.", drafted under art. 36 and art. 134 of Decree Law n. 50/2016, provides for the possibility to use tendering procedures addressed to official Registers for:

- works up to class 8 conventionally established in EUR 20,658,000;
- engineering services up to EUR 3 million;
- services up to EUR 25 million;
- Supply up to EUR 10 million.

The Qualification System is managed through an integrated IT platform, the Sogin Purchase portal available on the corporate website. The economic operators can access the portal at any time, previous subscription and authorisation, and apply to be qualified for each procurement category. The application of the economic operator is evaluated by the competent office and undergoes the process of qualification of the Qualification Committee, which approves or refuses the application according to the requirements defined under the qualification regulations and specifications. There are about 180 categories, structured according to the activities defined in the procurement plan. The system is subject to regular verifications of the qualification access criteria to keep them aligned with corporate needs and the current market standards.

To ensure the utmost transparency, Sogin published the qualification regulations in the EU Official Journal, Italian Official Journal, in the Official Notice Boards and on the official website sogin.it/en. The contracting Company also publishes the call for tenders and any other relevant document pursuant to art. 29 of Decree Law n. 50/2016 and subsequent amendments and integrations.

As of 31/12/2019, the total number of qualified economic operators included in the system amounts to 639 (covering 1294 categories). During the past year, Sogin opened 186 call for tenders on the Official Notice Boards, for a total amount of about EUR 32 million. The contracts ratified with the qualified operators during 2019 are 164, for a total of EUR 35 million. The gap between the reference amount and the contract price is due to the presence of bids submitted in previous years (not in 2019 only).

FIGURES OF TENDERS AND CONTRACTS UNDER THE QUALIFICATION SYSTEM – SOGIN 2019

Number of tenders of the register (from applications received in the same year)	Reference amount (EUR/M)	Number of ratified contracts of the Register (from applications received in the same year and in previous years)	Contract price (EUR/M)
186	32	164	35

Value of issued orders and geographical distribution of suppliers

Decommissioning and waste management activities generate value for the territory, by contributing to the development of the local business fabric.

The tables below report the absolute and percentage value of the orders issued by Sogin, divided by type of contract and geographical area, and the percentage distribution of awarded values (2017, 2018, 2019) calculated in regions hosting nuclear sites.

As for Nucleco, the geographical distribution of suppliers is reported with the correspondent percentage share of expenditure on total purchases of 2019. More specifically, among the agreements ratified with foreign companies, the contract ratified with JAVYS (Slovakian Republic) for the incineration treatment of solid and liquid waste is included among the contracts ratified with foreign companies, for an amount of EUR 6,909,550.

The value of this contract, equal to 40% of Nucleco orders in 2018, affects the percentages of other amounts. The table does not include the service contract Sogin-Nucleco, equal to EUR 1,910,265.00.

VALUE OF THE ORDERS ISSUED BY SOGIN DIVIDED BY TYPE

	2019	2018	2017	2019	2018	2017	2019	2018	2017
Type		**EUR/M**			**%**			**N. orders**	
Supplies	17.6	19.3	19.2	17.2	16.8	9.7	181	180	177
Works	29.8	15.3	56.2	29.2	13.4	28.4	61	47	74
Services	54.8	80*	122.7**	53.6	69.8	61.9	413	495	504
TOTAL	**102.2**	**114.6**	**198.1**	**100**	**100**	**100**	**655**	**722**	**755**

* Net of EUR 17.3 M related to nuclear fuel.
** Net of EUR 365.4 M related to nuclear fuel.

VALUE OF THE ORDERS ISSUED BY SOGIN DIVIDED BY SITE

	2019	2019	2018	2018	2017	2017
Site	**EUR/M**	**(%)**	**EUR/M**	**(%)**	**EUR/M**	**(%)**
Bosco Marengo	3.4	3.1	4.1	3.1	7.1	1.3
Caorso	9	8.1	7.6	5.8	23.6	4.2
Casaccia	6.2	5.6	9.1	6.9	15.7	2.8
Garigliano	8.9	8.0	16.3	12.3	23.7	4.2
Latina	8.7	7.8	7.6	5.7	25.7	4.6
Saluggia	11.1	10.0	13.7	10.4	9.3	1.6
Rome Headquarters	38.6	34.6	56.2	42.6	405.6	72
Trino	7.6	6.8	9.0	6.8	39.9	7
Rotondella	17.6	15.8	8.3	6.3	12.9	2.3
ISPRA-1	0.3	0.3	0	0	0	0
TOTAL	**111.4**	**100%**	**131.9**	**100**	**563.5**	**100**

GEOGRAPHICAL DISTRIBUTION OF SUPPLIERS – SOGIN 2019

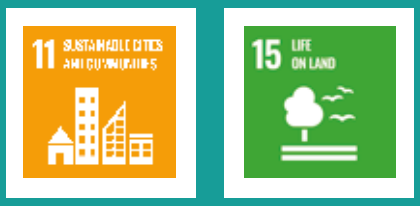
	2019	2018	2017
Reference geographical areas		**%**	
Lazio (Casaccia, Latina, Sede Centrale)	54.2	56	79
Campania (Garigliano)	4.4	10	4
Piemonte (Saluggia, Trino, Bosco Marengo)	12.4	25	10
Lombardia	21.7		
Emilia-Romagna (Caorso)	5.8	9	4
Basilicata (Rotondella)	1.4	1	3
TOTAL	**100**	**100**	**100**

GEOGRAPHICAL DISTRIBUTION OF SUPPLIERS – NUCLECO 2019 (ECLUDING INTRACOMPANY CONTRACTS TO SOGIN AND ENEA)

Reference geographical areas	Number of contracts	Amounts (EUR)	Amounts %
Lazio	38	2,442,545.74	30.18%
Campania	6	367,720.95	4.54%
Piemonte	7	293,257.00	3.62%
Emilia-Romagna	4	102,000.00	1.26%
Basilicata	2	57,321.20	0.71%
Lombardia	27	3,191,048.72	39.43%
Toscana	1	459,000.00	5.67%
Liguria	1	5,970.00	0.07%
Sicilia	1	259,859.28	3.21%
Puglia	9	425,142.27	5.25%
Umbria	0	0.00	0.00%
Veneto	4	82,000.00	1.01%
Trentino-Alto Adige	1	326,064.00	4.03%
Marche	1	81,536.00	1.01%
Foreign country	0	0.00	0.00%
TOTAL	**102**	**8,093,465.16**	**100.00%**

8

ENVIRONMENT



Environmental sustainability is a key part of the Sogin mission. For this reason, the Company's environmental commitment covers several aspects: compliance with safety regulatory provisions, implementation of voluntary measures or initiatives which effectively contributes to foster sustainable development.

The following pages describe the main processes and the most significant initiatives in the field of environmental responsibility.

	ENVIRONMENTAL IMPACT ASSESSMENT AND RECLAMATION PROCEDURES	SITE RECLAMATION PROCEDURES
	RENATURATION	OPERATION IN THE LATINA POWER PLANT
	ENVIRONMENTAL RADIOLOGICAL PROTECTION	RELEASE FORMULAS AND ENVIRONMENTAL MATRIXES
	CIRCULAR ECONOMY IN NUCLEAR DECOMMISSIONING	REUSE OF STRUCTURES, SYSTEMS AND COMPONENTS; REUSE OF MATERIALS
	ENVIRONMENTAL SUSTAINABILITY	EMAS REGISTRATION; SOGIN PLASTIC REDUCTION AND OTHER ENVIRONMENTAL SUSTAINABILITY MEASURES

Environmental Impact Assessment and Reclamation Procedures

In line with the current legislation on environmental impact, Sogin launches the necessary environmental procedures – Environmental Impact Assessment and/or the eligibility assessment under the second section of the Decree Law N. 152/06 and subsequent amendments and integrations – to verify possible negative environmental impacts of the operations performed in a nuclear power plant.

The Company obtained the outcomes of the EIA Decree for the Caorso and Trino power plants in 2008, the Garigliano outcomes in 2009 and the Latina ones in 2011. Moreover, the EIA Decree for the CEMEX (EUREX Cementation Facility) of Saluggia was obtained in 2008, and the EIA for the ICPF project (Facility of the conditioning of final products) in the ITREC site of Rotondella was obtained in 2011.

To verify that environmental conditions are maintained during decommissioning and in line with the provisions of the ministerial decrees, Sogin regularly monitors the quality of environmental components (atmosphere, surface water, underground water, plants, animals, landscape and noise) through a set of regular measurements carried out on selected biological, chemical and physical indicators.

This procedure, called conventional monitoring, is carried out at variable intervals in the four nuclear power plants, in Rotondella ITREC site and in Saluggia EUREX site, according to the nature of the site, aiming at:

- Verifying the site complies with the impact estimated in the Environmental Impact Assessment;
- Collecting data to report the environmental status and the decommissioning progress;
- Ensuring full control of the environmental situation in the different stages;
- Evaluating environmental developments by comparing ante-operam outcomes with ongoing outcomes and preparing corrective actions in case of anomalies.

All these activities are intended to monitor the maintenance of environmental conditions during decommissioning operations within the scope of the implemented environmental procedure.

The findings of these procedures are collected in an environmental report and made available on the RE. MO. (Monitoring Network) accessible through the website sogin.it.

Where values above the threshold of contamination concentration are detected, during monitoring campaigns, in the soil and groundwater matrixes, Sogin launches a reclamation procedure as stated under section IV of Legislative Decree 152/2006.

The procedure envisages the performance of the following operations:

- Communication of the detection of a possible contamination to other Bodies (launch of the reclamation procedure);
- Drafting and delivery of the Radiological Characterisation Plan with a proposal of Investigation Plan, defined according to the preliminary conceptual model of the site (detection of the contamination source, migration paths, pathways of exposure and targets);
- Approval of the Radiological Characterisation Plan on behalf of the Conference of Services consisting of monitoring local entities (Region, Province, Arpa, Municipality, Asl- Local Public Health Unit);
- Implementation of the Investigation Plan aimed at verifying the drafted conceptual model and at collecting input data for the Health Risk Analysis of the specific site to detect the Risk Threshold Concentrations;
- Approval of the Health Risk Analysis of the specific site on behalf of the Conference of Services and definition of subsequent actions.

If the Risk Threshold Concentrations are exceeded the implemented procedures are the following:

- Drafting and delivery of the Executive Reclamation Plan or the Executive Safe Maintenance Plan and monitoring plan;
- Approval of the Executive Reclamation Plan or the Executive Safe Maintenance Plan on behalf of the Conference of Services;
- Implementation of the actions identified in the Executive Reclamation Plan or in the Executive Safe Maintenance Plan;
- Implementation of the approved monitoring plan.

If the Risk Threshold Concentrations are low, a monitoring plan is implemented to verify the development of the detected anomaly as proposed in the Health Risk Analysis Report of the specific site.

In 2019, the sites of Bosco Marengo, Caorso, Latina, Garigliano, Trino and Rotondella are still undergoing the reclamation procedures.
Land and (surface and ground) water characterisation activities have been launched in the ISPRA-1 site to collect useful data to draft the Environmental Impact Assessment.

Bosco Marengo reclamation procedure

In 2016, during a qualitative characterisation campaign performed on the ground water of the site, an exceedance in Threshold Contamination Concentrations of some carcinogenic aliphatic and chlorinated compounds were detected: tetrachloroethylene, dichloroethylene and trichloromethane and chromium VI. This event resulted in the launch of a reclamation procedure.

- In May 2016, the potential contamination of the site's ground water was communicated as stated under art. 245 of Legislative Decree 152/06 and following amendments and integrations.
- In June 2016, Sogin submitted the Characterisation Plan.
- In January 2018, Bosco Marengo Municipality approved the Characterisation Plan, integrated according to the requests of the Conference of Services, with resolution No. 2.
- From February 2018, field and laboratory investigations were launched as provided under the approved Characterisation Plan, for the collection of experimental data to draft the Risk Analysis for the specific site (to be submitted by 2019).
- Between June and July 2019, a second campaign on ground water was launched, in line with the approved Characterisation Plan.
- In September 2019, the Site-specific Risk Analysis Report was submitted to the concerned parties.

Caorso reclamation procedure

In the framework of the monitoring activities on ground water launched in 2012, in October 2016, an exceedance in the Threshold Contamination Concentrations was detected for the PCB compound in a single sampling point located within a waterproof diaphragm. Subsequent analysis of the water samples collected from external sampling points has shown that the potential contamination has been confined.

