2012

Sustainability Report

Terna

Terna is a leading grid operator for energy transmission. The Company manages electricity transmission in Italy and guarantees its safety, quality and affordability over time. It ensures equal access conditions for all grid users. It develops market activities and new business opportunities with the experience and technical expertise acquired in managing complex systems. It creates value for shareholders with a strong commitment towards professional excellence and with a responsible approach towards the community, fully respecting the environment it operates in.

2012

Sustainability Report

Terna

Contents

Letter to our stakeholders

2012 was also a year of significant achievements for Terna, confirming the Group's capability to grow and produce excellent results for the eighth consecutive year. The milestones we reached have also been a source of considerable recognition for us: Terna received the prestigious "International Utility Award 2013" from the American Edison Electric Institute, an award which crowned us the best of the European companies in the sector in terms of Total Shareholder Return for the last three years. This award allows Terna, which already in 2010 had earned the same recognition for the 2007-2009 three-year period, to be at the top of the European electrical utilities classification during the 2007-2012 period. Our pride in this success is strengthened by the fact that, due to the role Terna plays in the electric system, it also has a positive impact on the country during a period of persistent and acute economic, political and social crisis.

Investments made from 2005 to today reached 6.5 billion euro, and in 2012 exceeded 1,200 million euro for the second consecutive year, a record level. A result which it was possible to achieve partly thanks to the constant, profuse commitment of everyone involved to identify localisation solutions compatible with the requirements of the territory whilst also respecting the environment. The grid development activity, which is carried out with a sense of responsibility and respect for stakeholders, allows us today to achieve several objectives simultaneously: provide the country with efficient transmission infrastructures in line with the requirements of the production system, create employment with over 150 sites open in Italy, and contribute to reducing the CO2 emissions of the electric system. All this with realisation costs always lower than the economic benefits generated for the system, and with constant attention to sustainability and safeguarding for future generations.

The Group reorganisation also contributed to the positive trend of 2012. It was implemented last year and enables a better focus on the strategic objective of supporting core business, aiming to create tangible benefits for the electric system and entrepreneurial development of unregulated activities. Our Strategic Plan sets out completion of the business model over the next few years through consolidating and developing the service activities in the fields of engineering, O&M and fibre optic housing. Shared principles and values were upheld during the reorganisation, including by the adoption of the Code of Ethics by all Group companies. Responsible behaviour and a relationship of trust with the stakeholders are both the foundation and objectives of our business approach, as Terna's adhesion to the Global Compact and active participation in its Italian activities show.

Listening to the opinions of our stakeholders is a valuable and irreplaceable instrument in order to ensure our activities have clear direction. Among the many discussions held last year, those relative to the Grid Development Plan are the most noteworthy: the presentation organised by the Authority for Electricity and Gas with the sector operators and the meetings

with the consumer associations requested by Terna were important opportunities for comparing and understanding the positions of the stakeholders, which help us to identify areas for further improvement. External stakeholders and employees were also involved in a survey that aimed to gather opinions and learn about expectations of Terna solidarity initiatives.

On the internal front, we took care as always of the reinforcement of skills through high investment in training, only marginally and temporarily slowed down by the aforementioned organisational changes. In 2012, we inaugurated the new Campus, our company university established in an electricity station at the gates of Rome (in a building originally intended for maintenance), fully restructured and equipped with the latest technologies, allowing better organisation and use of training courses. The teaching positions are held by expert employees, guaranteeing continuous training oriented at the dissemination of the specific technical knowledge of Terna, fundamental during a phase of generational turnover. This turnover involves the insertion of young employees, including a growing component of female workers, with an increasing presence in managerial positions, and a renewal of skills which contributes to maintaining professional excellence.

The Sustainability Report we are presenting is in response to the decision, adopted eight years ago, to provide stakeholders with full and transparent information on Terna operations. In addition to the publication of the Report, this decision can also be seen in the constant quest for improvement. With regard to the reporting standards, we continue to apply the GRI guidelines, adopting any changes to them. We think it is worthwhile to present information to stakeholders that allows them to compare the performance of other companies, including those operating in other countries. To facilitate the interpretation of Terna's results, this year we are once again publishing comparative analyses with other companies for a few key indicators; as far as we are aware, this distinguishes our Sustainability Report from others on a national level.

However, every company has its particularities, whether in the business model or how it interacts with environmental and social issues. To better express these interactions, to allow more complete information to be offered to stakeholders, in 2011 we participated in the Pilot Program of the International Integrated Reporting Council, adhering to the criteria necessary to start coordinating content which last year was mainly focused on the Terna website. In this respect, we expect this project to lead to improved stakeholder communications, an objective already partly achieved with the 2012 Annual Financial Report and this Sustainability Report, implementing a gradual alignment process.

2012 was another year of successes, which the strategic objectives of the Group project forward into the coming years. Our continuous commitment to process improvement and the ability of creating value for the shareholders and all stakeholders, allows the whole Terna team to confidently face future challenges.

Chairman
LUIGI ROTH

CEO
FLAVIO CATTANEO

2012

The Report in a nutshell

Terna

The report in a nutshell

The 2012 Sustainability Report prepared according to the G3.1 update of the Guidelines *"Sustainability Reporting Guidelines & Electric Utilities Sector Supplement (EUSS)"* of the GRI (Global Reporting Initiative), places it, for the fourth consecutive year, at the A+ level in terms of application of the guidelines, the highest in terms of completeness of information.
Linking of the GRI indicators with the 10 principles of the United Nations Global Compact is shown in a special table in the first part.
The Report is divided into five main chapters:
- Terna Profile
- Responsibility for electricity service
- Economic responsibility
- Environmental responsibility
- Social responsibility

The Methodological Note provides useful technical clarifications for interpreting the information.
Boxes with greater details on the principal achievements of the year are included in the Report and, for the third consecutive year, comparisons with other companies for significant environmental and social indicators. These allows stakeholders to evaluate Terna's figures and performance not only compared to what was achieved during the two preceding years, but also in relation to other companies. For greater detail on the reference panels, please see the Methodological Note on page 15.

The comparisons

- CO_2 emissions: pages 113
- SF_6 leaks: pages 120
- Water consumption: pages 125-126
- Waste production: pages 128
- Personnel turnover: pages 136-137
- Employee training: pages 143-144
- Pay differences by gender: pages 148-149

The main sustainability results

Progress was recorded in 2012 in all areas of corporate responsibility, in keeping with the provisions of the Code of Ethics, participation in the Global Compact and the objectives specified in the 2011 Sustainability Report (Pages 42-44 of the 2011 Sustainability Report).
For a precise comparison of objectives and results, see the dedicated table on page 41. The most important achievements and recognitions are reported below.

General aspects

Integrated reporting: after joining the IIRC Pilot Programme (see also page 158), Terna internally began a project to improve integration of financial and sustainability aspects in communications to the stakeholders. This led to the creation in July 2012 of a dedicated mini-site with an interactive index of contents that can be added to. As an additional step in the integration process, this Sustainability Report and the Annual Financial Report contain numerous parts in common.
Stakeholder engagement: initiatives to involve all Terna stakeholders intensified. An entire chapter is devoted to these activities ("Involvement of stakeholders") and two boxes with further information.

Further information

- Public consultation on the Development Plan promoted by the AEEG (page 47)
- Terna's multi-stakeholder survey on corporate social commitment (page 49)

Responsibility for electricity service

Security of electricity system: the Security Plan for the electricity system included 63 million euro in investments to improve systems that safeguard the transmission service, also in light of the exponential growth of generating plants that use renewable sources.
Among the objectives achieved, the following are notable: the simulation and performance of the first test for restarting from France and the start of a project for congestion and stability control in the Southern Area where the amount of generation distributed from renewal sources is particularly significant.
Monitoring systems: confirmation of ISO/IEC 27001:2005 certification of the TIMM (Integrated Text on the Monitoring of the Electric Market) service, the database that monitors data on the Electric Market also on behalf of the AEEG.
Quality of service: the Company reached and exceeded its performance targets for continuity and quality of electricity service, which it monitors along with the AEEG (pages 62-64).

Further information
- Smart Transmission Solutions (page 60)
- Terna's commitment to ENTSO-E in 2012 (page 68)
- Line inspection by helicopter (page 70)
- The "BE.S.T. P.A.T.H.S." research project, co-financed by the 7th EU Framework Program (page 71)

Economic responsibility

Economic impact: in addition to the effects implicit in the service provided to users of the electricity system, Terna's economic impact can also be measured by its investing activities (1.2 billion euro in 2012), and its procurement expenditure (1.6 billion euro in 2012), with consequent creation of employment (pages 83-85). In fact, the work performed by the employees of its contractors and subcontractors was equal to that of more than 1,907 full-time employees.
Dividends to shareholders: Terna confirmed its attention towards its shareholders by maintaining a dividend policy in line with that of the previous financial year (see page 29).
AEEG incentives and Terna's cost for the electricity system: all the bonus/penalty plans introduced by the Electricity and Gas Authority (AEEG) to incentivize the improvement of the service led to a positive result, by increasing Terna's revenues and implicitly generating multiple positive effects for users of the electricity system (see pages 77-78).

Further information
- Revision of environmental and social oversight in the supply chain (page 91)
- The Gaudì portal (page 94)

Environmental responsibility

Emissions of greenhouse gases: for the third consecutive year, the incidence of leaks compared to the installed amount of SF_6 decreased, ending up at 0.59% this year (see page 118).
Grid Development Plan: although indirect, the largest contribution to the fight against climate change comes from the implementation of the Grid Development Plan. Considering the Plan as a whole and its effects in terms of grid efficiency, the change in the production mix, and the connection of renewable-energy plants, the reduction in system emissions when the entire Plan has been implemented is estimated to amount to around 12.5 million tons of CO2 per year (see page 122).
Connection of plants using renewable energy: in 2012 installed power reached figures of around 17,000 MW for photovoltaic and around 8,000 MW for wind energy (see page 122).
WWF: during the year, Terna, WWF Italia Ricerca and Progetti and the Park Authority completed projects to restore vegetation at Bussi, near the Gole di Popoli, in the Gran Sasso National Park (see the box on page 108).

Further information

- The integrated planning process (pages 101-102)
- Magnetic and electric fields: the legal limits (page 103)
- Sorgente - Rizziconi line: monitoring of migratory flows of bird life for optimal decommissioning planning (page 106)
- Terna, WWF Italia and the Park Authority together in the Gran Sasso Park (page 108)
- More new information on bird life from the nests on Terna's pylons (page 110)
- Energy efficiency (page 121)
- Disposal of equipment containing PCB oils (page 129)

Social responsibility

Training: this is confirmed as a strong point in promoting human resources, also seen through comparison with other companies (pages 143-144). In 2012 there were 41 hours of training per employee, with 86% of personnel covered, which shows Terna's concern for continuing education.

Corporate giving: according to the LBG (London Benchmarking Group) classification, in 2012 Terna allocated 1,223,987 euro overall to community projects, including 563,510 euro of donations and 300,205 in community investments (page 159). Donations were structured and not given to random projects.

Further information

- Management of generational turnover (page 137)
- Terna takes part in creating the first Italian tool kit on employee volunteering (page 161)
- At Christmas, Terna creates a chain of solidarity (page 162)
- The Terna 04 Prize brings together the arts and the local area (page 163)

Sustainability objectives

The objectives for 2013 (see pages 40-41) are in keeping with those previously established. The following are notable:

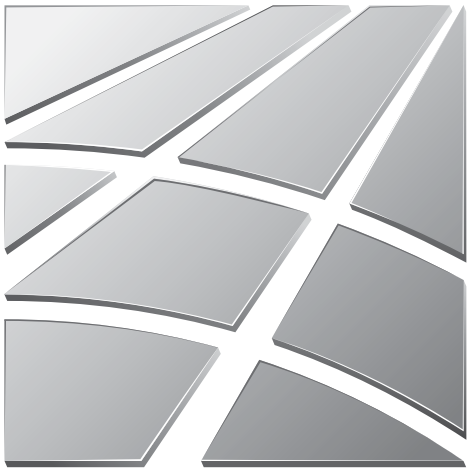
- continuation of the activities carried out in 2012 relative to the revision of the ethics system and environmental and social responsibility in relation to the supply chain;
- realization of internal CSR training initiatives with the involvement of top level managers;
- active participation in the Pilot Programme of the International Integrated Reporting Council, with study and implementation of greater integration of financial and sustainability information in both the Management Report and on the web site;
- realization of a KPI monitoring system for energy efficiency, in accordance with the ISO 50001 criteria;
- the definition, also based on opinions of stakeholders, of a strategic approach to initiatives in the community, the establishment of a coherent action plan and the realization of the first initiatives established in the plan.

Reading approaches for stakeholders

Again this year the interest of Terna's different stakeholders for the parts of the Report that regard them more directly determined several layout choices, the most important of which concerns the boxes and comparisons. In effect, the reading of sections or, in a few cases, entire dedicated chapters, allows readers to create alternative approaches compared to the standard organization of the Report. In particular, the following are pointed out. For:

- Shareholders, financial analysts and lenders: page 45 and 86
- Employees: pages 45, 80-81and 134-154
- Suppliers: pages 46, 84 and 89-92
- Grid users, customers, and business partners: pages 46, 69 and 93-94
- Regulatory authorities and institutions, AEEG: pages 47, 76-78
- Institutions and associations: pages 48 and 158
- Media, opinion groups, and the scientific community: pages 48, 106 and 110
- Society and local communities: pages 50-51, 98-103, 156-157 and 159-163

2012



Methodological note

Terna

Methodological note

The Terna Group's Sustainability Report for the year ended December 31, 2012 (hereinafter "2012 Sustainability Report") was prepared according to the Sustainability Reporting Guidelines & Electric Utilities Sector Supplement (EUSS) established in 2009 by the GRI – Global Reporting Initiative, and the G3.1 Guidelines update of March 2011. As in recent years, the Report was approved by the Terna Board of Directors and subjected to specific auditing procedures. The assurance report prepared by PricewaterhouseCoopers is attached.
The process of preparing the document included the identification of significant aspects to report and the presentation of the performance achieved by the Group relative to these aspects and the sustainability objectives.
The period considered is 2012: all the data refers to the year ended 31 December 2012; in addition significant events that occurred up to 31 March 2013 are also described.
The 2012 Report includes, compared to last year, a new core indicator. The A+ application level is confirmed. In fact, in light of the results presented in the GRI Content Index, **we held that we had achieved an A+ level of application** of the aforementioned guidelines.
Lastly, it is pointed out that since September 2011 Terna has participated in the "Pilot Programme" initiative promoted by the International Integrated Reporting Council in response to the widely recognized need to proceed in the direction of **integrated *reporting***. During this process, in 2012 the interactive version of the "Integrated Report Project" was published on-line with the 2011 figures, and in 2012 the discussion of certain subjects was standardized in the Sustainability Report and in the Financial Report. Furthermore, some of the most important information in this Report on Terna's sustainability performance has also been included in the 2012 Annual Report, in accordance with the guidelines of the National Council of Auditors and Accountants (CNDCEC) on sustainability information in obligatory communication ("Report on the management Financial Statements in the light of the innovations introduced by Legislative Decree 32/2007", CNDCEC, January 2009).

Materiality

The selection of the GRI indicators to include took place on the basis of a careful examination of the informational purpose of each of them and their relevance to Terna's activities and the interests of its stakeholders. In effect, the Report ideally addresses all the stakeholders identified in the Company's Code of Ethics.
In particular, the information to be included to allow the stakeholders to make a balanced assessment of the Group's performance is identified using the principle of materiality through an internal process which included:

- analysis of the Group's activities and any disputes, by reviewing the contents reported in internal communications instruments (team briefing documents, Terna News, Intranet, communications from Top Management) and external communication (Press Releases) and in the press;
- analysis of internal reporting on aspects of sustainability (monitoring of and improvement plans for the environmental and safety management systems);
- verification of the expectations of stakeholders through the stakeholder engagement activities described in this Report;
- comparison with the performance of other companies through the reports of sustainability rating agencies and the development of benchmarking analyses;
- meetings with Directors and Department Managers to explore significant aspects and emerging problems.

Structure of the Report

The organization of the Report in chapters has remained the same as in the previous editions. After Terna's profile, the Report continues to divide topics in four main sections, corresponding to the *triple bottom line* – economic, environmental, and social – typical of sustainability reports, preceded by the section on responsibility for electricity service, which is peculiar to Terna.
Each chapter begins with an explanation of the managerial approach to the specific area. This is followed by several thematic sections, which integrate in a single text both the precise information required by the GRI Guidelines and the in-depth analysis that Terna considers important to provide. In order to make the Report easier to read, the information regarding the GRI indicators is signalled by the appropriate marker in the margin of the text next to the relevant passages or next to the title if the entire section is considered relevant.

The Report is completed by several tables with additional numerical indicators and a glossary explaining the meaning of technical terms, specifically regarding the electricity industry. At the beginning of the "Indicator tables" section there is a table showing all the changes with respect to the additional indicators provided in the 2011 Sustainability Report, along with the appropriate explanations.

Boundary and indicators

Except as stated otherwise, the data and other information in the 2012 Sustainability Report refer to the Terna Group, that is to say the boundary which includes Terna S.p.A. and the companies that were consolidated in the Consolidated Financial Statements for the year ending 31 December 2012. In accordance with the GRI Boundary Protocol, the information included in the Sustainability Report includes all the companies with a significant impact on sustainability (i.e. by size, that is to say, number of employees and by potential impact on the environment and society, that is to say the number of operations/activities which took place during the year), over which Terna S.p.A. exercises, directly or indirectly, control, that is to say has the power to determine the financial and operational policies. There are no relations with joint ventures, subsidiaries or leased businesses that could significantly influence the boundary or the comparability of the environmental and social data.
The data was calculated precisely on the basis of the entries in Terna's general accounting and other information systems. In the case of estimates used to determine indicators, the procedure followed is stated.
All the GRI indicators published are listed below in the Index of the GRI content, which also includes any limitations relative to the requirements of the Reporting Guidelines. The list also includes the core indicators, necessary for the application of the Guidelines at Level A, which are not applicable to Terna.
In comparing this Report to the 2011 one, the following should be noted:

- the change in the method of calculation of the EU12 indicator relative to grid losses compared to energy transported. The figure presented in this Report is based - unlike previous years - on direct measurement of the energy put in and taken out of the transmission grid. On the other hand, in previous publications the measurements were the result of a division of overall losses of the electricity system (also including distribution grids) proportionally to the voltage levels, starting from calculations made that assumed particular grid configurations.

Comparative analysis of sustainability performance

With the conviction that the comparison of the environmental, social and governance performance also concerns its stakeholders, in addition to the actual company, certain comparisons between Terna's results and those of other companies are included in the 2012 Sustainability Report, as they were in the preceding two years. The comparisons involve seven indicators in 2012, as they did in 2011: water consumption, CO_2 emissions, SF_6 leaks, waste, training, pay difference by gender and turnover rate. The selection of the indicators followed both a criterion of internal interest in the identification of benchmarks, and verification of the quantity of data actually available for the comparison.
Listed below are the main criteria adopted for the analysis, as a premise for the reading and interpretation of the comparisons of the individual indicators in the Report:

- three panels of companies were identified: an industry one, composed of the European transmission companies (Transmission System Operator) and the major extra-European ones by kilometres of lines managed; and two multi-industry ones, the first relative to large Italian companies (the 40 companies of the FTSE-MIB at 17 September January 2012) and the second relative to Best International Performers (the 19 World Supersector Leaders identified by the RobecoSAM - Sustainable Asset Management sustainability rating agency, in the publication RobecoSAM Sustainability Yearbook 2012). The purpose of the three panels is to guarantee, also relative to the type of indicator reviewed, a comparison between companies with the same operational characteristics, a comparison with Italian companies and one with the top international performers.
  The Terna figures were not used in the calculation of the RobecoSAM - Supersector Leaders panel average, but are shown in the graphs;
- among the companies in these three panels, the ones taken into consideration were those which make information public necessary for the comparisons on the site through the Sustainability Report (even if it was not prepared following the GRI guidelines) or through other documentation (HSE Report, financial report, etc.). This led to a reduction in the sample compared to the starting panel, as explained in the following table;
- - the number of useful cases for comparison of each indicator in these three samples is often less than the number of companies which publish information on sustainability performance. This is first due to the lack of availability of the indicator in the Sustainability Report of certain companies, but often also due to the use - by the sample companies - of different definitions or units of measurement which therefore cannot be compared. Our selection was based on favouring the definition to which the greatest number of useful responses of the three panels overall corresponded, provided it was compatible with the instructions in the GRI protocols. In some cases, we excluded data which was contradictory to other data published in the same Report, while in some cases it was possible to reconstruct, based

on other data published, an indicator coherent with the definition adopted, even if not published. The details relative to these aspects are explained in the comments to the data regarding the individual indicators in the Report;

- the use of published Sustainability Reports entails reference to the 2011 data since the comparisons were prepared when the 2012 Reports were still being prepared, like Terna's.

