ERG
EVOLVING ENERGIES

EMAS

ENVIRONMENTAL DECLARATION 2019

ERG Hydro S.r.l.

Pursuant to EC Regulation no. 1221/2009 and 2017/1505/EU

ENVIRONMENTAL DECLARATION 2019

ERG Hydro S.r.l.

Pursuant to EC Regulation no. 1221/2009 and 2017/1505/EU

Terni Hydroelectric Complex

Revision 2019

(updated performance data as at 31 December 2018)

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT
IT-000538

« When one tugs at a single thing in nature, he finds it attached to the rest of the world »

John Muir

Courtesy translation

Contents

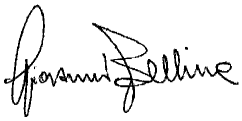
1938-2018...the ERG Group story is an 80-year tale of sustainable development and innovation. Over the years ERG has undergone a radical business transformation process: from leading private Italian oil company to leading independent operator in the market of electricity from renewable sources. A change made possible by the strong business and management culture it has developed over its 80-year history. This year ERG's commitment to sustainable development was rewarded with an important acknowledgment: leading Italian company and 16th overall in the "Corporate Knights Global 100 Most Sustainable Corporations in the World Index".

In harmony with the changing world, over the years ERG has learned to listen to nature, embracing its power and turning it into its most important resource. Indeed, it is from the power of water that ERG Hydro obtains its clean energy. Our hydroelectric power plants have an overall capacity of 527 MW, representing around 19% of our total installed capacity.

And once again ERG Hydro presents its Environmental Declaration this year with the aim of providing complete and up-to-date information on its plants, its environmental performances and its commitment to the environment. In particular, this document provides an update on the commitments undertaken and goals achieved in 2018.

General Manager ERG Hydro S.r.l.

Giovanni Bellina



1. APPROVAL STATEMENT

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ERG Hydro S.r.l.

Registered Office
Torre WTC - Via De Marini, 1 - 16149 Genoa

Operating office
Via Valnerina, 9 - Terni

Activity code
Code EA- 25 - Production of electricity from hydroelectric power plants.
Code NACE 35.11 – Production of electricity.

The accredited Environmental Inspector, Rina Services S.p.A. (accreditation number: IT – V – 0002) with head office at 12 via Corsica, Genoa verified, through a visit to the Organisation, interviews with staff and an analysis of documentation and registrations, that the Policy, Management System and Audit procedures conform with EC Regulation 1221/2009 of 25/11/2009 as amended by Regulation 2017/1505/EU, and verified and certified the data reported in this update of the Environmental Declaration.

ERG Hydro S.r.l. undertakes to submit this revision of the Environmental Declaration to the Competent Authority and to make it available to the public at www.erg.eu.

2. ERG: AN 80-YEAR STORY

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2018 was a very important year for the ERG Group. In fact, on 19 October 2018 ERG celebrated 80 years in the energy world with a special event at the Doge's Palace in Genoa. The 80th anniversary coincided with the completion of the company's change of business process: with the sale of TotalErg and its entry in the photovoltaic solar sector, ERG concluded its transformation from leading Italian oil company to leading European operator in the production of energy from renewable sources.

1938 2018	**80** years of history
	**7** countries in which it operates
	**737** employees
	**Sixteenth** in the world **first** in Italy
	**Rating B** (higher than both the average in the utilities sector and the european average)
	**3 million** families supplied with **7,485 GWh** of energy
	**3,029 kt of CO_2 avoided** equal to **780,000** return flights from rome to new york

Data as at 31/12/2018

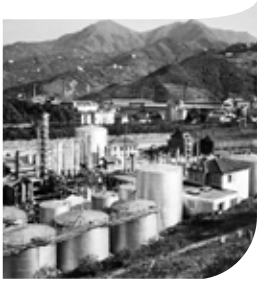
OUR HISTORY: 1938-2018

1938

Edoardo Garrone establishes ERG in Genoa.

1947

Production begins at the refinery in Genoa San Quirico.



1975

Production begins at the ISAB Refinery in Priolo.

1997

ERG is listed on the Italian Stock Exchange.

2000

ERG - through ISAB Energy - begins to produce and market electricity from the gasification of heavy refinery residues.

2006

ERG enters the renewable energy sector by acquiring EnerTAD.

2008

ERG sells 49% of the ISAB refinery to LUKOIL.

2010

ERG Power's combined cycle power plant starts up (480 MW) fuelled by natural gas.

Launch of TotalErg, a joint venture to market petroleum products.

2013

ERG becomes the leading wind power operator in Italy with 1,087 MW of installed capacity, and among the top ten in Europe (overall 1,340 MW). It purchases a company for the running and maintenance activities of the wind farms.

ERG sells the ISAB refinery and completes its exit from refining.

2014

ERG sells the ISAB Energy plant and its ERG Oil Sicilia fuel networks.

2015

ERG enters the hydroelectric business, with plants in Umbria, Marche and Lazio (527 MW).

ERG acquires 6 wind farms in France (64 MW) and builds 3 wind farms in Poland totalling 82 MW.

Installed wind power at the end of 2015 totals 1,506 MW.

2016

ERG enters the UK wind power market with a 47.5 MW project.

Installed wind power at the end of 2016 totals 1,721 MW.

2017

ERG continues to grow in the wind sector: 48 MW in operation in Germany; 16 MW in operation in France.

Installed wind power in Europe at the end of 2017 totals 1,814 MW.

2018

ERG enters the solar sector: 30 photovoltaic plants acquired totalling 89 MW.

Definitive exit from the Oil sector with the sale of TotalErg.

Installed wind power at the end of 2018 totalled 1,822 MW.

Today ERG has become an independent operator in the market of electricity from well-balanced and diversified renewable sources.

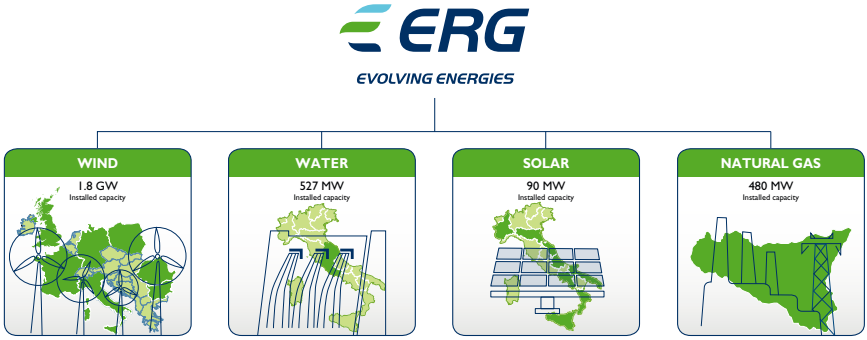


Fig. 1 - ERG Group electricity generation sources *(data as at 31/12/2018)*

Wind · ERG is Italian leader and one of the leading operators in Europe.
Water · one of the leading operators in the production of electricity from water in Italy.
Solar · it entered the solar business in January 2018. Following an additional acquisition in February 2019, it now has 141 MW of installed capacity, distributed across 9 Italian regions.
Natural gas · high-efficiency and low environmental impact thermoelectric power generation through a high-tech plant that respects strict environmental criteria.

The ERG Hydro portfolio of plants, with its efficient gross capacity of 527 MW, exploits the power of water to generate clean energy. ERG Hydro has its own personnel dedicated to Operation, Maintenance, Health Safety and Environment, Performance and Process Automation activities, and also employs staff from other ERG Group companies. More specifically, the business units responsible for the generation of electricity from the various production assets and for interfacing with the market belong to ERG Power Generation. ERG Hydro is fully integrated in the transversal processes of ERG Power Generation.

The Terni Hydroelectric Complex, whose infrastructures and facilities largely date back to the first half of the 1900s, extends over a vast area between Umbria, Lazio and Marche and consists of 19 power plants, 7 large dams, 3 reservoirs and a pumping station. Its plants are located in the water catchment areas of the Tiber, Nera and Velino rivers which together form a water system that is

well integrated in the territory, enabling the creation of important natural areas, such as:

- the Oasis of Alviano on the Tiber river;
- the Nera River Park and the Marmore Falls.

A typical feature of the plants of the Terni Hydroelectric Complex is that one is located after the next: in this way, the water coming out of one production plant is captured and sent to the next plant to be used in a new drop, along with additional water from other rivers belonging to the surrounding river basin. Consequently, the water is used several times, making the most of its energy content. At the end of the cycle, the water is returned to the river basin and can flow back into the natural water cycle.

The system is integrated and monitored and managed in real time by a single control room, the remote operation room ("Posto di Teleconduzione", PT) which is located in Terni at the Villa Valle office; manned 24 hours a day, the PT remotely supervises, commands and controls all of the plants. As well as the PT, two operating departments, Galleto and Baschi, with their relative operating centres, are directly responsible for the operations of the plants, manoeuvres and safety measures, controls, regular maintenance, accessibility and dam security.

The electricity (EE) generated by Terni Hydroelectric Complex is made available for the electricity market. Energy Management is the department assigned to ensure the economic sustainability of the generation portfolio. In particular, it is responsible for the daily maximisation of the contribution margin through the sale of electricity, the optimisation of procurement and production activities and the hedging of the generation portfolio risk.

A brief overview of the plants is provided below.

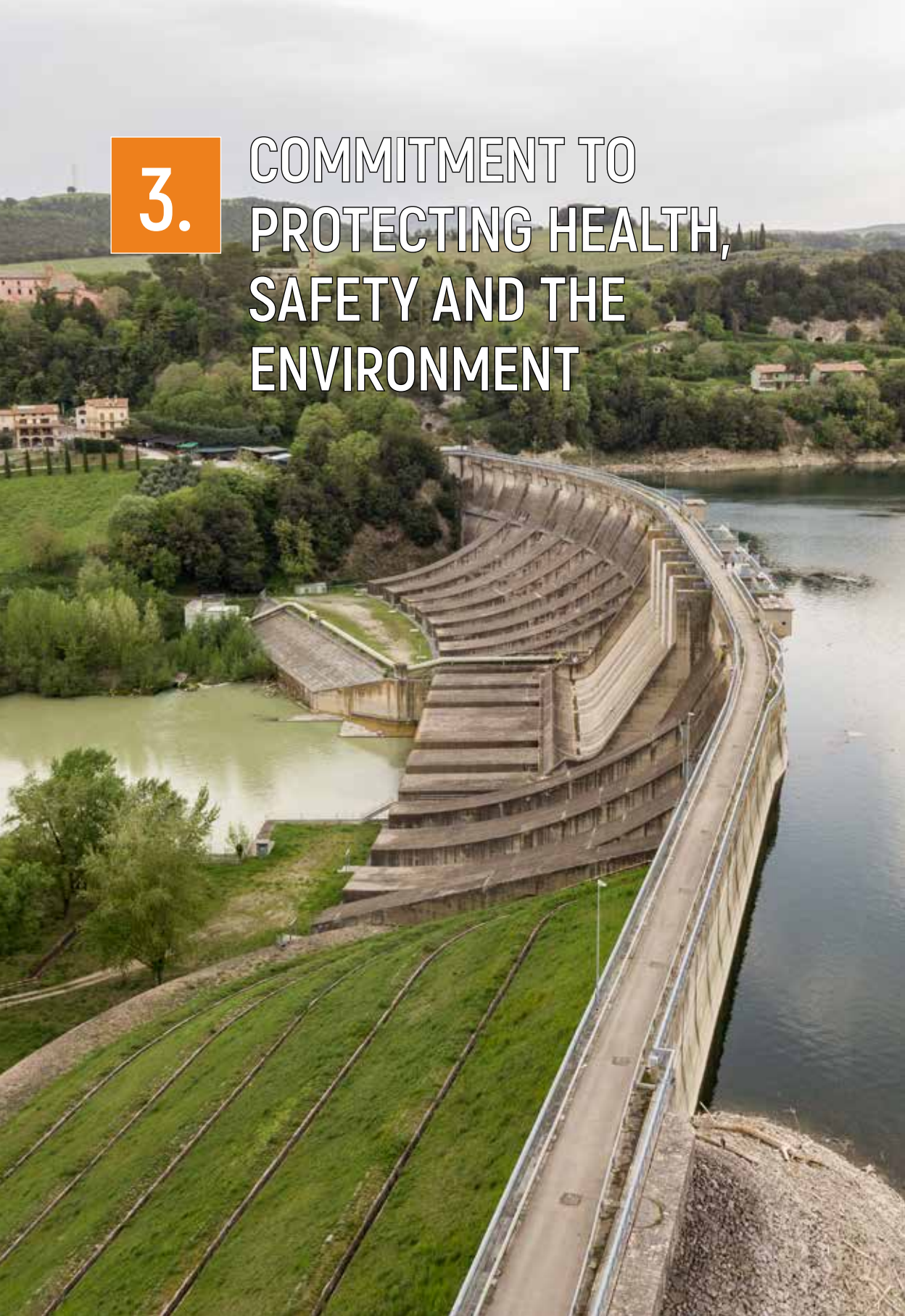
Table 1 - ERG Hydro plants

Name	Municipality	Address	Province
Hydroelectric Power Plants			
Altolina	Foligno	Loc. Altolina	PG
Alviano	Alviano	Loc. Pian della Nave n. 4	TR
Baschi	Baschi	Voc. S. Lorenzo n. 125	TR
Cervino	Terni	Ex stabilimento Papigno	TR
Corbara	Orvieto	Loc. Corbara	TR
Cotilia	Cittaducale	Via Cicolanense n. 10	RI
Galleto/M.S.A.	Terni	S.S. Valnerina km 4,700	TR
M. Argento	Terni	Via Pasteur n. 3	TR
N. Montoro	Narni	Via dello Stabilimento n. 161	TR
Narni	Narni	Via Tiberina n. 548	TR
Ponte Sargano	Cerreto di Spoleto	S.S. 319 Sellanese km 22,900	PG
Preci	Preci	Loc. Case Sparse di Corona n. 13	PG
Sersimone	Terni	Strada di Cervara	TR
Sigillo	Posta	S.S. 4 Salaria km 105,00	RI
Triponzo	Cerreto di Spoleto	S.S. 209 Valnerina km 50,750	PG
Visso	Visso	Via dei Molini n. 6	MC
Mini Idro			
Visso	Visso	Via dei Molini n. 6	MC
Santa Maria Magale	Terni	Strada Santa Filomena	TR
Turano	Rocca Sinibalda	Via Turanense	RI
Pumping Station			
Borgo Cerreto	Cerreto di Spoleto	S.S. 209 Valnerina km 46,950	PG
Dams			
Aia dam	Narni	Via delle Pretare n. 51	TR
Alviano dam	Alviano	Loc. Pian della Nave n. 4	TR
Corbara dam	Baschi	S.S. 448 km 2,260	TR
La Morica dam	Narni	S.S. Ortana n. 324	TR
Marmore dam	Terni	Conti Menotti	TR
Salto dam	Petrella Salto	Strada Cicolana	RI
Turano dam	Rocca Sinibalda	Via Turanense	RI

