



**2024**

Sustainability  
Report Digest

tenova 

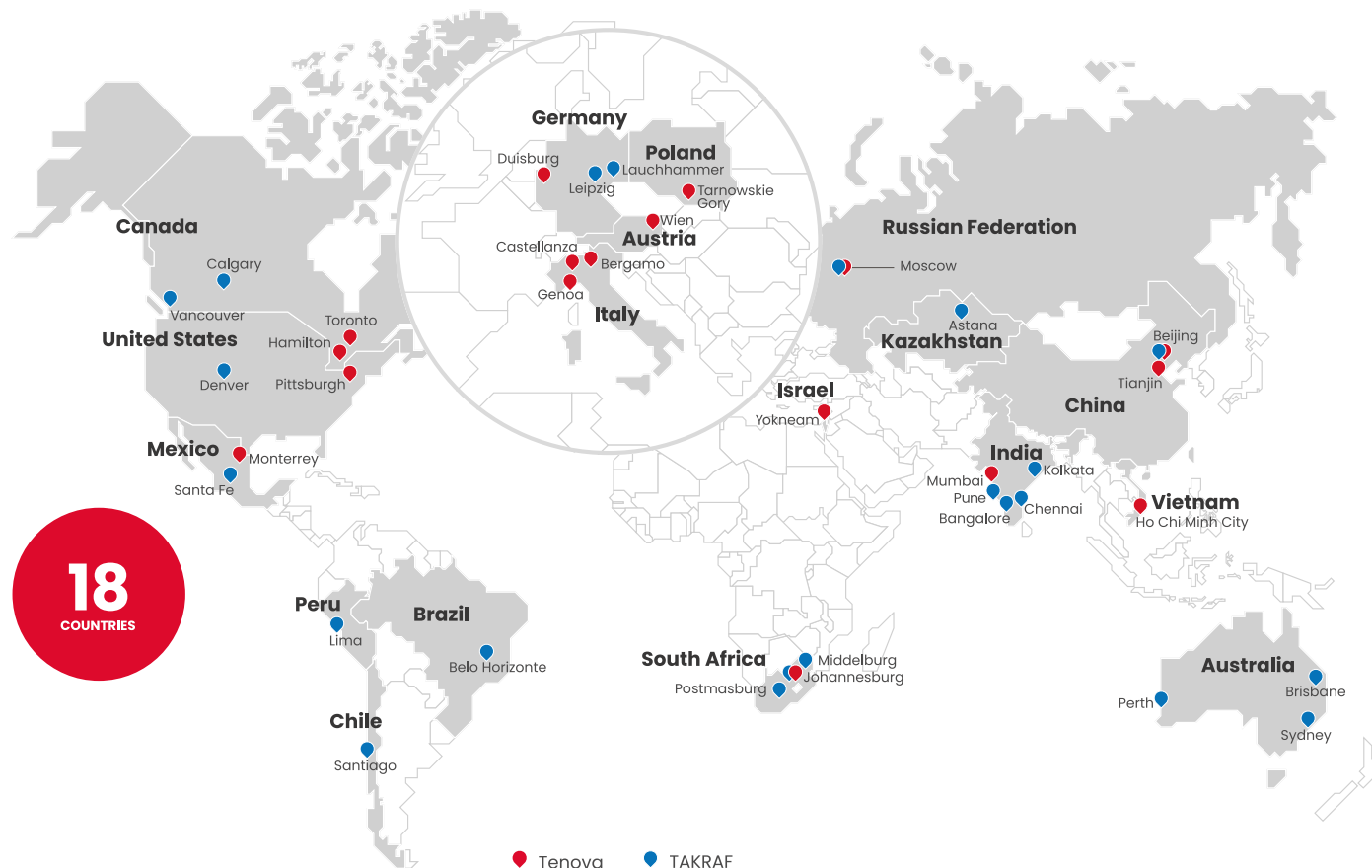
# About Tenova

**Tenova Group** encompasses Tenova S.p.A. and its subsidiaries, and aims to provide sustainable, innovative, and reliable solutions in the **metals and mining industries**. These businesses are developed through the activities of **Tenova**, a leading provider of sustainable solutions for the steel and metals industry, and **TAKRAF**, a leader in the mining sector regarding technological solutions. Headquartered in Castellanza (Italy), with over **2,500 employees across 18 countries**, Tenova Group partners with global clients to design and **develop innovative technologies and services** that improve and futureproof their businesses, generating cost savings, and energy reductions, limiting environmental impact, and improving employee working conditions. Our **collaborative working model** ensures we are at the forefront of the industries we work in and allows us to drive positive and comprehensive transformations for our clients.