It must be pointed out that, despite the exclusion of data which was explicitly not homogeneous, in numerous cases doubts linger regarding actual comparability between companies, especially when average and better performances are viewed from a distance. In fact, it is probable that significant deviations depend on different application criteria - not explained - of the GRI protocols rather than on particularly virtuous corporate behaviours.

Some of the indicators considered (water consumption, waste produced, CO_2 emissions) are expressed as physical quantities in absolute value and therefore show very different levels depending on the type of production activity and size of the company. In these cases, the comparison provides information on the different significance of the environmental aspects being considered for the individual companies, but does not fulfil the task of making the performance comparable.

The subject of comparability, certainly an issue that is central to sustainability reporting, is the subject of a research project conducted by the CSR Manager Network, with scientific support from Altis - Catholic University of Milan and the National Statistical Office (ISTAT), as well as support from Terna, through direct participation in analysis of the data. The study "Beyond the financial figure: companies and collective well-being", drafted by CSR Manager Network and ISTAT and available on their respective web sites (www.csrmanagernetwork.it and www.istat.it/it/archivio/85255), includes in the appendix the note "Comparing performances of sustainability: the Terna experience" which illustrates the methodology used by Terna for the comparisons published in this report.

	TSO Panel	FTSE-MIB Panel	RobecoSAM Panel - Supersector Leaders
Companies considered (n)	55	40	19
Companies with GRI reports (n)	18	24	18
Companies with useful data (n)	22	29	19

Application Level	C	C+	B	B+	A	A+
Standard Disclosures – Profile output	Report on: 1.1 2.1 - 2.10 3.1 - 3.8, 3.10 - 3.12 4.1 - 4.4, 4.14 - 4.15	Report Externally Assured	Report on all criteria listed for Level C plus: 1.2 3.9, 3.13 4.5 - 4.13, 4.16 - 4.17	Report Externally Assured	Same as requirement for Level B.	Report Externally Assured
Management Approach output	Not required.		Management Approach Disclosure for each Indicator Category.		Management Approach Disclosure for each Indicator Category.	
Performance Indicators & Sectors Supplement Performance Indicators output	Report on a minimum of 10 Performance Indicators, including at least one from each of: Economic, Social and Environmental.		Report on a minimum of 20 Performance Indicators, at least one from each of Economic, Environmental, Human rights, Labor, Society, Product Responsibility.		Report on each core G3.1 and Sector Supplement. Indicator with due regard to the Materiality Principle by either: a) reporting on the Indicators or b) explaining the reasons for its omission.	

Based on the information presented in the GRI Content Index, the application of the "Sustainability Reporting Guidelines & Electric Utility Sector Supplement" established in 2009 by the GRI - Global Reporting Initiative is considered to have achieved the A+ level.

GRI Content Index

The GRI Content Index is a table of the contents of this Sustainability Report, which enables readers to find indicators quickly and use them to check the Company's performance and compare it with those of other companies that use the same reporting standard.
Each performance indicator has a code regarding the area concerned and the pages of the document where it is found.

		Page
1. Strategy and Analysis		
	1.01	4-5
	1.02	36; 40-41
2. Organizational Profile		
	2.01	26
	2.02	26-28; 84-85
	2.03	26-28
	2.04	26
	2.05	26
	2.06	29
	2.07	26
	2.08	26-28
	2.09	26-28; 31; 32-35
	2.10	43
3. Report Parameters		
	Report profile	
	3.01	Methodological note
	3.02	Methodological note
	3.03	Methodological note
	3.04	Methodological note
	Report scope and boundary	
	3.05	Methodological note
	3.06	Methodological note
	3.07	Methodological note
	3.08	Methodological note
	3.09	Methodological note
	3.10	Methodological note
	3.11	Methodological note
	GRI Content Index	
	3.12	18-22
	Assurance	
	3.18	Methodological note
4. Governance, commitments and stakeholder engagement		
	Governance	
	4.01	290-292; 302-305; 312-318[1]
	4.02	309-310[1]
	4.03	334[1]; 30
	4.04	331-333[1]
	4.05	312-318[1]
	4.06	324-325[1]
	4.07	297-300[1]
	4.08	318-322[1]; 37-40
	4.09	14; 38-39
	4.10	321-324[1]
	Commitment to external initiatives	
	4.11	103
	4.12	37-38; 158-159
	4.13	158-159
	Stakeholder engagement	
	4.14	44
	4.15	43
	4.16	43-51
	4.17	52-53
5. Informative report on management approach		
	Economic	76
	Environmental	98
	Appropriate labour practices and work conditions	134
	Human rights	156-157
	Society	156
	Product responsibility	58

(1) Page numbers refer to the Corporate Governance Report which is part of Terna's 2012 Annual Report, available at www.terna.it

List of G3 performance indicators published

Code	Indicator	Limitation and notes	Page
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and to governments.		83; 159-163
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.		79-80
EC3	Coverage of the organization's defined benefit plan obligations.		80-81
EC4	Significant financing received from the government.		84
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.		84-85
EC7	Procedures for local hiring at significant locations of operation and proportion of senior management hired from the local community.		30; 146
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.		99-101; 160
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.		84-85
EN1	Materials used by weight or volume.		124-125; 129
EN2	Percentage of materials used that are recycled input materials.		125
EN3	Direct energy consumption by primary energy source.		111-112
EN4	Indirect energy consumption by primary energy source.		111-112
EN5	Energy saved due to conservation and efficiency improvements.		120-121
EN8	Total water withdrawal by source.		125
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.		107
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.		70; 105-110
EN13	Habitats protected or restored.		108; 109
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.		106; 109
EN16	Total direct and indirect greenhouse gas emissions by weight.		112
EN17	Other relevant indirect greenhouse gas emissions by weight.		114-115
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.		118-122
EN19	Emissions of ozone-depleting substances by weight.		115
EN20	NO_x, SO_x, and other significant air emissions by type and weight. *Data collection started in 2012.*	Available as of 2012	115
EN21	Total water discharge by quality and destination. *Water is not part of the production cycle of Terna's service.*	Not applicable	
EN22	Total weight of waste by type and disposal method		127
EN23	Total number and volume of significant spills.		98
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.		99-101; 105-110
EN27	Percentage of products sold and their packaging materials that are recycled or reclaimed by category. *The service provided by Terna does not include the activities mentioned in this indicator.*	Not applicable	
EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.		53; 98
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.		112; 121-122
EN30	Total environmental protection expenditures and investments by type.		129-130
LA1	Total workforce by employment type, employment contract, region and gender.		134-137
LA2	Total number and rate of employee and newly-hired personnel turnover by age group, gender, and region.		134-137

Code	Indicator	Limitation and notes	Page
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations.		145
LA4	Percentage of employees covered by collective bargaining agreements.		92; 153
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.		154
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.		153
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and gender.		152-153
LA8	Education, training, counselling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases..		145
LA9	Health and safety topics covered in formal agreements with trade unions.		153
LA10	Average hours of training per year per employee by employee category and gender.		142
LA12	Percentage of employees receiving regular performance and career development reviews by gender.		144
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity.		134-137; 146-147
LA14	Ratio of basic salary of men to women by employee category.		146-147
LA15	Return to work and retention rates after parental leave, by gender. *Data collection started in 2011.*	Available as of 2011	145
HR1	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening.		156-157
HR2	Percentage of significant suppliers and contractors and other business partners that have undergone screening on human rights and actions taken.		89; 92
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.		156; 157
HR4	Total number of incidents of discrimination and actions taken.		156-157
HR5	Operations and main suppliers identified in which the right to exercise freedom of association and collective bargaining may be at significant risk, and actions taken to support these rights.		38; 153; 156-157
HR6	Operations and main suppliers identified as having significant risk for incidents of child labour, and measures taken to contribute to the elimination of child labour.		38; 156-157
HR7	Operations and main suppliers identified as having significant risk for incidents of forced or compulsory labour, and measures taken to contribute to the elimination of forced or compulsory labour.		38; 156-157
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.		156-157
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.		156-157
HR11	Number of grievances related to human rights filed, addressed, and resolved through formal grievance mechanisms.		156-157
SO1	Percentage of operations with implemented local community engagement, impact assessment and development programs.		50-51; 99-103; 156
SO2	Percentage and total number of business units analyzed for risks related to corruption.		157
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures.		157
SO4	Actions taken in response to incidents of corruption.		53; 157
SO5	Public policy positions and participation in public policy development and lobbying.		48
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.		159

Code	Indicator	Limitation and notes	Page
SO7	Total number of legal actions for anticompetitive behaviour, anti-trust, and monopoly practices and their outcomes.		53
SO8	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations.		53
SO9	Operations with significant potential or actual negative impacts on local communities.		99-103; 156
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.		50-51; 99-103
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures. *Given the nature of the service, Terna is not affected by problems of product safety and Not applicable. security with regard to business partners (customers). Safety and security impacts of the service are considered with regard to society (as reported in the "Electric and magnetic fields: the limits provided for by the law" box).*	Not applicable	
PR3	Type of product and service information required by procedures and percentage of significant products and services subject to such information requirements. *The service provided by Terna does not include the activities mentioned in this indicator.*	Not applicable	
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship. *The service provided by Terna does not include the activities mentioned in this indicator.*	Not applicable	
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.		61
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.		53

List of G3 performance indicators published in the supplement for the electric utility sector (EUSS)

Code	Indicator	Limitation and notes	Page
EU1	Installed capacity, broken down by primary energy source and by regulatory regime.	Not applicable	
	Terna neither possesses nor manages electric power plants.	Not applicable	
EU2	Net energy output broken down by primary energy source and by regulatory regime.		
	Terna neither possesses nor manages electric power plants.		
EU3	Number of residential, industrial and commercial customer accounts.		93
EU4	Length of above and underground transmission and distribution lines by regulatory regime.		28
EU5	Allocation of CO_2 emissions allowances broken down by carbon trading framework. *Terna is not subject to emissions reduction obligations or emissions trading schemes.*	Not applicable.	
EU6	Management approach to ensure short and long-term electricity availability and reliability.		32-35; 59; 70
EU7	Demand-side management programs including residential, commercial, institutional and industrial programs. *Demand-side management programs are not part of Terna's regulatory framework.*	Not applicable.	
EU8	Research and development activity aimed at providing reliable and convenient electricity and promoting sustainable development.		60; 71; 72-73
EU9	Provisions for decommissioning of nuclear power sites. *Terna neither possesses nor manages nuclear power plants and does not operate in the decommissioning field.*	Not applicable.	
EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime. *Terna's responsibility in terms of electricity demand is limited to the management of the electricity system, with no implications for energy generation. See "Terna's Profile", in particular the "Processes and organization" paragraph, and the "Responsibility for the Electricity Service" section, in particular "Our approach" and "The security of the electricity system" paragraphs.*	Not applicable.	
EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime. *Terna neither possesses nor manages thermoelectric power plants.*	Not applicable.	
EU12	Transmission and distribution efficiency (grid losses) as a percentage of total energy.		114

Code	Indicator	Limitation and notes	Page
EU13	Biodiversity of offset habitats compared to the biodiversity of the affected areas.		103; 108-109
EU14	Programs and processes to ensure the availability of a skilled workforce.		138-144
EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region.		137-138
EU16	Policies and requirements regarding health and safety of employees and employees of contractors and subcontractors.		91; 150-153
EU17	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities.		137
EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training.		91
EU19	Stakeholder participation in the decision making process related to energy planning and infrastructure development.		50-51; 99-101
EU20	Approach to managing the impacts of displacement.		156
EU21	Contingency planning measures, disaster/ emergency management plan and training programs, and recovery/restoration plans.		61
EU22	Number of people physically or economically displaced, broken down by type of project, generation plants or transmission lines.		156
EU23	Programs, including those in partnership with government, to improve or maintain access to electricity service.		32-35; 68-69
EU24	Practices to address language, cultural, low literacy and disability related barriers to accessing and safely using electricity and customer support services. *The service provided by Terna does not include the activities mentioned in this indicator.*	Not applicable.	
EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases.		53
EU26	Percentage of population not served in licensed distribution or service areas, broken down by rural and urban population. *Terna does not have relations with final customers of the electrical service.*	Not applicable.	
EU27	Number of residential disconnections for non-payment, broken down by duration of disconnection. *Terna does not have relations with final customers of the electrical service.*	Not applicable.	
EU28	Power outage frequency (SAIFI).		62
EU29	Average power outage duration (SAIDI).		62
EU30	Average generation plant availability by energy source and by regulatory regime. Terna neither possesses nor manages power plants with significant installed power (see Profile - “Terna’s second photovoltaic project” box, page 36).	Not applicable.	

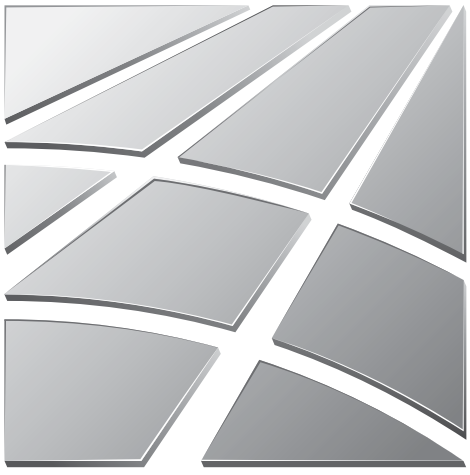
Connection with the Global Compact's 10 Principles

The following table shows the G3.1 version of GRI indicators that apply to Terna and their relation to each of the 10 Principles of the Global Compact. It aims at facilitating finding information relevant to stakeholders who wish to assess Terna's implementation of the Principles. To find the pages on which the GRI indicators are discussed, see the tables of the Index of the GRI contents.

AREA	Global Compact Principle	GRI Indicator
HUMAN RIGHTS	**Principle 1** Businesses should support and respect the protection of internationally proclaimed human rights.	LA4, LA6, LA7, LA8, LA9, LA13 LA14, HR1, HR2, HR4, HR5, HR6, HR7, HR9, SO5, PR8.
	Principle 2 Businesses should make sure that they are not complicit in human right abuses.	HR1, HR2, HR4, HR5, HR6 HR7, HR9, SO5.
LABOR	**Principle 3** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	LA4, LA 5, HR1, HR2, HR3, HR5, SO5.
	Principle 4 Businesses should uphold the elimination of all forms of forced and compulsory labour.	HR1, HR2, HR7, SO5.
	Principle 5 Businesses should uphold the effective abolition of child labour.	HR1, HR2, HR6, SO5.
	Principle 6 Businesses should uphold the elimination of discrimination with respect to employment and occupation.	EC7, LA2, LA13, LA14, HR1, HR2, HR4, SO5.
ENVIRONMENT	**Principle 7** Businesses should support a precautionary approach to environmental challenges.	EC2, EN18, EN26, EN30, SO5.
	Principle 8 Businesses should undertake initiatives to promote greater environmental responsibility.	EN1, EN2, EN3, EN4, EN5, EN8, EN11, EN12, EN13, EN14, EN16, EN17, EN18, EN19, EN22, EN23, EN26, EN28, EN29, EN30, SO5.
	Principle 9 Businesses should encourage the development and diffusion of environmentally friendly technologies.	EN2, EN5, EN18, EN26, EN30, SO5.
CORRUPTION	**Principle 10** Businesses should work against corruption in all its forms, including extortion and bribery.	SO2, SO3, SO4, SO5, SO6.

References: GRI-Global Compact, "Making the connection", May 2007.

2012



Terna profile

Terna

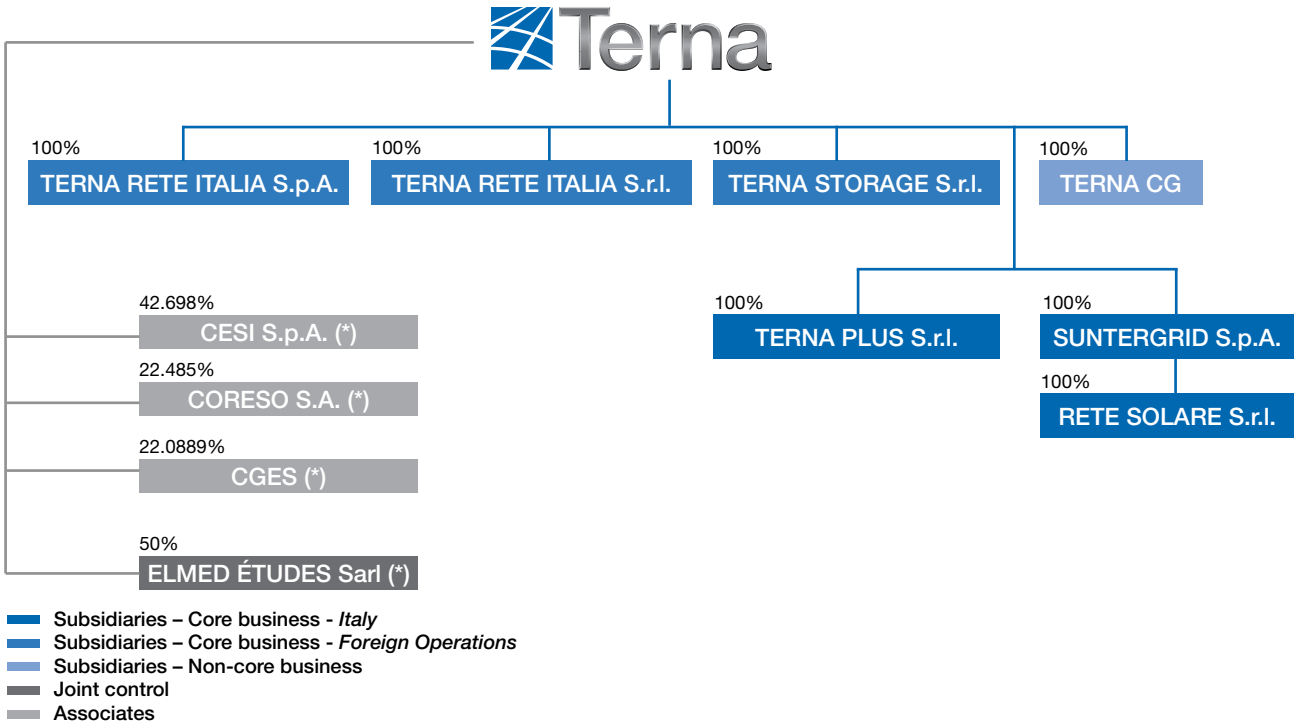
Presentation of the Company

Terna is the largest independent transmission system operator (TSO) in Europe and the sixth largest in the world in terms of kilometres of lines managed.
The Company's headquarters is in Rome and it is the owner of the Italian National Transmission Grid (NTG), with more than 57,400 kilometres of high-voltage lines (more than 63,400 km of three-phase conductors), 468 transformation stations, and 22 lines interconnecting with foreign grids (data at December 31, 2012).
In Italy, Terna acts as TSO with a monopoly under a government concession. It is responsible for transmitting and dispatching electricity along the high-voltage and very-high-voltage grid throughout the whole of Italy. Terna is also responsible for planning, constructing and maintaining the grid.
The fundamental elements of Terna's mission are:

- to manage electricity transmission in Italy, guaranteeing its security, quality and affordability over time;
- to ensure equal conditions of access for all grid users;
- to develop market activities and new business opportunities with the experience and technical skills gained in the management of complex systems;
- to create value for its shareholders with a strong commitment to professional best practices and with a responsible approach to the community, respecting the environment in which it operates.