ERG Hydro in short

	19 power plants
	7 dams, **3** reservoirs and **1** pumping station
	527 MW overall capacity
	1,756 million kWh
	100% green indirect energy consumption
	**3 regions:** Umbria, Lazio e Marche
	**910 kt CO_2 avoided**

Data as at 31/12/2018



3. COMMITMENT TO PROTECTING HEALTH, SAFETY AND THE ENVIRONMENT

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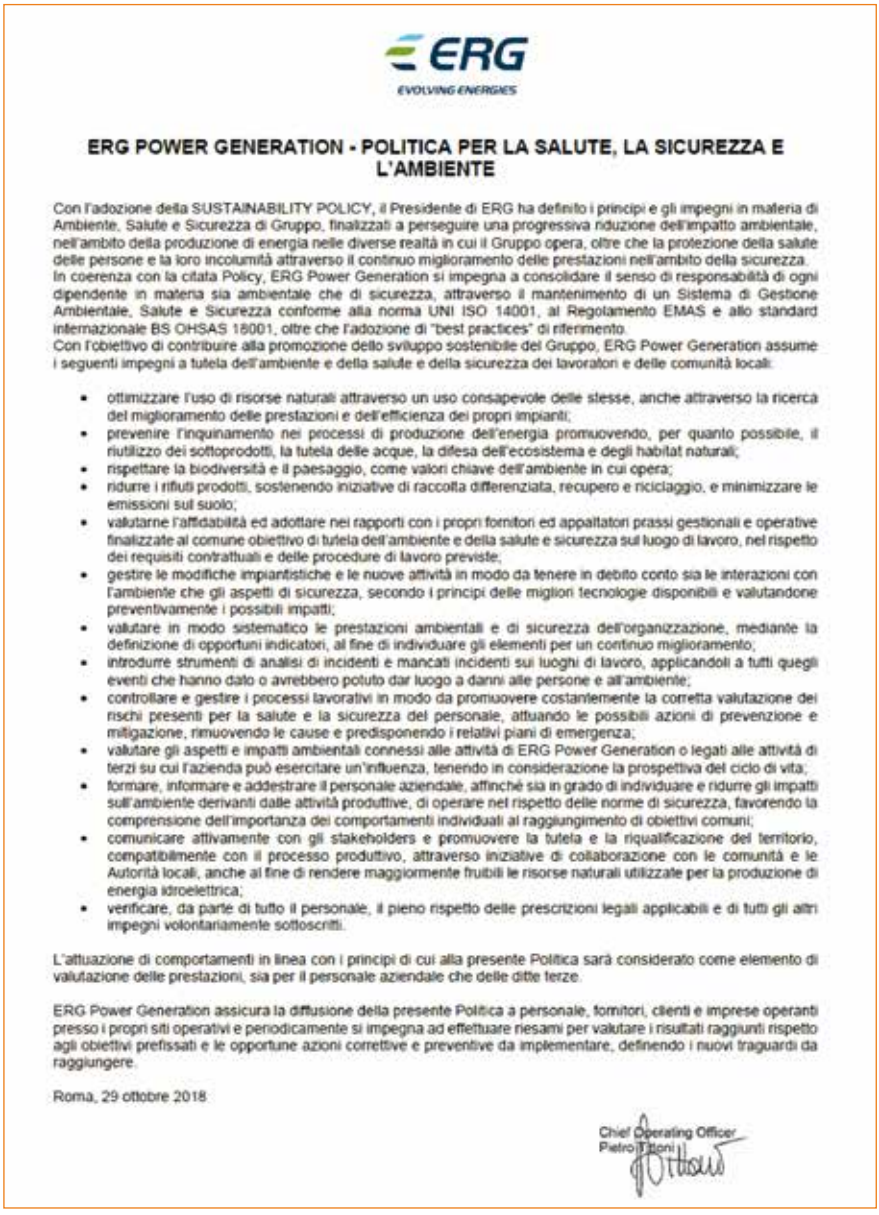
3.1. POLICY

Having been fully integrated in ERG Power Generation, ERG Hydro has adopted the HSE policy of that Group company since October 2018.

The HSE policy revisits the principles outlined in the ERG Group Code of Ethics and Sustainability Policy.

The fifth edition of the Code of Ethics and the revised Sustainability Policy were approved in 2018. The new Human Rights Policy was also published.



ERG
EVOLVING ENERGIES

ERG POWER GENERATION - POLITICA PER LA SALUTE, LA SICUREZZA E L'AMBIENTE

Con l'adozione della SUSTAINABILITY POLICY, il Presidente di ERG ha definito i principi e gli impegni in materia di Ambiente, Salute e Sicurezza di Gruppo, finalizzati a perseguire una progressiva riduzione dell'impatto ambientale, nell'ambito della produzione di energia nelle diverse realtà in cui il Gruppo opera, oltre che la protezione della salute delle persone e la loro incolumità attraverso il continuo miglioramento delle prestazioni nell'ambito della sicurezza.
In coerenza con la citata Policy, ERG Power Generation si impegna a consolidare il senso di responsabilità di ogni dipendente in materia sia ambientale che di sicurezza, attraverso il mantenimento di un Sistema di Gestione Ambientale, Salute e Sicurezza conforme alla norma UNI ISO 14001, al Regolamento EMAS e allo standard internazionale BS OHSAS 18001, oltre che l'adozione di "best practices" di riferimento.
Con l'obiettivo di contribuire alla promozione dello sviluppo sostenibile del Gruppo, ERG Power Generation assume i seguenti impegni a tutela dell'ambiente e della salute e della sicurezza dei lavoratori e delle comunità locali:

- ottimizzare l'uso di risorse naturali attraverso un uso consapevole delle stesse, anche attraverso la ricerca del miglioramento delle prestazioni e dell'efficienza dei propri impianti;
- prevenire l'inquinamento nei processi di produzione dell'energia promuovendo, per quanto possibile, il riutilizzo dei sottoprodotti, la tutela delle acque, la difesa dell'ecosistema e degli habitat naturali;
- rispettare la biodiversità e il paesaggio, come valori chiave dell'ambiente in cui opera;
- ridurre i rifiuti prodotti, sostenendo iniziative di raccolta differenziata, recupero e riciclaggio, e minimizzare le emissioni sul suolo;
- valutarne l'affidabilità ed adottare nei rapporti con i propri fornitori ed appaltatori prassi gestionali e operative finalizzate al comune obiettivo di tutela dell'ambiente e della salute e sicurezza sul luogo di lavoro, nel rispetto dei requisiti contrattuali e delle procedure di lavoro previste;
- gestire le modifiche impiantistiche e le nuove attività in modo da tenere in debito conto sia le interazioni con l'ambiente che gli aspetti di sicurezza, secondo i principi delle migliori tecnologie disponibili e valutandone preventivamente i possibili impatti;
- valutare in modo sistematico le prestazioni ambientali e di sicurezza dell'organizzazione, mediante la definizione di opportuni indicatori, al fine di individuare gli elementi per un continuo miglioramento;
- introdurre strumenti di analisi di incidenti e mancati incidenti sui luoghi di lavoro, applicandoli a tutti quegli eventi che hanno dato o avrebbero potuto dar luogo a danni alle persone e all'ambiente;
- controllare e gestire i processi lavorativi in modo da promuovere costantemente la corretta valutazione dei rischi presenti per la salute e la sicurezza del personale, attuando le possibili azioni di prevenzione e mitigazione, rimuovendo le cause e predisponendo i relativi piani di emergenza;
- valutare gli aspetti e impatti ambientali connessi alle attività di ERG Power Generation o legati alle attività di terzi su cui l'azienda può esercitare un'influenza, tenendo in considerazione la prospettiva del ciclo di vita;
- formare, informare e addestrare il personale aziendale, affinché sia in grado di individuare e ridurre gli impatti sull'ambiente derivanti dalle attività produttive, di operare nel rispetto delle norme di sicurezza, favorendo la comprensione dell'importanza dei comportamenti individuali al raggiungimento di obiettivi comuni;
- comunicare attivamente con gli stakeholders e promuovere la tutela e la riqualificazione del territorio, compatibilmente con il processo produttivo, attraverso iniziative di collaborazione con le comunità e le Autorità locali, anche al fine di rendere maggiormente fruibili le risorse naturali utilizzate per la produzione di energia idroelettrica;
- verificare, da parte di tutto il personale, il pieno rispetto delle prescrizioni legali applicabili e di tutti gli altri impegni volontariamente sottoscritti.

L'attuazione di comportamenti in linea con i principi di cui alla presente Politica sarà considerato come elemento di valutazione delle prestazioni, sia per il personale aziendale che delle ditte terze.

ERG Power Generation assicura la diffusione della presente Politica a personale, fornitori, clienti e imprese operanti presso i propri siti operativi e periodicamente si impegna ad effettuare riesami per valutare i risultati raggiunti rispetto agli obiettivi prefissati e le opportune azioni correttive e preventive da implementare, definendo i nuovi traguardi da raggiungere.

Roma, 29 ottobre 2018

Chief Operating Officer
Pietro Tittoni

Fig. 2 - ERG Power Generation Health, Safety and Environment Policy

For the ERG Group, growing sustainably means combining economic and business growth objectives with the creation of value for the Environment and Society in order to increase the amount of value generated and also turn it into a competitive advantage.
A Sustainability Committee, presided over by the Chairman of ERG and consisting of the Chief Executive Officer and all his direct reports, has been set up to guide and monitor all sustainability activities. The Sustainability management system is completed by the Supervisory Committee, set up in each of the Group companies pursuant to Model 231, the Evaluation Committee for Group-level CSR (Corporate Social Responsibility) initiatives, and the CSR Working Group.

3.2. HSE MANAGEMENT

The environment and workplace health and safety are two fundamental issues to which the ERG Group dedicates ongoing attention, in particular thanks to the implementation of the Integrated environmental and safety management system, compliant with the international ISO 14001:2015 and OHSAS 18001:2007 standards, by the various ERG Group companies. In this way we guarantee the ongoing supervision of the processes carried out in our production sites through a management approach that permits the systemic integration of the two areas (Environment and Health and Safety).
In 2018 the new ERG Power Generation/ERG Hydro Integrated Management Systems Manual was published together with a new framework of Group guidelines and procedures. In this way the management criteria of key aspects like risk management in activities with third parties, and health, safety and environmental risk assessment methods in internal activities have been made more transparent and uniform.
In June 2018 the switch to the 2015 version of the ISO 14001 standard was completed at ERG Hydro.
ERG Hydro has also launched the transition process from OHSAS 18001 to ISO 45001:2018, which is expected to be completed in 2020.
The ERG Hydro Integrated Management System has the following field of application: "EA- 25 - Production of electricity from hydroelectric power plants".

CISQ is a member of IQNet

CERTIFICATO N. **EMS-7180/S**
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE AMBIENTALE DI
IT IS HEREBY CERTIFIED THAT THE ENVIRONMENTAL MANAGEMENT SYSTEM OF

ERG HYDRO S.R.L.

VIA DE MARINI, 1 16149 GENOVA (GE) ITALIA

NELLE SEGUENTI UNITÀ OPERATIVE / *IN THE FOLLOWING OPERATIONAL UNITS*

VIA DE MARINI, 1 16149 GENOVA (GE) ITALIA

E UNITÀ OPERATIVE COME DA ALLEGATO/ AND OPERATIONAL UNITS AS PER ANNEX

Per informazioni sulla validità del certificato, visitare il sito www.rina.org
For information concerning validity of the certificate, you can visit the site www.rina.org

È CONFORME ALLA NORMA / IS IN COMPLIANCE WITH THE STANDARD

ISO 14001:2015

IAF:28

E AL REGOLAMENTO TECNICO ACCREDIA RT-09
PER I SEGUENTI CAMPI DI ATTIVITÀ / *FOR THE FOLLOWING FIELD(S) OF ACTIVITIES*

PRODUZIONE DI ENERGIA ELETTRICA DA CENTRALI IDROELETTRICHE

POWER PRODUCTION BY HYDROELECTRIC POWER PLANTS

Prima emissione / *First issue* 16.05.2018
Organizzazione con sistema di gestione certificato dal: / *Organization with Management System certified since:* 14/05/2010
Data scadenza / *Expiry Date* 30.05.2020
Data revisione / *Revision date* 26.05.2018

Daniela Azaro
Genoa Management System Certification, Head

RINA Services S.p.A.
Via Corsica 12 - 16128 Genova Italy

ACCREDIA SGA N° 002 D

IAF

CISQ

Fig. 3 - Certificate of compliance to ISO 14001:2015 standard

Another example of ERG Hydro's voluntary commitment to the environment is its adoption of the European Union Eco-Management and Audit Scheme, which in 2006 led to the attainment of EMAS registration from the Ecolabel and Ecoaudit Committee, EMAS in Italy section. The maintenance

of EMAS requisites is fundamental and perfectly consistent with the important issue of Group sustainability, and makes one of our CSR goals - open dialogue with the public - even more effective.

Certificato di Registrazione

Registration Certificate

EMAS

ERG Hydro S.r.l.
Nucleo Idroelettrico Terni
Via Valnerina, 9
05100 Terni (TR)

N. Registrazione: *Registration Number* **IT-000538**

Data di registrazione: *Registration date* 12 luglio 2006

PRODUZIONE DI ENERGIA ELETTRICA
PRODUCTION OF ELECTRICITY

NACE 35.11

Questa Organizzazione ha adottato un sistema di gestione ambientale conforme al Regolamento EMAS allo scopo di attuare il miglioramento continuo delle proprie prestazioni ambientali e di pubblicare una dichiarazione ambientale. Il sistema di gestione ambientale è stato verificato e la dichiarazione ambientale è stata convalidata da un verificatore ambientale accreditato. L'organizzazione è stata registrata secondo lo schema EMAS e pertanto è autorizzata a utilizzare il relativo logo. Il presente certificato ha validità soltanto se l'organizzazione risulta inserita nell'elenco nazionale delle organizzazioni registrate EMAS.

This Organization has established an environmental management system according to EMAS Regulation in order to promote the continuous improvement of its environmental performance and to publish an environmental statement. The environmental management system has been verified and the environmental statement has been validated by a accredited environmental verifier. The Organization is registered under EMAS and therefore is entitled to use the EMAS Logo. This certificate is valid only if the Organization is listed into the national EMAS Register.