To learn more about our fully integrated range of sustainable products, technologies, and services for the metals and mining industries, please visit [tenova.com](https://tenova.com) and [www.takraf.com](https://www.takraf.com).

In this report, any reference to "Tenova Group" is to be intended as inclusive of Tenova S.p.A., along with its subsidiaries in line with the Tenova S.p.A. Consolidated Financial Statement.

## Where We Are



## Technologies for the Metals and Mining industries

Sustainable, innovative and reliable solutions are the core of our product offering.

- Iron & Steel
- Aluminum
- Hydrometallurgy

- Pyrometallurgy
- Rolling & Grinding
- Port Equipment

- Mining Systems and Equipment
- Bulk Material Handling

- Minerals Processing
- Services & Components

# 2024 Highlights

## Environmental



Completion of the **H<sub>2</sub> Electrolyzer** construction site at Castellanza HQ for research and development activities



**5,570 tCO<sub>2</sub>e** Scope 1 + Scope 2 Location-based emissions



**1,010,000 kWh** generated by our **solar panels**

## Social



An average of **18 hours of training** per employee



**83%** response rate to our 2024 **Employee Opinion Survey**



TAKRAF **Women in Mining** communication campaign

## Governance



**Impact Materiality Assessment** at Group level



Revised **Tenova Group Code of Conduct** + Introduction of **Code of Conduct for Suppliers**



**72%** of purchase budget spent **locally**



# Our Sustainability Strategy

## Materiality Assessment

Tenova Group's 2024 sustainability performance reporting is grounded in a thorough **materiality assessment**, aimed at identifying the most relevant environmental, social, and governance (ESG) topics for both the Group and its stakeholders. In 2024, we conducted an impact materiality assessment in accordance with the methodology set forth in the **GRI Standards**, and in alignment with the **European Sustainability Reporting Standards (ESRS)**.

The materiality assessment, as well as the whole reporting project, was carried out by our dedicated, interdisciplinary **Sustainability Project Team**, supported by the **Operative Committee** – which includes representatives from all Tenova Group Business Units and Functional Areas – and overseen by the **Sustainability Steering Committee**, which validated the results of the assessment.

Our business strategy is built on **four commitments** and grounded in driving sustainable solutions for our clients and communities:



**Sustainability** – identifying opportunities to streamline industrial processes, resulting in increased efficiency;



**Innovation** – devising novel solutions to age-old problems;



**Reliability** – using our in-depth expertise to ensure our solutions last well into the future;



**Safety** – making workplaces safer;

## Tenova Group's Material Topics



Energy



Climate change mitigation



Pollution of air



Resource inflows, including resource use



Resource outflows related to products and services



Personal safety of consumers and/or end-users



Communities' economic, social and cultural rights



Other work-related rights



Equal treatment and opportunities for all



Working conditions



Corporate culture



Protection of whistle-blowers



Management of relationships with suppliers including payment practices



Corruption and bribery



Innovation and digital transformation

# Our Sustainability Framework

After identifying our priority issues, leaders and key internal stakeholders were involved in a participatory process to develop a Sustainability Framework to **drive purposeful action** and clearly declare our sustainability ambition.

Our ambition is articulated under three main pillars: **Transformation, Trust**, and **Transparency** are the three concepts underpinning these pillars. It is no coincidence that they all start with the “T” of Tenova – this underscores our intention to deeply embed sustainability

in our business.

Additionally, we prioritized the **Sustainable Development Goals (SDGs)** that Tenova contributes to and focuses on.