- In October 2016, Sogin communicated the detection of a possible contamination in the site's ground water.
- In March 2016, due to the features identified during the confinement of a limited area affected by the contamination, a "Single Reclamation Project" was submitted to the competent bodies as stated under art. 249 of Legislative Decree 152/06 and subsequent amendments and integrations.
- In May 2017, the Conference of Services gave a favourable opinion on the "Single Reclamation Project" and requested the integration of a detailed report on the waste resulting from the treatment.
- In December 2017, Sogin submitted the "Single Reclamation Project" by providing that, as requested by the Conference of Services, ground water is reintroduced in the same geological unit.
- In January 2018, ARPA Emilia issued the approval of the Single Reclamation Project, as previously integrated.
- In 2018, procedures were started to draft tendering documents, to build the treatment plant included in the approved Single Reclamation Project.

- During 2019, the tender procedure to draft the Executive project was completed and the executive project for the treatment plant and its installation was drafted;
- In December 2019, within the quarterly campaigns on the monitoring of ground water, an abnormal rate of Perchloroethylene (PCE) and NH4 was recorded in almost all the sampling points of the ground water monitoring network. Therefore, special monitoring procedures have been activated to define the real scope of the detected anomalies. The findings of the monitoring have been promptly submitted to the competent authorities.
- At the end of December 2019, a full report on the findings of the special monitoring operations carried out was drafted. The investigations have shown that the concentrations of PCE comply with the existing regulatory framework. As for the NH4 parameter, the abnormal rate was, instead, confirmed. Since the exceedance of this parameter is recognised in the area (according to a study conducted in 2006 by ARPA, section of Piacenza and called "Environmental Investigation on the concentration of ammonium ions of ground water in the Municipalities of Cerro and Cortemaggiore, Province of Piacenza), the company is now waiting further guidelines to be issued by competent authorities.

Latina reclamation procedure

In December 2013, during the environmental monitoring to assess the maintenance of environmental compatibility during the decommissioning of Latina nuclear power plant, the site's ground water was monitored to define the concentration of piezometers. This measurement detected outliers in the concentration of vinyl chloride, which resulted in the launch of a reclamation procedure.

- In January 2014, the possible contamination of the site's ground water was communicated under art. 245 of Legislative Decree 152/06 and following amendments and integrations.
- In February 2014, the Characterisation Plan was submitted.
- In March 2014, the Conference of Services ordered, pending the approval of the Characterisation Plan and the Health Risk Analysis of the specific site, the execution of a monitoring plan aimed at verifying the development of the detected potential contamination.
- In September 2014, with Municipal Resolution No. 225/2014, the Characterisation Plan was approved, with the integrations requested by the Conference of Services.
- Between September 2014 and January 2015, the investigations provided in the approved Characterisation Plan were carried out.
- In February 2015, based on the outcomes of the field and laboratory analysis carried out in line with the Characterisation Plan, the Site-specific Health Risk Analysis Report was submitted to the Conference of Services.
- In December 2015, the Site-specific Health Risk Analysis Report was approved with resolution No. 2326.
- In January 2016, the outcomes of the analysis performed on ground water and sampled in the piezometers of the site were submitted to the Conference of Services. One of the investigated samples recorded a value of vinyl chloride concentration exceeding the Threshold Contamination Concentration.
- In March 2016, in order to clarify the detected anomaly, the Conference of Services requested the performance of detailed investigations in the area where the piezometer detected an exceedance in the Threshold Contamination Concentration, to be integrated in the Characterisation Plan approved in September 2014.
- In May 2016, the "Integration to the Characterisation Plan of ENEA 6 Area" was submitted.
- Between June 2016 and June 2017, further investigations of the detailed plan – ENEA 6 Area were performed, according to the requests of the competent bodies during a session of the Conference of Services held on 17 March 2016.
- In July 2017, an update of the Health Risk Analysis of the specific site was submitted, with pending approval on behalf of the Conference of Services.
- In 2018 and 2019, following internal rearrangements of the competent bodies (especially Latina Municipality and ARPA Lazio), several meetings were held to define the procedure and activity developments.
- In July 2019, an integration to the Risk Analysis Report pursuant to Decree Law n. 152/2006 and subsequent amendments and integrations (AdR) – Updated as of June 2017 was drafted that will be approved during the next Conference of Services. Simultaneously, the Operational Project for the Pilot Tests defines the tests that Sogin wants to carry out to collect the necessary elements to plan the reclamation of ground water under Decree Law n. 152/2006 and subsequent amendments and integrations for the concerned area.
- In 2019, quarterly monitoring activities have been launched as provided during the approval of the Risk Analysis (resolution n. 2326/2015 of the Municipal Authorities of Latina).

Garigliano reclamation procedure

During the environmental monitoring activities as stated under provision 1.7 of the environmental compatibility decree on decommissioning, an exceedance in the values of the Threshold Contamination Concentrations for some compounds detected in ground water: trichloromethane, fluorides and Methyl tert-butyl ether (MTBE), that resulted in the launch of a reclamation procedure.

- In July 2014, the potential contamination of the site's ground water was communicated under art. 242 of Legislative Decree 152/06 and subsequent amendments and integrations.
- In August 2014, the Characterisation Plan was submitted.
- In January 2016, the Characterisation Plan was approved through Decree No. 8 of Region Campania. The performance of the investigations provided for in the Plan was subject to the ratification of a convention between Sogin and Arpa Campania, to perform a joint analysis on at least 10% of the samples taken.
- In July 2016, the convention between Sogin and Arpa Campania was ratified.
- Between January and March 2017, the planned investigations were performed, and, in July 2017, they were validated by ARPA Campania.
- In October 2017, the Health Risk Analysis Report on the specific site was submitted and approved with Decree No. 35 of 15/03/2018.
- In compliance with the approval resolution n. 35/2018, monitoring activities are currently carried out on ground water; such activities will last two years (monthly in the first six months, and quarterly for the remaining period).

Trino reclamation procedure

To identify the qualitative status of "ground water" before starting adaptation operations of the "Test Tank" into a temporary Repository, in September 2015, Sogin launched an environmental monitoring campaign. The laboratory analysis performed on ground water samples outlined some outliers in the concentration of metals, such as aluminium, arsenic, iron, and manganese.

- In December 2015, the potential contamination of the site's ground water was communicated under art. 242 of Legislative Decree 152/06 and subsequent amendments and integrations.
- In January 2016, the Characterisation Plan was submitted to the Conference of Services.
- In May 2016, with resolution No. 287/568 of Trino Municipality, the Conference of Services approved the Characterisation Plan.
- In November 2016, Sogin requested an extension of the deadline to submit the Risk Analysis, since the contract with the company that had to perform the investigations was not ratified.
- Between May and September 2017, Sogin performed the activities provided for in the Investigation Plan.
- In December 2017, ARPA Piemonte validated the conducted analysis.
- In December 2017, the Risk Analysis on the surface soil matrix was submitted, and a quarterly monitoring on the ground water matrix was proposed for a duration of 12 months, to verify the concentrations of metals over time.
- In May 2018, the integration "Assessment of the chemical and physical features of the site's ground water. Data Analysis 2015-2017" was submitted to the Conference of Services.
- In July 2018, with resolution No. 362/749 of 13/07/2018 by Trino Municipality, the Health Risk Analysis for the specific site was approved, with integrations, by providing the quarterly monitoring of ground water for a two-year period. Moreover, an executive reclamation project was drafted for the contamination detected in the surface soil matrix around the hotspot called pZ18, concerning the copper compound.
- In November 2018, the Executive Reclamation Project for soil matrix was submitted under the Legislative Decree No. 152/06 and subsequent amendments and integrations, approved with resolution No. 118 of 30/01/2019 by Trino Municipal Authorities.
- In June 2019, the reclamation activities on the soil matrix have been completed in compliance with the provisions of the Reclamation Operational Project. The analysis carried out on the extracted soil samples have shown values under the legal threshold for the copper compound.
- In October 2019, a request for the release of a certification of the positive outcomes of the investigation conducted and completed reclamation was submitted. Moreover, the quarterly monitoring activities of surface and ground water have started, as specified under the approval document of the Risk Analysis (resolution n. 362/749 of 13/07/2018 of the Municipal Authorities).

Rotondella reclamation procedure

During the monitoring plan preliminary to the creation of the Final Product Cementation Plant, in compliance with the EIA Decree, during the first preliminary campaign, exceedances in the Threshold Contamination Concentrations of some chemical compounds (trichloroethylene, chromium VI, iron, total hydrocarbons) were detected in the ground water of ENEA site in Rotondella. Sogin communicated such anomalies to the competent authorities and launched the reclamation procedure.

- In June 2015, Sogin and ENEA communicated the potential contamination of the site's ground water in compliance with art. 245 of Legislative Decree No. 152/06 and subsequent amendments and integrations.
- In July 2015, the Characterisation Plan was submitted to the Conference of Services.
- In December 2015, the Characterisation Plan was approved by resolution No. 855 of 14/12/2015 of Rotondella Municipal Authorities.
- In May 2016, due to delays in the procurement procedure for the execution of the investigations provided for in the Characterisation Plan, to be submitted to competent bodies within 6 months from the Plan approval, the implementation status of the activities was communicated, and an extension request was submitted.
- Between June and August 2016 and April and June 2017, field and laboratory analysis were performed according to the approved characterisation Plan, validated by ARPA Basilicata in September 2017.
- In October 2017, a Conference of Services was summoned to analyse the outcomes of the performed investigations. Pending the drafting of the Site-specific Health Risk Analysis Report, actions to be promptly implemented have been defined:
    - as for ENEA and Sogin: removing the tank and the pipeline of the Magnox plant (deemed as the contamination source);
    - as for ENEA: beyond performing the regular drainage and disposal of the piezometers' water with exceedances in Threshold Contamination Concentration, the Company shall draft a report to carry out further investigations and install other piezometers downstream the SS16, to verify the possible migration of the contamination outside the ENEA perimeter.
- From November 2017, ENEA provides, as stated by the Conference of Services, for the drainage of existing piezometers which present water samples with exceeding concentrations and for the disposal of the produced water.
- In January 2018, the Conference of Services approved the project for the removal of the tank and the pipeline of the Magnox plant, pending the approval of the activities on behalf of the Nuclear Regulatory Authority.
- In January 2018, ENEA and Sogin submitted the Site-specific Health Risk Analysis Report to the Conference of Services.
- In April 2018, the Conference of Services approved the Site-Specific Health Risk Analysis Report with resolution protocol No. 001675 of 11/04/2018. In the same month, the Parma Public Prosecutor's Office implemented the preventive seizure of some plants of the ITREC site in Rotondella, related to the ground water draining trenches system, originally installed when the site was built and used to keep the underground nuclear structures under water heads, and the three collection tanks for potentially radiological industrial waste water.
- Following the preventive seizure, the design operations for a water treatment plant were immediately launches, to ensure the site safe maintenance.
- From May 2018, Sogin operated the ground water treatment plant to manage the water drained from the 5 draining wells, thus ensuring the nuclear safety conditions of the site.
- Between May and June 2018, after the approval of the Conference of Services, ENEA implemented the new piezometers adjacent to road SS16 (barrier piezometers), whose waters were subject to drainage and disposal, to verify the possible migration of the contamination outside of the site.
- In November 2018, ENEA submitted the executive reclamation project for securing the site to the Conference of Services.
- In 2019, after having obtained the necessary authorisations for radiological and conventional aspects, the first section (Sc1-Sc4) of the pipework of the Magnox plant was removed, since it was identified as a possible primary source of contamination. The waste resulted from the operations have been management in line with the guidelines of the Operational Plan approved by the Supervisory Bodies.

Forest renaturation

The decrees issued by the competent Ministries upon completion of the EIA procedures for decommissioning operations, also include provisions on environmental restoration and the reconnection of the areas. Among the projects drafted by Sogin to comply with these provisions, the most interesting are the interventions of requalification and recovery carried out on the forests surrounding the sites under decommissioning.
In this framework, between 2018 and 2019, Sogin conducted on-site studies and investigations to define a forest renaturation intervention around Latina power plant.
The intervention to carry out in this area, now dominated by the presence of eucalyptus, is to replace said plant with native species able to reproduce and easy to manage, so as to create a green corridor that connects the site to the Foglino forest located nearby.