Roma, *Rome,* 30 novembre 2018

Certificato valido fino al: *Expiry date* 22 maggio 2020

Comitato Ecolabel - Ecoaudit
Il Presidente
Dott. Riccardo Rifici

Fig. 4 - ERG Hydro EMAS Registration Certificate

A project for the integration and unification of the existing management systems was launched in 2018 in order to create a single integrated and centrally-managed environmental-safety system that respects the features of the various different technologies.
The ultimate goal of the project is to create a transversal and integrated environmental-safety system that covers the various areas of operation (Hydro, Wind&Solar, Thermo).
The general structure of the procedures will be simplified and streamlined following the issue of a series of documents that will be valid for the entire organisation and guarantee the harmonisation of principles and guidelines at Group level. The operating part, typical of each electricity production technology, will maintain its specific nature.

3.3. MANAGEMENT OF LEGAL PROVISIONS AND COMPLIANCE OBLIGATIONS

The management of legal provisions and compliance obligations at ERG Hydro is guaranteed through the constant monitoring of the applicable regulations and their evolution by the HSE team; the latter keeps a regulation register and informs the business units in charge of managing the assets about applicable provisions for guaranteeing compliance with existing health, safety and environmental regulations.
The main regulatory provision management activities at ERG Hydro regard the management of obligations deriving from the licence approvals for the use of river water and from other authorisations granted by local Authorities, particularly with regard to the management of waste, wastewater and noise.
In the event that changes to existing plants, new developments or updates to operating methods are proposed, special attention is focused on the prior examination of the regulatory context in which they operate. In fact, proposals for modifications and/or new investments follow a process which as well as entailing an approval cycle that involves all interested Business Units and an Executive Technical Committee, also identifies the regulatory context in which the operation must be managed, therefore indicating all the steps that need to be taken.
The evolution of the regulatory context is monitored at all times and the periodical meetings with the Management represent important opportunities for analysis, for examining the ways of fulfilling the provisions deriving from applicable regulations, and for ensuring the continuous sharing of experience between the various company areas.
The absence of environmental non-compliance penalties received by our companies during the year is indirect proof of our correct management of legal obligations.

3.4. SAFETY AND ENVIRONMENT COMPETITION

For any organisation, the awareness and active participation of staff in day-to-day management activities is one of the key conditions for meeting the goals of an HSE Policy. This can be achieved through constant information, training and engagement activities and by introducing incentives for those who effectively implement measures to reduce the environmental impact of risks to worker health and safety or who promote ideas for further improvement actions. The idea of promoting the "Safety and Environment Competition", designed to foster more informed and responsible behaviours and skills, was born from this context.

2019 saw the launch of the first award-based "Safety and Environment Competition" at the Terni Hydroelectric Complex, mirroring those already launched at the other Thermo and Wind&Solar operating sites. The various criteria were harmonised at the same time and a single Competition valid for all operating companies, including the international Wind sites, was created. The competition is valid for all of 2019 and the winners will be announced by February 2020.

The three competition areas are:

1. **Safety is...**

   All staff are asked to reply to the question "for you, Safety is...". All documentation will be gathered together in a brochure which will be distributed to all staff at the end of the competition.

2. **Environment and Safety Reports**

   Involves reports of unsafe conditions, unsafe behaviours or near-misses, and the presentation of an improvement proposal designed to prevent these incidents from recurring.

3. **Improvement**

   Participants are asked to present a project designed to improve workplace health and safety or environmental protection standards in general. The project must involve the development of an improvement proposal in all its phases, with an assessment of the current situation, the identification of the risk present, the proposal of a solution, the definition of the timeframes, costs and responsibilities connected with the measure, and the expected improvement with the proven reduction of the health and safety or environmental risk.

Another step in the awareness project on environmental and safety issues is that of creating a prize competition also for contractors.

3.5. INVESTMENTS IN THE ENVIRONMENT

3.5.1. IMPROVING ENERGY EFFICIENCY

Optimising the energy performance of the Villa Valle area

As part of a project that aims to improve efficiency through an energy diagnosis process, a study was performed at the Erg Hydro sites (Villa Fabrizi office site and remote operation room building). In the first phase of the study data was collected, inspections carried out and consumption analysed. Subsequently, the improvement solutions to implement with regard to the air conditioning (summer, winter), sanitary hot water, lighting systems and transparent surfaces (windows and doors) were evaluated.

According to the final study the following measures should be taken to improve the energy performances of the buildings:

- replacement of current boilers with condensation boilers;
- replacement of current lighting devices with LED lights.

The installation of solar panels on the roofs of the car parks is also in the pipeline.

Oil leaks in water

Installation of sensors to detect oil leaks in water, Galleto

The process of installing sensors to detect the presence of oil in water at the Galleto plant is in its final stages. This measure represents a further control, in addition to those already introduced, designed to prevent any possible oil leaks following a drop in security levels at the plant.

Based on the same principle, close to the third party-owned 220 kV oil-filled cable junction boxes located in ERG Hydro areas, a containment space for eventual leaks is being developed with the installation of sensors for the detection of oil.

Oil-hydraulic systems valve controls Salto/Turano tunnel

The replacement of the old oil-hydraulic command system of the shut-off valve of the communication tunnel between the inlets of Turano and Salto, on the Turano side, has been completed, separating it from the middle-level drain which is also in the process of being replaced. This upgrade will improve the efficiency and reliability of the system, and uses biodegradable oil.

Transformers Nera Montoro

The electric machines in resin which will replace the 3 oil-immersed transformers to power ancillary services in Nera Montoro have been procured. The substitution will take place during the first half of 2019.

3.6. TRAINING AT ERG HYDRO

People are ERG's most important asset. Personal and professional growth and the constant updating of skills represent an investment for the future of the Group.
Training activities are organised with the aim of maintaining high standards in terms of people's specialist technical skills, guaranteeing compliance with legal obligations in the health, safety and environment sphere (HSE), and ensuring the excellent management of people and processes, improving individual and team performances and developing a sense of belonging to the company.

The macro categories of training are:

- technical-specialist training;
- mandatory HSE training;
- institutional, management and behavioural training.

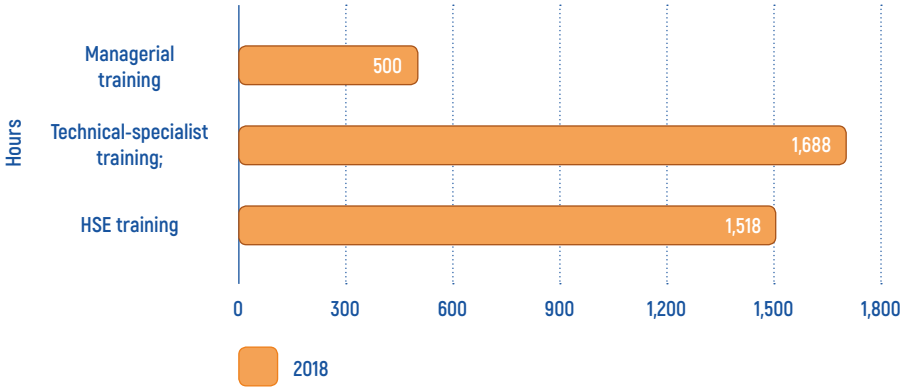


Fig. 5 - Training provided in 2018

3.7. COMMUNICATION WITH STAKEHOLDERS

In accordance with the Group guidelines, ERG Hydro maintains active external communications with both environmental protection agencies and bodies responsible for supervising the company's activities, with respect for current regulations, as well as with the local community and other stakeholders.

In parallel to this, with the employee being the first stakeholder with whom the company interacts, suitable internal communications on the various environmental protection issues that involve the entire organisation are guaranteed at all times.

A TUTTA ACQUA!

Following in the footsteps of "Vai col vento!" (Go with the Wind!) and replicating its format, the second edition of the environmental education project "A tutta Acqua!" (Water at full speed!), dedicated to secondary school students in Umbria, Lazio and Marche where ERG is present with its hydroelectric plants, was held in spring 2018. As well as the training activities and guided tour of the Galleto plant, the kids visited the protected area of the Marmore Falls.

ELECTRICITY DAY

As part of the "School Project" we organised "Electricity Day", an event dedicated to final-year students from technical schools in the cities of Terni, Perugia, Rieti and Viterbo: in November over 250 youngsters from four technical schools visited the Galleto hydroelectric power plant.

ERG RE-GENERATION CHALLENGE

The second edition of ERG Re-Generation Challenge, the business plan competition designed to offer students, start-uppers and companies the possibility of developing entrepreneurial initiatives, began in June 2018. In the scouting phase, the first edition of ERG Re-Generation Challenge involved Umbria, Lazio and Marche with a total of 66 projects presented. The three winners continued their entrepreneurial development process by forming contacts and agreements with major companies in the energy sector.

The second edition was national in scope, focusing particularly on the regions of South and Central Italy. The three best ideas were awarded with a cash prize to help develop their projects.

THE OASIS OF ALVIANO

Opened in 1990, the Oasis of Alviano comes under the protection of the WWF which safeguards the environment and ensures the best possible home for the various species. The park boasts a large Environmental Education Centre as well as seven bird-watching hides equipped with noticeboards and explanatory panels to help recognise the various species. A tower was also built so visitors can watch the birds.

UMBRIA JAZZ FOUNDATION

We support the Umbria Jazz Foundation which organises the "Umbria Jazz" Festival in July in Perugia: during the period of the music festival, the main square in the town was renamed "ERG Square". ERG's contribution was also instrumental in the organisation of Umbria Jazz Spring, which was held in Terni.

NPC CARES

Since 2016 we have been partners of "NPC Rieti Pallacanestro" to support the "NPC Cares" project, an initiative launched by the Rieti-based sports team to support the healthy mental and physical development of young people through sports and the success stories of well-known champions. In 2018 ERG contributed to redesigning the historic basketball court in the neighbourhood of Regina Pacis in Rieti..

CORPORATE VOLUNTEERING

In collaboration with Legambiente, in September 2018 we organised the second Corporate Volunteering Day at Lake Piediluco in Terni, one of the biggest natural lakes in Umbria. Together with the volunteers of Legambiente, we dedicated the morning to cleaning and tending to the park next to the lake.

FAMILY DAY

An annual event that ERG organises to bring together the company and the families of its employees. The absolute stars are the children who, through games and "workshops", learn how their parents contribute every day to creating value for the ERG family. To mark ERG's 80th anniversary a theatre company staged a wonderful fairy tale to tell the children the story of the company where their parents work.

In addition, among the measures adopted for the benefit of lake and river environments, with the aim of reconciling hydroelectric activities with the needs of the territory, for the varied use of the water and the river environment, the following are of particular importance:

For Lake Piediluco

- the limit of 80 cm as the daily maximum range of the lake even though the licence permits the possibility of exploiting a range of 150 cm;
- the cleaning of the lake, including the disposal of debris, and the banks of the lake;
- release of the Piediluco's waters to feed the Marmore Falls with a flow rate of 15 m^3/s for 1300 hours a year.

For Lake Corbara

- collection and disposal/recovery of all materials that accumulate along the banks;
- containment, in the period April - June of every year, of the lake's water level range in order to favour the reproduction of fish, even though the License Decree makes it possible to use the reservoir within a maximum range of 16 metres.

3.8. SUSTAINABLE PROCUREMENT

With the aim of further safeguarding the environment, ERG Hydro has undertaken a project for the "green" management of its purchases also in terms of their life cycles, focusing in particular on the upstream part of the value chain towards the suppliers. The goal is to increasingly prioritise processes and partnerships that guarantee greater environmental protection as early as the procurement phase of goods and services. For this reason, the 3-year environmental programme for 2017-2019 included a specific objective.

The issue of "Green Procurement" was given central importance in the more general "Sustainable Procurement" project that involves the entire ERG Group.

Sustainable procurement is a springboard for beginning the transition towards an economy that seeks to reduce the environmental impacts of production and consumption, and promotes and protects decent work and human rights.

The "Sustainable Procurement" project was launched in 2019 with the aim of closely analysing some categories of suppliers and specific product categories, and creating sustainability ratings and indicators, identifying the minimum environmental and social criteria to adopt in supplier contracts.

4. ENVIRONMENTAL MANAGEMENT OF HYDROELECTRIC PLANTS

4. ENVIRONMENTAL MANAGEMENT OF HYDROELECTRIC PLANTS

4.1. PREDICTIVE MAINTENANCE

In order to minimise accidental breakages and maintain the plants intact, ERG Hydro adopts the Condition Based Maintenance (CBM).
In 2018 it also implemented Online Hydro Plant Monitoring (MOnLHy) on the Galleto (326 MW), Baschi (86 MW) and Narni (40 MW) plants.
This took place in the following phases:

- installation of new systems to monitor vibrations, gases dissolved in transformers, turbine flow rates and other relevant quantities for continuous monitoring;
- logging of the measurements already available on the machines and integration of the new measurements in a centralised database;
- realisation of the IT infrastructure and implementation of all modules and relative algorithms necessary for the diagnostic and performance-based analysis of the machinery, as well as process optimisation.

The second phase of implementation, extended to the plants of Cotilia (48 MW) and Monte Argento (64 MW), is expected to be complete in 2019.

4.2. REDUCING THE RISK OF CONTAMINATING WATER BODIES

From an environmental perspective, hydroelectric power generation does not have any significant impact as the channelled water from the turbine is returned to the water body from which it was taken in the same quantity and quality. The only potential source of pollution for receptors is the water used for cooling the plants, which could be accidentally contaminated.
More specifically, all of the production plants have tanks for the collection of natural plant drainage and water used to cool the machines that separate out any oily parts. Specific tank emptying systems prevent traces of oil from being spilled downstream.
If the automatic systems identify the presence of oil in the tanks, personnel are trained to take all possible measures to remove the pollutant substance and prevent it from contaminating water bodies.

The various plant solutions implemented by ERG Hydro to reduce the risk of contamination include:

- the reduction in the volume of lubricant oil present in the plants through the increased safety of system operating pressures;
- the use of next-generation synthetic biodegradable oils which are able to decompose in water and carbon dioxide without being harmful.