The Terna Group

The Terna Group's shareholding structure at December 31, 2012 is as follows:



(*) Companies measured using equity method

At December 31, 2012 the Terna Group includes:

- the Italian companies controlled directly with a 100% stake: Terna Rete Italia S.p.A., Terna Rete Italia S.r.l., Terna plus S.r.l., Terna Storage S.r.l., SunTergrid S.p.A. and, through this last company, Rete Solare S.r.l;
- the Montenegrin company controlled directly, with a 100% stake, Terna Crna Gora d.o.o.;
- the associated companies CESI S.p.A. (42.406% stake), CORESO S.A. (Belgian company, 22.485% stake); CRNOGORSKI ELEKTROPRENOSNI SISTEM AD - "CGES" (Montenegrin company 22.0889% stake) and the Tunisian joint-venture ELMED ÉTUDES Sarl (50% stake).

Organisational structure

Starting from April 1, 2012 the Terna Group adopted an organizational structure which, implementing the decisions of the Board of Directors of Terna S.p.A. of November 9, 2011, and in line with the strategies presented in the 2012 Industrial Plan, involves division into a Parent Company and two Operating Companies wholly controlled by the Parent Company itself.

- **Terna S.p.A.**, the parent company, not only holds the licence for the transmission and dispatching of electricity bracket issued by Ministry of Production Decree of 20 April 2005), but also maintains ownership of the capital assets, and responsibility for defining the NTG Development Plan, and the Defence Plan.
- **Terna Rete Italia S.p.A.** (a subsidiary established by Terna S.p.A. on 23 February, 2012) is delegated, through a four-year business unit rental agreement to perform all the core operational activities, ordinary and extraordinary maintenance of the NTG, management and performance of work on developing the grid, connected with the implementation of the provisions of said Agreement and on the basis of guidelines laid down in the Development Plan. This company employs most of the Group's human resources (about 90%).
- **Terna Plus S.r.l.** is the operating company devoted to work on the creation of non-core business projects. It has developed a slim and flexible operating structure.

  The Group's new organisational structure outlined above enables a better focus on the core business and on new activities that may be developed, as well as achieving better efficiency and effectiveness of the operating/management processes assigned to the respective subsidiaries, in compliance with the Parent Company's strategic guidelines.

Other subsidiaries

TERNA CRNA GORA d.o.o., a Montenegrin limited liability company incorporated on June 22, 2011 and wholly controlled by Terna, is engaged in implementing the work relating to the authorization, construction and management of the electricity interconnection in Montenegro. The company also works to promote development opportunities in the transmission sector in the Balkans in support of investors in generation, in order to contribute to the enhancement and use of the Italy-Montenegro interconnection infrastructure.

Associates

CESI is an Italian company and the market leader in testing and certifying electro-mechanical equipment, as well as electrical system consultation. It covers all the stages of the life cycle of the electrical system and offers electricity companies (generation, transmission, and distribution), manufacturers of electrical and electronic equipment, large consumers of electricity, and local and national governments a complete range of services aimed at solving problems connected with the productive processes of the entire electricity industry.

CORESO is a Belgian service company with its headquarters in Brussels; Terna became a shareholder in November 2010 with a 22.485% stake. The ownership structure of the company includes the operators of France (RTE), Belgium (Elia) and Great Britain (National Grid), each holding a stake equal to Terna's, together with the German operator, 50 Hertz Transmission, with 10%. CORESO prepares daily forecasts and analyses in real time of energy flows in Central and Western Europe, identifying possible critical issues and duly informing the TSOs concerned in a timely manner. For the Group, Terna's stake in CORESO represents an equity interest in an associate.

CRNOGORSKI ELEKTROPRENOSNI SISTEM AD ("CGES") is the Montenegrin TSO of which Terna became a shareholder in January, 2011, with 22.09% of the capital following approval by the shareholders' meeting of CGES of the capital increase reserved for Terna. The agreement represents the end point of a process of industrial and national cooperation and is part of the intergovernmental agreements between Italy and Montenegro which were initiated on December 19, 2007, and sanctioned by the signing of a strategic partnership agreement in November 2010, for the construction of a new submarine electricity interconnection and the implementation of the partnerships between national transmission operators.

Joint Ventures

ELMED ÉTUDES is a special purpose entity, owned jointly by Terna and by the Tunisian electrical company STEG, which is developing Elmed, an integrated electricity production project in Tunisia, using conventional and renewable sources, and transported to Italy through an underwater interconnection. Production rights will be assigned by means of an international competition.

For information on recent changes in the regulatory framework affecting the Company, see the 2012 Annual Report, pages 101-113.

DIMENSIONS OF THE TERNA GROUP AS OF DECEMBER 31, 2012

Number of employees:	
Group (Italian perimeter)	3,433
of which: Terna SpA	333
Terna Rete Italia	3,088
Terna Plus	12
Terna Crna Gora	3
Turnover in millions of euro	1,806
Total capitalization in millions of euro	5,970
Km of three-phase conductors (1)	63,448
Km of lines (1)	57,440
EU4 *of which underground*	1,369
of which underwater cable	1,348

(1) For the km of lines and three-phase conductors broken down by voltage, see the indicator tables on page 168.

The Strategic Plan

The Strategic Plan for the period 2013-2017, after approval by the Company's Board of Directors, was presented on February 6, 2013. It can be summarized in the following points.

Core Business

Grid development is the priority, also introducing new technologies

In the next 5 years the Terna Group plans to invest 4.1 billion euro in activity regulated by the AEEG (Electricity and Gas Authority) to secure and modernize the electricity grid, of which 83% will be destined for Grid development. Of the 4.1 billion euro, approximately 300 million will be destined for the creation of accumulation systems.

Looking to the medium/long-term, the 2013 National Transmission Grid Development Plan confirms investments of 7.9 billion euro.

The Plan priorities aim at increasing the interconnection capacity of the electricity borders with other countries and at reducing inter-zonal congestion, between market zones or zones deriving from the use of renewable systems.

The Terna Group currently has more than 150 construction sites open all over the country, for a value of 3 billion euro. Overall 1,200 km of new sustainable and technological grid is under construction, together with 60 new stations. Once they are completed, these projects will enable the decommissioning of 850 km of old lines. Among the main works in progress we can note: the 380 kV "Foggia-Benevento" power line, between Puglia and Campania; the 380 kV "Trino-Lacchiarella" power line, between Lombardy and Piedmont; the 380 kV "Dolo-Camin" power line, between Venice and Padua, the doubling of the "Sorgente-Rizziconi*" electricity connection between Sicily and Calabria, and the two new interconnections with other countries "Piossasco-Grand'Ile*", between Italy and France, and "Villanova-Tivat", between Italy and Montenegro. Future infrastructure, characterized by significant technological and environmental innovation and sustainability, will lead to a 1 million tonne reduction in CO_2 emissions released into the atmosphere. In particular, 70% of the total length of the 6 "top" projects (more than 1,000 km) will be made with submarine and underground cables, while latest-generation pylons such as the "single-pole" tubular towers and the "Sprout" towers will cover 60% of the overhead stretches.

Non-Core Business

Perfecting the business model

The Terna Group's strategy focuses on consolidating a pipeline of approximately 400 million euro developing activities in the field of engineering, O&M and optical fibre housing, to which could be added a further potential 900 million, currently not included in the Plan forecasts.

Improvement of margins

Eighth year of growth

It is anticipated that the increase in revenues and control of costs will translate into further growth of profitability. It is estimated that the EBITDA margin at the end of the Plan could exceed 80%.

Sound financial structure

Continual commitment to strengthening capital ratios

In the 2013-2017 Plan it is estimated that the increase in borrowing will be reduced by 600 million compared with the previous Plan (1 billion vs 1.6 billion). The capital structure is confirmed as solid: the Net Debt to RAB ratio remains below 60% in all years of the Plan, and it is expected that Net Debt will fall below 4 times EBITDA by the end of the Plan.

Dividend policy confirmed

The 2013-2017 Plan presents a TERNA S.p.A. dividend policy in line with the one announced last year: during the Plan period, the basic dividend from Core Business is expected to be 19 euro cents per share, to which the contribution of the Non-Core Business must be added (payout of 60% of the results).

Ownership structure

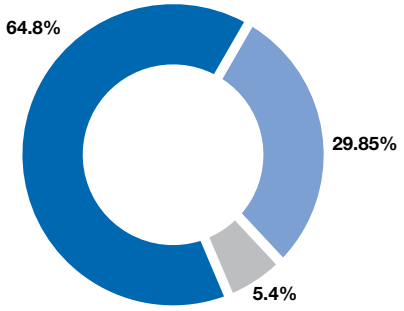
Terna S.p.A. has been listed on the Italian Stock Exchange since June 2004.
As of the Board of Directors' meeting on 15 March 2013, at which the annual report was approved, the share capital of Terna S.p.A. amounted to €442,198,240, represented by 2,009,992,000 ordinary shares with a par value of €0.22 each.
On the basis of the register of shareholders and other information available at the date of preparation of this report, the ownership of Terna S.p.A. is divided as follows:

- Cassa Depositi e Prestiti S.p.A. (CdP)[1] 29.85%
- Romano Minozzi 5.4% (1) and (2)
- Institutional and Retail Investors 64.8%

TERNA'S SHAREHOLDER BASE

Cassa Depositi e Prestiti S.p.A. (CdP)[1]	29.85%
Romano Minozzi [1,2]	5.4%
Institutional and Retail Investors	64.8%

Total 100%



On the basis of the periodic surveys carried out by the Company, it is believed that 64% of Terna S.p.A. shares are held by Italian investors (CdP 29.85%, Retail Investors 26.5% and Institutional Investors 7.5%), with the remaining 36% being held by foreign Institutional Investors, primarily European and American.
At the end of 2012, 11.8% of Terna's share capital was held by 78 socially responsible investors (SRI). There were 66 SRI (Socially Responsible Investors) - i.e. investors choosing to invest in Terna to apply a sustainability approach based on the consideration of ESG (Environmental, Social, Governance) aspects. This figure represents a significant increase compared to the one recorded in December 2010. At present, they represent 5.2% of the float, and 8.4% of the shares held by corporate investors (the 2010 figures were 3.7% and 6.5% respectively).
Reflecting specific laws on State shareholdings in companies involved in liberalization processes, Terna's Articles of Association set certain limits on shareholding and voting rights. As in the case of other companies involved in the liberalization process, the Ministry of the Economy and Finance, in agreement with the Ministry for Economic Development, has the right to object to the acquisition – by investors that are not under public control – of equity interests exceeding 5%. Moreover, in order to safeguard Terna's independence and impartiality, no operator in the electricity industry may exercise voting rights in appointing the Board of Directors for a stake of more than 5% in the share capital.

(1) Shareholders with a stake in the share capital of Terna S.p.A. above the thresholds indicated in the Consob decision no. 11971/99 (based on the information available, and communications from Consob).
(2) Shares held directly and indirectly

Corporate Governance

Terna's governance structure is based on the traditional model of administration and control, and is compliant with the provisions of the Italian legislation on the subject of listed companies. Terna has adopted the Corporate Governance Code of listed companies published by the Committee for Corporate Governance sponsored by ABI, ANIA, Assonime, Assogestioni, Borsa Italiana, Confindustria according to the latest update in December 2011 and in 2012 approved and implemented the revisions of the Corporate Governance system to observe the commitments set out by the Code as anticipated by the timeline for adjustment scheduled by the temporary regulations.
The Company's Corporate Governance system is therefore in line with the principles contained in the Corporate Governance Code – which can be consulted on the web site of Borsa Italiana, www.borsaitaliana.it – with the relevant regulations formulated by the CONSOB, and in general with the best practices found at the international level.
This corporate governance model aims to create value for our shareholders, while reflecting awareness of the social significance of the Group's activities and the need to appropriately consider all the interests involved in carrying them out, while acknowledging that – as noted by CONSOB – "good Corporate Governance can trigger a virtuous circle in terms of corporate efficiency and integrity, which will also positively influence the other stakeholders".
The Board of Directors, which is elected by the Shareholders' Meeting, is charged with taking care of corporate management. The Board of Directors is responsible for establishing strategic and organizational guidelines for the Company and the Group, as well as ensuring that the controls necessary for monitoring the performance of the Company and its subsidiaries are in place.

EC7 BOARD OF DIRECTORS IN OFFICE AT 31.12. 2012

Office	Members	Executive	Non-executive	Independent	Internal Control Committee	Compensation Committee	Committee on Transactions with Related Parties
Chairperson	Luigi Roth		●				
Chief Executive Officer	Flavio Cattaneo	●					
Director	Fabio Buscarini		●	●			
Director	Paolo Dal Pino		●	●	●	●	●
Director	Matteo Del Fante		●		●		
Director	Salvatore Machì		●	●		●	●
Director	Romano Minozzi		●	●		●	●
Director	Francesco Pensato		●	●	●		
Director	Michele Polo		●	●	●		

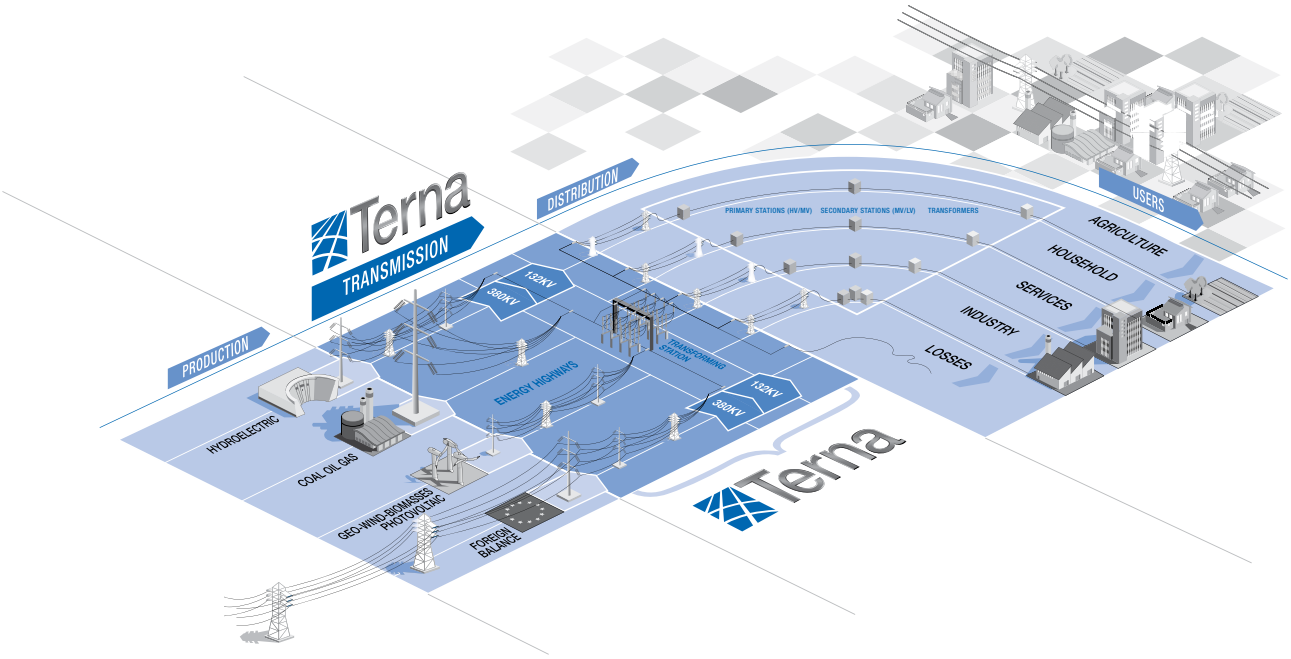
According to that deliberated by the Ordinary Shareholders' Meeting of May 13 2011, the Board of Directors consists of nine members.
The Board of Directors will remain in office until the approval of the financial statements relative to the 2013 financial year.
The following individuals are members of the Board of Directors, as deliberated by the Shareholders' Assembly of May 13, 2011: Luigi Roth. Flavio Cattaneo, Paolo Dal Pino, Matteo Del Fante, Michele Polo (Directors elected from the majority list prepared by Cassa Depositi e Prestiti S.p.A.), Fabio Buscarini, Salvatore Machi and Romano Minozzi (Directors elected from the minority list prepared by the shareholder Romano Minozzi and companies controlled by him).

Following the resignation of the Director, Andrea Camporese (elected by the aforementioned Shareholders' Meeting from the majority list), the Board of Directors, at the meeting of July 29, 2011, deliberated on the nomination by co-optation of Francesco Pensato (following recommendation by the majority shareholder Cassa Depositi e Prestiti S.p.A. which had recommended the Director who is resigning). This appointment was confirmed by the Shareholders' Meeting of May 16, 2012.

Further information on Terna's corporate governance can be found in the "Corporate Governance and Ownership Structure Report", which was approved by the Board of Directors on March 31, 2013 and is available on the Company's institutional website (www.terna.it) in the Investor Relations section, accessible from the homepage as well as being published with the Terna 2012 Annual Report.

Electricity transmission

Terna's main business is the transmission of electricity in Italy.
The Italian electricity system consists of four components: the production, transmission, distribution, and sale of electricity. **In this process, Terna is engaged in managing the electricity system by operating the high voltage grid, maintaining infrastructures, and developing the grid (planning and construction).**



The main stages of the transmission service are as follows:

Operation

In grid operation, it is **essential to ensure a balance of deliveries and withdrawals at all times**, i.e. between the supply of energy, produced domestically and imported, and consumption by end users. This function is called dispatching.
Preparation for real-time operation includes **planning unavailability** (of the grid and production plants) with different time horizons, a forecast of the national electricity requirements, comparison to see if it is consistent with the production plan determined by the outcome of the free power market (Electricity Exchange and off-Exchange contracts), acquisition of resources for dispatching, and checks on power transits for all transmission grid lines.
During the **real time control stage**, the National Control Centre, coordinating other centres around the country, monitors the electricity system and carries out dispatching, intervening where differences are seen in the expected structure owing to production plant or grid element failures or owing to a trend in demand that differs from forecasts, with commands to producers and remote operation centres, in order to modulate the supply and the grid structure. To avoid the risk of grid degeneration and extensive power outages, it may intervene in an emergency, also to reduce the demand.

Grid development planning

The analysis of electricity flows on the grid and the development of projections of demand enable Terna to **identify critical aspects of the grid and the new works that need to be constructed** in order to ensure system adequacy in terms of meeting requirements, secure operations, reduced congestion, and improving service quality and continuity.
Works to be constructed are detailed in the National Transmission Grid Development Plan, which is presented to the Ministry for Economic Development every year for approval. Terna then follows the authorization process, from advance consultation with local governments all the way through to the authorization for construction.
Finally, by analyzing the situation of the grid, Terna identifies the **best ways to connect plants to the grid** for all operators that make such a request.

Construction

Terna establishes the engineering standards of the plants, in particular the construction standards, and the performance required from equipment, machinery, and components of stations and electricity lines.
As far as plant construction is concerned, **Terna prepares projects for the works authorized**. In particular, it establishes the requirements of external resources and project budgets as well as working methods and technical specifications for the components and materials that will be used in constructing the new lines or stations, including the adoption of innovative methods. The construction of new plants is normally outsourced.

Maintenance

Terna carries out the **maintenance of its power lines and stations** through eight Transmission Operating Areas, which employ most (slightly less than 70%) of the Company's human resources.

EU6 Other activities

With a view to completing the activities performed on licence, Terna works to develop non-core business initiatives, that is those not regulated or subject to regulation by the Electricity and Gas Authority (AEEG), but not activities under the concession.
In 2012 these activities concerned:

- the progress of the investment projects in accumulation systems (batteries), included for the first time in the Strategic Plan presented by Terna at the beginning of 2012;
- the continuation of the initiatives abroad in the area of the Balkans and North-African Mediterranean.

Planning and development of accumulation systems

The exponential growth of widespread generation is profoundly changing the national electricity system. Alongside large production plants which use traditional sources such as coal, fuel oil and gas, there are now hundreds of small and very small plants mainly supplied by renewable sources.
This rapid growth is due in particular to the incentive system of the last few years which, even though it is gradually being reduced, is still higher than that of many other European countries. Compared to the benefits in terms of reduction of CO_2 emissions, the integration in the electricity system of a large quantity of production from renewable sources (especially solar and photovoltaic) entails two principal problems:

- excess production compared to consumption at the local level under specific operating conditions;
- need for a higher (and flexible) level of reserve to balance the rapid variability in the production levels, with adequate response times.