The interventions will cover large and linear surfaces:

INTERVENTIONS ON LARGE SURFACES	• Forest operations (i.e. cutting and replanting of native forest species) to be progressively implemented on the entire forest area, by starting on eucalyptus forests, to proceed with locusts and poplars • Operations of planting across clearings and stable meadows
INTERVENTIONS ON LINEAR SURFACES	• Creation of windbreaks of trees and bushes with maritime pines (Pinus pinaster Aiton) and Mediterranean bushes resistant to the marine aerosol

The renaturation will be progressively implemented over a ten-year period:

OPERATIONS IN FOREST AREAS (2020)	• Project of forest improvement and renovation with forest operations to cover a surface of about 4 hectares.
OPERATIONS IN NON-FOREST AREAS (2020)	• Reforestation of meadows with planting of native trees and bushes • Creation of a windbreak of trees and bushes. • Improvement of the existing windbreak by planting further native trees and bushes.
FIVE-YEAR PERIOD AFTER PLANTING	• Management and maintenance operations to promote rooting and ensure the success of the operation, irrigation and regular brush cutting.
SECOND AND THIRD FIVE-YEAR PERIOD AFTER PLANTING	• In the wooded area, after 5 years from the planting operation, after having verified the rooting of new species, a further operation on the 20-25% total surface of the lot will be implemented. • The remaining 45% – 50% of the lot surface will be monitored during the following 5 (10) years, during which further interventions will be carried out on the areas covered by eucalyptus. • In the planting across meadows and in the windbreaks, no specific management procedures are needed during the second five-year period following the planting operation. The planted species will be mainly left to grow freely, thus allowing the competition between the single species of different groups.

Based on the preliminary results of the works performed on the first executive lot, the suggested actions will be extended to the entire forest area, not owned by Sogin.

Environmental radiological protection

Each year, Sogin carries out hundreds of samples and measurements, based on a specific radiological environmental monitoring in each site. This aims at ensuring a regular control of the radioactivity level in the environmental matrixes (atmosphere, surface water, underground water, soil and grass, sediments, soil depositions) and in the food matrixes (meat, fodder crops, fish and eggs).

Monitoring is implemented through environmental and radiological surveillance networks, installed in each nuclear power plant since its building.

Specific interest matrixes and frequencies of sampling and measurement are defined for each site. Over the years, these networks have been checked and adapted according to the local environmental conditions and the different configuration of the plants.

Radiological monitoring aims at:

- Checking the main radiological means of contamination;
- Monitoring the radiological impact on environment and food chains in order to evaluate the dose for the population, namely for specific groups that are potentially exposed to ionizing radiations resulting from the project activities;
- Verifying the compliance with the limits/reference levels set out by the current law and the respect of values of the specific discharge procedure applied in each site;
- Promptly notifying possible environmental impacts or possible health consequences on people.

The type and frequency of sample and measure reported in the monitoring programme are previously communicated and authorised by the Regulatory Body (ISIN), which receives an annual information report on the environmental radiological condition. Meanwhile, ARPA Agencies (Regional Agency for the Protection of the Environment) carry out a similar monitoring and surveillance activity.

Radiological release formulas

Through the environmental and radiological monitoring, Sogin monitors the compliance with limits and/or reference levels under the current legislation and endures the values are in line with those of the specific release procedure in use in each site.
Release procedures define the maximum level of radioactivity that can be discharged by a specific plant over a calendar year, according to the provisions set out by the regulatory body.

As for Trino, Caorso, Garigliano and Bosco Marengo sites, such procedures are defined in the Ministerial Decommissioning Decrees, under art. 55 of Legislative Decree No. 230 of 1995, and they are based on the principle of non-radiological relevance, namely an effective dose of 10 micro sievert/year for the population.

For the remaining sites, the release formulas provided for in the operation authorisation are in force, with possible further provisions that may be adopted by the Supervisory Authority, if necessary. Specifically, for the Latina, Casaccia, Saluggia and Rotondella sites, the authorisation procedure for the deactivation request to update the release formulas is still in progress. For Latina site, the update of the release formulas is expected to be drafted by 2020, following the issue of the deactivation Decree – Stage 1 on behalf of the Ministry for Economic Development (Decree of 20 May 2020).

The maximum quantity of liquid and gas effluents to be discharged is defined in line with a non-relevant radiological effective dose on the population, in other words, the discharge procedure may be 100% implemented without significant impacts on environment and population.

The release formula is defined according to several factors: the nature of the operations carried out in the plant, the fluctuation range of natural radiation, the critical routes of exposure (how the released radioactivity can be reabsorbed by the population, such as by ingesting the fish of the river or by eating vegetables from local crops, which are part of the food chain). Formulas are regularly updated according to the new regulatory standards on radiological protection and nuclear safety and following the changes in the plant's configuration.

In all Sogin sites, the annual implementation of release formulas results in some percentage points, thus, impacts on the population and the environment are not significant from a radiological viewpoint.
Further details on the release formulas implemented in each site are available at sogin.it.

Nucleco also regularly monitors the quantity of released gas and liquid effluents, in line with the release formula stated under the operating license. The effective dose of the most exposed individual among the population, resulted from the total of gas and liquid effluents, is lower than 10 micro Sievert/year.

IMPLEMENTATION OF RELEASE FORMULAS IN SOGIN SITES

	2019	2018	2017
		Gas – use %	
SITE			
Caorso	0.02	0.02	0.03
Latina	< 0.10	< 0.10	0.013
Trino	2.95	1.23	0.44
Garigliano	<0.01	0.02	0.02
ISPRA-1*	0.001	n.a.	n.a.
Bosco Marengo	0.03	0.04	0.03
Casaccia	<1.50	< 2.00	< 2.32
Saluggia			
Alfa	0.036	0.037	0.03
Beta-gamma	0.031	0.035	0.06
Rotondella			
Particulate	0.07	0.07	0.07
Noble gas	4.15	4.19	3.97
		Liquid - use %	
SITE			
Caorso	<0.01	0.01	< 0.01
Latina	0.19	1.73	< 0.10
Trino	<0.01	0.009	0.005
Garigliano	0.04	0.059	0.11
ISPRA-1**	n.a.	n.a.	n.a.
Bosco Marengo***	0	0.45	0.21
Casaccia****	n.a.	n.a.	n.a.
Saluggia*****	0	0.009	0.005
Rotondella	0.36	0.45	0.66

* The % use refers to the fourth quarterly period of 2019 (September – December).
** The liquid materials are conferred to the Liquid Effluents Treatment Facility of the JRC-ISPRA(STEEL).
*** No release was carried out in 2019.
**** No release formulas are provided for liquid materials since they are conferred to Nucleco.
***** No release was carried out in 2019.

GAS AND LIQUID RELEASE IN NUCLECO

	2019	2018	2017
		Use % *	
Gas	< 1	<10	<10
Liquid	0.198	2.8	2.4

* Nucleco licenses do not include release formulas for gas effluents; licenses only set the release limit within a maximum dose of 10 micro sievert to the population, including both gas and liquid effluents. Since the amount of gas effluents is estimated around 1 micro sievert, the value 10% is reported.

Radiological monitoring

The following tables report the concentration of radioactivity detected in the main environmental and food components of the sites under decommissioning (environmental and food matrixes).

The sea water matrix is monitored by the surveillance networks of the plants that release liquid effluents into the sea (Latina and Rotondella).

The clean river water matrix is, instead, monitored by surveillance networks in plants that release liquid effluents in surface rivers (Caorso, Trino, Garigliano, Casaccia, Saluggia).

In Bosco Marengo site, due to the nature of operations and plant, the uranium concentration is exclusively monitored, lower than the non-radiological relevance.

The outcomes of the environmental surveillance of Casaccia and ISPRA-1 facilities for year 2019, will be available in July 2020, following the issue of the ENEA and JRC-ISPRA Reports.

The outcomes of the environmental surveillance are compared with the reference levels expressed in terms of activity concentration in the specific sampled matrix, and they classified in:

- **Recording level**, value of radionuclide concentration in a specific matrix above the minimum detectable concentration (MDC);
- **Investigation level**, radioactivity concentration value over which further investigations should be implemented;
- **Intervention level**, radioactivity concentration level at which mitigating actions should be adopted.

In the following tables, the monitoring findings are compared with the Investigation Levels. The unit of measurement in use is the Bq/litre. The becquerel is the unit of measurement used for radioactivity and it equals to one nuclear disintegration per second. The concentrations of Uranium reported in the table are measured in parts per million (ppm).

FOODMATRIX–MILK

	2019		2018		2017	
U.m.Bq/litre	Strontium-90	Caesium-137	Strontium-90	Caesium-137	Strontium-90	Caesium-137
LEVELOFINVESTIGATION	**0,36**	**3,90**	**0,36**	**3,90**	**0,36**	**3,90**
SITE						
Caorso	0,018	<0,02	0,017	<0,02	0,02	<0,02
Latina	0,061	0,05	<0,04	<0,03	<0,03	<0,12
Trino	0,009	<0,10	0,024	<0,10	0,01	<0,10
Garigliano	<0,036	<0,02	<0,042	<0,012	<0,033	<0,015
ISPRA-1	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.
BoscoMarengo	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Casaccia	n.d.	n.d.	0.009	0.0228	0.0044	0.0168
Saluggia	<0.01	<0.04	<0.01	<0.12	0.015	<0.16
Rotondella	0.023	<0.10	0.03	<0.09	0.03	<0.15

ENVIRONMENTAL MATRIX – SOIL

	2019		2018		2017	
U.m. Bq/kg	Total Uranium (ppm)	Caesium-137	Total Uranium (ppm)	Caesium-137	Total Uranium (ppm)	Caesium-137
LEVEL OF INVESTIGATION	**17,000**	**198**	**17,000**	**198**	**17,000**	**198**
SITE						
Caorso	n.a.	2.99	n.a.	3.15	n.a.	3.47
Latina	n.a.	-n.a.	n.a.	n.a.	n.a.	n.a.
Trino	n.a.	22.7	n.a.	12.5	n.a.	17.5
Garigliano	n.a.	4.53	n.a.	5.20	n.a.	5.11
ISPRA-1	n.a.	n.d.	n.a.	n.a.	n.a.	n.a.
Bosco Marengo	0.86	n.a.	0.77	n.a.	0.67	n.a.
Casaccia	n.a.	n.d.	n.a.	2.21	n.a.	3.63
Saluggia	n.a.	11.5	n.a.	9.07	n.a.	14.5
Rotondella	n.a.	2.46	n.a.	1.98	n.a.	2.98

ENVIRONMENTAL MATRIX – SEA WATER

	2019		2018		2017	
U.m. Bq/litre	**Caesium-137**	**Strontium-90**	**Caesium-137**	**Strontium-90**	**Caesium-137**	**Strontium-90**
LEVEL OF INVESTIGATION	**1.34**	**0.17**	**1.34**	**0.17**	**1.34**	**0.17**
SITE						
Caorso	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Latina	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trino	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Garigliano	<0.017	n.a.	<0.014	n.a.	<0.014	n.a.
ISPRA-1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bosco Marengo	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Casaccia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Saluggia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Rotondella	<0.012	<0.045	<0.020	<0.044	<0.020	<0.045

ENVIRONMENTAL MATRIX – CLEAN RIVER WATER – SOGIN

	2019				2018				2017			
U.m. Bq/litre	**Strontium-90**	**Caesium137**	**Tritium**	**Cobalt-60**	**Strontium-90**	**Caesium137**	**Tritium**	**Cobalt-60**	**Strontium-90**	**Caesium137**	**Tritium**	**Cobalt-60**
LEVEL OF INVESTIGATION	**0.17**	**1.34**	**326**	**0.72**	**0.17**	**1.34**	**326**	**0.72**	**0.17**	**1.34**	**326**	**0.72**
SITE												
Caorso*												
downstream 1	n.a.	0.00031	n.a.	0.00012	n.a.	0.00027	n.a.	0.00012	n.a.	0.00024	n.a.	0.00013
downstream 2	n.a.	0.00085	n.a.	<0.0005	n.a.	0.00081	n.a.	<0.0003	n.a.	0.00017	n.a.	<0.0003
Latina	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Trino												
upstream	<0.00010	<0.00027	<1.85	<0.00018	0.00013	<0.00024	< 1.1	<0.00021	0.00010	<0.00027	< 1.1	<0.00038
downstream	<0.00010	<0.00033	<1.84	<0.00022	0.00017	<0.00039	< 1.1	<0.00035	0.00098	<0.00221	< 1.1	<0.00183
Garigliano												
upstream	n.a.	<0.017	n.a.	<0.00862	n.a.	<0.0132	n.a.	<0.00864	n.a.	<0.0141	n.a.	<0.00973
downstream	n.a.	<0.017	n.a.	<0.00862	n.a.	<0.0132	n.a.	<0.00864	n.a.	<0.0141	n.a.	<0.00973
ISPRA-1	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bosco Marengo**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Casaccia	n.a.	n.d.	n.a.	n.a.	n.a.	<0.005	n.a.	n.a.	n.a.	<0.005	n.a.	n.a.
Saluggia	n.a.	<0.003	n.a.	n.a.	n.a.	<0.010	n.a.	n.a.	n.a.	<0.011	n.a.	n.a.
Rotondella	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