4.3. WOOD: FROM WASTE TO ENERGY RESOURCE

The responsible and sustainable management of a company also involves minimising its environmental impact with a reduction in the amount of waste produced by its plants, where possible. One particular type of waste is the wood which is transported along the River Tiber, particularly during overflows, and accumulates along the banks of Lake Corbara. This material deposited along the banks of reservoirs and watercourses has been managed until now according to waste regulations, even if it is actually recovered. Having established that this wood has not been processed in any way, ERG Hydro felt it was important to examine the issue more closely to ensure the ecosustainable management of the woody biomass that is deposited on the banks of Lake Corbara. As such, in collaboration with the University of Perugia, an analysis was performed to verify the technical/legal feasibility of using it for energy recovery in biomass plants, for example, by analysing in advance the chemical and physical characteristics of the material. Following this study, which confirmed the value of this proposition, a petition was presented to the Region of Umbria to identify alternative technical/administrative methods to those currently used and therefore make it possible to exploit the energy potential of this wood at biomass plants. Since the end of 2018 it has been possible to manage Corbara wood according to the Decision of the Regional Council concerning the "Guidelines for the management of vegetable residues deriving from the maintenance of green areas and the woody material deposited along the banks of water bodies and watercourses", a Decision that goes in the desired direction. Scouting activities are underway to identify biomass plants that can process the woody material with its typical chemical/physical characteristics.

4.4. OPERATION PROCESS SAFETY

ERG Hydro plants are highly structured and widespread across the territory: they are composed of a very high number of water supply and channelling works with flumes, suspended aqueducts, intake structures, drainage structures etc. It is therefore necessary to carry out detailed checks on the state of all these works.

In 2018 a study was carried out as part of the "Operation Process Safety" project with the aim of providing:

- an up-to-date overview of the condition and functionality of the main components for the safe management of the hydroelectric plants;
- a multi-year improvement plan with the identification of priorities both in terms of the operation and maintenance of existing facilities and the development of new investment activities.

Activities were scheduled to take place on the Tiber, Velino and Nera rivers and on the pipes of the main plants present in these areas:

- Tiber (Baschi, Alviano);
- Nera/Velino (Cotilia, Galleto, Monte Argento, Narni, Nera Montoro);
- Upper-Middle section of the Nera (Preci, Triponzo, Borgo Cerreto and Galleria Medio Nera).

In particular, the analyses are focused on investigating the following main components:

- electromechanical interception and manoeuvre systems;
- penstocks and return flow channels;
- protection devices.

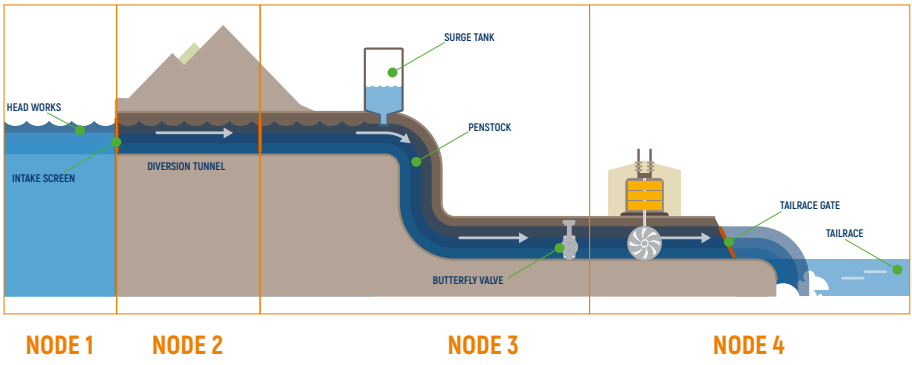


Fig. 6 - Diagram of plant divided into four nodes to analyse: intake (1), derivation (2), pipeline (3), drainage (4)

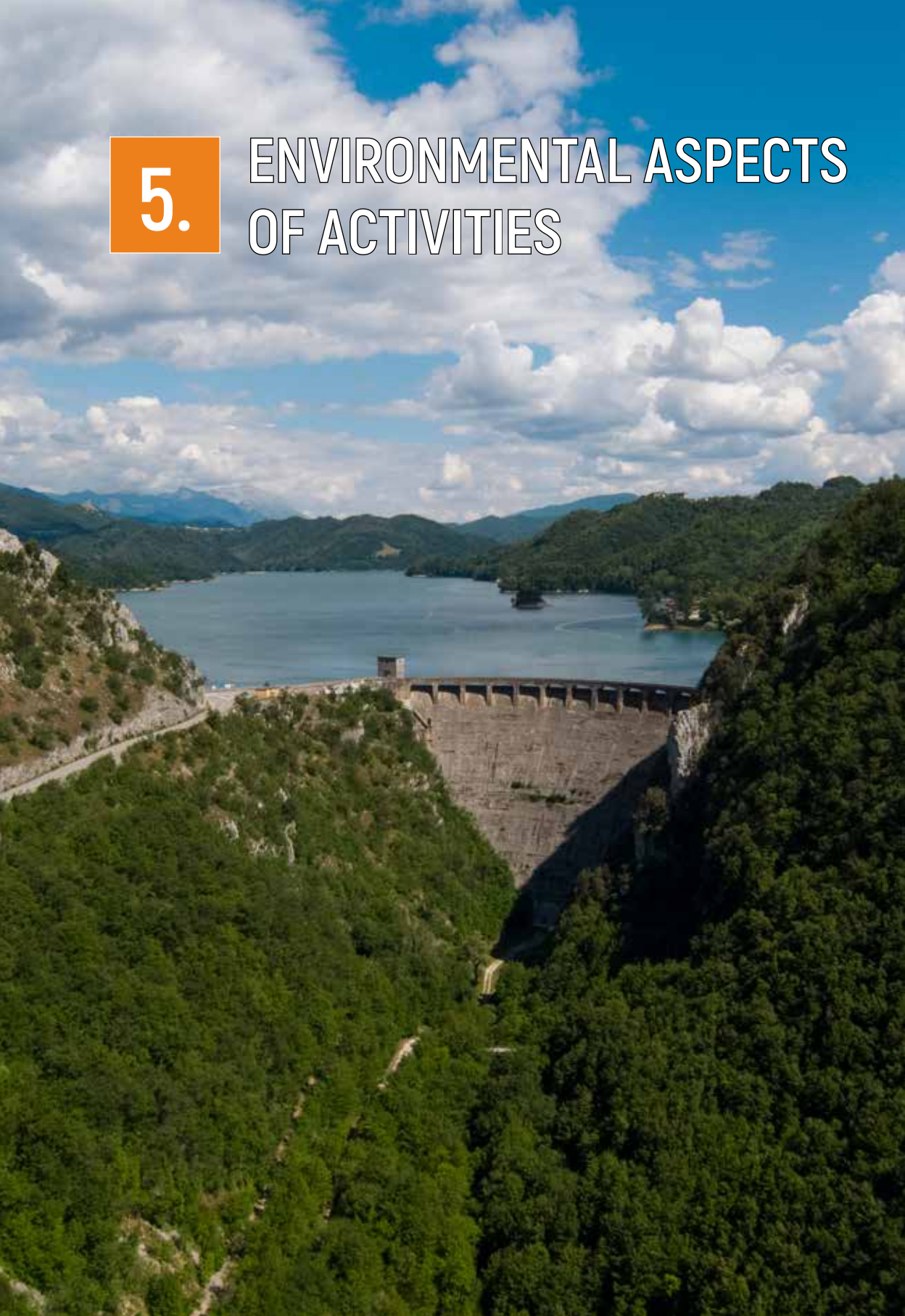
Performed according to the HAZOP (HAZard and OPerability analysis) method, the analysis examined four types of risk: safety, environmental, economic and reputational. The results of the analysis highlighted that the conservation state of the works and pipes and the functionality of priority components for the safe management of the plants do not present any critical issues; in any case, areas for improvement in the mid to long-term were identified and will be managed on the basis of a multi-year improvement plan.

4.5. MONITORING OF MAJOR DAMS

The structural monitoring of the "major dams" is entrusted to a team of engineers which periodically measures the horizontal and vertical movements of the dam, its rotations, deformations, etc.
Various measures were taken in 2018:

- creation of a new drainage curtain for the Turano dam, with a view to minimising the subpressure values along the foundation. The construction of the new curtain entailed drilling about 2,200 metres of drainage pipes inside the body of the dam and about 800 metres of drainage pipes along the foundation. At the same time, we installed 10 piezometers to monitor the subpressures and extracted 100 samples of concrete for the mechanical tests on the material used to build the dam (compressive and tensile strength, specific weight, permeability and ultrasonic pulse velocity).
- seismic improvement works on the flume of Scheggino, part of the complex infrastructure for conveying water from the middle section of the Nera to Lake Piediluco. The seismic improvement works entailed wrapping the horizontal cross beams of the piers and the rectangular section of the piping with synthetic materials made of carbon fibre and epoxy resins. In addition, to limit longitudinal movement, two pairs of "seismic dissipation plates" were installed in the support of the structure of the flume with lateral abutments.

5. ENVIRONMENTAL ASPECTS OF ACTIVITIES



5. ENVIRONMENTAL ASPECTS OF ACTIVITIES

In accordance with the new ISO 14001:2015 standard, an environmental analysis has been planned which takes account of:

- the knowledge and understanding of the context (internal and external factors that can positively or negatively impact on the company) and relevant stakeholders;
- the requests/expectations of stakeholders, to be regarded as "compliance obligations";
- the identification and evaluation of risks and opportunities, correlated with contextual factors and the identified compliance obligations, not just for the environment (an issue already addressed with the evaluation of environmental aspects) but also for society.

The Environmental Aspect Assessment at ERG Hydro is performed with the help of an electronic device that permits the reasoned identification of those elements of the organisation's activities that can interact with the environment throughout their entire expected life cycle. All of the phases of this cycle which can be monitored or on which the company can exert its influence are analysed. Aspects regarded as "significant" in terms of gravity, management and control are periodically re-examined in order to verify their evolution. "Significance" is defined on the basis of two important evaluation parameters: the gravity of the aspect and the degree to which it has been managed. The combination of these factors makes it possible to establish the level of significance of every single aspect and from this the severity of the connected impact. Environmental significance has been ordered from L1 to L5 where L1 indicates that maximum attention is required and L5 indicates an aspect of minimal importance.

The significant aspects of the Hydroelectric Complex of Terni are all at level L3.

For every aspect analysis, verification, development and improvement actions are performed to reduce the impact of the specific activities that generate the aspect.

Downstream from the periodic updates of the environmental aspect assessment, the "Register of Significant Environmental Aspects" is updated for hydroelectric energy production activities.

As part of the project to unify the Group's procedural framework, with the aim of defining common principles at company level while respecting the specific characteristics of the four different technologies (wind, hydroelectric, solar and thermoelectric) a set of Guidelines on general criteria for the Environmental Aspect Assessment was recently issued for the entire ERG Group, including ERG Hydro.

5.1. DIRECT ENVIRONMENTAL ASPECTS

5.1.1. MANAGEMENT OF THE TERRITORY AND BIODIVERSITY

MODIFICATION OF THE HYDROLOGICAL REGIME OF THE WATERCOURSE

SIGNIFICANT

The generation of hydroelectric power necessarily results in changes to the hydrological regime of a watercourse. For this reason, this aspect is deemed significant. In particular, a barrier, whether a dam or lock, creates a discontinuity in the river's ecosystem with obvious effects on the riverbed downstream. These effects can in any event be mitigated by releasing water downstream of each barrier to maintain the health of the riverbed and for irrigation purposes, as per the provisions of the "Concession Declaration" for each diversion. Furthermore, for all diversions, the amount of water released has increased over the years; for the first time, via Laws no. 183 of 18 May 1989, no. 36 of 5 January 1994 (better known as the Galli Law) and Leg. Decree no. 152 of 2006, the "Minimum Vital Outflow" has been introduced in order to establish the minimum water flow needed to ensure the preservation of the river ecosystem of each watercourse.

Over time, the company has instilled a fruitful dialogue with the Authorities responsible for the environmental management of water bodies, with particular reference to the updates of the Regional Water Protection Plans (PTA).

All three regions in which the ERG Hydro plants are located have recently updated their PTA. So far the updates have not led to modifications in the management of releases downstream from barriers even if the new PTA of the Umbria region has introduced some changes.

In fact, the concept of "Ecological Flow" (EF) has been introduced in the place of "Minimum Vital Outflow" and the criteria for identifying flows to guarantee in water bodies have been established in a more appropriate way. In short, on the basis of the "Ecological status" of each water body (river section) considered, different actions are defined with the aim of identifying the best "EF" for the ecosystem also through the adoption of 1 to 3-year "Trial protocols" which will be implemented with the direct involvement of the Licensees.

In its constant dialogue with the Authorities, ERG Hydro has shown that, together with its staff, it is ready to collaborate in the study of protocols.

MODIFICATION OF THE NATURAL PROPERTIES OF THE RIVERBED

SIGNIFICANT

By reducing the quantity of water that flows into the riverbed downstream, the amount of natural matter transported is also reduced. This comprises both materials in suspension and dissolved compounds, materials that are generally rich in nourishing organic substances which are therefore

taken out of rivers, modifying the equilibrium of the ecosystem with particular regard to the flora and fauna in the watercourse. By interrupting the upstream to downstream continuity, the barriers limit the free movement of fish species along the river. To mitigate this aspect, we periodically repopulate watercourses through the annual release of certain quantities of various species into the water bodies.

MODIFYING THE TRANSPORTATION OF SOLIDS ALONG THE RIVERBED

SIGNIFICANT

The barriers may block some of the solid material transported by the water flow near its structure. Over the years this may cause a decrease in the service volume of the water body and a lack of sediment in the downstream water flow as well as at the mouth of the river. For ERG Hydro's plants, the problem of alluviation is significant in the following cases: the Ratto basin in the torrent of the same name, the basins of Aia and Alviano on the Aia torrent and River Tiber respectively.

"Management projects" have been developed for large water bodies, pursuant to current regulations. These include a detailed study of the morphological and hydrological characteristics of the rainwater catchment basin, of the volume, of the quantity and physical-chemical and biological quality of the sediments, of the quality of the captured water and the water in the blocked watercourse. With the help of this information and the benefit of experience in such operations, the operating methods to adopt for the removal of silt from basins and/or sediment together with its disposal/recovery were identified.

All Management plans for large water bodies (Corbara, Alviano, Aia, La Morica, Marmore, Turano, Salto) have been presented to the competent Regions.

MODIFICATION OF THE AQUIFER

NOT SIGNIFICANT

The reduction in the flow rate of the river downstream from each barrier, in the event the riverbed is adjacent to the underground aquifer, could have consequences on the recharging of the aquifer on intermediate stretches of the river, in terms of withdrawal and replenishment. ERG Hydro uses river water in the production cycle. This water is captured by water bodies or directly by watercourses, conveyed to the turbine and released on the riverbed. In this cycle the natural resource is filtered through the grilles installed on the intake structures. This process removes all solid material transported by the current from the water (wood, plants, leaves, plastic, solid urban waste, soil, etc.) thus preventing the production machine from being damaged. However, the physical and chemical properties of the water are not altered and this is why hydroelectric power is regarded as a renewable energy source.