# Value for Our Clients

## Driving Sustainable Solutions

Our portfolio of solutions is primarily dedicated to the **sustainable transformation** of the **metal and mining industries**. We create value for our clients by providing innovative technologies that **ensure efficiency**, resulting in improved performance, reduced waste, and lower carbon emissions. These technologies support the transition to cleaner fuels, enhance energy efficiency, and facilitate the recovery and reuse of previously wasted materials.

In developing these solutions, we not only serve our clients but also work hard to accelerate our **sector's transition** to a lower environmental impact.

### Energy transition

Tenova aims to shift the energy paradigm in the metals industry by encouraging clients to adopt hydrogen-ready technologies as substitutes for carbon-based processes, thereby driving business transformation.

#### Our solutions:

- **Electrical Steel**
- **DRI and ENERGIRON**
- **SAF and Open Slag Bath Furnace**
- **iBLUE®**
- **Combustion Systems for Furnaces**

### Energy efficiency

In cases where it is not yet feasible to transition to cleaner fuels, we have developed a suite of technologies to help our clients use their existing fuels more efficiently or adapt their existing processes to reduce their emissions.

#### Our solutions:

- **Consteel® & EMS**
- **iRecovery®**
- **Multiple Pre-heater**
- **In-Pit Crushing & Conveying (IPCC)**
- **High-Pressure Grinding Rolls (HPGRs)**
- **DELKOR BQR Flotation Cells**

### Circular economy

Industrial processes create numerous waste byproducts. Our technologies contribute to the circular economy by enhancing the recovery and reuse of these byproducts.

#### Our solutions:

- **Auto catalyst and battery recycling**
- **EAF-LF (Electric Arc Furnaces - Ladle Furnace)**
- **Dry Slag Granulation**
- **Lithium Recovery**
- **Black Mass and Rare Earth Solvent Extraction**
- **Twin-chamber furnaces for aluminum**
- **Magnesium production from Coal Ash**
- **DELKOR Thickeners**
- **DELKOR Horizontal Belt Filters (HBFs)**
- **DELKOR Filter Presses**



# Delivering Safe Products by Design

At Tenova Group, **safety** is embedded from the **design stage**, leveraging expert knowledge and innovation to prevent risks before they arise. Our **tech-driven approach** integrates robotics, AI, and smart sensors into products to enhance monitoring and safety. Through data collection, analysis, and training, we deliver solutions that offer real-time and predictive insights, helping clients prevent accidents, improve maintenance, and protect their workforce effectively.

## Our safe technologies include:

- **iBOF Intelligent iSDS® Slop Detection System**
- **Water Detection System (WDS)**
- **Submerged Arc Furnaces (SAF)**
- **MEGtec™**
- **Pomini Digital Texturing™ (PDT™)**
- **SAFE+ (Safe Plus) EAF configuration**
- **SafeForPorts**
- **Full Automation**

## TAKRAF developed the following solutions:

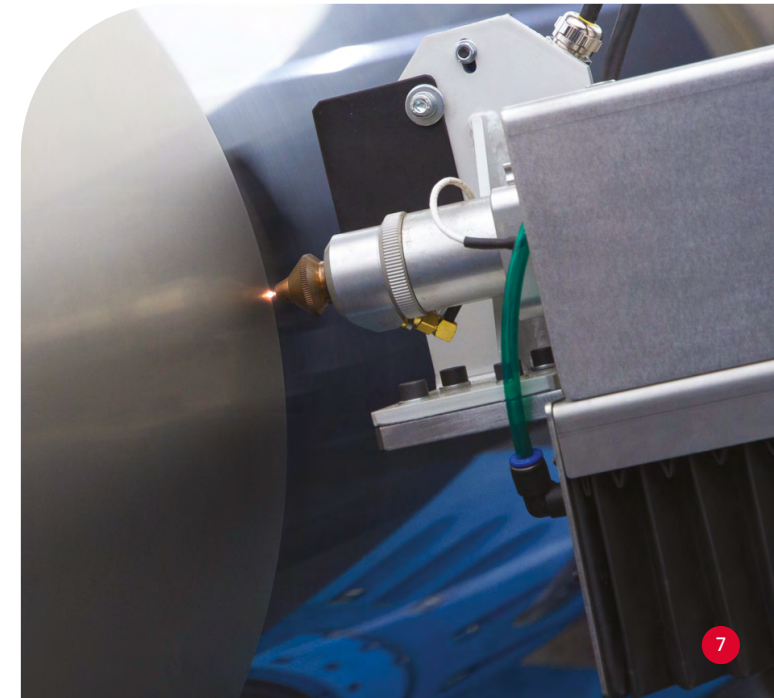
- **X-TREME Class Sizer**
- **Sizer Hot-change Method**
- **Innovative Tie Rod Replacement on a Ship Unloader**
- **Advanced Remote and Condition-Based Maintenance Systems**