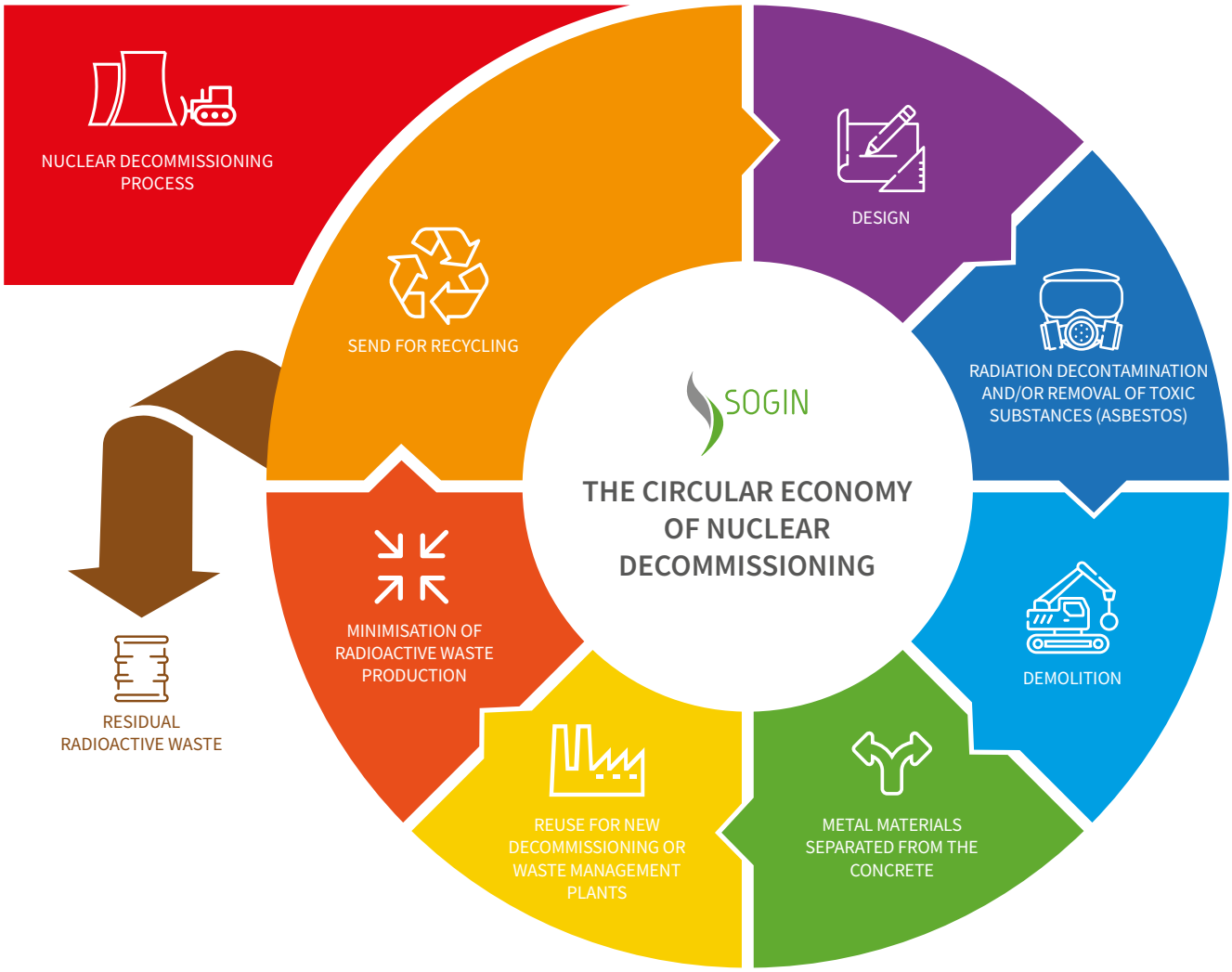
* The values are equal to the average annual value between the concentration in solution and concentration in suspension, respectively measured in the discharge channel (downstream 1) and Isola Serafini (downstream 2). As stated under the surveillance programme, in place of the sampling station of Isola Serafini, which is currently out of service due to maintenance works of the bridge, since October 2018, another sampling station is implemented; the measured values of 137 Cs and 60 Co can be compared with the downstream concentrations of the plant's release point.

** The water of Rio Lovassina are exclusively monitored for Uranium presence. The radioactivity concentrations measured downstream of the release point do not show anomalies compared to the upstream values and they are equal to 0.0001 Bq/l.

Circular economy

While performing nuclear power plants' decommissioning and safe maintenance activities, Sogin has constantly committed to minimising produced waste and maximising the recovery of materials.

In 2019, Sogin's circular economy strategy was positively evaluated by the International Atomic Energy Agency (IAEA) which underlines in its Report: "Compared to other companies operating in the same sector, Sogin has achieved an advanced knowledge of the sustainability aspects embedded in the principles of circular economy; the Company fosters a sustainable development model to free the sited from radiological restrictions, while promoting the economic, social and environmental development of the areas".



CIRCULAR ECONOMY: DEFINITION AND REGULATIONS

According to the European Commission, the circular economy can be defined as a system in which "*the value of products and materials is maintained for as long as possible. Waste and resource use are minimised, and when a product reaches the end of its life, it is used again to create further value*.". This model replaces the disposable, linear economic growth model, based on the use of exhaustible resources, which is no longer sustainable due to the global population growth and the relevant impact on the environment.

The role played by politicians is paramount in this transition, as well as the role of businesses, as they are called to review their business model.

Among the legal instruments required to implement the new business model there are four Directive, the so-called "Circular Economy Package", enforced on 4 July 2018, which will be adopted through specific national legal provisions by 5 July 2020.

EUROPEAN GREEN DEAL

In December 2019, the European Commission presented the Green Deal initiative, which aims to transform the Old Continent into a world leader in circular economy and clean technologies. To support this transition, an Investment Plan will be structured that will mobilise significant resources over the next decade.

The European Green Deal aims to improve people's well-being. Making Europe climate neutral and protecting our natural habitat will be good for people, the planet, and the economy.

The Green Deal will impact on Climate, making the EU climate neutral in 2050, on Energy, with the decarbonisation of the energy sector, on Buildings, restructuring them to help people reduce their energy bills and use of energy, on Industry, supporting it to innovate and become a world leader in the green economy and Mobility, introducing cleaner, cheaper and healthier forms of private and public transport.

THE GREEN EUROPEAN DEAL AND THE ROLE OF ITALY

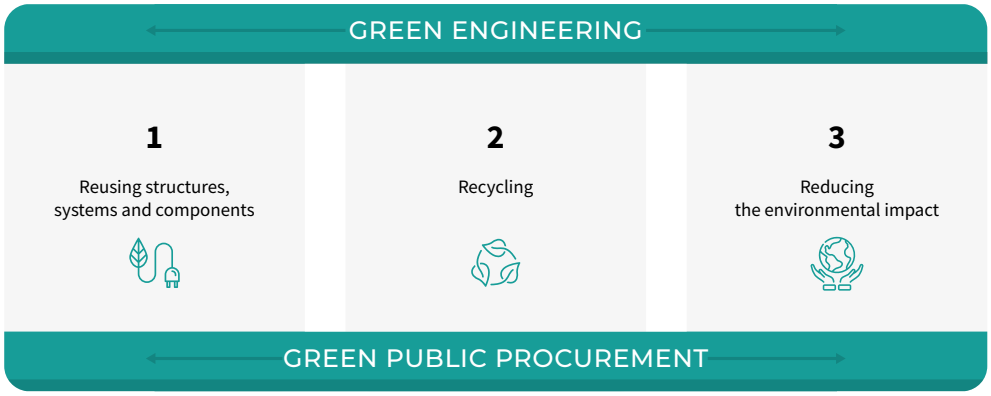
In Italy, the Budget Law approved on 16 December 2019 provides for some measures for the so-called Green new deal, such as the establishment of a public investment fund of over EUR 4 billion between 2020 and 2023 to support circular economy and the decarbonisation of the economy.

In favour of the transition to a circular economy, Italy also has an updated Industry Plan 4.0, now Transition Plan 4.0, aimed at encouraging green investments by businesses.

However, Italy has not yet adopted a National Strategy and/or an Action Plan for CIRCULAR ECONOMY, unlike other EU members. The European Green Deal represents an extraordinary opportunity for development, within the framework of the ecological transition, which will require the definition of a well-defined and clear national strategy to make the best use of European economic resources.

Circular economy drivers

Sogin circular economy strategy for nuclear decommissioning encompasses three main drivers:



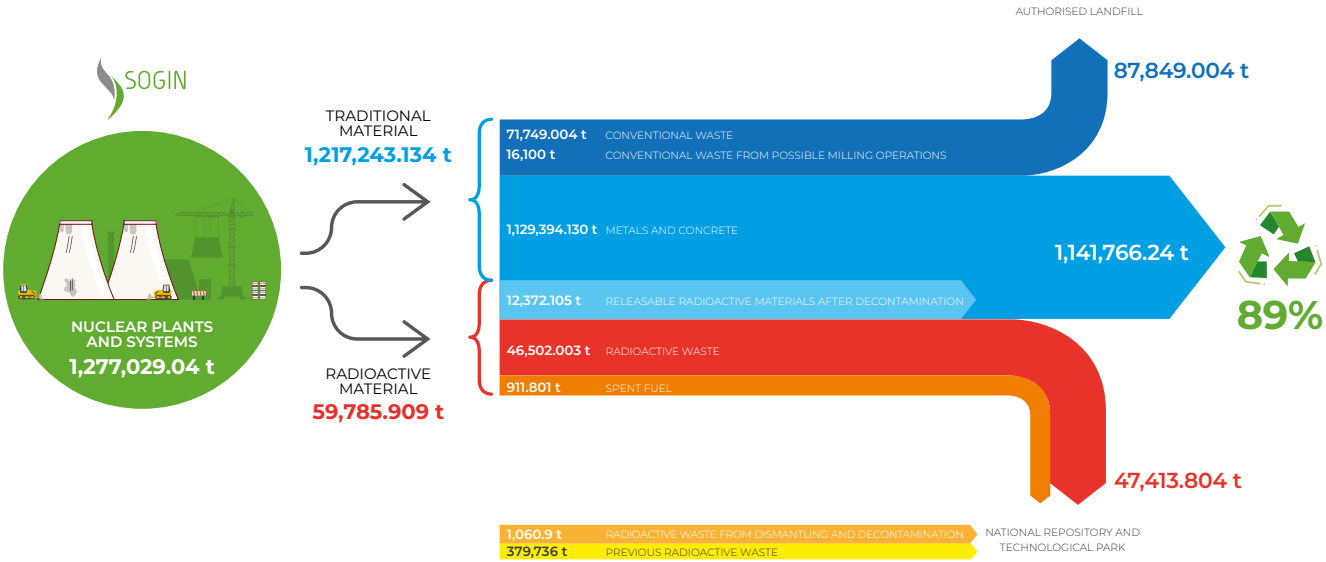
Reusing structures, systems, and components

Safe maintenance, radioactive waste management and nuclear decommissioning activities, are performed by Sogin in the same industrial area of the plants. Despite some management and operation difficulties, this allows to reset the consumption of soil while avoiding an alteration of biodiversity in these areas. For example, some areas of the turbine buildings of Caorso and Garigliano nuclear power plants, were intended for building new material and waste management facilities. This choice led to a reduction in radioactive and conventional waste produced, in the need of building new structures, and, thus, of using new raw materials; it also led to a greater integration between the material treatment process and the decommissioning operations implemented in the nuclear island. Such integration strongly reduces workers' radiation exposure, potential contamination risks and, consequently, environmental impacts.

Recycling materials

Once separated from radioactive substances, materials such as copper, iron and concrete, are reused or sent for recovery. This happened with the dismantling of Caorso Off-gas Building or with Garigliano Trenches. In the first case, the demolition of civil infrastructures of the Off-Gas building in Caorso nuclear plant, previously hosting waste gas treatment systems, resulted in approx. 7,000 tonnes of (non-radioactive) concrete. Such material was partly re-used to fill the excavations resulted from the dismantling of the underground systems (former hold-up) adjacent to the building. In the second case, the materials resulted from the removal of the radioactive waste buried in the trenches were reused to refill the voids left in the excavations. In both cases, before their reuse, the materials have undergone radiological checks to assess their compliance with the release restrictions.

In other cases, the materials resulted from the dismantling operations are sent for recovery and manufacturing facilities to be later reinserted in the production chain. Overall, the decommissioning of the eight sites will allow the recycling of more than one million tonnes of materials, equal to about 89% of total dismantled materials.