MANAGEMENT OF THE RESERVOIRS DURING OVERFLOWS

SIGNIFICANT

In a water catchment area, a natural lake is a fundamental element for the detention of overflows because it acts like a collection basin during overflow periods and a recharge basin during dry periods. This allows all water bodies to have relatively regular water flows in all periods of the year. The presence of an artificial barrier can cause a choke point in the natural flow of the water in the downstream riverbed, as well as a change in the water flow. Good hydroelectric management makes it possible to suitably regulate the water flow. During periods of overflow the water bodies ensure that the water flow released downstream of the barriers is always inferior - or at most equal - to that arriving at the reservoirs themselves. In order to manage overflow events specific procedures are applied which take account of the provisions agreed with the Water Authority and the Civil Defence agency. In the event of significant weather events, as well as the remote control of plants and hydraulic facilities carried out by the PT of Terni, the closer monitoring of dams by specialist technical personnel is guaranteed; in any case, the security staff present at the dam at all times is professionally qualified and authorized to apply the specific procedures established for overflow events.

STABILITY OF BANKS

SIGNIFICANT

Before and during the design of a hydraulic infrastructure a geological study is carried out to assess the stability of the soil and slopes on which the works are built in order to avoid any instability issues before they arise. As regards the water bodies, with the exception of particular situations connected with the geology of the local area, generally speaking the variation of the water level does not result in the instability of the banks. In some cases, in areas of the lake subject to periodic fluctuations in water level there may be situations that require monitoring depending on the type of material that emerges. Incidences of erosion or instability have been identified along the banks of water bodies whose causes are not always connected with hydroelectric activities but with problems related to the distribution of surface water, particularly at times of heavy rainfall. Helped by technical experts from the company's engineering department, ERG Hydro periodically controls all hydraulic works to verify the stability of the areas, banks and surrounding slopes. Where necessary it designs and develops protection structures, adopting traditional solutions (breakwaters consisting of large boulders or gabions) or soil bioengineering solutions.

BIODIVERSITY

NOT SIGNIFICANT

With regard to the effects on biodiversity the key indicator established by the EMAS Regulation is not calculated because it is not viewed as significant.

5.1.2. USE OF FUELS AND ENERGY

NOT SIGNIFICANT

The use of fuels is limited to the diesel required to heat the rooms used by staff and to power the emergency generators during periodic tests or in the event of network outages.

As well as lighting offices and buildings, the electricity consumed is required to fuel the pumping station of Borgo Cerreto and the ancillary services (S.A.) of the plants and hydraulic works (energy for S.A.). In particular, the production groups absorb energy for their services: energy from external sources during the start-up phase; self-generated energy once the machine is regularly online. The consumption of electricity is therefore largely related to the functioning of the plants.

The diesel and energy trends outlined in the graphic below show that diesel procurement trends in 2018 were in line with those of 2016 (the increase in diesel purchases in 2018 stems from the replenishment of reserves).

The fall in energy consumption in 2017 was consistent with the trend regarding electricity production. Hydraulic conditions were good in 2018 and this led to increased electricity production compared with the previous year and greater consumption of ancillary services.

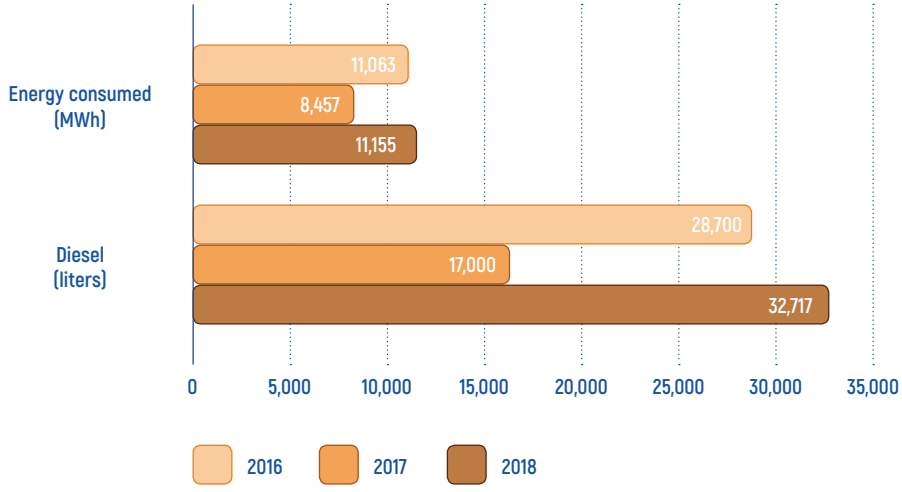


Fig. 7 - Fuels and energy

Energy efficiency

An energy audit is a systematic, documented and periodic assessment of energy consumption aimed at identifying potential energy efficiency improvement measures. In the second half of 2015, according to the forecasts of the EC Directive on energy efficiency, heavy energy intensive companies and Large Businesses (like the ERG Group) performed an energy diagnosis according to the best practices of reference.

Some of ERG Hydro's more energy-intensive plants fell within the sample of plants for which the audit and energy diagnosis was carried out. As established by the regulation, these audits, based on the management of the plants in 2014, were valid for the 4 subsequent years, i.e. through until 2019.

An energy inventory (energy patterns) was created by cataloguing and analytically quantifying the uses of energy, the main equipment and its operating characteristics (load factors, hours of operation, utilisation factors). The consumption of the individual energy carriers (electricity and fuels) was divided among the different corporate areas and departments in order to identify the biggest energy consumers as well as those that only consume marginal amounts. After this, appropriate energy models were constructed to indicate the power drawn by the main equipment/machinery, the hours of operation, the load factors etc. with the aim of determining the most appropriate usage conditions.

The "operational" energy performance indexes (called IPS), calculated for individual departments/functional areas, and the actual energy performance indexes (called IPG), calculated on the basis of purchase invoices and taking into account the general use of the site, were compared with objective indexes (market benchmarks) and found to be comparable. In fact, the specific electricity consumption indexes were found to be insignificant in terms of electricity production (kWhe/kWh) and in line with average market benchmarks.

The permanent monitoring plan (established by reference authority ENEA), required for the ongoing control of significant company data as well as to acquire useful information for the management process and give the right energy profile to the specific product developed, was also fine-tuned. It was verified that the ERG Hydro plants already monitor all useful consumer data for the diagnosis using appropriate measurement tools. The company also drafts a detailed monthly energy report which will also be used in the next updates of the diagnosis as well as for all verifications and communications to the competent Authorities.

As four years have passed since the previous study, a new Energy Diagnosis is currently being prepared and must be finished by 5 December 2019.

5.1.3. USE OF NATURAL RESOURCES: WATER PROCUREMENT AND DIVERSION

NOT SIGNIFICANT

The consumption of water resources is negligible and is due to withdrawals from the water system for regular hygienic and human use; in fact, even though hydroelectric power generation involves withdrawing water to power the production groups, this water is later restored to the water bodies downstream of the plant in full and with the same chemical and physical characteristics.

The water diverted from lakes and rivers is the "engine fluid" required to produce electricity. The quantity diverted is calculated indirectly using an algorithm that combines electricity production with the so-called "energy coefficient".

The energy coefficient of a hydroelectric diversion, expressed in kWh/m^3, represents the gross electricity produced by a volume unit of water in average operating conditions. It is essentially connected with the hydraulic drop of the diversion and the performance of the plant.

The following figure indicates the overall quantity of water diverted into the plants of the Complex. Variations are due to the changes in the hydrological regime over the years. The reduction registered in 2017 is due to the recorded decrease in hydraulic availability. Conversely, a substantial increase was recorded in 2018.

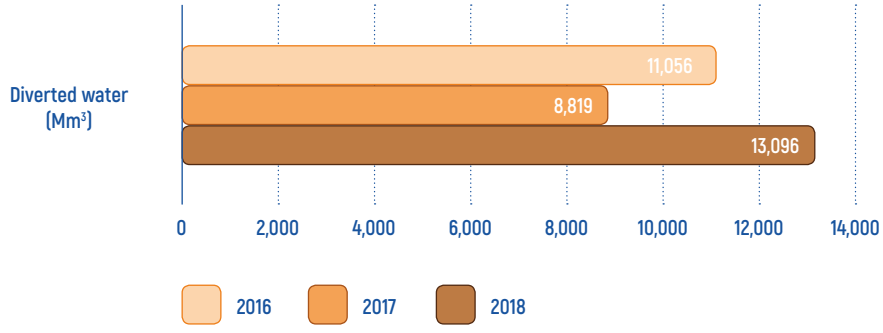


Fig. 8 - Overall quantity of diverted water

5.1.4. CONSUMPTION AND USE OF RAW MATERIALS

NOT SIGNIFICANT

This aspect is not significant as, apart from the river water diverted to power the plants, which in any case is restored to the riverbed as mentioned in the previous point, the hydroelectric production process does not involve the use of significant quantities of other materials. In addition to diesel, other consumer materials are used, such as lubricating oils, graphite-based brushes, water-based solvents for the cleaning of mechanical components etc. The relative quantities are very limited and therefore practically irrelevant in terms of the impact their consumption might have on the environment.

5.1.5. ATMOSPHERIC EMISSIONS

The energy generated by a hydro power plant does not produce atmospheric emissions. The only emissions regard any eventual leaks of fluorinated gases which are important as they contribute to the greenhouse effect.

SULPHUR HEXAFLUORIDE (SF_6)

SIGNIFICANT

Sulphur hexafluoride (SF_6) is an insulation gas used in some kinds of electric switchgear to guarantee their safe functioning. There is currently no reasonable alternative as a replacement.
The quantity currently installed is 1,141 kg. Any fugitive gas emissions from this apparatus or leaks are kept under close control using suitable instruments.

HYDROFLUOROCARBONS HFCs

NOT SIGNIFICANT

These substances are used as refrigerants in air conditioning units for offices and telecommunication equipment rooms.
The total quantity installed in apparatus present at the Complex is currently 189 kg, around 10 kg up compared with 2017 due to the replacement of some split air conditioning units and the installation of other units in the changing rooms. All circuits containing these gases are subject to periodic controls and maintenance and the gas is recovered during maintenance activities. No HFC leaks were recorded in 2018.

5.1.6. WATER DISCHARGES

NOT SIGNIFICANT

This environmental aspect is not significant as the only discharges at the Terni Hydroelectric Complex relate to domestic wastewater. The 25 service facilities, including dams, guardhouses and offices, all have bathrooms; 4 of these are connected to the public sewers, 9 have regularly authorised soil dispersion systems and 2 are authorised to discharge in surface water bodies. The rest has watertight tanks. With the exception of the Management and the Operating Department offices in Galleto, both connected to the public sewers, all facilities are either occupied by a modest number of staff or not constantly supervised.

5.1.7. ENVIRONMENTAL MATRIX CONTAMINATIONS

DISCHARGE OF POLLUTANT SUBSTANCES INTO WATER BODIES

SIGNIFICANT

Hydroelectric operations involve the withdrawal and restoration of water to the riverbed downstream. For several years ERG Hydro has monitored its systems and taken measures to prevent any contamination of the waters it releases back into the water system, focusing particular attention on accidental leaks of hydraulic oil and lubricants. More specifically, all major production plants have drainage tanks for the collection of natural drainage and water used to cool machinery, which is subsequently conveyed to the receiving water bodies. Appropriate tank emptying systems with controlled sump pumps prevent any traces of lubricants or hydraulic oil that flow into the tanks from being discharged in the receiving water body downstream.

Among the improvement measures implemented, various projects have been carried out for the installation of sensors in the drainage tanks that are able to detect even minimal quantities of oil present. For the biggest plants, oil removal systems have been fitted where technically possible to further reduce the risk of oil discharges.

In the event that oil is detected in the tanks, personnel are trained to take all possible measures to remove the pollutant substance and prevent it from contaminating water bodies.

CONTAMINATION OF THE SOIL AND SUBSOIL WITH HAZARDOUS SUBSTANCES

SIGNIFICANT

At ERG Hydro there are 17 underground diesel tanks (9 of which with concrete bund) for use with the emergency generators. There are also 5 underground diesel tanks to power the heating systems of the buildings. The soil can be contaminated as a result of a number of accidental events: leaks of diesel from the underground tanks used to power the emergency generators and heating systems, leaks of oil in storage points or from power transformers installed outside. For the tanks installed in concrete bunds, periodic visual inspections are carried out directly by staff. For underground tanks without concrete bunds, specialist companies are brought in to periodically check their seals. They do this by emitting air into the tanks at a pressure of 1 atm for an hour after having emptied them and inspected them internally. All power transformers installed outside are equipped with concrete tanks positioned underneath to collect any accidental oil leaks. Normally empty, these tanks are also subject to periodic controls.

5.1.8. WASTE

SIGNIFICANT

The following graphics provide an overview of waste production trends in the last 3 years differentiating between hazardous and non-hazardous waste and waste produced by ERG Hydro and waste produced by external parties, i.e. deriving from extraordinary activities commissioned to third parties classified as producers.

An analysis of the non-hazardous waste produced by ERG Hydro shows how in the 3-year period 2016-2018 the overall quantity generated remained largely constant.

The majority of this waste derives from the debris left on the grilles positioned at the entrance to each diversion channel through the constant use of screen machines ("filter waste") during river cleaning activities, and the cleaning of the banks of the Corbara reservoir. This waste is transported by the water courses and mainly consists of plant materials, occasionally solid urban waste, and other river materials.

In recent years, agreements with the company that performs the waste management service have made it possible to recover all "filter waste" rather than dispose of it.

It is important to point out that every year ERG Hydro cleans the banks of Lake Corbara, appointing a specialist company to oversee the separate waste collection, transportation and delivery to recovery plants of wood (EWC 20 01 38), plastic (EWC 20 01 39) and metal (20 01 40) materials. Non-separated waste (EWC 20 03 01) is taken to an authorised landfill.

As for non-hazardous waste produced by third parties, the increase registered in 2018 is connected with the anti-earthquake measures taken on the Scheggino flume, the creation of drainage pipes at Turano dam, the redevelopment work at the remote operation room and other minor activities.