In this regard, Terna provided for the development of accumulation systems in the Development Plan of the NTG for the 2011 year and in the Safety Plan relative to 2012. In the first case, for more efficient management of the NTG to maximize the production of renewable sources. On the other hand, for the Safety Plan, the proposal to introduce accumulation systems, with technical characteristics different than those of the Development Plan, meets the requirements for greater safety in management of the network.
After careful verification, both with the Electricity and Gas Authority and the Ministry of Economic Development, Terna received approval to experiment with 35 MW energy intensive batteries (experimental implementation within the Development Plan) and to create 40 MW power intensive batteries (within the context of the Safety Plan).

Development abroad

EU23

The Mediterranean as a whole represents a new emerging market of 500 million consumers, and is not only an opportunity for Italy and Europe, but a requirement.
The development of infrastructure (energy, water, transport and the ancillary structures) on a regional scale is an essential requirement for social and economic growth. New areas of the market are opening up to companies operating in the sector of electricity infrastructure, which was historically concentrated in national markets. In this context, the focus on international growth in the Mediterranean basin will allow Terna to benefit from competitive advantages:

- historic and cultural synergies with many countries on the Southern shore, enhanced by successful industrial collaborations in the past.
- Italy's geographical position: it is a logistical and organisational platform in a central position compared to emerging areas, and can also form connections to European countries with no outlets onto the Mediterranean, given the high capacity for transport on Italy's northern electricity frontier (approximately 10,000 MW).

- Highly specialised know-how in relation to the design, production and management of electricity infrastructure for energy generation and transport.
- An institutional, regulatory and industrial base able to support developments in the market (regulatory and legislative framework, separation between transport and generation, certification systems, metering and settlement), which gives Italy a role not only in the potential outlet market, but also in terms of transport to the European market.

With regard to its international development activities, Terna has focused on North Africa, and on some of the Balkan countries – with which the Italian government is currently implementing intergovernmental agreements for cooperation and development in the field of electric power and renewable energy sources.
The expansion of activities in strategic areas is intended to increase the company's capacity for electricity transport, through new interconnections with neighbouring countries, with benefits in terms of the increased security of the Italian electricity system and the diversification of the sources of electricity procurement from abroad which increases competition on the Italian electricity market, thus reducing electricity prices.
The new underwater electric power line between Italy and Montenegro is the most significant electrical interconnection project in the Balkan area. Currently, Terna only conducts preliminary research in the North African area, and does not yet have operational activities there.

The Balkan region

The Balkan region is the area of greatest strategic interest for Terna, considering its proximity and the energy potential in the region, particularly with regard to renewable resources.
The region currently has the most attractive nearby power market because of the forecast medium- and long-term power surplus at competitive production costs and the diversification of supply sources, thanks to its unused renewable energy potential (in particular hydro, wind energy and biomass), which can help to ensure compliance with EC targets in terms of CO_2 reduction. Access to this market will enable diversification of supply sources at competitive production costs.
Montenegro is the focus of Terna's activities in the Balkans, as it is extremely well-placed to meet the demands of the national market thanks to the availability of a transmission network in good condition that is well-linked to the generating hubs planned for the area in the future (Bosnia - Herzegovina, Serbia, Albania and – via Serbia – Bulgaria and Romania). These factors make Montenegro the best candidate for the role of electricity exchange platform between Italy and South East Europe, with surplus energy availability over the short-medium term, at lower costs than in Italy.
In this context the new underwater electric power line between Italy and Montenegro, incorporated into the NTG Development Plan, will link Italy to the Balkans through 415 km of cable between the 400 kV hubs in Villanova (Pescara) and Kotor (Montenegro), with a transport capacity of 1.000 MW.
Plans for the power line are also based on the intergovernmental conventions and other agreements between Terna, the government of Montenegro and the local transmission operator CGES to construct the Italy-Montenegro cable and the network infrastructure in Montenegro through a strategic partnership between Terna and CGES, in whose share capital Terna itself holds a stake.
The authorisation process has now been successfully complete on both sides, and the international tender contracts relating to the supply and installation of the HVDC cables and conversion stations have been awarded according to the procedure used to award services and supplies for grid development investments in Italy.
The project is currently in the implementation phase: in Italy, these activities are handled by Terna Rete Italia, while in Montenegro they are the responsibility of Terna Crna Gora.
To complete the new underwater power line with Montenegro, Terna intends to promote the development of network infrastructure in the Balkan states, in order to consolidate the electrical exchange corridors with Italy, guaranteeing Italian electricity market operators the opportunity to import from the region. Terna Crna Gora is also working to promote development opportunities in the transmission sector in the Balkans in support of investors in generation, in order to contribute to the enhancement and use of the Italy-Montenegro interconnection infrastructure. These activities are focused on the planning, construction and management of transmission infrastructure to connect the local transmission grid to new generating installations, and to electrical interconnections between Montenegro and its neighbours.

North Africa

As mentioned, Terna does not currently have any investment activities in North Africa, but only development activities.
In developing projects for connection with North African countries, Terna favours projects to produce and transport electricity with particular regard to renewable sources which bring environmental benefits and increase the security of investments by safeguarding their risk profile.
This development strategy will be achieved by integrating the Euro-Mediterranean electricity grid, in order to:

- optimise and progressively share primary generation resources (conventional and renewable) existing in the area;
- exploit the availability of renewable energy sources located on the southern shore of the Mediterranean and connect them with the outlet markets;
- promote the construction of electrical infrastructure on the Southern shore, needed to activate international energy exchanges along the South-south and South-north axis.

This approach translates into a Euro-Mediterranean multilateral cooperation project, involving:

- the construction of an electrical corridor between the Maghreb and Europe, through projects relating to the interconnection with Tunisia and Algeria;
- participation in cooperation, institutional and industrial initiatives.

The interconnection projects currently under development are:

Project Elmed: This is an integrated production and transmission project based on market procedures involving the production of electricity in Tunisia and its export to Italy under an intergovernmental agreement that provides institutional coverage for the industrial initiative. Terna and the Tunisian national electricity company STEG have signed a partnership agreement to carry out the project and have set up a mixed company (Elmed Études) tasked with assisting the Tunisian Ministry in managing the tender procedure for the allocation of production rights in Tunisia, and export to Italy. Elmed Études has already carried out the technical studies (an analysis of the Tunisian network in order to support the impact of Project Elmed) and regulatory studies (the regulatory framework needed for the project's implementation).

The project is not yet operational, as the institutional agreements between the governments of Italy and Tunisia have yet to be confirmed. The original project provides for:

- a mix of production from renewable sources (minimum 100 MW) and conventional sources in Tunisia of 1,200 MW, of which 400 will be allocated to the Tunisian market and 800 will be exported to Italy by the company awarded the Tunisian production rights, to be selected through an international tender launched by the Tunisian government;
- an interconnection between Italy and Tunisia via an underwater line constructed and managed by a mixed company (Terna - STEG) controlled by Terna; the transport capacity will be 1,000 MW.

Interconnection between Italy and Algeria: with a view to connecting the electricity systems of Algeria and Italy, and the systems in the Maghreb and Europe in general, Terna and Sonelgaz signed an agreement in March 2011 in order to update and implement a previous feasibility study relating to the underwater link between Algeria and Italy completed in 2004 by the national transmission grid operator at the time and Sonelgaz, and the definition of the technical, financial, industrial, institutional and regulatory conditions needed for its realisation. The activities will be completed by the end of 2013.

The other cooperative initiatives include:

Paving the Way for the Mediterranean Solar Plan: this is a European Commission project to implement and develop the Mediterranean Solar Plan, which Terna is working on as part of a consortium with RTE (France), Sonelgaz (Algeria), MVV Decon (Germany) and with ENEA.

The project involves technical services for nine beneficiary countries in the MENA (Middle East – North Africa) area, in order to define a legal and regulatory framework that will encourage the production of energy from renewable sources on the southern shore of the Mediterranean, and the integration of electricity systems on both sides.

The consortium works closely with the institutions in the beneficiary countries, transferring knowledge and know-how. Terna's contribution is focused on assessing the production and transmission systems in the countries involved, formulating proposals for the development of renewable-source electricity exchanges, and on defining a regulatory framework, harmonised at the Mediterranean level that will encourage the integration of regional electrical systems. The project will be completed by the end of summer 2013.

Medgrid: this is a private French-law company involved in promoting a Euro-Mediterranean electricity grid for the transmission of renewable-source electricity between MENA countries, and transporting it to Europe.

Desertec: this German-led industrial initiative has the aim of promoting Europe-Mediterranean cooperation in the field of electricity production, mainly from renewable resources, in North Africa and the Middle East (MENA) and exporting it to Europe.

EU6
EU23

Med-TSO: Terna for an integrated Euro-Mediterranean power grid

Med-TSO is the Mediterranean Association of Electricity Operators, formed on 19 April 2012 in Rome, in order to create a special form of cooperation between the TSOs with the aim of integrating electricity systems in the Mediterranean. It includes 17 TSOs from 15 countries in the Mediterranean.
Apart from the Assembly, the organisation of the Med-TSO includes an Executive Council composed of the Chairman (Sonelgaz - Algeria), the Vice-Chairmen (TEIAS – Turkey and RTE - France), and the Secretary-General (Terna - Italy). The Secretary-General has the task of directing the Association's operational structure according to guidelines received from the General Assembly and Executive Council.
The first task given to Med-TSO by the European Commission is to prepare the Master Plan for Mediterranean Interconnections which includes internal reinforcements on the networks of the countries involved. The results will be presented at the end of 2013, at the Meeting of Energy Ministers from the EU and the rest of the Mediterranean.
The tools used by Med-TSO include the studies carried out by its members, and the transfer of know-how and experience. In this sense, cooperation with international institutions – the European Commission, Europe's Parliamentary Assembly, ENTSO-E (the Association of European TSOs), MEDREG (the Association of Mediterranean electricity and gas regulators), is a fundamental part of promoting of coordinated actions with a multilateral approach. Together with international financial institutions, the above bodies have stated their willingness to support Med-TSO in order to create greater synergies to the meet European-Mediterranean energy objectives, with particular regard to the development and integration of national identity systems focusing on the promotion of renewable resources and the harmonisation of regulatory frameworks.
Networks and rules are essential components in the coordinated development of the Mediterranean's electricity systems, a fundamental objective of Med-TSO, and are also essential to activate investments in the area.

The northern frontier

On the northern frontier, one of the key development projects is the continuous current interconnection with France, linking the hubs at Piossasco (Turin) with Grand'Ile (France) via a terrestrial continuous current cable, either underground or integrated into the infrastructure of the A32 Fréjus motorway. The presence of long tunnels and viaducts makes this highly ecological project the only one of its kind in the world. Authorised by the Italian authorities in March 2011, the line will be 190 km long. Half of that length will be in Italy, and it will use the motorway platform and new service link through the Fréjus tunnel.
The new link, which will guarantee an increased capacity for exchange with the French frontier, will also augment the supply of cheap energy and the diversification of primary sources, which will have benefits for the country as a whole.

Sustainability

Terna's concerns

Terna's main business is the provision of a service which is indispensable for operation of the entire electricity system and to ensure electricity for everyone. The greatest social and economic impact of the company's business lies in its ability to ensure that the general public has reliable, efficient electricity service. The commitment to service is therefore also the main reference point for the approach to sustainability matters, for which, in particular, respect for the environment and the local area and attention to workplace safety and staff training are particularly important. In general, Terna's intent, as established in its Code of Ethics, is to construct and develop relationships based on trust with stakeholders, which are able to create value for the business and for the stakeholders themselves.
Even though the end users of electricity service are not direct customers of Terna, but rather of companies that distribute and sell electricity, the essential role it performs in the electricity system makes Terna **ethically responsible to all of Italian society for its service**. Thus Terna acknowledges the responsibility given to it by the government licence, setting itself the following objectives:

- to provide a secure, reliable, continuous, and cost-effective service;
- to ensure an efficient and developing transmission system;
- to observe the principles of impartiality and neutrality in order to ensure equal treatment for all grid users.

Terna's activities produce an impact on the territory, related above all to the visibility of the electrical infrastructures. **Reducing the impact of the lines** is therefore another priority objective. For Terna **respect for the environment and local communities** is a rule of conduct which can trigger a virtuous circle: it makes it possible to preserve biodiversity and the riches of the landscape and culture of the territory as well as facilitating the acceptance and the creation of new infrastructures thus generating economic benefits for shareholders and for society, which can enjoy a more secure, more efficient and less costly service. Attention to communities is also expressed through the creation of initiatives of social, humanitarian and cultural importance, as a concrete sign of participation in the civil growth of society.
The role of human resources in Terna's activities is fundamental. The **renewal of distinctive technical skills**, which are often rare or unique in the electricity industry, constitutes an important element in Terna's sustainability approach. Another element, just as important, is attention to **workplace safety**, especially relevant due to the fact that many operating activities are associated with particular risks, such as work at many metres above ground and maintenance work on live lines.
Further details on the significant elements of sustainability for Terna can be found in the first sections of the four chapters on service, economic, environmental, and social responsibility in this Report.

Medium-term prospects

Projected over a medium/long-term horizon, the themes of sustainability are part of Terna's development strategies above all as regards the aspects of relations with the community and environmental impacts. The need to face up to a significant generational succession will keep the issue of core competence management alive in the next few years, which will combine with those - ever-primary issues - of quality and security of the electricity service.

Local communities

In the medium term, the creation of value for shareholders and the quality of the electricity service are linked to development of the grid and of interconnection relations with other countries.
The theme of **acceptance by local communities** is therefore a significant one: besides relationships with Institutions, which are already based on prior identification of agreed solutions, increasing the degree of acceptance of electricity infrastructures by the communities involved is an absolutely primary objective, as can also be seen from the disputes described in the present report. Terna has begun an analysis of the most effective ways of presenting its development projects. With respect to these objectives, an important roles are played by communication and involvement, as well as by the local Institutions, and associations representing civil society on the territorial scale.

The environment, climate, and renewable energy sources

Among the topical issues to which Terna pays close attention are electro-magnetic fields, climate change, and the development of electricity production from renewable sources.
In relation to electro-magnetic fields, Terna's commitment translates above all into scrupulous observance of the

provisions of Italian laws, which are among the strictest in the world. Considering the sensitivity of public opinion on the issue, Terna pays **constant attention to advances in scientific research on electro-magnetic fields** in order to assess any risks connected with its work. In addition, it will continue to contribute to providing correct information regarding public opinion on the matter.
Climate change and greenhouse gas emissions are one of the most significant problems at the planetary level. Terna is not obliged to reduce emissions or to be involved in emission trading schemes, nor does it see particular risks associated with climate change for its revenues (see also the paragraph on "Risk management", pages 79-81). Despite this, both as a sign of its sensitivity to environmental issues and in response to the growing attention to which all companies in the electricity industry are subject, **Terna has already developed programmes to control and contain direct and indirect emissions**, and will maintain its commitment to seeking greater energy efficiency. Terna's greatest contribution to lowering CO_2 emissions into the atmosphere is development of the grid, which makes the electricity system as a whole more efficient and **makes it possible to feed in growing production from renewable sources**. Applied research and Smart Grid initiatives point in this direction, as does the participation in initiatives and international projects to develop an integrated Euro-Mediterranean electricity grid, (see page 32 and 60) and the development of accumulation systems envisaged in its Strategic Plan for the coming years.

Activities abroad

Focusing on the area of Mediterranean North Africa and on the Balkans limits potential critical issues which can emerge operating abroad.
The development of foreign business based on current forecasts does not lead us to expect the emergence of issues that are not already overseen in the current context of social responsibility activities. However, constant monitoring of the adequacy of tools and processes will be required. This has already begun, for example, with reference to the supply chain (see the box on page 91).

Human resources

Constant concern for human resources, first of all with regard to **safety**, but also **training to continually update the technical capabilities that are a feature of the industry** will continue to be a priority for Terna.
The subject of professional training will remain of particular importance in relation to the generational turnover which will involve Terna's personnel over the next few years, although the impact of the transition has been distributed over a longer time horizon than foreseen, following the pension reform introduced by the Italian Government in December 2011. The response strategy, which includes knowledge transfer through the Faculty Campus as a key feature, is outlined in detail in the box "Management of generational turnover" page 137.

Sustainability governance

The Code of Ethics

The Code of Ethics was approved by the Board of Directors of December 21, 2006. The result of a process of internal reflection which involved top management and the first management line, it is the highest reference in identifying the sustainability issues relevant for Terna, and in defining internal policies and guidelines. It can be used as a concrete guide for everyday decisions, helping to achieve the objective of establishing and consolidating a relationship of trust with the stakeholders.
The Code is divided into five sections, which describe:

- general ethical principles (legality, honesty, and responsibility) and those particularly significant for Terna's business (good management, respect, fairness, and transparency);
- the conduct required, specifically from employees, with regard to general issues of loyalty to the Company, conflicts of interest, and safeguarding corporate assets;
- the main guidelines on conducting relations with stakeholders;
- Terna's commitments to ensuring observance of the Code;
- the rules for implementing the Code and the persons responsible.

One of the commitments expressed in the Code is providing evidence in the Sustainability Report of the implementation of the Company's environmental and social policy, as well as the consistency between objectives and results achieved.

HR5 HR6 HR7

The Global Compact

When it joined the Global Compact (2009), the United Nations' multi-stakeholder network, Terna further cemented its commitment to observing the 10 principles of the Global Compact on human rights, employment, the environment and prevention of corruption. These principles were already set forth in Terna's Code of Ethics as a benchmark for the company's corporate responsibility and sustainability initiatives.

After becoming a member of the Steering Committee of the Italian network (2011), Terna contributed to its activities in 2012, taking part in the Working Group on the supply chain and, for the second consecutive year, produced an "advanced" level Communication on Progress (CoP), something only 383 member organizations of the Global Compact out of 10,452 worldwide[3] can state.

Management policies and systems

The principles and criteria of conduct of the Code of Ethics have been translated into corporate policies and coherent management systems. Among these, we can note in particular the following.

The integrated Quality, Environment and Occupational Safety management system

The activities in the delicate fields of environment and occupational safety, which are crucial to Terna's vision of sustainability, are coordinated and directed in the integrated Quality, Environment and Occupational Safety management system, which has obtained **ISO 9001**, **ISO 14001** and **OHSAS 18001** certification. Compliance with these certification requirements testifies to the search for continual improvement, which guarantees consistency with the commitments expressed in the Code of Ethics and in the corporate policies. **The integrated system covers 100% of Terna's activities**, both those carried out on the existing plants, and those to plan, design and construct new plants, excluding solely those of the company Terna Crna Gora, for which processes will be certified during 2013. In 2010, after the inspections carried out by the IMQ certification body on the Quality, Environment and Occupational Health and Safety Management Systems, Terna received renewal for the three years 2011-2013 of the UNI EN ISO 9001:2008 – UNI EN ISO 14001:2004 – BS OHSAS 18001:2007 certifications with the consequent issue of new certificates. During 2012 the certification bodies confirmed annual renewal.

In June 2012 Terna confirmed its ISO/IEC 27001:2005 certification (obtained in 2011) of the TIMM (Testo Integrato per il Monitoraggio del Mercato Elettrico - Integrated Rules for Electricity Market Monitoring) applications.

ISO 27001:2005 is an international standard which provides the requisites for an Information Security Management System (ISMS) for the aspects of physical, logical and organizational security and is consistent with the approach of the ISO 9001 Quality System and of Terna's Risk Management System (see also page 65 of the 2010 Sustainability Report).

In addition, again in 2012, the "Initial Energy Analysis" was performed and the "Energy Consumed for Own Use Management System" defined, with the aim of aligning the system to the UNI CEI EN ISO 50001 standard in accordance with the "Environmental Management System". In this context energy analyses were carried out at the offices in: Via Galbani and Via Palmiano in Rome, Pero and San Rocco al Porto in the Province of Milan, and at the Palermo office.

UNI CEI EN ISO 50001: 2011 "Energy Management Systems" is a standard which lays down the requirements for creating, introducing, maintaining, and improving an energy management system oriented towards energy efficiency.

231 Organizational Model (pursuant to Legislative Decree 231/2001)

In December 2002 Terna's Board of Directors resolved to adopt an Organizational and Management Model that met the requirements of Legislative Decree No. 231 of June 8, 2001, which introduced into Italian Law a system of administrative (and in practice criminal) liability for companies with respect to certain types of offences committed by their directors, managers or employees in the Company's interest or to its benefit. In particular, the law was intended to combat corruption. The possibility, for a company, to be exonerated from liability is conditional on specific actions, including:

- having adopted and implemented – before the deed was committed – an organizational and management model in keeping with Legislative Decree 231 and capable of preventing crimes of the kind committed;
- having entrusted the functioning, observance, and updating of the Model to an Internal Oversight Committee endowed with autonomous powers of initiative and control regarding the application of the Model.