Reducing the environmental impact

The dismantling of nuclear power plants and facilities involves decontamination techniques and treatment of radioactive materials to significantly reduce the production of radioactive waste and the exploitation of raw materials.

As for the primary circuit of Trino nuclear power plant, for example, a detailed plan of radiological characterisation was designed to use decontamination procedures to minimize radioactive waste. In this way, the remaining materials will be treated as recoverable conventional waste.

Green engineering and green public procurement

The full implementation of the actions provided for by the 3 drivers can be achieved by means of green engineering and green public procurement policies.

In all its operations, Sogin has always paid the utmost attention to the adoption of controlled technological production processes, aimed at minimizing the overall environmental impacts and related risks. With new technological advances and for a wider optimization of decommissioning and waste management processes (no longer on each site but across sites), it is possible to further improve the engineering approach for a better implementation of green engineering.

This includes the design of a modular plant, the modular waste conditioning system (SiCoMoR), transportable in ISO containers, which transforms the installation of a radioactive waste management plant into a service. This results in an optimisation of the implementation and subsequent use of the technological systems and the amount of waste produced by dismantling.

As far as green procurement is concerned, discussed in detail in the chapter dedicated to suppliers, Sogin has decided to apply the principles of CAM (Minimum Environmental Criteria) for all contracts, although not strictly bound by regulations for certain cases. Their systematic and homogeneous application also allows to increase the involvement and commitment of contractors in the CIRCULAR ECONOMY process.

In order to guarantee the presence of subjects that are qualitatively adequate to carry out decommissioning activities, Sogin has also equipped itself with a qualification system that requires the economic operators concerned to possess UNI EN ISO 14001 certification, EMAS registration or other equivalent documentation attesting the adoption of an Environmental Management System.

Envornmental sustainability

Committed in improving the environmental performance, promoting actions to reduce CO_2 emissions, and encouraging education initiatives for a conscious use of resources, Sogin contributes to building a more sustainable society.

EMAS registration

The EMAS (Eco-Management and Audit Scheme) is an open audit tool promoted by the EC and made available to private and public companies and organisations. This scheme is useful to evaluate and improve the environmental performance and draft an Environmental Declaration to share with the concerned Stakeholders. Starting from 2014, Sogin has been carrying out the EMAS registration under the Regulation (EC) 1221/2009, proving its commitment in achieving high environmental performances during its operations.

The EMAS registration was originally implemented in Caorso power plant, followed by Trino and the EUREX plant of Saluggia, while the authorisation procedure to register Rotondella plant is still in progress.
In 2019, after a procedure of about one year, Nucleco obtained the EMAS certification.

SITE	REGISTRATION	RENEWAL
Caorso	2015	2018
Trino	2015	2018
Saluggia	2017	2019
Rotondella	IN PROGRESS	
Nucleco	2019	

Reducing the use of Single-use Plastics

At the end of 2018, Sogin launched the Plastic Reduction project to promote the reduction of single-use plastics in the workplace, in view of the transposition of the Community Directive on Single-use Plastics.
The guidelines of the project included:

- Promoting awareness-raising events among the Group's employees on the importance of reducing single-use plastics pollution;
- Minimising the production of waste, as a relevant part of the wider Circular economy strategy adopted by the Group in the field of nuclear decommissioning.

The Plastic Reduction project shows how Sogin has endorsed the invitation of the Ministry of the Environment in its Plastic Free Campaign – which urged the members of the Public Administration to be a good example for citizens.
The following page shows the main steps of the Sogin Plastic Reduction project.

SEPTEMBER 2016

INFORMATION CAMPAIGN "DIFFERENZIAMOCI"

ACTION: Coloured trash bins for separate waste collection made available on each floor in the Rome headquarters; the staff is given a leaflet on separate waste collection

OBJECTIVE: Train the staff and raise awareness on proper recycling and waste management of urban solid waste, including plastic

DECEMBER 2016

ECO-FRIENDLY CUP IN BAMBOO FIBRES

ACTION: Each employee received a reusable and biodegradable eco-friendly cup in bamboo fibres

OBJECTIVE: Gradually replace the use of single-use plastic bottles and cups with more sustainable materials and foster sustainable habits

DECEMBER 2018

HANDBOOK OF GOOD PRACTICES

ACTION: Staff provided with a set of guidelines to reduce the use of plastic

OBJECTIVE: Informing and promoting sustainable practices among the staff

APRIL 2019

OPEN GATE PLASTIC FREE

ACTION: The third edition of Open Gate is Plastic Free, morally sponsored by the Ministry of the Environment

OBJECTIVE: Raising awareness on wastages and circular economy strategies and reducing the plastic use during the event. Compared to the previous edition, during the event 4000 single-use plastic bottles have been saved

APRIL 2019

SOCIAL CAMPAIGN "MY PLASTIC FREE COMMITMENT

ACTION: Promotion of the campaign "my plastic free commitment" during the third edition of Open Gate. Participants are requested to write on a board and post their plastic free commitment on social networks

OBJECTIVE: Engaging individuals in environmental topics and circular economy while having fun

MAY 2019

REPLACEMENT OF PLASTIC CUPS

ACTION: Single-use plastic cups are removed from the vending machines of hot and cold beverages in the central headquarters, and replaced with biodegradable cups

OBJECTIVE: Reducing the use of plastics in workplaces and promoting good environmental practices

SEPTEMBER 2019

NEW WATER DISPENSERS

ACTION: Old water dispenser are replaced with new dispensers linked to the water supply network and equipped with a water filter system

OBJECTIVE: Lowering the average consumption of single-use plastics in the central headquarters, which amounted to about 1,740 kg/year, namely 5 kg/y per person

DECEMBER 2019

METAL WATER BOTTLE

ACTION: Each employee is given a personal metal water bottle

OBJECTIVE: Further reducing the use of single-use bottles and cups and promoting more sustainable habits among the staff

THE SUP (SINGLE-USE PASTICS) DIRECTIVE

- In 2018, the production of plastic worldwide accounted for about 360 M tonnes (showing an increase compared to 2017).
- In view of these figures, it is important to know that not all plastic products share the same features and production chains. Some products, at the end of their lifecycle, will be collected, separated and treated for recycling and reuse. Plastic is a precious resource that can transformed into a raw material or into energy, thus contributing to a more sustainable future. Anyway, not all plastics can be recycled and still a huge percentage of this material is collected in landfills, taking several decades for its disposal. Therefore, limiting the use of plastics is fundamental to improve circularity and achieve a full recovery of plastic waste and scraps.
- Considering the above, the EU defined a strategic vision for plastics in circular economy issuing the EU Directive 2019/904 to reduce the environmental impact of certain single-use plastic products.
- This Directive, also called "SUP Directive" (Single-Use Plastics), was enforced on 2 July 2019 and it requires Member States to adopt the necessary measures to achieve an ambitious and long-term reduction of the use of SUP and to submit the results to the European Commission by 3 July 2021.

Sustainable mobility

Sogin is part of the environmental programme fostered by the Public Transportation Company of Rome to limit the use of private vehicles and foster the use of public transports. In 2019, the Sogin's staff employed in Rome offices were provided with 249 free yearly tickets to use public transportation (against 230 tickets issued in 2018).

Since 2017, the Rome Headquarters has been equipped with 20 cycle racks for the staff and with new food and beverage vending machines (free loan for use) which resulted in 50% energy saving.

Between 2020 and 2021, EV-charging stations for at least two vehicles will also be installed, and the Company will purchase an electric corporate car to promote sustainable movement among the staff of Rome's headquarters.

Energy efficiency

Since 2018, Sogin has voluntarily carried out the Energy Audit of the Company, namely the audit of energy uses and consumption to identify relevant energy flows and improve corporate energy efficiency.

Between 2018 and 2019, the neon lighting system was replaced with a LED lighting system in Rome and in the sites.

Separate waste collection

Starting from 2017, Sogin started and promoted the separate waste collection. The action called "Differenziamoci" followed in 2018. Trash bins for separate waste collection are available in the eight sites and in the Rome headquarters they are divided by plastic, paper, and undifferentiated waste, as well as specific containers for the collection of empty toners.

Organization of work

In March 2020, to comply with the national emergency measures to limit the COVID-19 outbreak, Sogin adopted the smart working approach to allow part of the staff working from home.

The smart working approach will continue, following appropriate planning, also after the emergency, to sensibly reduce the environmental impact resulting from home-work journeys.

During the first half of 2020, Sogin continued promoting the approach “less paper and more technology” in the workplace; namely, an approach to reduce paper consumption, for example, by using the Office 365 cloud to share files and SoginNews to spread the (previously printed) latest news.

9

GRI INDICATORS

Human resources

GRI 102:8 - INFORMATION ON EMPLOYEES AND OTHER WORKERS AS OF 31 DECEMBER DIVIDED BY GENDER, EMPLOYEE CATEGORY, CONTRACT TYPE AND PLACE OF WORK

Workforce by gender

		Sogin 2019			Nucleco 2019			Group 2019			Group 2018	Group 2017
		T.E.	T.M.	Total	T.E.	T.M.	Total	T.E.	T.M.	Total	Total	Total
Women	n.	260	0	**260**	35	1	**36**	295	1	**296**	286	**289**
Men	n.	661	3	**664**	186	0	**186**	847	3	**850**	831	**840**
TOTAL	**n.**	**921**	**3**	**924**	**221**	**1**	**222**	**1,142**	**4**	**1,146**	**1,117**	**1,129**
of which:												
Full Time	n.	900	3	**903**	221	1	**222**	1,121	4	**1,125**	1,097	**1,111**
Part Time	n.	21	0	**21**	0	0	**0**	21	0	**21**	20	**18**

Workforce by place of work

		Sogin 2019			Nucleco 2019			Group 2019			Group 2018	Group 2017
		T.E.	T.M.	Total	T.E.	T.M.	Total	T.E.	T.M.	Total	Total	Total
Caorso	n.	103	1	**104**	5	1	**6**	108	2	**110**	**113**	**114**
Garigliano	n.	65	0	**65**	21	0	**21**	86	0	**86**	**82**	**86**
Latina	n.	88	1	**89**	9	0	**9**	97	1	**98**	**94**	**91**
Trino	n.	73	0	**73**	6	0	**6**	79	0	**79**	**78**	**79**
Bosco Marengo	n.	36	0	**36**	4	0	**4**	40	0	**40**	**41**	**42**
Casaccia	n.	60	0	**60**	2	0	**2**	62	0	**62**	**63**	**67**
Saluggia	n.	52	0	**52**	4	0	**4**	56	0	**56**	**60**	**60**
Rotondella	n.	59	1	**60**	19	0	**19**	78	1	**79**	**79**	**77**
ISPRA-1	n.	2	0	**2**	9	0	**9**	11	0	**11**	**8**	**9**
Rome's Headquarters	n.	378	0	**378**	140	0	**140**	518	0	**518**	**491**	**494**
Foreign Offices	n.	5	0	**5**	2	0	**2**	7	0	**7**	**8**	**10**
TOTAL	**n.**	**921**	**3**	**924**	**221**	**1**	**222**	**1,142**	**4**	**1,146**	**1,117**	**1,129**

Self-employed workers, or non-employed by the Organisation, working under the Group supervision.