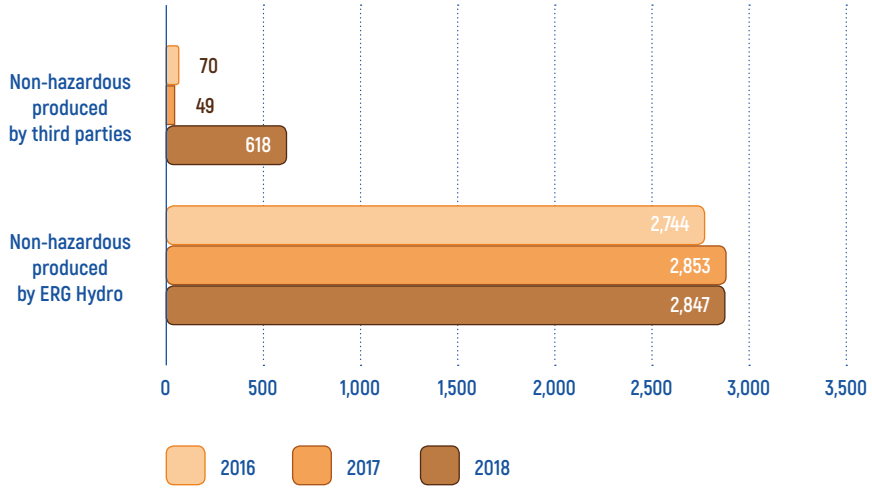


Fig. 9 - Production of non-hazardous waste from ordinary and extraordinary operations (t)

As regards hazardous waste, the amount produced in 2018 by ERG Hydro is in line with the quantity generated the previous year. The main type of hazardous waste is oil, deriving from both lubrication and hydraulic circuits, which is sent to recovery plants authorised according to current regulations. The increase recorded in 2017 and 2018 compared with 2016 is mainly due to the various maintenance activities performed (replacement of oil in the bearings of turbines, locks and valves).

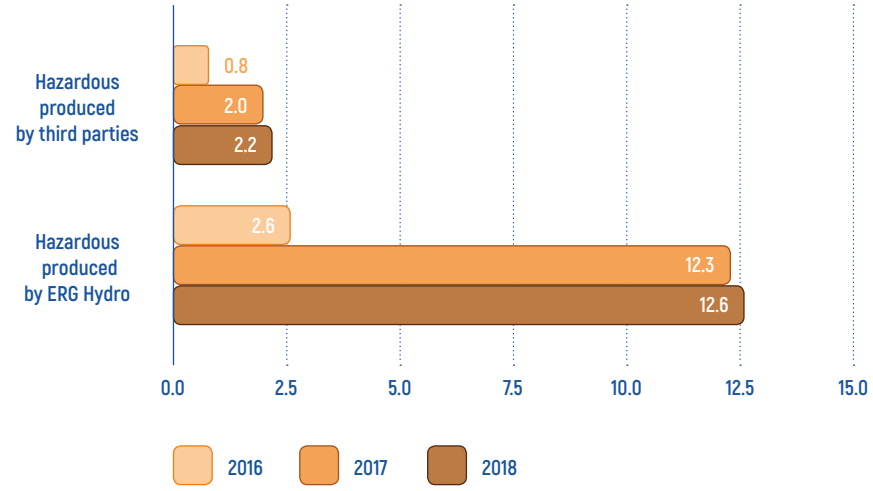


Fig. 10 - Production of hazardous waste from ordinary and extraordinary operations (t)

The percentage of recovered waste continues to grow, reaching 99.4% of all waste produced in 2018 and confirming the organisation's commitment to prioritising the recovery/recycling of waste as opposed to its disposal in landfills.

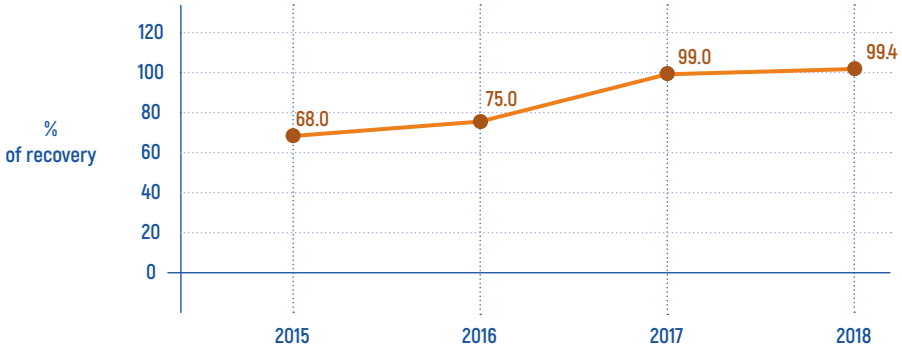


Fig. 11 - Total recovered waste

Below is a summary of the main types of non-hazardous and hazardous waste produced in 2018. For more details, see tables 6 and 7 in the appendix.

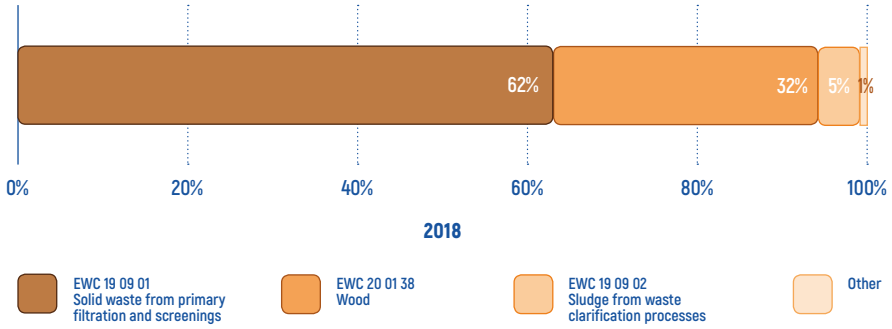


Fig. 12 - Types of non-hazardous waste produced in 2018

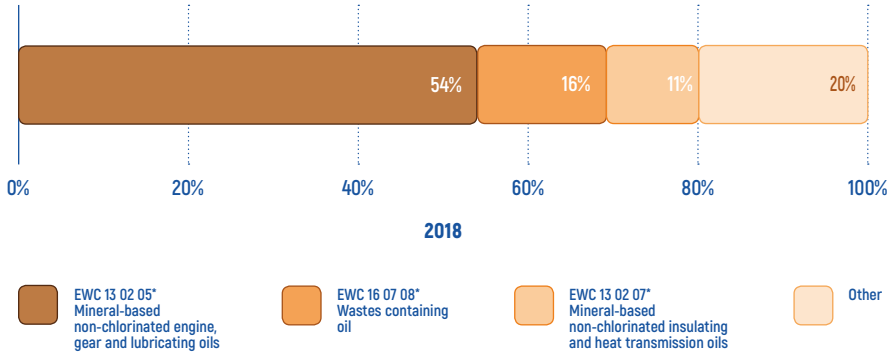


Fig. 13 - Types of hazardous waste produced in 2018

5.1.9. EXTERNAL NOISE

SIGNIFICANT

The main sources of noise in hydroelectric plants are the electromechanical machines (turbines, pumps, generators) and the air cooling systems of the transformers and generators. As for noise inside the plants, sounds levels in the work environment are periodically monitored to ensure compliance with workplace safety regulations; to this end, noise maps have been created and put up on the walls of the workspaces.

As for noise outside the plants, in 2018 the Complex launched a new measurement campaign at all plants on the edge of the facility and in the buffer zones of the property to monitor compliance with current noise pollution legislation. At the same time, the municipalities monitor the land use plans to keep tabs on any eventual changes in noise immission and emission levels. In particular, the "Acoustic zoning" plan was approved for the municipality of Narni (TR) in 2018 while the municipality of Cittaducale (RI) is waiting for final approval of the plan.

The aforementioned measurement campaign ended in early 2019 and confirmed the complete compliance with the legal limits.

5.1.10. ELECTROMAGNETIC FIELDS

SIGNIFICANT

The presence of medium and high-voltage stations and lines generates electric and magnetic fields at the industrial frequency of 50 Hz (significant aspect). The area affected by these fields is limited to the immediate vicinity of station equipment, well away from residential areas, and electricity lines connected to the national grid. The measurements taken close to medium and high-voltage electrical apparatus produce values well below the limits imposed by the Prime Minister's Decree of 8 July 2003.

The most recent measurement campaign, carried out at different plants throughout 2018, confirms that the values are below these limits.

All of the Complex's biggest production plants have "annexed" power stations, with voltage levels of no higher than 150 kV, which convey the electricity produced from the central conduit to the national transmission grid owned by Terna S.p.A., which is responsible for aspects pertaining to the electromagnetic fields created by the lines leaving the stations.

5.1.11. LANDSCAPE IMPACT

SIGNIFICANT

Most of the plants and respective waterworks date to the beginning of last century and for this reason are historically integrated in the landscape (significant aspect). Some works are also of interest in terms of their period industrial architecture. There are many photographs preserved as documentation of their addition to the landscape. When designing and implementing large operations on the water and civil works connected with new investments or, more simply, unscheduled maintenance, the natural context must be taken into consideration, minimising the impact that said operations may have on the landscape as far as possible.

5.1.12. ASBESTOS

NOT SIGNIFICANT

At Terni Hydroelectric Complex there are sheets for cable trays and tubes that contain asbestos. These types of installations are periodically monitored. Below is a survey of the products containing asbestos and the corresponding quantities:

Table 2 - Survey of Products Containing Asbestos

Plant	Type of installation	2016 (kg)	2017 (kg)	2018 (kg)
Galleto plant	Sheets cable tray tunnels	1,200	1,200	1,200
Galleto plant	Corrugated sheets 220 kV cable tunnels	2,400	2,400	2,400
Altolina plant	Panels for cable trays	300	300	300
Baschi plant	Drainage water pipes	3,000	3,000	0
Turano dam	Circular pipes d. 65 mm	2,969	2,969	2,969
Turano dam	Dam drainage water collection pipes	7,080	5,560	5,560[1]

1 Asbestos confined

In 2017 action was taken to remove asbestos from the drainage water collection pipes of the Turano dam with a total of 1,520 kg of materials containing asbestos (MCA) removed. Residual quantities amounted to an estimated 5,560 kg (see table 2). This residual quantity of MCA pipes was subject to a final confinement process and as such will not undergo removal.

In 2018 all materials containing asbestos were completely removed from the Baschi plant, a quantity initially overestimated at 3,000 kg. The removal process subsequently revealed the following actual quantities of asbestos present: 1,900 kg of pipes in MCA and 1,400 kg iron pipes and accessories.
In addition, a total of 144 kg of MCA roofs were identified and disposed of at the Alviano plant.
The Environmental Programme includes a plan for removing products containing asbestos which will lead to a gradual reduction of around 70% in the total quantity installed by 2019.

5.2. INDIRECT ENVIRONMENTAL ASPECTS

Indirect environmental aspects are those aspects over which the organisation does not have complete management control. In other words, an aspect can be defined as indirect when at least one other external party is involved in the management of an activity and plays an active role in the interaction process between the organisation and the environment.

Generally, indirect environmental aspects can affect:

- product issues (design, development, transport, use and recovery/waste disposal);
- investments, loans and insurance services;
- new markets;
- choice and composition of services (e.g. transport and catering);
- administrative and planning decisions;
- product ranges;
- the environmental behaviour and budgets of contractors, sub-contractors and suppliers.

5.2.1. MANAGEMENT OF EXTERNAL BUSINESSES

The environmental practices and performances of contractors, sub-contractors and suppliers can produce indirect environmental aspects. When identifying its suppliers and external collaborators ERG Hydro seeks partners that share its corporate values, informing them about its code of conduct via the HSE Specifications attached to contracts and asking them to sign the ERG Group's Code of Ethics, Organisation and Management Model pursuant to Italian Legislative Decree no. 231/01, and Anti-Corruption Policy.

ERG Hydro verifies that service providers in its plants operate with respect for the environment, in accordance with current legislation in force and the regulations indicated. The selection, monitoring and management of the relationship with suppliers, in all its aspects, is becoming more and more important within the ERG Group, which regards it as a key success factor. These processes, in line with the evolution of the business and industry best practices, are updated in order to reflect the Group's set of values as well as the most recent regulations, especially those regarding the implementation of ERG's Model 231.

The selection of suppliers is based on an accurate assessment, classification and monitoring process, according to objective criteria with regard to their technical abilities and reliability. This activity is regulated by a procedure that uses online supplier management portals, allowing a complete analysis of the technical, economic-financial, legal and qualitative profile of the potential partner. In 2018, a work group was set up to review the qualification questionnaire, diversified according to individual product category, and to introduce a new IT tool which improves the integration of the supplier assessment information in the company's processes.

ERG Hydro is also committed to constantly monitoring also activities in the field through the assessment of objective indicators in the environment and safety area, verifying compliance with regulations and procedures. This additional element helps form a more accurate assessment of the partner, not only making it possible to identify and correct any critical issues but also to reward their level of excellence in terms of both service and, for example, financial soundness. The repeated failure to operate within the established parameters may lead to penalties for the supplier, the termination of their contract and, in more serious cases, their removal from the Vendor List.

Like all ERG Group companies, ERG Hydro pays close attention to local suppliers who, while meeting the same technical and quality requirements, can give further impetus to the local economy of their areas once selected.

With the aim of continuously improving the management of activities performed by third parties, a process of sharing and assessment with contractors has been introduced in recent years. Meetings have been organised with representatives of the businesses to share the ERG HSE approach. A presentation outlining the specific risks of the Hydroelectric Complex's plants was put together and supplemented with a video used as an HSE induction tool for contractors.

The project to introduce access control badges for contracting companies with the aim of controlling and regulating the flow of personnel in both regular and emergency conditions has also continued. The first step of this project was concluded in March 2019.

5.2.2. MOBILITY AND TRANSPORT

For plant operation and maintenance activities the Complex uses a fleet consisting of cars and vans (not a significant aspect). The maintenance of these vehicles is an integral part of a lease contract. The related environmental aspects are for the most part indirect.

5.2.3. EMERGENCY MANAGEMENT

For the management of emergencies (significant aspect), ERG Hydro has adopted specific "emergency plans" which outline critical situations in relation to significant environmental aspects. In particular, the following events have been considered:

- fire;
- flooding;
- earthquake;
- leaking of substances on land and/or in water.

6. ENVIRONMENTAL OBJECTIVES AND GOALS

6. ENVIRONMENTAL OBJECTIVES AND GOALS

6.1. ENVIRONMENTAL PROGRAMME - 3-YEAR PERIOD 2017-2019

The adoption of an ISO 14001:2015 certified Environmental Management System requires the organisation to pursue objectives focused on the increasing protection of the environment - in line with the Health, Safety and Environment Policy - when carrying out its mission.
ERG Hydro has therefore established its objectives and goals for the 3-year period 2017-2019 which are inspired by the action areas established by the Management on the basis of the company Policy and the analysis of significant environment aspects. Below is an update of the programme for 2018.