Terna's adoption of the 231 Organizational and Management Model is thus aimed at ensuring "conditions of fairness and transparency in the conduct of the Company's business" and activities, so as to safeguard its position and image, as well as the expectations of its stakeholders, in keeping with the provisions of Legislative Decree No. 231 of June 8, 2001. The Model has subsequently undergone a number of revisions to adapt it to the provisions of the law and the inclusion of additional crimes to Decree 231.

In its current form the Model is divided into 11 parts, 1 general and 10 special (A, B, C, D, E, F, G, H, I, L). More specifically, following Legislative Decree 121/2011's entry into force, which extended the scope of application to certain environmental crimes, Terna S.p.A. revised its Organizational and Management Model, introducing Special Part L, concerning such crimes.

(3) Source: official Global Compact website at September 2012.

The 11 special parts of the Model regard the following:
A – crimes in relations with the civil service and the judiciary
B – corporate crimes
C – terrorism
D – crimes against individuals
E – market abuse
F – recycling money
G – manslaughter and grievous/very grievous bodily harm
H – IT crimes, illegal data processing, copyright violation
I – organized crime
L – environmental crime
During 2012 the Security and Services Department carried out an intense study of the legislation in the industry and revised the Organizational Model to take account of the new corporate structure, ensuring among other things, rapid adaptation both to the legislative changes and to structural modifications.
On the first point, after implementing the catalogue of predicate crimes, Special Part D governing "Crimes against individuals" was modified, introducing the crime of "Employment of citizens of third countries without permission for residence".
Analyses are currently in progress for updating the model following approval of Law 190/2012 ("Anti-corruption").
On the second point, as a result of corporate restructuring, Terna's Model was revised to take into account the new organization, and all Group companies were given an ad hoc Organizational Model, tailored to their specific needs.
Further information on Terna's Organizational Model is available at www.terna.it in the Corporate Governance Area of the Investor Relations section.

The Balanced Scorecard and incentive schemes

Monitoring and control of corporate activities makes use of a Balanced Scorecard (BSC) system. This is a control panel of indicators which make it possible to follow, every quarter, the progress status of the operating objectives into which – according to economic and financial, organizational and process, strategic and customer, and innovation and development quadrants – the annual objectives of the Strategic Plan are organized. Inserting sustainability objectives into the BSC system is particularly significant, with a view to sharing the sustainable approach to Terna's business. Thanks to the link between the Balanced Scorecard and the managers' variable pay schemes (MBOs), sustainability objectives are also supported by the incentive systems based on pay.

Internal organization

With a view to sustainability, the following are of particular significance:

- the presence of a Corporate Security Department with the responsibility, among others, of overseeing Risk Management, Fraud Management and the security of physical and human resources and assets of the company, as well as workplace safety. Risk Management has the task of assessing the types and results of possible disturbances of the normal performance of the corporate activities. The risk management methodology makes it possible to identify some of the causes that can lead to deviation from the planned objectives, and to quantify their consequences so as to support decisions on the appropriateness of preventing, limiting, transferring or accepting business risks. Risk Management is focused on analysing still undetermined causes, given that known, certain or at least highly probable causes should have already been dealt with and eliminated in advance. Fraud Management aims to guarantee that corporate assets (tangible and intangible resources, direct and indirect benefits) are safeguarded against illegal events that could compromise them, through activity focused on preventing and managing corporate fraud. The activity translates into continual monitoring of processes, verifying and managing crime reports, developing and implementing protocols of understanding, and assessing and controlling compliance risk;
- the presence of a Corporate Social Responsibility Unit, part of the External Relations and Communication Department, which, in collaboration with all company management and with reference to best practices, helps define the company's sustainability objectives from an ethical, social, environmental and sustainability governance point of view, and the communication of objectives and results of corporate social responsibility. The unit also constantly monitors the risks connected with sustainability considerations, which entail potential negative fallout for the company's reputation and intangible value, by analyzing the ratings of the main agencies (such as: RobecoSAM, Vigeo; Eiris), which prepare regular sustainability assessments;
- the establishment in 2009 of a Sustainability and Environmental Steering Committee, whose members are the heads of departments sharing the responsibility for implementing sustainability projects and monitoring their impacts;
- the use since 2009 of SDM - Sustainability Data Manager, dedicated software for the management of the sustainability information system, which currently collects more than 1,500 indicators linked with textual information, data, conversion factors, and formulas for monitoring Terna's environmental and social performances;
- the presentation to the Board of Directors of sustainability objectives and results, at the time it approves the Sustainability Report.

Sustainability objectives and results

In 2012 all areas of responsibility showed progress. The following table summarises the results obtained relative to the 2012 objectives stated in the previous Sustainability Report, referring to the pages of the Report which show, in greater detail, the various initiatives and results achieved.
As regards the "Integrated Reporting" objective, which is not discussed in other parts of this Report, a process was started in 2012 which led to the achievement of an online "Draft Integrated Report". This first step allowed the information available to be assembled separately in the Annual Financial Report and in the Sustainability Report in a single framework, in keeping with the criteria proposed by the International Integrated Reporting Council. This activity then continued establishing the premises for better coordination of the contents in the 2013 official publications, including this Sustainability Report.
The **objectives for 2013** constitute further steps along the same paths. The table below provides a summary of them. The following objectives should be noted in particular:

- the revision of the ethics systems and the environmental and social responsibility in relation to the supply chain, which consists in continuing the work carried out in 2012. In particular, the improvement initiatives identified in 2012 will be included in a multi-year plan starting with initial milestones to be achieved already in 2013;
- the realization of internal CSR training initiatives with the involvement of top level managers;
- active participation in the Pilot Programme of the International Integrated Reporting Council, with study and implementation of greater integration of the financial and sustainability information both in the Management Report and on the website. This is also a continuation of the activities carried out in 2012, with further progress in integration of information and taking into account the new framework of Integrated Reporting which is expected to be published by the IIRC in April 2013;
- fine tuning – after the definition in 2012 of the initial energy analysis – of the Policy and the indicators for monitoring the management system for energy efficiency, in line with the ISO 50001 criteria;
- the definition, also based on the opinions of stakeholders, of a strategic approach to community initiatives, the establishment of a coherent action plan and the realization of the first initiatives provided for by the plan.

Area of responsibility	2012 objectives	2012 results		2013 objectives
Governance and general aspects	Adoption of the Code of Ethics and the 231 Model by the new companies of the Group	Initiative completed	●●●	Supply chain, environment and human rights: planning of initiatives of improvement and achievement of 2013 milestones
	Revision and update of the supervision of responsibility (environment, human rights, prevention of corruption) in the chain of supply	The analytical part completed and initiatives of improvement identified (page 91)	●●○	Integrated Reporting: participation in the Pilot Programme of the International Integrated Reporting Council
	Integrated Reporting: participation in the Pilot Programme of the International Integrated Reporting Council	2012 milestones completed (page 8 and 14)	●●●	Campaign of internal training on CSR
Responsibility for electricity service	Achievement of continuity indicator targets	The final calculation by AEEG not yet available (pages 62-64)	●●○	Achievement of continuity indicator targets
	Security Plan progress	Security Plan Progress (page 59)	●●●	Security Plan progress
	Positive result on AEEG incentives	Positive results on AEEG incentives (page 77)	●●●	
Economic responsibility	Corporate profitability	Corporate profitability [1]	●●●	Corporate profitability
	Investment to develop grid	Investment to develop grid [1]	●●●	Investment to develop grid
	Development non-traditional activities	Approved investment programmes in batteries (page 32)	●●●	Development non-traditional activities
Environmental responsibility	Revision of action plans on SF_6 leakage	Activities still in progress	●●○	Revision of action plans on SF_6 leakage
	Implementation of a management system for energy efficiency in accordance with the ISO 50001 criteria	Activities completed (page 121)	●●●	Preparation of the Policy and the KPI for monitoring the management system for energy efficiency in line with the ISO 50001 requirements.
	Start analysis of the environmental impact of new businesses	Activity postponed	●○○	Renewal agreement with WWF
Social responsibility	Definition and implementation of action plans in response to the results of the 2011 organisational well-being survey	Activity achieved (page 45)	●●●	Definition of guidelines for the social commitment of the Group and realization of coherent first initiatives
	Definition of rules for the volunteer work of the employees	Activities still in progress	●●○	Definition of rules for the volunteer work of the
	Initiatives in partnership with non-profit organizations	Activity achieved (page 159)	●●●	

Legend
●●● objective achieved
●●○ partly achieved
●○○ postponed or suspended

[1] A result achieved corresponds to performance in line with the objectives approved by the Board of Directors for the Strategic Plan presented annually to financial analysts (see page 28)

Sustainability indexes

Terna's commitment to improving its ESG (Environmental, Social, Governance) performance is positively reflected in its sustainability ratings, inclusion in the main international stock exchange sustainability indexes and the appreciation seen from socially responsible investors.
During 2012 Terna presence was confirmed in all the main international stock exchange sustainability indexes and it was included in Vigeo's new range of ESG indexes.
In January 2013, Terna, the only Italian electricity company, was once again, for the second year running, included in the "RobecoSAM Sustainability Yearbook 2013" Gold Class which this year numbers just 67 companies worldwide. To be included in the Gold Class requires a ratings score that must be within 1% of that of the leading company in the industry.

TERNA'S PRESENCE IN SUSTAINABILITY INDEXES (AS OF DECEMBER 31, 2012)

Index	Year included	Index features
FTSE4Good - Global - Europe	2005	The FTSE indexes include the best companies in terms of sustainability performance on the basis of the analyses of the EIRIS agency
AXIA - Ethical - CSR	2006	The Axia indexes select best practices regarding sustainability among the most highly capitalized companies in the Eurostoxx50 (Ethical), and Eurostoxx60 (CSR).
ECPI - Ethical Global - Ethical Euro - Ethical EMU	2007	These indexes were designed to be used by customers for investment analysis, benchmarking, and performance measurement based on the analyses of the ECPI agency
MSCI - WORLD ESG - EAFE ESG - EMU ESG - EUROPE ESG	2007	These indexes continue the KLD Indexes, which were among the first to trace the non-financial performances of companies and still constitute one of the most highly regarded references in the United States. The Terna security is included in numerous indexes belonging to the families listed.
ASPI Eurozone	2009	Beginning with the 600 most highly capitalized European companies, the index selects the 120 leaders in terms of sustainability according to the Vigeo rating agency.
ESI Ethibel - Excellence - Sustainability (ESI) Europe	2009	The indexes are developed on the basis of the ratings provided by the Vigeo agency. Inclusion is subject to the positive opinion of the Ethibel Forum, a panel of independent experts on the different aspects of sustainability.
Dow Jones Sustainability - World - Europe	2009 2010	The DJS indexes select the companies with the best sustainability performance among those most highly capitalized (for the World Index the top 2,500 and for the Europe Index the top 600) according to the rankings of the RobecoSAM agency.
FTSE ECPI - Italia SRI Benchmark - Italia SRI Leaders	2010	Introduced in 2010 and based on the analyses of the ECPI firm, these are the only sustainability indexes that include only companies listed on Borsa Italiana, the Italian stock exchange.
STOXX® - Global ESG Leaders Index - Global Environmental Leaders - Global Social Leaders - Global Governance Leaders - Sustainability Index	2011	Launched in 2011 these indexes are prepared on the basis of the assessments of the Sustainalytics rating agency and select the 300 best stocks for ESG performance among the 1,800 present in the general STOXX Global index. To be included in the Global ESG Leaders Index it is necessary to be included in at least one of the 3 specialized indexes (Global Environmental Leaders, Global Social Leaders and Global Governance Leaders). Terna is the only Italian utility company included in all three.
VIGEO - Vigeo Word 120 - Vigeo Europe 120	2012	Presented in 2012 by the social, environmental and governance rating agency VIGEO, these indexes are based on a group made up of companies listed in the North American, Asian and European markets and included in the STOXX 1800 benchmark. Vigeo's new ESG indexes are prepared on the basis of a methodology with more than 330 indicators and 38 sustainability criteria.

Stakeholder engagement

The construction of a relationship based on mutual trust with our stakeholders begins with the consideration of their interests and an analysis of their compatibility with those specific to the Company, in order to adopt a consistent and transparent policy.
In preparing its Code of Ethics, Terna identified – through the active participation of its Top Management – the eight most significant categories of stakeholders in terms of the continuity of the relationship and the importance of the Company's impact on them and vice versa.
For every stakeholder category, the following table shows the most important commitments expressed in the Code of Ethics and the specific engagement tools, such as monitoring and checking expectations and opinions. The various monitoring tools are used with different frequencies.

Stakeholder	Commitments	Instruments for monitoring and checking
Shareholders, financial Analysts and lenders Shareholders, financial analysts, lenders, banks, creditors, rating agencies	• Balanced management of financial objectives and objectives regarding service security and quality. • Creation of value for shareholders in the short and long term. • Corporate governance aligned with the best practices. • Adoption of systems to forestall and control risks. • Attention to shareholders and informing them in a timely and equal fashion. • Commitment to avoiding insider trading.	Road shows, dedicated meetings, website and dedicated e-mail. Sustainability rating.
Employees Employees, directors, collaborators, employee representatives, trade union organizations	• Safeguarding the physical integrity of employees and their personal dignity. • Non-discrimination and equal opportunity. • Investment in professional growth. • Recognition of individual capabilities and merit.	Survey on Organisational Wellness. Focus groups on specific subjects. Consultations, discussions and negotiation with the Trade Unions.
Suppliers	• Opportunity to compete on the basis of quality and price. • Transparency and fulfilment of agreements and contractual commitments. • Transparent procurement processes. • Supplier qualification, including through quality, environmental, and social certification. • Anti-Mafia and anti-recycling prevention with suppliers	Procurement portal, direct meetings.
Grid users, customers, and business partners Private customers, grid users – producers, distributors, traders, interruptibles – users of the electricity system, grid owners, other grid operators, business partners	• Efficient, quality service aiming at constant improvement. • No arbitrary discrimination among companies. • Confidentiality of information regarding grid users.	Consultation committee on Network Code, dedicated meetings. “Operator Consultation” box on Terna’s website.
Regulatory authorities and institutions, AEEG AEEG - the Electricity and Gas Authority, other regulatory authorities in the industry, government bodies or bodies with policy-making powers, Antitrust bodies, CONSOB, stock exchange entities, strike guarantee commission	• Transparent, complete, reliable information. • Meeting deadlines. • Fair and collaborative approach to facilitate the regulatory task.	Regular meetings. Ongoing relations with the AEEG offices and Council.
Institutions and associations European Community and international bodies, national Institutions and government agencies, Civil Protection, national security authority and police forces, regions, provinces and autonomous provinces, associations representing economic interests, ETSO, UCTE	• Representation of the Company’s interests and positions in a transparent, scrupulous and consistent way, avoiding collusive attitudes. • Ensuring utmost clarity in relations.	Direct participation on technical committees and governing bodies.
Media, opinion groups, scientific community Media, universities and scientific associations, environmentalist associations, consumers’ associations, opinion makers, opinion groups, national and international technical standards bodies, political parties	• Public and uniform dissemination of information. • Exclusion of exploitation and manipulation of information to the advantage of the Company. • Pursuit of areas of cooperation of reciprocal interest with associations representing stakeholders.	Presentation and distribution of the Sustainability Report and the Development Plan. Organization of seminars, workshops, targeted surveys. Collaboration and partnership initiatives.
Society and local communities National community and country, territory and environment, end users of the electricity service, local authorities directly affected by Terna’s work	• Ensuring security, quality, and cost-effectiveness of the service over time. • Assessment of long-term effects of the Company’s choices. • Reduction of environmental impact of corporate activities. • Advance dialogue with local institutions to carry out investment that is respectful of the environment, landscape, and local interests. • Support for initiatives with social, humanitarian, and cultural value. • Provision of evidence of the implementation of environmental and social policy.	Consultation process in planning the electricity grid. Regular sample surveys of the population.

Shareholders, financial analysts and lenders

Transparency and prompt availability of information characterize the relationship between Terna and its institutional and individual investors. Specifically, the Investor Relations Unit interacts with market operators, and the Department of Corporate Affairs with retail shareholders.
Retail investors can contact the Company by phone at (+39) 06-8313.8136 and (+39) 06-8313.8359, and by e-mail at: azionisti.retail@terna.it.
For institutional investors, the contact numbers are: (+39) 06-8313.8106 and (+39) 06-8313.9041, and the e-mail address is investor.relations@terna.it.
To further encourage dialogue with investors, Terna has developed "Investor Relations", a dedicated section of its corporate website www.terna.it, which offers anyone interested **the opportunity to be promptly brought up to date on the Company's economic results and strategic objectives**. The section provides financial information (financial statements, half-year and quarterly reports, sustainability reports, presentations to the financial community), data, and documents of interest to most shareholders (press releases, composition of the corporate bodies, the by-laws and regulations of shareholders' meetings, information and documents regarding corporate governance, the Code of Ethics, the Organizational and Management Model pursuant to Legislative Decree 231/2001). In addition to the complete documentation produced by the Company also being available in an interactive version, web streaming enables visitors to the site to listen to the conference calls organized both when the Company's results (quarterly, half-yearly, and annual) are published and when significant extraordinary transactions take place. Live participation in these events exceeds fifty connections on average, including analysts who follow Terna's shares and publish studies.
During 2012 retail investors made 21 requests for information via e-mail (compared with 29 in 2011, and 23 in 2010). The requests concerned dividends and related advances, and the policy and related right to receive these, and corporate documentation for shareholders' meetings.
The Corporate Social Responsibility Unit maintains ongoing relationships with the sustainability rating agencies and, in collaboration with the Investor Relations Unit, with analysts and fund managers, to which it provides the information necessary to assess the company's ESG performance. In 2012 the following organizations requested and obtained information: Carbon Disclosure Project, EIRIS, RobecoSAM, Sustainalytics and Vigeo; Etica Sgr, Goldman Sachs, Natixis, Edmond de Rothschild AM, BNP Paribas, and Generali Investments France.

Employees

The survey on organisational well-being in the company, carried out during 2011, resulted in an Action Plan for 2012 which focused in particular on four areas, considered most sensitive to improvements: centre-periphery relationships, people, work spaces and tools, and simplifying internal bureaucracy.
For each of these four, specific actions involving several corporate Departments and Units were identified, with a calendar of timing and performance of such activities. All the actions identified were also included in the Balance Scorecard for Top Management and the Departments, in order to ensure that they were monitored and performed correctly.
The Action Plan was published, as usual, on the corporate Intranet to allow all personnel to read it. Among the actions being carried out or already completed are the initiative for involvement on Corporate Loyalty, revision of the company's Document Management System, the Total Reward Statement for executives and middle managers, and improvement of the quality standards for Terna's offices.
At the end of 2012 a sample of employees was involved in three focus groups and two discussion panels on the subject of Terna's social commitment (see also the box "Terna's multi-stakeholder survey on the company's societal commitments" on page 49).
In February 2013, referring to 2012 activities, the bi-annual survey on the effectiveness of training was launched. This involves everyone who has human resources reporting to them.

Relations with Trade Unions

The relationship between Terna and the trade unions at the Company level is governed by the "Protocol on the industrial relations system" which defines a system of relations divided into contract negotiation, discussions, consultation and advance and/or periodic information.
In the three years 2010-2012, bargaining with the industry trade unions led to the **signing of 41 written agreements**.
As regards 2012 industrial relations activity was characterised, in the first half of the year, by discussions with the national trade union secretariats on the new corporate framework of the Terna Group, which ended – after the procedure set out in Art. 47 of Italian Law No. 428/90 concerning rental of the business unit by Terna S.p.A. to Terna Rete Italia S.p.A. – with the signing of a written agreement.

During the second half of 2012, negotiations were held for the renewal of the National Collective Employment Contract for the electricity industry, which expired on December 31, 2012. The renewed National Collective Employment Contract was signed on February 18, 2013.
Discussions also began with the National Secretariats of the trade unions on the new organizational model of Terna Rete Italia's Operations Department.
Finally, on November 20, 2012, an important agreement was signed with the National Secretariats of the Trade Unions to consolidate an industrial relations model of a participatory type; also through agreement on the purposes and objectives of training and to implement the Plans for Training and for access to financing on the part of Fondimpresa.