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Trainees	n.	5	2	7	56	81

Workforce by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	%	71.86	83.78	74.17	74.40	74.40
Women	%	28.14	16.22	25.83	25.60	25.60

GRI 401-1: NEW EMPLOYEE HIRES AND EMPLOYEE TURNOVER DIVIDED BY AGE, GENDER AND GEOGRAPHICAL AREA

Employee Hires by Gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	n.	25	13	38	5	5
Women	n.	12	3	15	2	0
TOTAL	**n.**	**37**	**16**	**53**	**7**	**5**

Employee Hires by Age

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Under 30	n.	3	4	7	0	1
30-40	n.	20	6	26	5	2
41-50	n.	12	4	16	1	0
Over 50	n.	2	2	4	1	2
TOTAL	**n.**	**37**	**16**	**53**	**7**	**5**

Employee Hires by place of work

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Caorso	n.	2	3	5	0	2
Garigliano	n.	5	0	5	0	0
Latina	n.	2	3	5	2	1
Trino	n.	0	2	2	0	0
Bosco Marengo	n.	0	0	0	0	0
Casaccia	n.	1	0	1	0	0
Saluggia	n.	0	0	0	0	0
ISPRA-1	n.	0	1	1	0	0
Rotondella	n.	0	0	0	0	1
Rome's Headquarters	n.	27	7	34	5	1
Foreign Offices	n.	0	0	0	0	0
TOTAL	**n.**	**37**	**16**	**53**	**7**	**5**

Rate of new employee hires by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	%	2.70	5.86	3.32	0.45	0.44
Women	%	1.30	1.35	1.31	0.18	0.00
TOTAL	**%**	**4.00**	**7.21**	**4.62**	**0.63**	**0.44**

Rate of new employee hires by age

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Under 30	%	0.32	1.80	0.60	0.00	0.09
30-40	%	2.16	2.71	2.27	0.45	0.18
41-50	%	1.30	1.80	1.40	0.09	0.00
Over 50	%	0.22	0.90	0.35	0.09	0.18
TOTAL	**%**	**4.00**	**7.21**	**4.62**	**0.63**	**0.44**

Rate of new employee hires by place of work

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Caorso	%	0.21	1.35	0.44	0.00	0.18
Garigliano	%	0.54	0.00	0.44	0.00	0.00
Latina	%	0.22	1.35	0.44	0.18	0.09
Trino	%	0.00	0.90	0.17	0.00	0.00
Bosco Marengo	%	0.00	0.00	0.00	0.00	0.00
Casaccia	%	0.11	0.00	0.08	0.00	0.00
Saluggia	%	0.00	0.00	0.00	0.00	0.00
ISPRA-1	%	0.00	0.45	0.08	0.00	0.00
Rotondella	%	0.00	0.00	0.00	0.00	0.09
Rome's Headquarters	%	2.92	3.16	2.97	0.45	0.09
Foreign Offices	%	0.00	0.00	0.00	0.00	0.00
TOTAL	**%**	**4.00**	**7.21**	**4.62**	**0.63**	**0.44**

Rate of employee turnover by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	n.	12	7	19	14	7
Women	n.	5	0	5	5	40
TOTAL	**n.**	**17**	**7**	**24**	**19**	**47**

Rate of employee turnover by age

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Under 30	n.	1	1	2	1	2
30-40	n.	4	3	7	3	8
41-50	n.	3	1	4	4	4
Over 50	n.	9	2	11	11	33
TOTAL	**n.**	**17**	**7**	**24**	**19**	**47**

Rate of employee turnover by place of work

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Caorso	n.	8	1	9	1	6
Garigliano	n.	1	0	1	1	5
Latina	n.	0	0	0	1	5
Trino	n.	0	1	1	1	6
Bosco Marengo	n.	1	0	1	0	7
Casaccia	n.	2	0	2	0	0
Saluggia	n.	1	0	1	0	2
ISPRA-1	n.	0	0	0	1	2
Rotondella	n.	0	0	0	0	1
Rome's Headquarters	n.	4	4	8	14	13
Foreign Offices	n.	0	1	1	0	0
TOTAL	**n.**	**17**	**7**	**24**	**19**	**47**

Rate of employee turnover by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	%	1.30	3.15	1.66	1.25	0.62
Women	%	0.54	0	0.43	0.45	3.54
TOTAL	**%**	**1.84**	**3.15**	**2.09**	**1.70**	**4.16**

Rate of employee turnover by age

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Under 30	%	0.11	0.45	0.17	0.09	0.18
30-40	%	0.43	1.35	0.61	0.27	0.71
41-50	%	0.33	0.45	0.35	0.36	0.35
Over 50	%	0.97	0.90	0.96	0.98	2.92
TOTAL	**%**	**1.84**	**3.15**	**2.09**	**1.70**	**4.16**

Rate of employee turnover by place of work

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Caorso	%	0.86	0.45	0.78	0.09	0.53
Garigliano	%	0.11	0.00	0.09	0.09	0.44
Latina	%	0.00	0.00	0.00	0.09	0.44
Trino	%	0.00	0.45	0.09	0.09	0.53
Bosco Marengo	%	0.11	0.00	0.09	0.00	0.62
Casaccia	%	0.22	0.00	0.17	0.00	0.00
Saluggia	%	0.11	0.00	0.09	0.00	0.18
ISPRA-1	%	0.00	0.00	0.00	0.09	0.18
Rotondella	%	0.00	0.00	0.00	0.00	0.09
Rome's Headquarters	%	0.43	1.80	0.69	1.25	1.15
Foreign Offices	%	0.00	0.45	0.09	0.00	0.00
TOTAL	**%**	**1.84**	**3.15**	**2.09**	**1.70**	**4.16**

GRI 401-3: EMPLOYEES WHO HAVE TAKEN PARENTAL LEAVE

Number of employees who took parental leave, by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	n.	30	5	35	24	29
Women	n.	53	3	56	36	43
TOTAL	**n.**	**83**	**8**	**91**	**60**	**72**

Total number of employees that returned to work after parental leave ended, by gender

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Men	n.	29	5	34	24	27
Women	n.	49	2	51	35	43
TOTAL	**n.**	**78**	**7**	**85**	**59**	**70**

GRI 404-1: AVERAGE HOURS OF TRAINING THAT THE ORGANIZATION'S EMPLOYEES HAVE UNDERTAKEN

Total training hours

		Group 2019	Group 2018	Group 2017
Corporate Employees	hours	32,757	28,708	38,014
Sogin	*hours*	*27,751*	*24,880*	*30,109*
Nucleco	*hours*	*5,006*	*3,828*	*7,906*
Other Staff (including 823 hours delivered to external employees)	**hours**	**1,624**	**2,136**	**3,414**
Trainees	*hours*	*462*	*1,793*	*2,906*
External Collaborators	*hours*	*16*	*0*	*508*
TOTAL	**hours**	**34,381**	**30,843**	**41,428**

Total annual training hours by type

		Group 2019	Group 2018	Group 2017
Upon entrance	hours	0	208	412
Managers	hours	1,187	1,180	1,862
Technical Specialists	hours	7,191	9,079	17,989
Nuclear and conventional safety	hours	25,323	20,136	20,821
Training on the job	hours	680	240	344
TOTAL	**hours**	**34,381**	**30,843**	**41,428**

Average annual training hours by gender (per capita)

		Group 2019	Group 2018	Group 2017
Men	hours	28	25	33
Women	hours	31	28	35
TOTAL	**hours**	**29**	**26**	**34**

Average annual training hours by employee category (per capita)

		Group 2019	Group 2018	Group 2017
Managers	hours	14	14	28
Executives	hours	27	24	34
White collars	hours	31	28	34
Blue collars	hours	26	22	33
TOTAL	**hours**	**29**	**26**	**34**

GRI 405-1: DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES BY EMPLOYEE CATEGORY, GENDER AND AGE GROUP

Total workforce by employee category

		Sogin 2019			Nucleco 2019			Group 2019			Group 2018	Group 2017
		Women	Men	Total	Women	Men	Total	Women	Men	Total	Total	Total
Managers	n.	1	26	27	0	0	0	1	26	27	28	31
Executives	n.	62	156	218	3	16	19	65	172	237	240	243
White collars	n.	190	330	520	30	86	116	220	416	636	616	620
Blue collars	n.	7	152	159	3	84	87	10	236	246	233	235
TOTAL	**n.**	**260**	**664**	**924**	**36**	**186**	**222**	**296**	**850**	**1,146**	**1,117**	**1,129**
Managers	%	0.11	2.81	2.92	0	0	0	0.09	2.27	2.36	2.51	2.75
Executives	%	6.71	16.88	23.59	1.35	7.21	8.56	5.67	15.01	20.68	21.49	21.52
White collars	%	20.56	35.71	56.28	13.51	38.74	52.25	19.20	36.30	55.50	55.15	54.92
Blue collars	%	0.76	16.45	17.21	1.35	37.84	39.19	0.87	20.59	21.47	20.86	20.81
TOTAL	**%**	**28**	**72**	**100**	**16**	**84**	**100**	**26**	**74**	**100**	**100**	**100**

GRI 405-1: DIVERSITY OF GOVERNANCE BODIES AND EMPLOYEES BY EMPLOYEE CATEGORY, GENDER AND AGE GROUP

Workforce by age group

		Sogin 2019					Nucleco 2019					Group 2019					Group 2018				
		<30 years	30-40 years	41-50	>50 years	Total	<30 years	30-40 years	41-50	>50 years	Total	<30 years	30-40 years	41-50	>50 years	Total	<30 years	30-40 years	41-50	>50 years	Total
Managers	n.	0	0	3	24	27	0	0	0	0	0	0	0	3	24	27	0	0	4	24	28
Executives	n.	0	8	73	137	218	0	4	6	9	19	0	12	79	146	237	0	15	89	136	240
White collars	n.	8	246	131	135	520	7	72	13	24	116	15	318	144	159	636	23	312	138	143	616
Blue collars	n.	22	74	42	21	159	13	37	20	17	87	35	111	62	38	246	46	104	49	34	233
TOTAL	**n.**	**30**	**328**	**249**	**317**	**924**	**20**	**113**	**39**	**50**	**222**	**50**	**441**	**288**	**367**	**1 146**	**69**	**431**	**280**	**337**	**1,117**
Managers	%	0	0	0.32	2.60	2.92	0	0	0	0	0	0	0	0.26	2.09	2.36	0	0	0.36	2.15	2.51
Executives	%	0	0.87	7.90	14.83	23.59	0	1.80	2.70	4.05	8.56	0	1.05	6.89	12.74	20.68	0	1.34	7.97	12.18	21.49
White collars	%	0.87	26.62	14.18	14.61	56.28	3.15	32.43	5.86	10.81	52.25	1.31	27.75	12.57	13.87	55.50	2.06	27.93	12.35	12.80	55.15
Blue collars	%	2.38	8.01	4.55	2.27	17.21	5.86	16.67	9.01	7.66	39.19	3.05	9.69	5.41	3.32	21.47	4.12	9.31	4.39	3.04	20.86
TOTAL	**%**	**3**	**35**	**27**	**34**	**100**	**9**	**51**	**18**	**23**	**100**	**4**	**38**	**25**	**32**	**100**	**6**	**39**	**25**	**30**	**100**

GRI 405-1: BOARD OF DIRECTORS MEMBERS BY GENDER AND AGE GROUP

Sogin BoD divided by gender

		2019	2018	2017
Men	n.	3	3	3
Women	n.	2	2	2
TOTAL	**n.**	**5**	**5**	**5**

Sogin BoD divided by age group

		2019	2018	2017
Under 30	n.	0	0	0
30-40	n.	0	1	2
41-50	n.	3	1	0
Over 50	n.	2	3	3
TOTAL	**n.**	**5**	**5**	**5**

GRI 405-2: RATIO OF BASIC SALARY AND REMUNERATION OF WOMEN TO MEN

Ratio of basic salary and remuneration of women to men by employee category

		Sogin 2019	Nucleco 2019	Group 2019	Group 2018	Group 2017
Managers	%	71.32	0	71.32	69.78	70.98
Executives	%	93.29	108.91	94.76	94.80	93.72
White collars	%	96.24	102.25	98.21	98.00	97.24
Blue collars	%	100.66	95.54	101.06	102.16	101.09

Environment

GRI 301-1: MATERIALS USED BY WEIGHT OR VOLUME						
PERFORMANCE INDICATORS	**UoM**	**SOGIN 2019**	**NUCLECO 2019**	**GROUP 2019**	**GROUP 2018**	**GROUP 2017**
Renewable materials used						
Paper	ton	18,25	2,56	20,81	27,58	25,05
Other renewable materials	ton	0	0	0	0	0
Non-renewable materials used						
Metals	ton	248	52	300	261	1,057
	N. casks	656	2,326	2,326	3,395	7,047
Machine Lubricants	l	8,438	400	8,838	1,943	1,240
Industrial Gases	m3	76,306	520	76,826	97,279	104,144
Cement/concrete	m3	1,106	45	1,151	1,207	4,863
Other	ton	0	50	50	1,683	255

Used materials resulted from recycled materials (data limited to Sogin)

		Sogin 2019	**Sogin 2018**	**Sogin 2017**
Paper	%	24	92	98
Paper	ton	4,4	21,83	21,40
Other renewable materials	ton	0	0	0
Other non-renewable materials	ton	0	0	0

GRI 302-1: ENERGY CONSUMPTION WITHIN THE ORGANIZATION						
PERFORMANCE INDICATORS	**UoM**	**SOGIN 2019**	**NUCLECO 2019**	**GROUP 2019**	**GROUP 2018**	**GROUP 2017**
Total energy consumption	**GJ**	**165,382**	**7,351**	**172,733**	**166,963**	**177,609**
Methane	GJ	21,407	2,520	23,927	15,810	16,273
Fuel	GJ	136	0	136	166	64
Diesel	GJ	25,059	818	25,877	33,316	35,024
Electric energy	GJ	101,397	4,010	105,408	115,114	123,317
Other	GJ	17,382	3	17,385	2,556	2,932