Environmental aspect	Goal	Activities	Responsibility	Deadline	Resources (k€)	Action Area	2017 Update	2018 Update
Discharge of pollutant substances into water bodies	Continuous monitoring of the eventual presence of oil in drainage water	Study and design of an oil detection system and creation of inspection pits before return to the watercourses	Maintenance	31/12/2017	20	Galleto plant	Presentation of study in December 2017	Partial construction of system for monitoring oil in drainage water, concluding phase
		Development and start-up of system		30/06/2018			Ongoing	
Discharge of pollutant substances into water bodies	Reducing the risk of contaminating water bodies	Study of the feasibility and installation of a hydraulic system with biodegradable oil	Engineering & Construction	31/12/2017	100	Salto dam (Salto Turano tunnel)	Presentation of study and installation in December 2017	System installed with bio oil for valve at Salto - Turano tunnel, Turano side (see paragraph 3.5)
		Study of the feasibility and installation of a hydraulic system with biodegradable oil	Engineering & Construction	31/12/2018 (see note 5)	100	Turano dam (Salto Turano tunnel)	Ongoing	
Discharge of pollutant substances into water bodies	Reducing the risk of contaminating water bodies (propensity towards using more environmentally compatible products)	Replacement of three MV/LV oil-immersed transformers of the plant's ancillary services with equivalent resin machines	Engineering & Construction	30/06/2018	60	Nera Montoro	Ongoing	Oil-immersed transformers currently being replaced with resin transformers in Nera Montoro (see paragraph 3.5)

Environmental aspect	Goal	Activities	Responsibility	Deadline	Resources (k€)	Action Area	2017 Update	2018 Update
Waste	Separate waste collection of materials on the banks of Lake Corbara	Evaluation of the possibility of treating separated wood as "non-waste", eventually processing it onsite.	Resp UP	31/12/2017	500 (total over 3 years)	Corbara dam	In April 2018, an application was submitted to the region	Decision of the Regional Council of Umbria no. 1463 concerning the "Guidelines for the management of vegetable residues deriving from the maintenance of green areas and the woody material deposited along the banks of water bodies and watercourses" approved and published on 27/12/2018 in Ordinary Supplement no. 5 to the Official Bulletin - General Series - no. 67 (see paragraph 4.3)
		Systematic cleaning of the lake's banks with sorting of collected materials, recovery of wood and disposal of MSW – 2017.	Maintenance Operation	31/12/2017		Corbara dam	Banks of the lake cleaned	Banks of the lake cleaned
		Systematic cleaning of the lake's banks with sorting of collected materials, recovery of wood and disposal of MSW – 2018.	Maintenance Operation	31/12/2018		Corbara dam	–	-
		Systematic cleaning of the lake's banks with sorting of collected materials, recovery of wood and disposal of MSW – 2019.	Maintenance Operation	31/12/2019		Corbara dam	–	
Asbestos	Reduce number of products containing asbestos fibre	Removal of drainage water pipes (3,000 kg)	Maintenance	31/12/2018	20	Baschi	Ongoing	Asbestos removed/confined according to programme (see paragraph 5.1.12)
		Removal of dam tunnel water pipes (7,080 kg)		31/12/2018	40	Turano dam	Partially complete (1,520 kg removed, see table 2 page 45)	
		Removal of cable tray sheets (1,200 kg)		31/12/2019	30	Galleto	–	–
		Removal of cable tray sheets (300 kg)		31/12/2019 (See note 8)	30	Altolina	–	–
Energy and fuel consumption	Improving Energy Efficiency	Energy performance study to optimise electricity and gas consumption	Engineering & Construction	31/12/2017	20	Villa Valle	Complete	
		Development of new photovoltaic plant		31/12/2018	200 (See note 8)		Ongoing	Construction of photovoltaic system rescheduled for 2019 (see paragraph 3.5)

Environmental aspect	Goal	Activities	Responsibility	Deadline	Resources (k€)	Action Area	2017 Update	2018 Update
Green Procurement	Foster the development and awareness of environmental issue management in procurement	Analysis of services and products procured and evaluation of their replacement with "green" equivalents	HSE Procurement Maintenance Operation	30/06/2018	20	All	Ongoing	Study to classify and analyse variations carried out, adoption of Minimum Environmental Criteria valid for public authorities evaluated; issue given prominence in the more general Sustainable Procurement project carried out with Procurement (see paragraph 3.8)
		Definition of minimum environmental criteria to apply in contractor agreements (drafting of guidelines)	Engineering & Construction	31/12/2018			Ongoing	
		Training and raising awareness among the Business Units responsible for managing procurement		31/12/2019			–	
Communi-cation	Spread of the Safety and environment culture	Development of Safety and Environment competition structure	HSE	31/12/2018	10	All	Ongoing	Launch of "2019 Safety and Environment Competition", targeted at all ERG Power Generation sites (see paragraph 3.4)
		Gathering and analysis of reports and organisation of final prize-giving		31/12/2019			–	

Note 5

Increase in the percentage of biodegradable oil installed as a proportion of all lubricant and hydraulic oil: from the current 24% to 25% in 2017 and 26% in 2018. 2017 objective achieved.

Note 6

Programme for reduction of total quantities installed: reduction of 64% in 2018 compared with 2017; reduction of 72% in 2019 compared with 2017.

Note 7

Sum to be reassessed on the basis of the results of the study. Sum adjusted to €150 k in 2017, on the basis of the engineering study; the development of the system was rescheduled for 2019.

7. HSE INDICATORS

7. HSE INDICATORS

The performances of the environmental management system are monitored using a number of indicators:

Relationship between internal consumption and net energy produced

This indicator aims to draw a parallel between the electricity consumption required for the production process and the net energy produced by the process itself. It can be expressed as the relationship between the two values (Consumption/Net energy produced) and the trend of the indicator over time is determined by the evolution of these two aspects.

There are two main sources of energy consumption:

- around 60% of the energy is absorbed by the Borgo Cerreto pumping station which lifts the water of the River Nera and conveys it into the hydraulic system that powers the Galleto plant (Medio Nera canal);
- the other 40% is required to operate the equipment of the plant and the equipment installed at hydraulic works (S.A.).

In general, we can say that the trend of the indicator is influenced far more heavily by the amount of energy produced (and therefore water levels) than by S.A. consumption. In the event of high water levels, the pumps are stopped due to the inability of the Media Nera canal to receive any more water and the water is released into the Nera rather than lifted towards the canal.

Confirmation of this can be seen in the 2018 indicator which is lower than the two previous years due to the increase in annual electricity production.

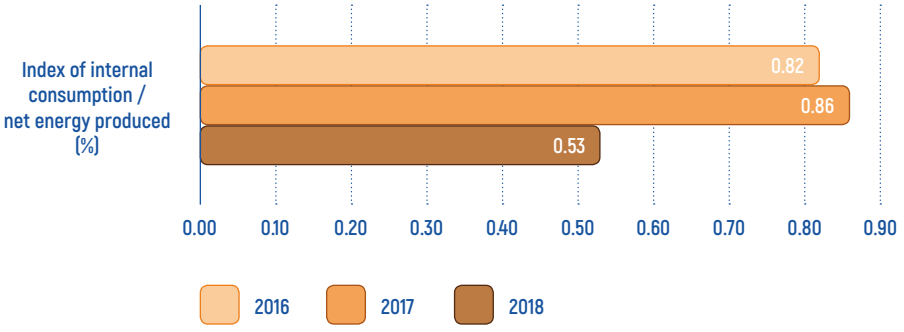


Fig. 14 - Relationship between internal consumption and net energy produced

Hazardous Waste produced compared with net energy

The graphic shows how in 2018 the indicator decreased due to the greater production of electricity in comparison with a generally stable quantity of waste, consisting for the most part of oil from maintenance operations.[2]

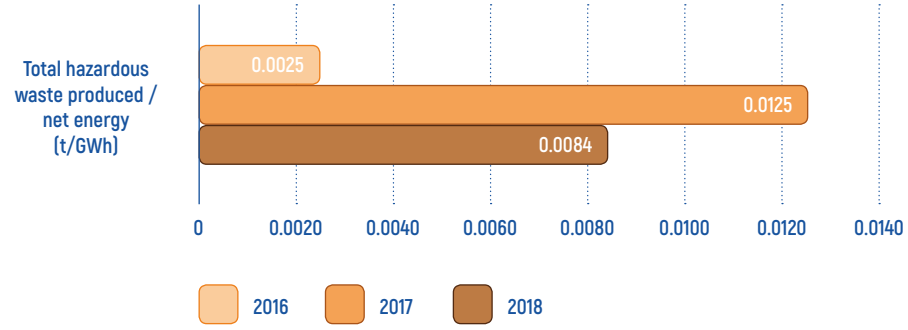


Fig. 15 - Relationship between total hazardous waste produced and net energy

Non-Hazardous Waste produced compared with net energy

As regards non-hazardous waste, in 2018 the indicator is lower than the previous year. This is due to the fact that compared with the increase of around 600 metric tons in the amount of non-hazardous waste produced, largely deriving from investment activities, there was a relatively higher increase in electricity production.

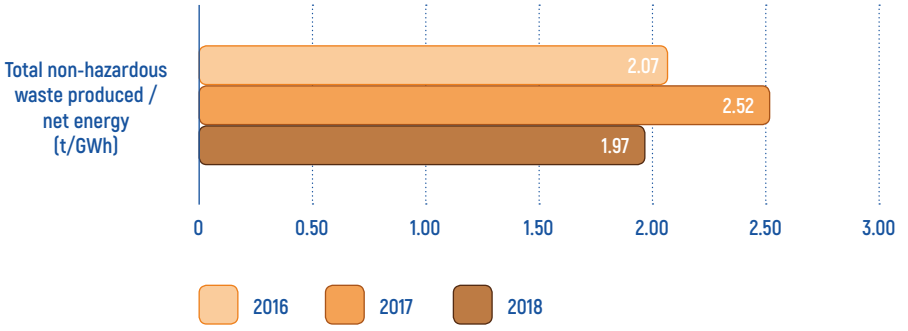


Fig. 16 - Relationship between total non-hazardous waste produced and net energy

2 The 2017 indicator reported in the previous Environmental Declaration has been rectified from 0.004 to 0.013 t/GWh

Greenhouse gas emissions

The relationship between topped-up and installed quantities of SF_6 represents the environmental indicator relative to greenhouse gas emissions in the atmosphere.

Similar to 2017, leaks of 2 kg were recorded also in 2018. The quantity currently held - the amount of installed SF_6 plus spare canisters - comes to 1,141 kg, the quantity installed amounting to approx. 820 kg and the amount of stock to 321 kg.

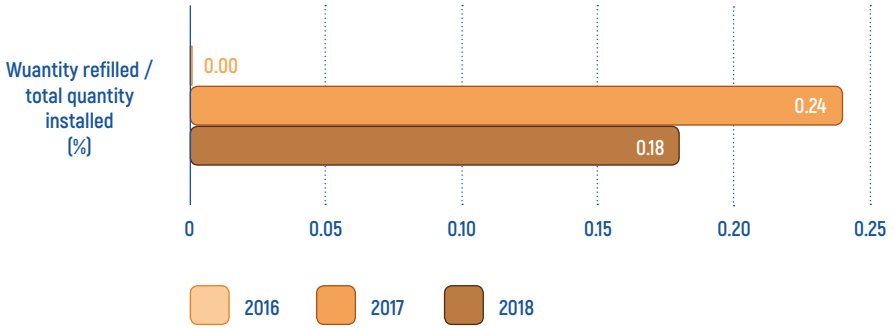


Fig. 17 - Ratio of topped-up SF_6 to installed SF_6

CO_2 emissions avoided

Hydroelectric power plants play a key role in reducing emissions of harmful gases for the atmosphere as hydroelectric power is a zero-emissions energy source. Therefore, considering that for every kWh of energy generated with water the energy produced from fossil fuels is reduced by the same amount, it is easy to evaluate the benefits achieved in terms of the "avoided emissions" of pollutant gases like carbon dioxide (CO_2).

There was an increase in the quantity of CO_2 emissions avoided compared with 2017, even if the specific emission coefficient fell (523 t/GWh in 2018, 552 t/GWh in 2017 and 571 t/GWh in 2016) due to the increase in electricity production.

It should be noted that the reference emission factor is a value published on the Terna website which refers to Italian thermoelectric power plants.

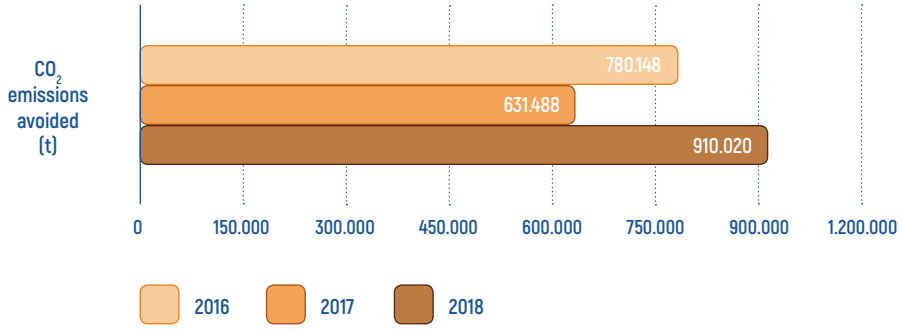


Fig. 18 - CO_2 emissions avoided

Table 3 - HSE Indicators

	Unit of measurement	2016	2017	2018
Electricity				
Gross energy produced	MWh	1,366,283	1,144,298	1,766,675
Energy consumed by transformation losses	MWh	-9,586	-8,457	-11,155
Net energy produced	MWh	1,356,697	1,139,191	1,755,558
Energy consumed by S,A, (Ancillary Services)	MWh	4,361	4,054	4,420
Energy consumed by Borgo Cerreto pumping station	MWh	6,702	5,697	4,808
Internal energy consumption (including pumping) compared with energy generated	%	0.82	0.86	0.53
Water resources				
Withdrawal of surface water	10^6 x m^3	11,056	8,819	13,096
Water for domestic use	m^3	3,822	3,163	3,618
Concession releases	10^6 x m^3	970	1,057	957
Consumables				
Lubricating and hydraulic oils (purchased)	kg	8,500	4,150	5,641
Insulating oils (purchased)	Kg	0	0	0
Diesel purchased	l	28,700	17,000	32,717
Emissions avoided				
CO_2 emissions avoided	t	780,148	631,488	910,020
SO_2 emissions avoided	t	259	–	–
Waste from ordinary and extraordinary operations				
Waste recovery (including waste produced by third parties)	%	75	99	99.4
Hazardous waste				
Hazardous Waste (HW) produced in relation to net energy (NE) produced	t/GWh	0.002	0.013[3]	0.008
Non-Hazardous Waste				
Non-Hazardous Waste (NHW) produced in relation to net energy (NE) produced	t/GWh	2.07	2.52	1.97
Greenhouse gas emissions (SF_6)				
SF_6 topped up in relation to total quantity stocked	%	0	0.24	0.18
Biodiversity				
Use of land	m^2	N.A.	N.A.	N.A.