Suppliers

The usual point of contact for Terna and its suppliers is the **"Procurement Portal"**, the section of the institutional website through which it is possible to learn about tenders, participate in online tenders, and go through the qualification process to be included in the Supplier Register.
The Procurement and Contracts Department also maintains direct contacts with suppliers to manage contractual relations and improve the Company's knowledge of the specific problems of groups of suppliers. To that end, meetings are periodically organized with qualified companies or with Industrial Associations to inform them about news regarding any updates to the requirements, or points of attention related to the ethical conduct to be followed in relations with Terna.
Terna presents and discusses its main investment projects with electromechanical companies in the energy industry (mostly members of Confindustria ANIE), including the related procurement plans. The important action programme requires an even greater effort for suppliers, who are called upon to transform themselves from simple contractors into real technological partners. Terna takes an active part in key occasions for meeting with suppliers such as industry meetings, expos and conferences.
In order to expand its portfolio of suppliers, Terna constantly engages in **"procurement marketing"** through market scouting, benchmarking, and monitoring the performance of suppliers, which entails constantly meeting with both Italian and foreign supplier firms.

Grid users and companies in the electricity industry

Terna maintains relations with the grid users and operators of the electricity service using various channels, including the MyTerna and Gaudi portals (see also page 93 and page 94) and the Consultation Committee, described below).

Consultation Committee

As for some time now, in 2012 Terna continued to promote the engagement of the electricity companies affected by the regulation of the transmission and dispatching services performed by Terna, including through the activities of the Users' Consultation Committee.
The Committee is the technical consultation body established in accordance with the Prime Minister's Decree of May 11, 2004 which regulates the unified ownership and management of the grid. It is the permanent place for consultation with the companies in the electricity industry. In fact, the Committee includes representatives of the various categories of companies, namely: distributors, producers (from both conventional and renewable sources), large industrial customers, wholesalers, and consumers, with the participation of the Electricity and Gas Authority and the Ministry for Economic Development as observers.
The members of the Committee are renewed every three years. During 2012 membership of the Committee was renewed for the three years 2012-2014.
The Committee has consultative duties (in fact, it expresses non-binding opinions on general criteria for development of the grid and interconnections, on defending grid security, and on general criteria for classifying sensitive information and for access to the same), proposes changes in current regulations, and arbitrates, because, at the request of parties, it can facilitate the resolution of any disputes between users of the grid deriving from application of the rules of the Network Code.
During 2012 the Committee was involved in the consultation process and expressed its opinion on the following elements:

- 2012 Development Plan;
- amendment to the dispatching rules (Chapters 3, 4 and 7 of the Network Code and annexes A.22, A.23, A.25 and A.60). These are amendments prepared by Terna implementing the provisions of the resolutions of the Electricity and Gas Authority ARG/elt 211/2010 and 180/2012/R/eel, and in order to incorporate a number of observations formulated by operators during the previous consultations. The documents are part of the reform of the dispatching rules begun in 2010 and continued in 2011 which is aimed mainly at precisely identifying the services rendered by the operators on the dispatching services market in order to ensure remuneration that better reflect costs;

- Annex A. 72 to the Network Code - Procedure for the Reduction of Distributed Generation in emergency conditions of the National Electricity System (RIGEDI). The document is part of the measures adopted in order to ensure the necessary integration of distributed generation (that is to say production plants connected with medium- and low-voltage electricity grids) into the national electricity system. This document defines, in particular, the methods of implementing the reduction of production from distributed generation plants connected with medium-voltage electricity grids in critical operating conditions, distinguishing cases in which generation plants can be disconnected directly by the distribution companies from cases in which intervention of the producers is necessary, after giving notice.
- A. 21 - De-activation of overhead lines at 380-220-150-132 kV on the occasion of forest fires or dangerous situations. The document was updated essentially to adjust it to the field of application.

In addition to the above themes, on which the Committee was formally called upon to express its opinion, during 2012 Terna provided constant information to members of the Committee on its activities in progress of interest to operators.
In this context the Committee received information and updates on the implementation status of the National Transmission Grid Development Plan with particular reference to the progress of the projects and on new needs and development scenarios.
With reference to European regulations, the main information concerned:

- the initiatives in progress in the European context in relation to the process of defining the Network Codes with a particular focus on the Network Codes “Capacity Allocation and Congestion Management for Electricity” and “Demand Connection”,
- Regulation No. 1227/2011 EU (REMIT), that is to say the new legislation on the subject of integrity and transparency of the wholesale energy market, aimed at establishing monitoring of the cross-border market.

AEEG - Electricity and Gas Authority

Terna works mainly in a regulated context and the AEEG constitutes the main stakeholder: through its tariffs it determines almost all Terna’s revenues with its orders, and defines the methods and conditions for carrying out the business for which Terna holds the license.

Public consultation on the Development Plan promoted by the AEEG

On the basis of Italian Legislative Decree 93/11, in 2012 the AEEG submitted the Transmission Grid Development Plan prepared by Terna to public consultation for the first time, making the results public and sending the outcome of the assessment to the Ministry of Economic Development (MED).
During two meetings at the AEEG, attended by all the main operators and industrial associations, Terna illustrated the criteria for preparing their Development Plan, the current critical issues in grid operation, the development needs and priorities provided for in the Plan horizon, and the progress of the projects in previous Plans. The consultation also published the methodology behind the cost-benefit analyses and the results expected from implementation of the interventions included in the Plan.
To facilitate the consultation process, a form for collecting observations was made available on the Authority’s website.
The approximately 250 observations received and the related responses were published on the Authority’s website.

S05 National Institutions and associations

The nature of Terna's activities imposes the need for involvement, participation and constant dialogue with governmental institutions (Prime Minister's Office, Ministry of Economic Development, Ministry of the Environment, Ministry for Cultural Assets and Heritage), with Parliament (House and Senate of the Republic), and with national associations, which translates also into attendance at hearings, meetings, conferences and forums to promote shared interests. To this must be added continual discussions with the Regional and local authorities, which are carried out by Terna Rete Italia, for activities relating to legislation governing the industry, authorization procedures and consultations with local communities.
During 2012 the company was invited on several occasions to take part in hearings in Parliament on important questions of reference for Terna's operating context.
By way of example we can note during 2012:

- the hearing at the Senate Industry Commission (March 21, 2012) regarding the proposed Regulation of the European Parliament and Council on guidelines for energy infrastructures. Terna is involved, together with the national institutions and the European Commission, in the procedure to define projects of common interest for the electricity industry, which will be eligible for authorization and regulation and for the new community co-financing instruments provided for in said regulation;
- the hearing at the Budget and Finance Commissions of the House of Representatives on Italian Law Decree 21/2012 containing rules on special powers over corporate structures;
- the hearing at the Senate Industry Commission (October 9, 2012) regarding the fact-finding investigation on the National Energy Strategy, the Government's planning document of reference setting forth the objectives and priorities for action up to 2020.

During 2012 bilateral meetings with the Prime Minister's Office and with the institutional world also intensified. These were on subjects particularly significant for the company and for development of the national electricity system.
Terna also began an ongoing dialogue with national institutions, in particular with the Ministry of Economic Development, in the process of drafting the European legislation of reference for the industry, promoting the involvement of national institutions in the activities of the Committee of Member States on questions relating to implementation of the third energy package (e.g. European network codes). Discussions also began with the European Parliament and with the Council of the European Union with the aim of contributing to the European consultation on the proposed regulations regarding energy infrastructures.

Media, opinion groups, and the scientific community

Demoskopea's "City Journalists 2012" survey

In the 2012 edition of *"City Journalists"*, Terna came in seventh overall in a Demoskopea survey carried out among 79 economic and financial journalists – representing 37 publications, including dailies, weeklies, monthlies, press agencies and radio stations – on a sample of 48 companies to assess the quality of their press offices, and fourth among energy companies.
Terna is among the best-known companies, achieving sixth place in 2011, and third in the energy industry. Among businesses that have improved their relations with the press over the last year, Terna has climbed seven places, going up from thirteenth to sixth overall (second best improver). Finally, as regards the assessment of the company, in 2012 Terna rose in the overall table, reaching ninth place.

Terna's multi-stakeholder survey on corporate social commitment

Between November 2012 and January 2013, Terna carried out a study to find out the opinions of selected stakeholders on its initiatives in the social field.

The objective was to assess the degree of knowledge about initiatives already taken and, above all, to obtain indications for an effective and consistent approach to future initiatives.

The study involved external stakeholders and employees. For the former, we opted to send out a questionnaire, divided into two levels of questions: the first a survey on what we have done up to now, to understand reputational impact; the second a survey on social issues considered generally significant, and on their consistency with Terna's role. The presence of open fields in the replies gave interviewees the option of adding more details or further suggestions, sometimes investigated further with telephone calls once the questionnaires had been returned.

The panel of external stakeholders, made up of academics and experts on social problems, CSR and communication, was selected on the basis of three criteria: recognized competence in their field, knowledge of Terna's business and familiarity with management or CSR issues.

Out of 55 questionnaires sent out 38 were returned, with a reply rate of 69.1%.

On the internal front the focus group method was chosen instead, as this was considered the most likely to result in an open discussion not conditioned by *a priori* points of view. In collaboration with the Human Resources and Organization Department, three meetings were organized, two of which with personnel from around the country – one with only manual workers, the other with clerks and middle managers – and the third reserved for clerks and middle managers at the Rome headquarters, for a total of 40 employees.

Finally, the results that emerged from the questionnaires and from the focus groups were analysed and commented on by two discussion panels that involved a total of 20 middle managers and executives with responsibility for units.

The main results were:

- a good level of awareness of Terna as a company that is committed in the social field;
- a desire to increase this commitment;
- a recommendation to select initiatives in keeping with the Group's identity and business (among the relevant issues: school, research, access to energy in the poor areas of the world, locally significant social problems)
- a suggestion to take such initiatives both at the central and the local level, in relation to Terna's activity around the country;
- an invitation to ensure the involvement of employees and develop partnerships with non-profit bodies;
- a need to maintain a balance between social and environmental initiatives.

The information collected will be discussed at the highest decision-making level and used to plan future initiatives.

Activity with Consumers' Associations

Activities to engage with consumers' associations continued in 2012, facilitating direct discussions on the National Transmission Grid (NTG) Development Plan and, more generally, on subjects of common interest.

A great boost came from the signing, on April 16, 2012, of a Protocol of Understanding with the representatives of ACU, ADICONSUM, ADOC, ADUSBEF, Altroconsumo, Assoconsum, Assoutenti, Casa del Consumatore, Centro Consumatori Bolzano, Cittadinanza Attiva, Codacons, Codici, Confconsumatori, Federconsumatori, Lega Consumatori, Movimento Difesa del Cittadino, UNC and Movimento Consumatori, aimed at agreeing on proposals and actions on subjects of common interest, relating to the national electricity transmission grid, to benefit the users of the electricity service.

More specifically, Terna worked on guiding and managing consent to facilitate the agreed, participated and transparent conduct of its core business and of the activities of the other Group companies. In this way, the Consumers' Associations were able to express their opinion on: the Development Plan, new investments, infrastructures and electricity storage, and on questions related to work with an impact on territories with particular features (Sorgente - Rizziconi, energy bridge between Sicily and Calabria). Overseeing and managing the agreement between the Associations and Terna produced:

- 6 public positions on the 2011 Development Plan, 2012 Development Plan, accumulation systems, regulatory review, Robin Tax and the Sorgente - Rizziconi connection;
- 14 seminars with Fondazione Consumo Sostenibile (the Sustainable Consumption Foundation) on the Development Plan, new investments, strategic infrastructures for the country, accumulation systems, cost/benefit analyses;
- participation in approximately 30 industry conferences on energy policies and defending consumers.

SO1 Society and local communities

SO10 Consultation with local governments

Terna's approach to local areas, which is especially important when new lines must be constructed, consists of a voluntary process of prior engagement with local institutions (regional and local administrations, Park Authorities, etc.). This process involves sharing the development needs of the National Electricity Transmission Grid (NTG) with the local institutions, a willingness to listen to the opinions of stakeholders and seeking a shared solution for locating new infrastructures and rearranging existing ones.

To facilitate acceptance of electricity infrastructures by local communities, Terna, in fact, considers it fundamental to hold discussions with local administrations as early as possible; right from the moment in which the need for a new NTG development project is recognised. In this way **the conditions are created to "build" grid development together with them, thus making it more sustainable and acceptable**.

The **voluntary pre-authorization process**, which lasts on average from one to three years, provides for various specific activities, in particular meetings to:

- define and formalize collaboration for the sustainable development of the NTG, in keeping with the purposes of the Strategic Environmental Assessment;
- agree on a system of criteria for analysing the local area and selecting the alternatives with the least impact;
- apply the criteria to the local area and identify the preferential corridor in which the work is to be constructed;
- define the feasibility band of the route within the preferential corridor and formalize the related protocols of understanding.

EU19 The voluntary stage of pre-authorization consultation is followed by the authorization process set out by law.

A summary of the activities carried out in 2012 is shown in the table below.

MAIN COORDINATION ACTIVITIES

Work	Type	Length	Bodies involved	Number of meetings in 2012
"Foggia - Villanova (Pescara)" power line ("Foggia - Gissi (Chieti)" segment – Abruzzo, Molise and Puglia)	380 kV	about 120 km	2 Regions 2 Provinces 15 Municipalities	32
"Fano (Pesaro Urbino) - Teramo" power line	380 kV	about 190 km	1 Region 1 Province 11 Municipalities	6
"Deliceto - Bisaccia"" power line (Campania and Puglia)	380 kV	about 35 km	2 Regions 2 Provinces 5 Municipalities	14
"Montecorvino - Avellino North - Benevento II"" power line ("Avellino North - BN II" segment)"	380 kV	65 km	1 Region 3 Provinces 23 Municipalities	3
Riccione – Rimini link	132 kV	Project being defined (*)	Municipalities of Riccione, Rimini, Coriano	4
"S.ta Teresa - Tempio - Buddusò"" power line (Sardinia)	150 kV	about 95 km	1 Region 1 Province 9 Municipalities	12
"Chiaramonte Gulfi - Ciminna"" power line (Sicily)	380 kV		22 Municipalities 6 Provinces 1 Region	2
Rationalization of HV grid in Umbria (Umbria)	120 kV	Project being defined	1 Region 1 Province 1 Municipality	1
Schio Station (Vicenza) - Veneto	220 kV	===	1 Municipality	5
Trans-Veneto power line	380 kV		2 Provinces 9 Municipalities 1 Park	7
Rationalization in Valle Sabbia (integration)	380/220/132 kV	(*)	2 Municipalities 1 Mountain Community	5
Rationalization of HV grid in the area of Potenza	380/220/150 kV	(*)	1 Region 2 Provinces 11 Municipalities	8
380 kV Sorgente-Santa Caterina Villarmosa power line	380 kV		1 Region 4 Provinces	3
Rationalization in Valle D'Aosta	380/132 kV	Project being defined (*)	1 Province 12-13 Municipalities	4
Rationalization in Middle Valtellina	380/220/132 kV	Project being defined	1 Province	6
Santa Barbara – Tavarnuzze – Casellina power line	380 kV	35 km	2 Municipalities	10
220 kV Partinico – Fulgatore power line	220 kV	about 60 km	1 Region Province	2
Rearrangement of the Ferrara grid	380/220 kV	Project being defined (*)	1 Province 1 Municipality	1
Rationalization of the Milan grid	220/132 kV	Project being defined (*)	1 Municipality 1 Region	4
Rearrangement of the Sorrentine Peninsula grid	380/220/150 kV	Project being defined (*)	1 Region 3 Provinces 13 Municipalities	10
Mineo/Vizzini 380/150 kV Station	380/150 kV	Project being defined (*)	1 Region 1 Province 4 Municipalities	8

(*) In the case of rearrangement/rationalization this is not on a single line but a set of works, which cannot be summarised in a single measurement.

Disputes and litigation

Opposition to the construction of new lines

Terna considers respect for the environment and for the territory an integral part of grid planning activity and makes an effort to act in agreement with the local institutions. However, new infrastructure creation projects often provoke adverse reactions attributable to the NIMBY (Not In My Back Yard) syndrome. In these cases, Terna's attitude is one of willingness to examine and find alternative solutions, including ones which are technically more complex than those originally defined, provided that they are compatible with the general interests of security, efficiency and cost-effectiveness of the electricity service.

The search for agreed solutions entails difficult mediations and can be drawn out. The results are normally positive, but during the process local opposition may persist. In this category, during 2012 and in early months of 2013, we can note:

- **Rationalization between Padua and Venice:** the Dolo - Camin line (part of the rationalization of the provinces of Padua and Venice) was authorized in April 2011 by the Ministry for Economic Development (MED) in agreement with the Ministry of the Environment (ME). The Municipality of Vigonovo, together with those of Fossò and Camponogara, lodged an appeal against the MED Decree. The project was also strongly contested by the CAT (Comitato Ambiente e Territorio - Environment and Territory Committee), in support of putting the power line underground. Currently, appeals have been lodged with the TAR (Regional Appeals Court). At the end of 2012 the construction sites were opened.
- **The "Redipuglia - Udine West" case:** the line was authorized in December. In October 2012 the Region issued its consent. The arguments about the power line exploded in 2009 and opposition was led by the Comitato per la Vita del Friuli Rurale (Committee for Rural Life in Friuli). In the last few months of 2012 the opposition dropped off.
- **The "Sorgente - Rizziconi" case:** work is currently in the construction stage. In 2011, when the construction sites opened, protests broke out in the Messina area (Valle del Mela) in relation both to the new power line under construction and to the presence of the existing 380 kV "Sorgente - Rizziconi" connection passing near towns and villages. This was despite the fact that the route of the line was the result of more than 2 years of technical and environmental studies which led, in agreement with the Sicily Region, the Province of Messina, the Municipality of Villafranca and the Municipality of Pace del Mela, together with 11 other municipalities in the Messina area, to the definition of an overhead route, reconciling, in the best possible way, the need to protect the environment, society and health, in full observance of the limits set out by law. The consultation and dialogues with local communities began in 2004: more than 100 meetings were held by Terna with the Institutions and the local authorities involved to identify the best solutions to safeguard the territory involved. During 2010 the Municipalities of Villafranca Tirrena, San Filippo del Mela and Pace del Mela presented appeals to cancel the single authorization issued by the Ministry for Economic Development; similar initiatives were begun by a number of private individuals and environmentalist associations.
- **The "Fano - Teramo" case:** work is currently in the consultation stage. Starting in 2006, technical forums were set up in the regions involved (Marche and Abruzzo). The optimal corridor and the feasibility band of the future power line for the project were agreed on. In the last few months of 2012, and the beginning of 2013, the Municipalities of the Province of Macerata raised objections to the route identified. The Marche ANCI (Municipalities Association), Coldiretti (the Farmers' Union) and the Comunità Montana dei Monti Azzurri (Mountain Community of the Azure Mountains) expressed their opposition to the route.

Preliminary inquiries of the Electricity and Gas Authority

During 2012 the Electricity and Gas Authority launched two fact-finding inquiries of potential interest to Terna.

Resolution of August 2, 342/2012/R/eel

Urgent action on rules for electricity imbalances and launch of a fact-finding inquiry on energy market trends in Sardinia

Following the repeated occurrence, during the year 2012, of certain behaviour regarding supply to the electricity market by users of dispatching withdrawn in Sardinia, the Authority launched a fact-finding inquiry. It was aimed, on the one hand, at identifying any speculative behaviour on the part of dispatching users – and any consequent liability - and, on the other, at defining a more efficient and effective method of regulating effective imbalances; also in order to prevent possible speculative behaviour.

Resolution of October 4, 2012 401/2012/R/eel

Fact-finding inquiry on critical issues in management of the electricity system in Sardinia

With this measure, the Authority launched a further fact-finding inquiry on critical issues in management of the electricity system in Sardinia, aimed at identifying the technical causes at the root of the above critical issues and the repercussions that the technical constraints have, both on securely operating the Sardinian electricity system, and on the correct performance of energy markets.