GRI 303-3: INTERACTIONS WITH WATER AS A SHARED RESOURCE						
PERFORMANCE INDICATORS	**UoM**	**SOGIN 2019**	**NUCLECO 2019**	**GROUP 2019**	**GROUP 2018**	**GROUP 2017**
Water withdrawal by source	**ML**	**5 751**	**111**	**5 862**	**12 232**	**32 198**
Well	ML	495	111	606	609	648
River	ML	4,928	0	4,928	5,423	6,015
Sea	ML	0	0	0	5,935	25,229
Ground Water	ML	212	0	212	189	211
Water from third parties	**ML**	**115**	**0**	**115**	**76**	**95**
Of which:						
Aqueduct	ML	38	0	38	41	44
Well/Source of third parties	ML	77	0	77	35	51
Water withdrawal from water-stressed areas	**ML**	**351**	**0**	**351**	**321**	**287**
Well	ML	0	0	0	0	0
River	ML	307	0	307	311	257
Sea	ML	0	0	0	0	0
Ground Water	ML	0	0	0	0	0
Water from third parties	**ML**	**45**	**0**	**45**	**10**	**30**
Aqueduct	ML	18	0	18	10	12
Well of third parties	ML	27	0	27	-	18
Water withdrawal by source, divided in fresh water and other sources	**ML**	**5,418**	**0**	**5,418**	**5,856**	**6,408**
Fresh water	ML	5,409	0	5,409	5,846	6,389
Other types	ML	9	0	9	10	20

GRI 303-4: WATER DISCHARGE

PERFORMANCE INDICATORS	UoM	SOGIN 2019	NUCLECO 2019	GROUP 2019	GROUP 2018	GROUP 2017
Total water discharge	**ML**	**5,141**	**0.02**	**5,141**	**5,589**	**6,173**
Well	ML	263	0	263	231	322
River	ML	4,806	0.02	4,806	5,299	5,795
Sea	ML	10	0	10	9	10
Ground Water	ML	0	0	0	0	0
Water from third parties	**ML**	**62**	**0**	**62**	**50**	**46**
Aqueduct	ML	5	0	5	4	6
Well of third parties	ML	57	0	57	45	40
Total water discharge divided by fresh water and other sources	**ML**	**5,083**	**0**	**5,083**	**5,544**	**6,133**
Fresh water	ML	5,073	0	5,073	5,534	6,123
Other water types	ML	10	0	10	9	10
Total water discharge in water-stressed areas divided by fresh water and other sources	**ML**	**10**	**0**	**10**	**9**	**10**
Fresh water	ML	0	0	0	0	0
Other water types	ML	10	0	10	9	10

GRI 305-1: DIRECT (SCOPE 1) GHG EMISSIONS

PERFORMANCE INDICATORS	UoM	SOGIN 2019	NUCLECO 2019	GROUP 2019	GROUP 2018	GROUP 2017
Direct (Scope 1) GHG emissions	tCO2	13,278	201	13,480	3,983	3,599

GRI 305-2: ENERGY INDIRECT (SCOPE 2) GHG EMISSIONS

PERFORMANCE INDICATORS	UoM	SOGIN 2019	NUCLECO 2019	GROUP 2019	GROUP 2018	GROUP 2017
Energy indirect (Scope 2) GHG emissions	tCO2	10,562	418	10,980	12,482	12,846

GRI 306-2: TOTAL WASTE BY TYPE AND DISPOSAL METHOD

PERFORMANCE INDICATORS	UoM	SOGIN 2019	NUCLECO 2019	GROUP 2019	GROUP 2018	GROUP 2017
Total weight of waste	**ton**	**21,103**	**3,216**	**24,319**	**21,899**	**18,711**
Company	ton	1,754	3,216	4,970	9,203	7,226
Suppliers	ton	19,349	0	19,349	12,697	11,485
Total weight of hazardous waste	**ton**	**3,265**	**3,150**	**6,415**	**7,002**	**9,785**
Company	ton	40	3,150	3,190	6,965	4,891
Suppliers	ton	3,225	0	3,225	37	4,894
Total weight of non-hazardous waste	**ton**	**17,838**	**66**	**17,904**	**14,898**	**8,926**
Company	ton	1,714	66	1,780	2,238	2,335
Suppliers	ton	16,124	0	16,124	12,660	6,591
Total weight of disposed waste	**ton**	**4,880**	**3,157**	**8,037**	**9,914**	**12,760**
Total weight of hazardous waste disposed of	**ton**	**3,949**	**3,148**	**7,097**	**6,962**	**9,722**
Company	ton	749	3,148	3,897	6,951	4,842
Suppliers	ton	3,200	0	3,200	11	4,879
Total weight of non-hazardous waste disposed of	**ton**	**931**	**9**	**940**	**2,952**	**3,039**
Company	ton	434	9	443	1,009	797
Suppliers	ton	497	0	497	1,944	2,242
Total weight of waste recovered	**ton**	**16,947**	**59**	**17,006**	**12,643**	**5,225**
Total weight of hazardous waste recovered	**ton**	**45**	**1**	**46**	**44**	**58**
Company	ton	19	1	20	14	49
Suppliers	ton	26	0	26	31	9
Total weight of non-hazardous waste recovered	**ton**	**16,902**	**58**	**16,960**	**12,598**	**5,208**
Company	ton	1,275	58	1,333	1,421	1,279
Suppliers	ton	15,627	0	15,627	11,177	3,929
Total weight of waste stored in interim repository	**ton**	**1,303**	**0**	**1,303**	**19**	**676**
Total weight of hazardous waste stored in interim repository	**ton**	**1,282**	**0**	**1,282**	**2**	**6**
Company	ton	1,282	0	1,282	2	1
Suppliers	ton	0	0	0	0	5
Total weight of non-hazardous waste stored in interim repository	**ton**	**21**	**0**	**21**	**16**	**670**
Company	ton	21	0	21	16	209
Suppliers	ton	0	0	0	0	461
Other destination	**ton**	**0**	**0**	**0**	**0**	**0**

GRI reference table

		REPORTING SCOPE	
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	GRI 415: PUBLIC POLICY 2016	●	
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Engagement and dialogue with local stakeholders	GRI 413: LOCAL COMMUNITIES 2016	●	
Decommissioning progress - physical	GRI 302: ENERGY 2016	●	
	GRI 303: WATER AND WATER DISCHARGE 2018	●	
	GRI 305: EMISSIONS 2016	●	
Legal compliance	GRI 307: ENVIRONMENTAL COMPLIANCE 2016	●	
	GRI 419: SOCIOECONOMIC COMPLIANCE 2016	●	
Fight against Corruption	GRI 205: ANTI-CORRUPTION 2016	●	
Circular Economy	GRI 301: MATERIALS 2016	●	
	GRI 306: EFFLUENTS AND WASTE 2016	●	
Radioactive Waste Management	GRI 306: EFFLUENTS AND WASTE 2016	●	
Siting of the National Repository and Tech. Park	GRI 203: INDIRECT ECONOMIC IMPACTS 2016	●	
	GRI 413: LOCAL COMMUNITIES 2016	●	
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Safety in the workplace	GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2018	●	
Supply chain	GRI 204: PROCUREMENT PRACTICES 2016	●	
	GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016	●	
	GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016	●	
HR Development, Talent Management and Equal Opportunity	GRI 401: EMPLOYMENT 2016	●	
	GRI 402: LABOR/MANAGEMENT RELATIONS	●	
	GRI 404: TRAINING AND EDUCATION	●	
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	103-2 The management approach and its components	National Repository and Technology Park Stakeholders dialogue and mapping	101 116	
	103-3 Evaluation of the management approach	National Repository and Technology Park	101	
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	National Repository and Technology Park	101	
	203-2 Significant indirect economic impacts	National Repository and Technology Park	101	
Procurement Practices (Supply chain)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Relations with suppliers Stakeholders dialogue and mapping GRI Reference Table	149 116 185	
	103-2 The management approach and its components	Relations with suppliers Stakeholders dialogue and mapping	149 116	
	103-3 Evaluation of the management approach	Relations with suppliers	149	
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	Relations with suppliers	149	

GRI STANDARD	DISCLOSURE	SECTION	PAGE OR LINK	OMISSIONS OR LIMITATIONS
Anti-corruption (Fight against corruption)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Governance Stakeholders dialogue and mapping GRI Reference Table	38 116 185	
	103-2 The management approach and its components	Governance Stakeholders dialogue and mapping	38 116	
	103-3 Evaluation of the management approach	Governance	38	
GRI 205: Anti-corruption 2016	205-3 Confirmed incidents of corruption and actions taken	Governance	38	
AMBIENTALE				
Materials (Circular Economy)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Circular Economy Stakeholders dialogue and mapping GRI Reference Table	169 116 185	
	103-2 The management approach and its components	Circular Economy Stakeholders dialogue and mapping	169 116	
	103-3 Evaluation of the management approach	Circular Economy	169	
GRI 301: Materials 2016	301-1 Materials used by weight or volume	Environment	183	
Energy (Decommissioning activities – physical)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Closing the Italian nuclear fuel cycle Stakeholders dialogue and mapping GRI Reference Table	55 116 185	
	103-2 The management approach and its components	Closing the Italian nuclear fuel cycle Stakeholders dialogue and mapping	55 116	
	103-3 Evaluation of the management approach	Closing the Italian nuclear fuel cycle	55	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Environment	183	
Water and Effluents (Decommissioning activities – physical)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Circular Economy Stakeholders dialogue and mapping GRI Reference Table	169 116 185	
	103-2 The management approach and its components	Circular Economy Stakeholders dialogue and mapping	169 116	
	103-3 Evaluation of the management approach	Circular Economy	169	
GRI 303: Water and Effluents Management Approach 2018	303-1 Interactions with water as a shared resource	Circular Economy	169	
	303-2 Management of water discharge-related impacts	Circular Economy	169	
GRI 303: Water and Effluents 2018	303-3 Water withdrawal	Environment	183	
	303-4 Water discharge	Environment	184	
Emissions (Decommissioning activities – physical)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Circular Economy Stakeholders dialogue and mapping GRI Reference Table	169 116 185	
	103-2 The management approach and its components	Circular Economy Environmental Sustainability Stakeholders dialogue and mapping	169 172 116	
	103-3 Evaluation of the management approach	Circular Economy Environmental Sustainability	169 172	
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Environment	184	
	305-2 Energy indirect (Scope 2) GHG emissions	Environment	184	

GRI STANDARD	DISCLOSURE	SECTION	PAGE OR LINK	OMISSIONS OR LIMITATIONS
Effluents and Waste (Circular Economy; Radioactive waste management)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Circular Economy Stakeholders dialogue and mapping GRI Reference Table	169 116 185	
	103-2 The management approach and its components	Circular Economy Stakeholders dialogue and mapping	169 116	
	103-3 Evaluation of the management approach	Circular Economy	169	
GRI 306: Effluents and Waste 2016	306-2 Waste by type and disposal method	Environment	184	
Environmental Compliance (Legal Compliance)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Stakeholders dialogue and mapping GRI Reference Table	116 185	
	103-2 The management approach and its components	Integrated Quality, Environment and Safety Management System Stakeholders dialogue and mapping	49 116	
	103-3 Evaluation of the management approach	Integrated Quality, Environment and Safety Management System	49	
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	*In 2019 Sogin S.p.A. was fined for a total amount of EUR 29,315 due to non-compliance with environmental laws and regulations*	-	
Supplier environmental assessment (Supply chain)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Relations with suppliers Stakeholders dialogue and mapping GRI Reference Table	149 116 185	
	103-2 The management approach and its components	Relations with suppliers Stakeholders dialogue and mapping	149 116	
	103-3 Evaluation of the management approach	Relations with suppliers	149	
GRI 308: Supplier environmental assessment 2016	308-1 New suppliers that were screened using environmental criteria	Relations with suppliers	149	
SOCIAL				
Employment (Human Resources Development, talent management and equal opportunities; Corporate Welfare, employees' health and wellbeing)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Internal Stakeholders Stakeholders dialogue and mapping GRI Reference Table	123 116 185	
	103-2 The management approach and its components	Internal Stakeholders Stakeholders dialogue and mapping	123 116	
	103-3 Evaluation of the management approach	Internal Stakeholders	123	
GRI 401: Employment 2016	401-1 New hires and turnovers	Human Resources	179-180	
	401-3 Parental Leave	Human Resources Indicators	181	
Labour/Management Relations (Human Resources Development, talent management and equal opportunities)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Internal Stakeholders Stakeholders dialogue and mapping GRI Reference Table	123 116 185	
	103-2 The management approach and its components	Internal Stakeholders Stakeholders dialogue and mapping	123 116	
	103-3 Evaluation of the management approach	Internal Stakeholders	123	
GRI 402: Labour/Management Relations 2016	402-1 Minimum notice periods regarding operational changes	Internal Stakeholders	123	
Occupational Health and Safety (Radiological Safety; Safety in the workplace)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Worker health and safety Stakeholders dialogue and mapping GRI Reference Table	130 116 185	
	103-2 The management approach and its components	Worker health and safety Stakeholders dialogue and mapping	130 116	
	103-3 Evaluation of the management approach	Worker health and safety	130	