3 The 2017 indicator reported in the previous Environmental Declaration has been rectified from 0.004 to 0.013 t/GWh

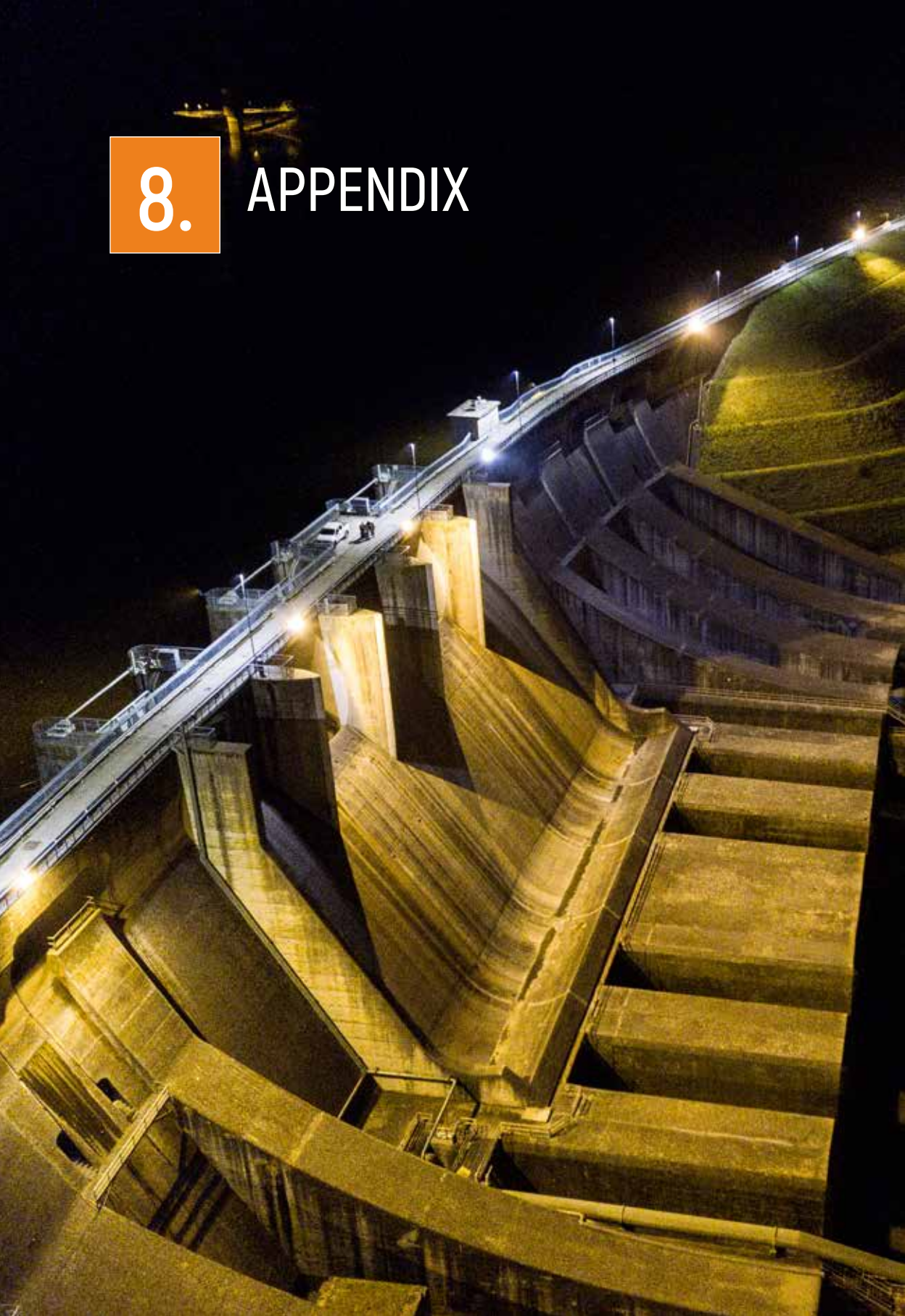
Table 4 - Total waste

		2016	2017	2018
Waste produced during routine ERG Hydro activities				
NON-HAZARDOUS	**kg**	**2,728,060**	**2,825,820**	**2,838,260**
- disposed of at landfills	kg	707,960	21,880	12,160
- recovered	kg	2,020,100	2,803,940	2,826,100
HAZARDOUS	**kg**	**1,280**	**7,870**	**1,290**
- disposed of at landfills	kg	280	850	1,140
- recovered	kg	1,000	7,020	150
Waste produced during non-routine ERG Hydro activities				
NON-HAZARDOUS	**kg**	**16,310**	**27,445**	**8,798**
- disposed of at landfills	kg	50	5,110	350
- recovered	kg	16,260	22,335	8,448
HAZARDOUS	**kg**	**1,300**	**4,400**	**11,270**
- disposed of at landfills	kg	0	0	2,360
- recovered	kg	1,300	4,400	8,910
Waste produced during routine third-party activities				
NON-HAZARDOUS	**kg**	**0**	**0**	**0**
- disposed of at landfills	kg	0	0	0
- recovered	kg	0	0	0
HAZARDOUS	**kg**	**0**	**0**	**0**
- disposed of at landfills	kg	0	0	0
- recovered	kg	0	0	0
Waste produced during non-routine third-party activities				
NON-HAZARDOUS	**kg**	**70,164**	**48,640**	**618,125**
- disposed of at landfills	kg	0	0	0
- recovered	kg	70,164	48,640	618,125
HAZARDOUS	**kg**	**750**	**2,005**	**2,244**
- disposed of at landfills	kg	750	2,005[4]	2,044[5]
- recovered	kg	0	0	200

4 of which 1,520 kg of MCA

5 of which 1,900 kg of MCA at Baschi and 144 kg identified at Alviano

8. APPENDIX



8. APPENDIX

8.1. WASTE

The following tables summarise the types, EWC codes and quantity of the waste produced by ERG Hydro in the last 3-year period.

Table 5 - Non-hazardous waste

Type	EWC	2015 (kg)	2016 (kg)	2017 (kg)	2018 (kg)
Paper and cardboard packaging	15 01 01	60	160	160	1,700
Plastic packaging	15 01 02	25	60	-	220
Wooden packaging	15 01 03	-	600	-	0
Mixed packaging	15 01 06	-	-	250	8,448
Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	15 02 03	-	-	-	350
End-of-life tyres	16 01 03	-	1,350	10	0
Discarded equipment other than those mentioned in 16 02 09 to 16 02 13	16 02 14	-	900	3,560	0
Components removed from discarded equipment other than those mentioned in 16 02 15	16 02 16	-	80	-	0
Glass	16 01 20	-	-	40	0
Inorganic wastes other than those mentioned in 16 03 03	16 03 04	-	-	-	0
Gases in pressure containers other than those mentioned in 16 05 04	16 05 05	-	6,120	-	0
Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	17 01 07	-	-	-	0
Wood	17 02 01	1,710	-	-	0
Plastic	17 02 03	-	-	-	0
Bituminous mixtures other than those mentioned in 17 03 01	17 03 02	-	-	-	0
Iron and steel	17 04 05	9,500	3,840	37,690	0
Cables other than those mentioned in 17 04 10	17 04 11	-	60	75	0
Soil and stones other than those mentioned in 17 05 03	17 05 04	2,660	-	26,810	0
Insulation materials other than those mentioned in 17 06 01 and 17 06 03	17 06 04	-	70	-	0

(follows)

(keep on)

Type	EWC	2015 (kg)	2016 (kg)	2017 (kg)	2018 (kg)
Gypsum-based construction materials other than those mentioned in 17 08 01	17 08 02	-	-	140	0
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	-	1,040	-	0
Solid waste from primary filtration and screenings	19 09 01	1,046,220	1,096,620	1,197390	1,767,260
Sludge from water clarification processes	19 09 02	292,660	82,890	220,140	137,880
Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	20 01 36	-	-	-	0
Wood other than that mentioned in 20 01 37	20 01 38	2,286,589	1,513,200	1,328,100	917,960
Plastic	20 01 39	480	1,720	100	200
Metal	20 01 40	1,700	2,450	940	880
Mixed municipal waste	20 03 01	5,000	20,740	21,880	12,160
Septic tank sludge	20 03 04	77,090	-	-	0
Bulky waste	20 03 07	7,940	12,470	15,980	0
TOTAL		**3,731,634**	**2,744,370**	**2,853,265**	**2,847,058**

Table 6 - Hazardous waste

Type	EWC	2015 (kg)	2016 (kg)	2017 (kg)	2018 (kg)
Mineral based non-chlorinated hydraulic oils	13 01 10*	8,360	-	500	800
Readily biodegradable hydraulic oils	13 01 12*	900	-	-	-
Mineral-based non-chlorinated engine, gear and lubricating oils	13 02 05*	4,500	1,000	5,250	6,770
Readily biodegradable engine, gear and lubricating oils	13 02 07*	-	-	900	1,340
Mineral-based non-chlorinated insulating and heat transmission oils	13 03 07*	-	-	-	0
Sludge from oil/water separators	13 05 02*	-	-	-	0
Oily water from oil/water separators	13 05 07*	-	-	-	0
Packaging containing residues of or contaminated by hazardous substances	15 01 10*	-	-	-	0
Metallic packaging containing a hazardous solid porous matrix (for example asbestos), wiping cloths, protective clothing contaminated by hazardous substances	15 01 11*	-	-	-	0
Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	15 02 02*	910	280	850	1,140
Transformers and capacitors containing PCBs	16 02 09*	-	-	-	0
Discarded equipment containing chlorofluorocarbons, HCFC, HFC	16 02 11*	-	-	-	0
Discarded equipment containing free asbestos	16 02 12*	-	-	-	0
Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	16 02 13*	-	1,300	500	70
Inorganic wastes containing hazardous substances	16 03 03*	-	-	-	390
Organic wastes containing hazardous substances	16 03 05*	-	-	-	0
Lead batteries	16 06 01*	-	-	3,900	0
Ni-Cd batteries	16 06 02*	-	-	-	0
Wastes containing oil	16 07 08*	-	-	-	1,970
Glass, plastic and wood containing or contaminated with hazardous substances	17 02 04*	-	-	-	0
Bituminous mixtures containing coal tar	17 03 01*	470	-	-	0
Metal waste contaminated with hazardous substances	17 04 09*	-	-	-	0
Insulation materials containing asbestos	17 06 01*	-	-	-	0
Construction materials containing asbestos	17 06 05*	-	-	-	0
Fluorescent tubes and other mercury-containing waste	20 01 21*	-	-	-	80
Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	20 01 35*	-	-	-	0
TOTAL		**15,140**	**2,580**	**12,270**	**12,560**

8.2. DATA SOURCES

Below is a summary of the sources and responsible business units and the methods used to calculate every piece of data.

Table 7 - Data

DATA	SOURCE	RESPONSIBLE BUSINESS UNIT	CALCULATION METHOD
Gross energy produced	Financial statements	Performance	Meters - Financial statements
Energy consumed by S.A.	Financial statements/ Contracts	Key accounts Corporate	Meters
Energy consumed by Borgo Cerreto pumping station	Financial statements	Performance	Meters - Financial statements
Diverted water	Financial statements	Performance	Calculation - Financial statements
Water for domestic use	Consumption	General Services	Meters/contracts
Concession releases	Financial statements	Performance	Calculation - Financial statements
Diesel	Financial statements	Performance	Supplier invoices
Lubricating and hydraulic oils	Consumption	Operation	Replenishments
Insulating oils	Consumption/treatment	Operation	Replenishments/Volumes
SF_6	Maintenance activities	Maintenance	Replenishments
HFC	Inspection/maintenance	HSE	Replenishments
CO_2 avoided	NFR	CSR	Calculation with emission factor
Waste	Environmental Declaration Form (MUD)	HSE	Weight/type
Noise	Monitoring	HSE	Reference standard
Electromagnetic fields	Monitoring	HSE	Reference standard
Asbestos	Inspection	Asbestos manager	Size/features of products

9. ACCREDITATION

This Environmental Declaration was certified by:
RINA SERVICES S.p.A.
Accreditation no. IT-V-0002
On 17/06/2019
The site is registered with EMAS with number IT-000538.

ERG Hydro undertakes to draft and publish an Environmental Declaration every three years in accordance with the provisions of EMAS.

The Management also undertakes to update the information in this Environmental Declaration every year, to certify every change with an environmental inspector, to present the changes to the competent authority and to make them public.

10. REFERENCES

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11. GLOSSARY

The main acronyms and technical terms used are explained below:

CO_2 (carbon dioxide): odourless, colourless, flavourless gas produced as a result of combustion processes, respiration and the decomposition of organic material. One of its characteristics is that it absorbs infrared radiation from the Earth's surface thus contributing to the "greenhouse effect".

Concession Declaration: Document indicating the characteristics (flow rate, drop, capacity etc.) of the concession as well as the obligations and constraints imposed by same.

Concession Decree: the act whereby the Ministry of Public Works grants the licensee the right to use the water for hydroelectric purposes.

CSR: Corporate Social Responsibility

Diversion: series of works and apparatus designed to intercept rivers and torrents and use their waters.

Environmental aspect:aspect of an activity, product or service of an organisation that has, or can have, an impact on the environment; a significant environmental aspect is an environmental aspect that has, or can have a significant environmental impact.

Environmental impact: any change to the environment, negative or positive, deriving in full or in part from the activities, products or services of an organisation.

Greenhouse effect: gradual increase in the average temperature of the atmosphere as a result of an increase in the concentration of gases in the atmosphere. The substances that contribute most heavily to the greenhouse effect (greenhouse gases) include chlorofluorocarbons (CFCs), carbon dioxide (CO_2), methane (CH_4), nitrogen oxides (NO_x) and sulphur hexafluoride (SF_6).

GSE: Gestore dei Servizi Elettrici, established pursuant to art. 3 of Legislative Decree no. 79/99, is the joint stock company, whose shares are held by the Italian Treasury, which issues incentives for the production of electricity from renewable and similar energy sources, and is responsible for the qualification of renewable energy plants and their electricity production.

ICT: Information & Communication Technologies.

MCA: Materials containing asbestos.

SA: Ancillary Services.

TLC: Telecommunications.

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