As well as the two fact-finding inquiries described above, which are currently in progress, the fact-finding inquiry on the poor service provided in Sicily on June 25 and 26, 2007 is still formally pending. This inquiry was launched by the Authority with Resolution No. 155/2007.

Environmental litigation

Environmental litigation originates from the installation and operation of electricity plants and primarily involves damages which could be derived from exposure to electrical and magnetic fields generated by power lines. The Parent Company and the subsidiary Terna Rete Italia S.r.l. are involved in various civil and administrative lawsuits requesting the transfer or change in operations of allegedly-harmful power lines, despite their being installed in full compliance with the applicable legislation (Italian Law No. 36 of February 22, 2001 and Prime Minister's Decree July 8, 2003). Only a very small number of cases include claims for damages for harm to health caused by electromagnetic fields.
Only in a few cases have adverse judgements been issued against the Parent Company. These have been appealed and the appeals are still pending, although adverse rulings are considered unlikely.

Litigation regarding concessionary activities

Given that it has been the licensee for transmission and dispatching activities since November 1, 2005, the Parent Company has been involved in a number of cases, most appealing AEEG, MED and/or Terna measures relating to activities operated under the license. Only in those cases in which the plaintiffs not only claim defects in the measures appealed against, but also allege that Terna violated the rules established by such authorities has the Company joined the case. Within the scope of this litigation, although a number of cases have seen the AEEG Resolutions struck down in the first and/or second level courts, together with the consequent measures adopted by Terna, it is felt that there is little risk of adverse outcomes for Terna, since the matters generally regard pass-through items. This position is supported by the information provided by the external legal counsel representing the Company in the cases involved. As the licensee for transmission and dispatching activities, the measures taken by the Parent Company Terna when applying the Resolutions adopted by the Authority are sometimes the subject of challenges. In appropriate circumstances, the economic costs of such challenges may be borne by the Authority.

Other litigation

In addition, a number of cases relating to urban planning and environmental issues are pending regarding the construction and operation of certain transmission lines. The possible effects of any unfavourable outcome to these cases are unpredictable and, accordingly, have not been considered when determining the "Provisions for disputes and other contingencies".
In a limited number of cases, the possibility of an adverse outcome cannot be entirely ruled out. The possible consequences could, in addition to the award of damages, include, inter alia, the costs of modifying lines and the temporary suspension of their use. In any case, any unfavourable outcome would not jeopardise line operations.
Examination of the above litigation, having regard for the information provided by the external legal consultants, suggests that the likelihood of adverse outcomes is remote.

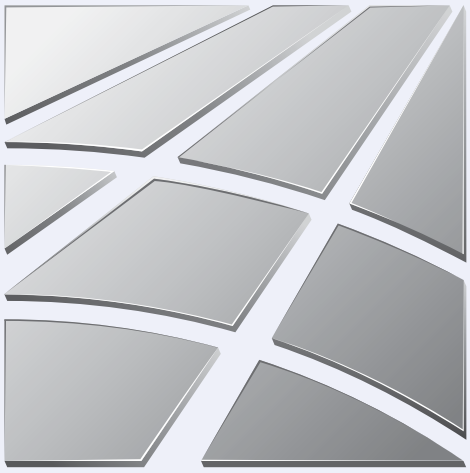
Penalties

In the period 2010-2012:

- there were no definitive criminal convictions or plea bargaining for injuries to third parties caused by Terna's assets; EU25
- as of December 31, 2012 there was no pending litigation nor had any legal proceedings ended regarding corruption, unfair competition, anti-trust, or monopolistic practices. Regarding these matters, no definitive administrative or judicial, monetary or non-monetary penalties were imposed for non-observance of laws or regulations, including environmental ones, that gave Terna an obligation to "do/not do" (e.g., prohibitions) or convicted its employees for crimes. SO4 SO7 SO8

In the three-year period 2010-2012, no significant penalties were imposed regarding the environment or, more generally, observance of the provisions of the law. EN28
On the basis of AEEG Resolution VIS 16/11, during financial year 2011, Terna SpA paid a fine – of 420,000 euro – imposed at the end of inquiry proceedings launched with Resolution VIS 171/09, for breaching the AEEG's orders on the subject of provision of electricity transmission, dispatching and measurement services. In particular the dispute related to anomalies found in the determination of electricity supplies withdrawn from the NTG and not correctly attributed to the dispatching users. PR9

2012



Responsibility for electricity service

Terna

Our approach

Terna's main activity is the provision of electricity transmission and dispatching services. These are services of general interest performed, as in other European countries, on the basis of a government concession which assigns the role of National Electricity Transmission System Operator (TSO) to Terna. The service provided by Terna is indispensable for operation of the entire electricity system and to ensure electricity for everyone.
Even though the end users of the electricity service are not direct customers of Terna, but rather of companies that distribute and sell electricity, **the role it performs in the electricity system makes Terna ethically responsible to all of Italian society for the service**.
This responsibility regards both everyday operation of the transmission grid and medium and long term considerations. The grid is Terna's asset, but it is also essential infrastructure for the Italian nation. Its management, maintenance and development must ensure efficiency and security in the immediate future, as well as for following generations.
Our operating objectives are therefore first of all **connected with observing regulations and meeting specific targets established by the industry's regulatory authority** (the AEEG, Electricity and Gas Authority). Particularly important among these are the various service continuity measures. Terna's performance in the last few years has always been in line with the targets set.
Terna's role in the Italian electricity system entails specific objectives regarding the security and development of the grid. **The security objectives are stated in the Security Plan for the electricity system**, which plans the investments necessary to improve various aspects that affect system security.
The grid development objectives are published in the Development Plan, which is approved every year by the Ministry of Economic Development and establishes forth the construction of new power lines and electricity stations needed to ensure system efficiency and cost-effectiveness. Terna also selects development projects on the condition that the overall economic benefits to the electricity system outweigh the costs.
The task of operating the electricity system entails knowledge of confidential data regarding transmission and dispatching service users, particularly electricity producers. In addition, **Terna is entrusted by the National Statistical System with compiling the statistics of the Italian electricity industry**, for which information is collected from the companies concerned. For this data, and for the data used in managing economic relationships with the grid users, Terna follows best practices for protecting sensitive data in order to prevent such information from being communicated or becoming accessible to unentitled third parties.
Given the nature of the service, Terna is not affected by problems of product responsibility typical of producers of goods or services for end customers, such as explanatory content of labels, marketing, and advertising.

The security of the electricity system

Ensuring the security of the Italian electricity system interconnected with the European grid is a sensitive task, which Terna performs through a series of actions determined by a scrupulous assessment of operating risks.
The objective is to maintain the risk of service outage within pre-established limits and mitigate the negative consequences of such events as much as possible if they occur.
For Terna, preventing and containing operating risk means monitoring and protecting the physical integrity of its plants, preparing defence plans to limit malfunctions, preventive planning of operations, improving the capacity for real-time control, training operators, developing new methods in support of the process of planning and control, increasing the reliability of supporting resources, and coordinating management of the system interconnected with neighbouring TSOs. EU6
The projects are set out in the **Security Plan for the Electricity System**, prepared by Terna and approved by the Ministry of Economic Development. The Plan, which in 2012 reached its ninth edition, is drawn up every year with a four-year planning period. In the various editions of the Plan the approach to the security of the electricity system has become increasingly complex.
In fact, the current structure of the Security Plan provides for eight subject areas relating to the activities of planning, control, regulation and protection, restarting and monitoring of the electricity system, as well as an area devoted to safe and optimal management of renewable resources.
The 2012 Plan also provides for projects aimed at managing the system under expected medium/long-term operation scenarios, characterized by important new elements, including increased production distributed from renewable sources. To facilitate full integration of these sources and resolve critical security issues associated with them, new initiatives were provided for in this Plan which cover the creation and use of non-conventional systems for frequency regulation on the major islands based on electrochemical accumulation systems.
The main objectives achieved in 2012 were:

- development of tools to forecast load and generation from renewable sources and to support decisions made ever closer to real time;
- testing of methodologies for real-time security checks on the basis of the real environmental and operating conditions on a series of High Voltage lines, some of which are characterized by high wind power production;
- introduction of mechanisms for defining and providing medium-term production capacity;
- implementation of instruments and optimization procedures for coordinated voltage regulation;
- launch of a new initiative for the use of non-conventional systems based on electrochemical accumulation for ultra-rapid frequency regulation on the Major Islands;
- simulation and performance of the first test on restarting from abroad (France);
- implementation of a project for congestion and stability control in the Southern Area which is particularly affected by distributed generation from renewable sources (integration of the new PST - Phase Shifting Transformers - in Foggia and Villanova).

In 2012 Security Plan investments amounted to 63 million euro.
The ninth edition of the Security Plan for the years 2012-2015 projects investments of approximately 242 million euro.

EU8

Smart Transmission Solutions

One of Terna's main needs is to make the transmission grid dynamic, i.e. capable of evolving rapidly and effectively with respect to scenarios that change quickly and unpredictably.
In the Development Plan, Terna has planned actions capable of ensuring, under various operating conditions, the electricity system's needs for security, reliability and efficiency, maximizing the timely and flexible use of existing infrastructure and thus facilitating integration of growing production from renewable sources, including those not directly connected to the NTG.
Among these we can note:

- installation of electrical equipment (PST - *Phase Shifting Transformers*) for power flow control on the High and Very High Voltage grids;
- installation of synchronous condensers to improve the stability and operating security of the system;
- installation of reactors and condensers for proper management of reactive power flows on the grid, with consequent cost reduction for the Dispatching Market;
- use of high-capacity conductors to maximize the transport capacity of the existing lines also on the basis of the temperature (Dynamic Thermal Rating - DTR). The testing will make it possible to define types and standards for applying the method for the purposes of progressive implementation and diffusion on critical routes for high wind power production starting from the South and Sicily;
- testing of diffused accumulation systems to maximize the exploitation of power from renewable sources and to improve the regulation of the High and Very High Voltage systems;
- initiatives based on smart logics aimed at improving the prediction and control of distributed generation.

These solutions are generally characterized by reduced environmental impact (because they enable maximisation of existing asset use), and by implementation times and costs which are typically lower than those necessary for the creation of new network infrastructures (high voltage lines and stations).
Also regarding innovative solutions, the following initiatives are planned:

- Participation in the GREEN-ME project (Grid integration of Renewable Energy sources in the North - Mediterranean): the project was presented to the European Commission, in the context of the Connecting Europe Facility, by Italian and French TSOs and DSOs (Distribution System Operators), and relates to the development of systems required to integrate distributed generation in an area stretching from the South of France to the Regions of Northern Italy. The project is conditional on the possible financing of the activities envisaged by the European Commission.
- Improvement of the identification and control of the grid with digital systems: exploiting the potential of digital equipment to provide measurements directly for the analysis and monitoring of service quality.
- Monitoring grids: the growing impact of renewable sources also on the distribution grids calls for data collection and modelling which would enable a more detailed view of the load/generation on distribution systems that operate with the transmission grid.

Information security

EU21

Due to its role in the electricity industry, Terna holds and conserves large quantities of business-sensitive information in its database, including data on the users of transmission and dispatching services, in particular electricity producers and traders. Such information includes, for example, data on plant specifications, with the related production capacity and injection plans presented to the Electricity Exchange.
Considering its significant commercial value, during its life cycle this information is subject to adequate classification and management actions, in order to establish protection strategies capable of ensuring it does not become accessible to unauthorized third parties or subject to illegal breaches. An identical approach is also adopted for:

- the data collected from industry companies for compiling industry statistics, a task performed by Terna within the framework of the National Statistical System;
- the data made available to the industry Authority for monitoring the Electricity Market (as provided for in Resolution no. 115/08 of the AEEG).

Additionally, by virtue of a growing commitment to "Information & Communication Technology" (ICT) infrastructure and systems in support of operations on the electricity system, the Terna Group has for some time maintained high standards of operational continuity and effective processes and solutions for cyber-security.
To respond to constantly evolving security needs, and to the legal requirements on processing of personal data obtained from operators and other partners, Terna uses a risk-analysis process to determine threats to information and ICT assets, together with a significant expansion programme of technical and organizational protection instruments. In order to make the approach systematic, Terna has adopted its own Information Security Governance model, based on the major international standards, built around a structured framework of policies (with related roles, responsibilities and methods of implementation), and on specific security processes.
The year 2012 saw a further stage of quantitative and qualitative growth in the range of cyber-threats against the ICT networks and systems of companies and organizations, recorded in detail by many international institutional or technical-scientific bodies. Also in terms of critical infrastructure, Terna paid great attention to this evolving scenario, made all the more relevant by its business areas' need to expand interconnections and digital exchanges with external partners and stakeholders, above all via the Internet. Therefore, in the face of increased ICT risk, Terna strengthened its mechanisms for ICT system security, focusing in particular on fine-tuning tools and processes for controlling and monitoring.
Among the most significant initiatives and projects in 2012 we can note:

- perfecting the advanced corporate platform for vulnerability management, which makes Terna autonomous in performing systematic ICT vulnerability analysis activities. The platform – which has reached a high degree of "coverage" of the Group's ICT assets (workstations, server farms, networks, etc.) – is now also capable of providing, together with detailed vulnerability elements, indications regarding the associated risk, thus taking account of the real "exploitability" of such risks by attackers. This facilitates the work of the ICT structures responsible for "remediation" actions;
- a further stage of extension of the real-time monitoring services provided by the Security Operations Center (SOC), allowing more effective control of the physical and logical security of electrical plants and systems and computer networks; the positive result being both a reduction in adverse event detection times, and improved rapid response procedures, with the common purpose of minimizing impacts on the Group's resources;
- confirmation of the ISO/IEC 27001:2005 certification of the TIMM service (Testo Integrato per il Monitoraggio del Mercato Elettrico - Integrated Rules for Electricity Market Monitoring) achieved during 2011. A year on, this confirmation represents an important test, an acknowledgement that Terna continues to correctly apply the security principles and practices valid at the international level, not only in the area of TIMM certification, but also more generally - owing to the nature of many controls implemented – for the entire management of the Group's ICT services and infrastructures;
- the review of oversight of the Privacy rules, to update them in view of both the Group's new organizational framework and the changes introduced on the subject by Parliament between the end of 2011 and the beginning of 2012.

PR8

In the field of personal data protection, as in previous years, no complaints were received regarding breaches of privacy or illicit use by unauthorized users of personal data entrusted to Terna, either via the specific mailbox for such notifications (privacy@terna.it) or via any other reporting or survey channel.

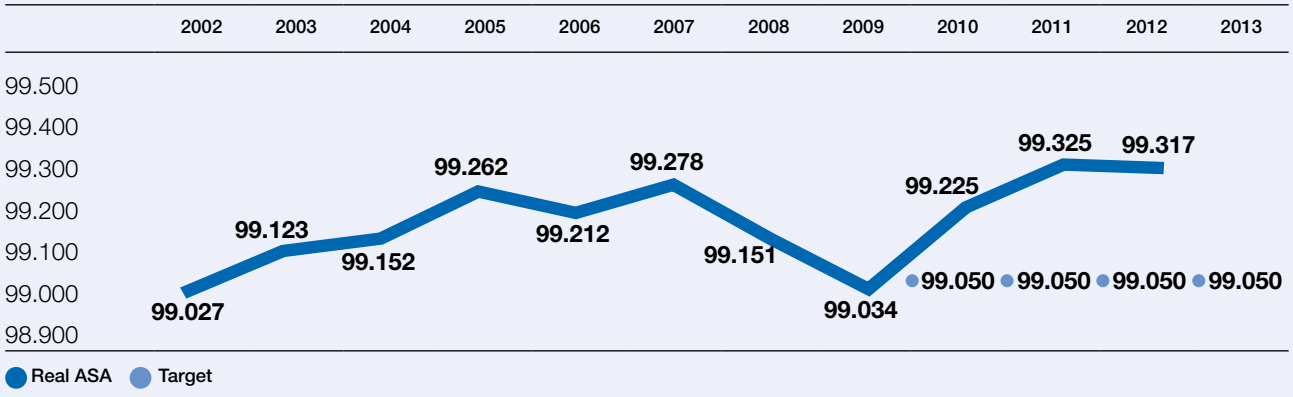
EU28 Service continuity and quality

EU29

Continuity is the most important parameter for measuring the performance of the electricity service. All the segments of the electricity system – generation, transmission, and distribution – contribute to the final result: ensuring to society the availability of electricity with outages below pre-established thresholds and with appropriate standards of technical quality.
Terna has always monitored the quality of the service provided using different indexes, and identifies annual targets for improvement objectives. In the following pages we present in particular the performance of the reference indexes for the "quality of service and conduct of Terna NTG plants", defined by AEEG Resolution No. 250/04 and the Terna Network Code.
It should be noted that the change in the indexes in the period considered does not reveal significant trends: in fact each index moves within a very small range in ratio to the overall service measured. In addition, among the causes of change are both external factors, such as weather conditions, and events (for example faults) attributable to management of the NTG: the analysis of the latter does not show systematic trends.
Since 2008 continuity has also been an objective encouraged by the Electricity and Gas Authority (AEEG), by means of a bonuses and penalties plan for performance with respect to pre-set targets (see the paragraph on page 77).
In 2012 the campaign to measure voltage quality data at Terna's plants continued, using the monitoring grid in service since 2006, in collaboration with the end HV customers and the distributor companies. The devices installed on the grid provide important information on the quality of energy supplies.

AVAILABILITY INDICATOR

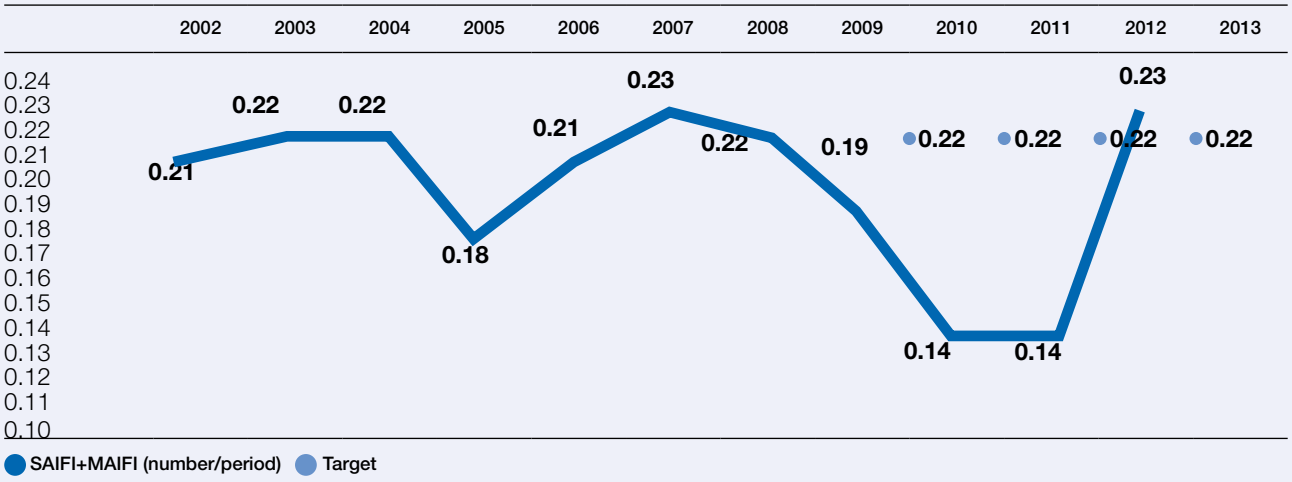
Average System Availability (ASA)
Average availability of the electricity grid components for use in a given period. This index can be expressed with regard to specific categories (for example, by voltage level), grid areas, or – as in this case – the entire National Transmission Grid. The higher the level of the indicator, the better the service performance. The performance achieved in 2012 exceeded the target set.