## Impact monitoring

As a responsible company, we recognize the importance of monitoring the **impact of our products** and services on the environment and human health. We commit to improving our processes and products to ensure their impact is accounted for throughout their entire life cycle.

### Our solutions:

- **Pomini Digital Texturing™**



# R&D and Sustainable Innovation

We **enhance** existing technologies and **develop** new ones to reduce the environmental impact of clients' facilities while boosting production efficiency. Our solutions minimize CO<sub>2</sub> and other harmful emissions, integrate alternative and renewable energy, and promote circularity.

## Our 2024 projects:

- **iSteel Expert**
- **SafeForPorts**
- **AI DRAFT**
- **Simulation Driven Design for Tenova Consteel**
- **LIFE H2Reuse**
- **Extracting Value from Black Slag**
- **HyTecHeat**
- **ReMFra**
- **iSlag**
- **NGEN Project**
- **InSGeP**
- **iSteel-Expert**
- **SYRIUS**
- **SmartSpreader**
- **Conveyability Test Rig**
- **Wearing Green**
- **Crushing**
- **Coarse Particle Recovery**
- **Classification**

# Digital Transformation

Digital technologies have the potential to revolutionize the metals and mining industries. Tenova Group leverages **AI, machine learning**, and **data analytics** to increase efficiency and reduce environmental impacts for our clients. A dedicated Digital Transformation strategy and team ensure customer value and innovation remain central to our approach.

## Adopting a Digital Mindset

To boost productivity in a hybrid work model, Tenova promotes a **digital mindset**. We support remote collaboration, streamline project management, and **embrace technologies** like GenAI and AI-driven platforms to reduce repetitive tasks, enhance efficiency, and ensure cybersecurity awareness, enabling teams to focus on high-value activities and stay connected across the organization.

## Support Client Engagement

Tenova's Digital Portal offers customers **streamlined access** to support, spare parts, manuals, and advanced tools, enhancing service, data insights, and sustainable decision-making. **Some of the proprietary digital tools we have developed include:**

- **Tenova IIoT Platform**
- **Tenova EDGE**
- **Tenova adVISOR**
- **Tenova Electronic Spare Parts Catalog**



# Our Responsible Approach

## Our Environmental Impact

As a Group, Tenova has long recognized the harmful impacts that climate change has on the planet. That is why we strive to help clients mitigate that impact through our products, technologies, and services. Alongside helping our clients, we are also taking steps to

monitor and reduce the **environmental impact** of our **own operations**.

The Group's commitment to reducing its environmental impact has led to the achievement of being **ISO 14001** – Environmental Management Systems certified in the

Castellanza and Genoa (Italy) sites of Tenova, as well as for TAKRAF's Leipzig and Lauchhammer (Germany) and Australian sites.



### Total energy consumption: 151,179 GJ

- of which Fuel consumption: 125,930 GJ
- of which Electricity: 23,647 GJ
- of which Steam consumption: 7,602 GJ

We are steadily progressing on this journey, with our latest 2024 initiatives reflecting a tangible step forward in reducing our environmental footprint:

- Pomini's new compressor
- Smart LED lighting at TAKRAF (Germany)
- Hydrogen Electrolyzer
- Energy Task Force (Castellanza)
- Electric Vehicle Charging
- Photovoltaic plant
- Officina BIO



### Scope 1 emissions:

1,836 tCO<sub>2</sub>e

### Scope 2 emissions (location-based):

3,734 tCO<sub>2</sub>e

### Scope 2 emissions (market-based):

4,749 tCO<sub>2</sub>e



# Our People

At Tenova Group, we believe that **our people** are the **foundation** of everything we do. We are deeply committed to protecting, nurturing, and **empowering our workforce**, aiming to create an environment where our people can feel safe, valued, and able to focus on what truly matters: each one's personal and professional growth.