GRI STANDARD	DISCLOSURE	SECTION	PAGE OR LINK	OMISSIONS OR LIMITATIONS
GRI 403: Occupational Health and Safety Management Approach2018	403-1 Occupational health and safety management system	Worker health and safety	130	
	403-2 Hazard identification, risk assessment, and incident investigation	Worker health and safety	130	
	403-3 Occupational health services	Worker health and safety	130	
	403-4 Worker participation, consultation, and communication on occupational health and safety	Worker health and safety	130	
	403-5 Worker training on occupational health and safety	Worker health and safety	130	
	403-6 Promotion of worker health	Worker health and safety	130	
GRI 403: Occupational Health and Safety 2018	403-9 Work-related injuries	Worker health and safety	132-133	
Training and Education (Human Resources Development, talent management and equal opportunities)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Radwaste Management School Know-how development and process improvement Stakeholders dialogue and mapping GRI Reference Table	29-31 126 116 185	
	103-2 The management approach and its components	Radwaste Management School Know-how development and process improvement Stakeholders dialogue and mapping	29-31 126 116	
	103-3 Evaluation of the management approach	Radwaste Management School Know-how development and process improvement	29-31 126	
GRI 404: Training and Education 2016	404-1 Average annual training hours per employee	Human Resources	181	
Diversity of Governance Bodies and Equal Opportunities (Human Resources Development, talent management and equal opportunities)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Internal Stakeholders Stakeholders dialogue and mapping GRI Reference Table	123 116 185	
	103-2 The management approach and its components	Internal Stakeholders Stakeholders dialogue and mapping	123 116	
	103-3 Evaluation of the management approach	Internal Stakeholders	123	
GRI 405: Diversity of Governance Bodies and Equal Opportunities 2016	405-1 Diversity of Governance Bodies and Employees	Human Resources	182	
	405-2 Ratio of basic salary and remuneration of women to men	Human Resources	182	
Local Communities (Accountability and collaboration with national institutions and associations; Dialogue and Engagement with local communities; NRTP siting)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Local presence Stakeholders dialogue and mapping GRI Reference Table	138 116 185	
	103-2 The management approach and its components	Local presence Stakeholders dialogue and mapping	138 116	
	103-3 Evaluation of the management approach	Local presence	138	
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Local presence	138	
	413-2 Operations with significant actual and potential negative impacts on local communities	Local presence	138	
Supplier Social Assessment (Supply chain)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Relations with suppliers Stakeholders dialogue and mapping GRI Reference Table	149 116 185	
	103-2 The management approach and its components	Relations with suppliers Stakeholders dialogue and mapping	149 116	
	103-3 Evaluation of the management approach	Relations with suppliers	149	

GRI STANDARD	DISCLOSURE	SECTION	PAGE OR LINK	OMISSIONS OR LIMITATIONS
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	Relations with suppliers	149	
Public Policy (Accountability and collaboration with national institutions and associations)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	External Stakeholders Stakeholders dialogue and mapping GRI Reference Table	141 116 185	
	103-2 The management approach and its components	External Stakeholders Stakeholders dialogue and mapping	141 116	
	103-3 Evaluation of the management approach	External Stakeholders	141	
GRI 415: Public Policy 2016	415-1 Political contributions	External Stakeholders	141	
Socioeconomic Compliance (Accountability and collaboration with national institutions and associations; Legal Compliance)				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Stakeholders dialogue and mapping GRI Reference Table	116 185	
	103-2 The management approach and its components	Governance Stakeholders dialogue and mapping	38 116	
	103-3 Evaluation of the management approach	Governance	38	
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	*In 2019, to prove that the Group complies with all existing regulations and laws, no significant fines or non-monetary sanctions were levied against the Company due to a lack of compliance with social or economic regulations*	-	
Decommissioning Progress - costs				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Closing the Italian nuclear fuel cycle Economic Outcomes Stakeholders dialogue and mapping GRI Reference Table	55 34 116 185	
	103-2 The management approach and its components	Closing the Italian nuclear fuel cycle Stakeholders dialogue and mapping Economic Outcomes	55 116 34	
	103-3 Evaluation of the management approach	Closing the Italian nuclear fuel cycle Economic Outcomes	55 34	
Sharing of scientific know-how				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Radwaste Management School Know-how development and process improvement Stakeholders dialogue and mapping GRI Reference Table	29-31 126 116 185	
	103-2 The management approach and its components	Radwaste Management School Know-how development and process improvement Stakeholders dialogue and mapping	29-31 126 116	
	103-3 Evaluation of the management approach	Radwaste Management School Know-how development and process improvement	29-31 126	
Technology innovation and Research				
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Closing the Italian nuclear fuel cycle Stakeholders dialogue and mapping GRI Reference Table	55 116 185	
	103-2 The management approach and its components	Closing the Italian nuclear fuel cycle Stakeholders dialogue and mapping	55 116	
	103-3 Evaluation of the management approach	Closing the Italian nuclear fuel cycle	55	

Independent auditor's report on the Sustainability Report 2019

To the Board of Directors of Sogin SpA

We have been engaged to undertake a limited assurance engagement on the Sustainability Report (hereinafter the "Report") of Sogin SpA and its subsidiary Nucleco SpA (hereinafter "Gruppo Sogin") for the year ended 31 December 2019.

Responsibilities of the Directors for the Sustainability Report

The Directors are responsible for the preparation of the Sustainability Report in accordance with the "Global Reporting Initiative Sustainability Reporting Standards" issued by GRI - Global Reporting Initiative (the "GRI Standards") and in compliance with the principle of Inclusivity, Materiality and Responsiveness set out in the *AA1000 AccountAbility Principles Standard (2018),* drawn up by AccountAbility (*Institute of Social and Ethical Accountability),* as illustrated in the "Methodological note" section of the Sustainability Report.

The Directors are also responsible for such internal control as they determine is necessary to enable the preparation of a Sustainability Report that is free from material misstatement, whether due to fraud or error.

The Directors are also responsible for defining the sustainability performance targets of the Group, as well as for identifying its stakeholders and material topics to be reported on.

Auditor's Independence and Quality Control

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* published by the *International Ethics Standard Board for Accountants*, based upon fundamental principle of integrity, objectiveness, expertise and professional diligence, confidentiality and professional behavior, on which we confirmed the compliance in accordance with the dell'*AA1000 AccountAbility Assurance Standard (2008),* not having conducted activities or services for the Group that could have generated a conflict with our independence profile.

Our firm applies the *International Standard on Quality Control 1* (ISQC (Italy) 1) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

PricewaterhouseCoopers Advisory SpA

Sede legale: Milano 20149 Via Monte Rosa 91 Tel. 02667201 Fax 0266720501 Cap. Soc. Euro 7.700.000,00 i.v. - C.F. e P.IVA e Iscrizione al Reg. Imp.Milano n° 03230150967 – Altri Uffici: **Bari** 70122 Via Abate Gimma 72 Tel. 0805640311 Fax 0805640349 - **Bologna** 40126 Via Angelo Finelli 8 Tel. 0516186211 - **Cagliari** 09125 Viale Diaz 29 Tel. 0706848774 - **Firenze** 50121 Viale Gramsci 15 Tel. 0552482811 Fax 0552482899 - **Genova** 16121 Piazza Piccapietra 9 Tel. 01029041 - **Napoli** 80121 Via dei Mille 16 Tel. 08136181 - **Padova** 35138 Via Vicenza 4 Tel. 0498734311 Fax 0498734399 - **Palermo** 90141 Via Marchese Ugo 60 Tel. 0916256313 Fax 0917829221 - **Parma** 43121 Viale Tanara 20/A Tel. 0521275911 Fax 0521 781844 - **Roma** 00154 Largo Fochetti 28 Tel. 06570831 Fax 06570832536 - **Torino** 10122 Corso Palestro 10 Tel. 0115773211 Fax 0115773299 - **Trento** 38121 Viale della Costituzione 33 Tel. 0461237004 Fax 0461239077 - **Treviso** 31100 Viale Felissent 90 Tel. 0422315711 Fax 0422315798 -**Trieste** 34125 Via Cesare Battisti 18 Tel. 040364737 - **Verona** 37135 Via Francia 21/C Tel. 045826300

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Auditor's Responsibilities

Our responsibility is to express a conclusion, based on the procedures performed, on whether the Sustainability Report complies with the requirements of the GRI Standards. We conducted our work in accordance with "*International Standard on Assurance Engagements ISAE 3000 (Revised) - Assurance Engagements other than Audits or Reviews of Historical Information" (hereinafter also "ISAE 3000 Revised")* issued by the IAASB (*International Auditing and Assurance Standards Board*) for limited *assurance* engagements. That standard requires that we plan and perform procedures to obtain limited assurance about whether the Sustainability Report is free from material misstatement. The work performed was less in scope than in a reasonable assurance engagement conducted in accordance with *ISAE 3000 Revised* and, consequently, we did not obtain assurance that we became aware of all significant facts and circumstances that might be identified in a reasonable assurance engagement.

The procedures performed on the Sustainability Report were based on our professional judgement and included inquiries, primarily of personnel of the Company responsible for the preparation of the information presented in the Sustainability Report, inspection of documents, recalculations and other procedures designed to obtain evidence considered useful.

The procedures we performed consisted in verifying compliance of the Report with the principles for defining the content and the quality of a sustainability report set out in the *GRI Standards* and in the *AA1000 AccountAbility Principles Standard (2018)*, and are summarised as follows:

- comparing the financial information reported in the Report with the information included in the "Risultati Economici" paragraph of Gruppo Sogin consolidated financial statements as of 31 December 2019 on which we issued our audit opinion, in accordance with articles 14 and 16 of legislative decree n° 39 of 27 January 2010, on 10 June 2020;
- analysing, through inquiries, the governance system and the process for managing the sustainability issues relating to the Gruppo Sogin strategy and operations;
- analysing the process aimed at defining the significant reporting areas to be disclosed in the Report, with regard to the methods for their identification, in terms of priority for the various stakeholders, as well as the internal validation of the process findings;
- analysing the processes underlying the generation, recording and management of quantitative data included in the Report. In detail, we carried out:
    - meetings and interviews with management of Sogin SpA to achieve a general understanding of the information, accounting and reporting systems in use to prepare the Report, as well as processes and procedures supporting the collection, aggregation, processing and submission of the information to the function responsible for the Report preparation;
    - a sample-based analysis of the documents supporting the preparation of the Report, in order to obtain evidence of the reliability of processes in place underlying the treatment of the information relating to the objectives disclosed in the Report;

- analysing the process of the stakeholder engagement, referring to the methods used, through the analysis of the summary minutes or eventual other documentation on the main aspects emerged;
- analysing the internal consistency of the qualitative information described in the Report and its compliance with the guidelines identified in the preceding paragraph "Responsibilities of the Directors for the Sustainability Report";
- obtaining a representation letter, signed by the legal representative of Sogin SpA, on the compliance of the Report with the guidelines identified in the paragraph "Responsibilities of the Directors for the Sustainability Report", as well as the reliability and completeness of the disclosed information.

Our limited assurance work was less in scope than a reasonable assurance engagement performed in accordance with ISAE 3000 (*reasonable assurance engagement*) and, consequently, it does not provide us with a sufficient level of assurance necessary to became aware of all significant facts and circumstances that might be identified in a reasonable assurance engagement.

Conclusion

Based on the work performed, nothing has come to our attention that causes us to believe that the Sustainability Report of Gruppo Sogin for the year ended 31 December 2019 is not prepared, in all material respects, in accordance with the requirements of the *GRI Standards* and the *AA1000 AccountAbility Principles Standard (2018),* as illustrated in the "Methodological note" section of the Sustainability Report.

Rome, 08 July 2020

PricewaterhouseCoopers SpA

Signed by

Pierpaolo Mosca
(Partner)

This report has been translated into English from the Italian original solely for the convenience of international readers

Creative Design by
Sogin – External Relations

Contacts:

Sogin
Via Marsala, 51c
00186 Rome, Italy

Email: bds@sogin.it
PEC: sogin@pec.sogin.it

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