## Occupational Health and Safety

**Safety is a fundamental value at Tenova Group.** We are deeply committed to ensuring well-being of our people and all those we interact with, through our **"Safety First"** approach: in practice, it means maintaining a strong focus on **prevention and awareness** in all matters related to health and safety.

A key part of the "Safety First" approach is the gradual extension of **ISO 45001** – Occupational health and safety management systems certification, internationally recognized as a standard for occupational health and safety, across all our sites.

## Diversity, Equity and Inclusion

We consider diversity as a driver for innovation, resilience, and creativity, and we are constantly working toward a more just and inclusive environment. We believe that diversity enhances our capacity to innovate and adapt. That's why we are committed to fostering an **inclusive and equitable workplace** where every employee feels respected and treated fairly.

## Talent

For Tenova to succeed as a Group, our employees must be able to learn the necessary skills in an industry that is constantly evolving. We pride ourselves on providing a **supportive work environment** where employees can grow and develop in their careers while promoting inclusive local employment practices to generate high value in the territories in which we operate. Training activities in 2024 focused on the following areas:

- **Cybersecurity awareness**
- **Technical topics**
- **Health and Safety**
- **Diversity and Inclusion**

## Benefits and Well-being

Well-being is a way of working at Tenova Group: we believe it is a cornerstone to build a resilient and progressive organization. As a matter of fact, **attracting** and **retaining** the right talent includes creating a **package of benefits** that proves our commitment to creating an equitable and supportive workplace that allows all our employees to collaborate effectively, feel part of a community, and thrive in line with our values. To ensure our employees' satisfaction, Tenova Group regularly carries out an internal feedback survey. This year the **Employee Opinion Survey (EOS)** reached an 83% response rate.



# Our commitment to a **Transparent Governance**

At Tenova Group, we **lead by example** and are strongly committed to acting in **compliance with local laws and regulations** and promoting them in local communities. All our efforts are aimed at protecting our most precious asset: Tenova Group's healthy corporate culture. This ambition is made tangible through comprehensive internal policies ensuring a transparent governance and ethical stakeholders relationships.

## Governance and ESG Management

**Ethical governance** at Tenova starts with the highest governance bodies. Comprising five members with a combination of executive and non-executive roles, Tenova S.p.A.'s Board of Directors ensures strategic alignment with the Group's sustainable development objectives. The Chair of the Board holds a non-executive role to maintain independence and oversight. The Board is supported by two key bodies:

- **Compliance Committee**
- **Supervisory Body** (in line with Italian Legislative Decree 231/2001)

Sustainability is central to Tenova's mission, with the Board shaping, approving, and updating strategies and goals.

Three specialized committees support the Board in embedding sustainability throughout the organization:

- **Sustainability Steering Committee:** Sets strategy, goals, and identifies partners.
- **Sustainability Project Team:** Manages projects, monitors KPIs, and ensures on-time execution.
- **Operative Committee:** Communicates strategy internally and assigns responsibilities.

## Compliance and Ethics

**We prioritize adherence to regulations and foster a culture of compliance:**

- Our employees are expected to follow our Code of Conduct, our Anti-Bribery Policy, ethics, and integrity values;
- During 2024, 1,051 of our employees attended mandatory anti-corruption training;
- We put in place an anonymous whistleblowing system available for personnel and external parties;
- We adhere to data privacy and security standards, including GDPR;
- We implemented a cybersecurity roadmap to identify and mitigate potential risks

## Our Supply Chain

Tenova Group operates on a global scale, with an **international supply chain** spanning five continents. Our operations are global but at the same time we are strongly focused on the impact we generate locally, thus, in 2024, **72% of Tenova Group's purchases were sourced locally**, namely within the same country where our legal entities operate.

We ensure **full compliance with procurement regulations** in all countries we operate or conduct business in, and expect our suppliers and partners to adhere to all applicable laws and regulations. At the same time, we defined a Sustainable SC Program to ensure compliance with the latest regulations, such as CBAM.



**2024**

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