Target 2010 **99.050** → Target 2011 **99.050** → Target 2012 **99.050** → Target 2013 **99.050**

CONTINUITY INDICATOR

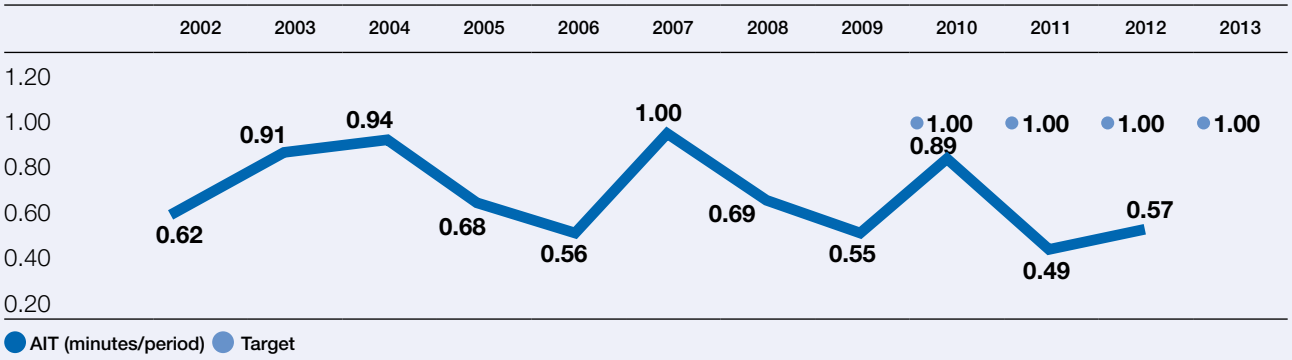
Short Average Interruption Frequency Index + Medium Average Interruption Frequency Index (SAIFI+MAIFI)
This interruption frequency index is calculated as the ratio between the number of customers involved in short (less than 3 minutes) and long (more than 3 minutes) interruptions, and the number of users of the National Transmission Grid. The lower the level of the indicator the better the service performance. The performance achieved in 2012 was a little worse than the reference target (from 2012 the indicator also includes the Telat NTG).



Target 2010 **0.22** → Target 2011 **0.22** → Target 2012 **0.22** → Target 2013 **0.22**

SYSTEM CONTINUITY INDICATOR

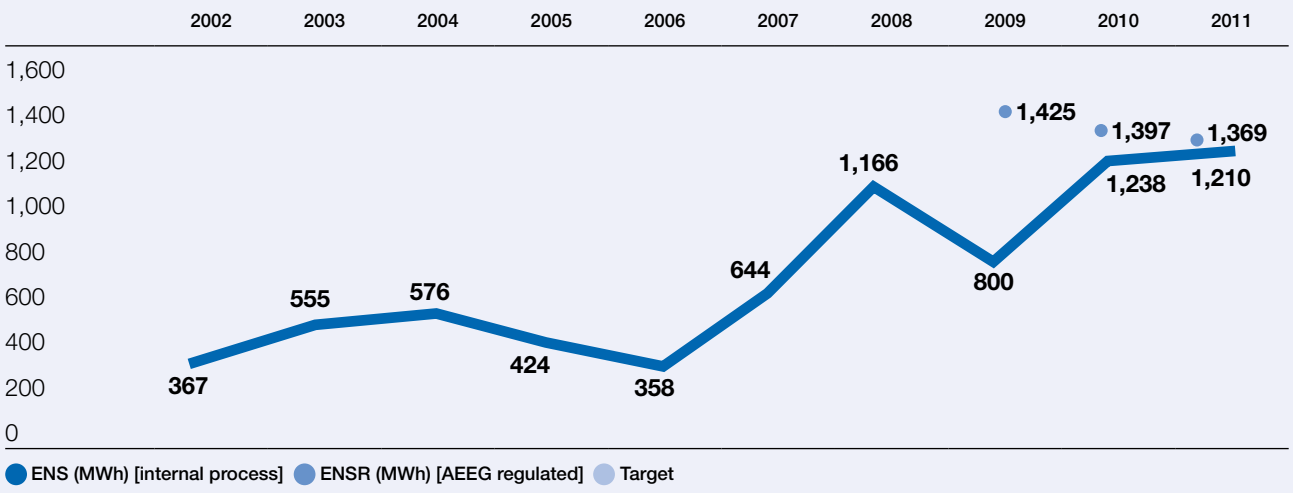
Average Interruption Time (AIT)
Average interruption time of the electricity system supply (NTG) in one year. This is calculated as the ratio between the energy not supplied over a certain period (ENS) and the average power absorbed by the electricity system in the period in question. The figure is rounded to the second decimal. The lower the level of the indicator the better the service performance. The performance achieved in 2012 was better than the reference target (from 2012 the indicator includes also the Telat NTG).



Target 2010 **1.00** → Target 2011 **1.00** → Target 2012 **1.00** → Target 2013 **1.00**

SERVICE CONTINUITY INDICATOR

Energy Not Supplied (ENS)
Up until 2007 the Energy Not Supplied indicator was used as an internal process indicator for the purpose of continually improving Terna's performance. This indicator regarded the energy not supplied to users directly connected to the NTG as a result of events that affected the latter and did not consider the shares caused by significant incidents [1].
Regulated Energy Not Supplied (RENS)
Since 2008, with its Resolution AEEG 341/07, the Authority has regulated the quality of the service provided by Terna through a mechanism based on incentives and penalties, which, among other things, adopted a new definition of the index. The new index also includes energy not supplied to directly connected users caused by events on other connecting networks that are not part of the NTG and a share of the energy not supplied because of force majeure events or significant events [1]. The lower the level of the indicator the better the service performance. The performance achieved in 2011 exceeded the target set in terms of the new index.
The final calculation, by the AEEG, of the ENSR indicator for 2012 is not yet available.



Target 2009 **1,425 MWh** → Target 2010 **1,397 MWh** → Target 2011 **1,369 MWh**

[1] A "significant event" is taken to mean any interruption with net energy not supplied exceeding 250 MWh. The share affecting the RENS index is a percentage which decreases as the energy not supplied during a single significant incident increases.

Grid development

The transmission grid must gradually evolve and expand in accordance with developments in the generation and consumption of electricity. Both supply and demand of electricity grow at different rates in different areas of Italy. The combination of these elements changes the flows of electricity in the system, causing congestion on the existing grid. To meet these needs, every year Terna prepares **grid development investment programmes**, so as to stay up to date with the evolution of production capacity and consumption, and to increase its efficiency and security. The development work that Terna plans and carries out also has positive repercussions on society: in fact the assumption underlying its implementation is that the collective economic benefit that this work generates is higher than its cost.
Every year Terna prepares a **Transmission Grid Development Plan (DP)** containing the **national transmission grid development projects** envisaged for the next 10 years and the stage of progress status of development works planned in past years.
The *2013 Development Plan* is concerned with the transmission grid development investments falling within the 2013-2022 period. This year, the 2013 Plan is made up of a core document with three appendices of more detailed information. In particular:

- the 2013 Development Plan constitutes the central document which describes the framework of reference, the targets and criteria into which the transmission grid planning process is divided in the national and European context, the forecast scenarios and new development needs which emerged during 2012, the action priorities and expected results deriving from implementation of the Development Plan itself;

- *Appendix 1* - *Details of evolution of the legislative framework of reference* contains details of recent legislative and regulatory measures in the industry;
- *Appendix 2* - *Main aspects of the electricity system and markets* describes the main phenomena and trends that have characterized the national electricity system in recent years;
- *Appendix 3* - *Technical and economic assessments* provides further information on the economic sustainability analysis of the main development projects.

The 2013 Development Plan is available on Terna's institutional website in the section devoted to the *Electricity System*. Approved by Terna's Board of Directors with a resolution on December 19, 2012, it was sent for opportune assessment for the purposes of approval to the Ministry of Economic Development and to the Electricity and Gas Authority on January 29, 2013, and subsequently to the competent Institutions involved.
For feedback on stakeholders' main expectations, the 2013 Plan was also submitted for assessment to the Grid Users' Consultation Committee (see the paragraph on Stakeholder Involvement), which expressed a favourable opinion both on the new development projects and on the 2013 Plan as a whole.

Main grid development activities currently underway

MAIN WORKS OF THE DEVELOPMENT PLAN AUTHORIZED AND IN THE AUTHORIZATION PROCESS

Main works completed

In 2012, Terna increased its transformation capacity by about 10,500 MVA[4] of power and put more than 30 km of new High and Very High Voltage lines into operation.

The main works completed during 2012 were the following:

- installation of PST (*Phase Shifting Transformers*) in the 380 kV electricity stations of Foggia and Villanova, to optimize energy flows on the H&VHV grid of the Centre - South;
- the new 220 kV underground cable power lines "Pellerina – Levanna", "Pellerina - Turin West", "Pellerina – Martinetto" and electricity station in SF_6 of Pellerina (*Rat. 220 kV city of Turin*);
- installation of 285 MVAr, 380 kV reactances at the 380 kV electricity stations of Scandale, Aurelia, Montalto, Santa Sofia and Feroleto;
- expansion of the 150 kV section of the 380 kV electricity station of Brindisi Sud;
- construction of the 380/150 kV electricity station of Castellaneta, inserted in input-output on the "Matera – Taranto" 380 kV line;
- construction of the 380/150 kV electricity station of Aliano and the associated connections to the H&VHV grid (150 kV in underground cable connections are being installed);
- as regards the Sorgente – Rizziconi 380 kV connection, the first stage of the work was completed in the 380 kV electricity station of Scilla, in Calabria, with the commissioning of the 150 kV section and of the HV cable connections to the NTG;
- in relation to plants designed to collect and use energy production from renewable sources in the South, important 380 kV and 150 kV electricity stations were built, numerous limitations of long stretches of the 150 kV grid were removed and numerous minor projects were carried out.

Main works authorized

During 2012, Terna obtained authorization for a number of important development works, including:

- in the context of rationalizing the Turin grid: 220 kV Polytechnic electricity station and 220 kV cable lines "Stura – Turin Centre", "Polytechnic - Turin South", "Martinetto – Levanna" and "Pianezza - Pellerina";
- Musocco 220/132 kV station and related connections to the NTG, needed for the Expo 2015 in Milan;
- as part of the work of doubling the primary Adriatic backbone, the 380 kV "Villanova – Gissi" stretch of power line was authorized in January 2013;
- 380 kV "Feroleto – Maida" Trans-Calabria power line;
- connections at 150 kV in submarine cable "Capri - Torre Annunziata" and underground cable "Cuma – Patria" for interconnection of the Campanian Islands to the continental grid;
- rearrangement of the 150 kV grid in the Sorrentine Peninsula.

Main works at the authorization stage

During 2012, Terna began the authorization procedures for various important development projects, including:

- 380 kV power line "Foggia – Larino – Gissi", as part of the doubling of the primary Adriatic backbone;
- connections at 150 kV to feed in the wind power production east of the Troia 380/150 kV electricity station;
- electricity stations of S.Teresa, Nuraminis and Selegas for the mesh of the 150 kV grid in Sardinia.

In addition the main projects with authorization procedures begun in previous years and still in progress are listed below:

- 380 kV "Redipuglia - Udine Ovest" power line;
- 132 kV "Elba - Continent" power line;
- 380 kV "Deliceto - Bisaccia" power line to facilitate the energy production of plants using renewable sources in the South;
- Rearrangement of the North Calabrian grid;
- the "Avellino North - Montecorvino" stretch; part of the 380 kV "Montecorvino – Avellino North – Benevento II" power line, to increase the exchange limits on the Centre-South, South section;
- 380 kV power line "Paternò - Pantano – Priolo" in Sicily;
- 380 kV power line "Chiaramonte Gulfi - Ciminna" in Sicily.

Main construction sites open

The most important work still in progress being carried out during 2012 involved activities to reduce network congestion, connect new generating plants (especially those using renewable energy sources), and increase the reliability of the national transmission grid with ever-greater attention to environmental and security issues.

The main construction sites open in 2012 are summarized below together with the related projects:

- 380 kV power line "Foggia - Benevento II", length approximately 85 km;
- 380 kV power line "Feroleto - Maida", length approximately 13 km;
- creation of several 150 kV cable connectionsat the 380 kV electricity stations of Aliano (Basilicata), Lacchiarella (Lombardy) and Villafranca (Sicily);

(4) Of which about 7,200 MVA related to the PST -*Phase Shifting Transformers* - installed in the Villanova and Foggia plants.

- expansion of the existing 380 kV electricity stations of Foggia (Puglia) and Scandale (Calabria) with a further 150 kV section, and installation of a new ATR to connect new plants;
- installation of a 285 MVAr 380 kV reactor at the Teramo electricity station;
- construction of a new 380/150 kV electricity station in Manfredonia (Puglia).

At the same time, during 2012 work begun in previous years continued on the following projects:

- new HVDC cable connection "Grand'Ile – Piossasco" to increase the transport capacity on the northern border with France;
- rearrangement of the grid between Venice and Padua including the 380 kV power lines "Dolo - Camin - Fusina";
- new HVDC connection Italy – Montenegro ("Villanova – Lastva") for energy exchanges with the Balkan region;
- new 380 kV double three-phase power line joining the 380 kV stations of Trino, in the province of Vercelli, and Lacchiarella in the province of Milan, measuring more than 100 km in length, work on which is at an advanced stage;
- new 380 kV submarine cable connection "Sorgente-Rizziconi": the work at the 380 kV electricity station of Sorgente (Sicily) is nearing completion; the site of the 380 kV electricity station of Villafranca (Sicily) is being prepared; the first line of submarine cables between Villafranca and Favazzina has been laid, including the first optical fibre cable; the tunnel and the sub-horizontal gallery at Favazzina are currently being dug. In addition, work on the 380 kV overhead line in Calabria is 70% complete, and on the Sicilian side, work on the power line between Villafranca and Sorgente is in progress;
- 380 kV electricity stations for connecting renewable source systems: work has begun on the electricity station of Erchie, and a bay for temporary connection of the wind power producer has been in operation since 20 December.

Following an approach based on the utmost transparency towards its stakeholders, the Company has developed a new web platform, which since March 2011 has made it possible to visualize up-to-date online information on the progress made on the works included in the Development Plan. See:
www.terna.it/default/Home/SISTEMA_ELETTRICO/CantieriTernaPerItalia.aspx

Projects set out in the Development Plan for the use of energy produced by renewable source systems

Implementing Directive 2009/28/EC and the National Action Plan (NAP) prepared by the Ministry of Economic Development, Terna inserted a specific section in the National Development Plan which defines the actions necessary for full use of the energy deriving from the production of renewable source systems.
The grid analyses carried out in order to facilitate the use and development of production from renewable sources have enabled us to identify actions for both the primary 380–220 kV transmission grid, and on the 150–132 kV high voltage grid. The figure below shows a summary of the main development projects that involve the Very High Voltage grid.

MAIN ACTIONS ON THE 380 kV GRID NECESSARY FOR FULL USE OF ENERGY DERIVING FROM THE PRODUCTION OF RENEWABLE SOURCE SYSTEMS

The development projects on the 150 kV transmission grid regard many Italian regions in the South and mainly provide for new 380/150 kV collection and transformation electricity stations, new 150–132 kV switching stations, removal of limitations and expansions of portions of HV grid and local rearrangements often related to insertion on the primary grid of the new VHV/HV collection stations.

TERNA'S commitment in ENTSO-E in 2012

Terna is a member of the ENTSO-E, the European Network of Transmission System Operators, which represents 41 TSOs belonging to 34 countries, including the countries of South-Eastern Europe (excluding Albania and Kosovo).
Since March 3, 2011, under the terms of the EU's so-called "Third Energy Package", the ENTSO-E, which is based in Brussels, has been the official organization for cooperation of all grid operators at the community level. The activities of the ENTSO-E are carried out in close coordination with the European Commission and the Agency for the Cooperation of national Energy Regulators (ACER).

European Network Codes

The ENTSO-E has the task of preparing European Network Codes, on the basis of the annual priorities defined by the European Commission and in conformity with the ACER guidelines. The European Network Codes refer to connection to the grid (generators, distributors and end users), to the market and to operation of the electricity system: once they have been finalized, including a process of consultation with the reference stakeholder, they will be adopted by the European Commission through the Comitology process, becoming supra-national and binding legislative acts which will prevail over the national codes as regards cross-border questions.
In 2011, the European Commission, the ENTSO-E and the ACER established a three-year work programme which provides for the composition of twelve European Network Codes for the electricity industry and which takes into account the political conclusions of the European Council of February 4, 2011, which fixed 2014 as the term for completing the integration of the national and regional electricity markets.
In order to achieve this 2014 objective, the ENTSO-E is already working on composing nine Network Codes. Two of the codes on the subject of connection, and one on the subject of the market, were already been submitted for ACER's opinion in 2012, while the remaining six will be assessed by ACER during 2013. All the codes, however, must be approved by the European institutions to then become binding by 2014.

Transparency of the markets

The ENTSO-E contributes to energy market transparency, through the establishment of a centralized platform for the publication of privileged data and information. During 2013, the European Commission will adopt community guidelines on the subject of transparency, prepared with intense involvement of the ENTSO-E. In order to respond better and more rapidly to the requirements of the Commission's Regulations, the European grid operators are already updating the centralized platform.

Ten-Year European Network Development Plan

The ENTSO-E prepares the Ten-Year European Network Development Plan (TYNDP), starting from the national investment plans, and taking into account the community guidelines regarding the trans-European energy network. In addition, the TYNDP identifies the need to develop cross-border capacity and any possible obstacles, such as those deriving from authorization procedures.

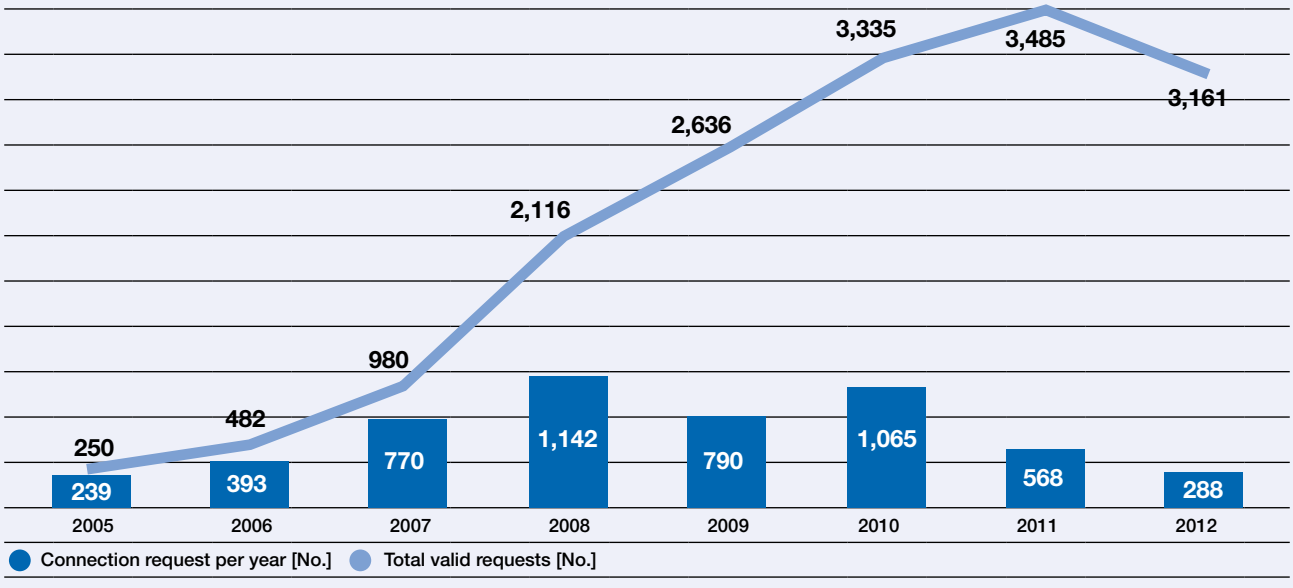
The Plan is published every two years: the 2012 edition was published in June of last year. Together with the other TSOs, Terna is already working on the next edition which will come out in 2014. The new Plan will be made up of six regional investment plans, the Development Plan for the European grid, and the report on the forecast scenarios and adequacy of the European electricity system. In addition, this edition will, for the first time, feature forecasts on the state of the grid in 2030. This vision for 2030 represents an intermediate step in the modular development of the "Electricity Highways" of 2050, inserted among the objectives of the European Commission "Energy Roadmap 2050", in order to complete decarbonisation of the European electricity system by that date.

Among the numerous mandates assigned to the ENTSO-E by the Third Energy Package, there is also publication of European Research and Development Plans regarding the electricity transmission industry. For this reason, in 2012, the ENTSO-E published a Ten-Year 2013-2022 *Roadmap*, which identifies technological gaps which need to be closed in order to achieve the 20-20-20 community objectives set in 2009, and a 2014-2016 Implementation Plan, which defines the priority R&D themes which the European transmission system operators must launch in the next three years.

Connecting new plants

Terna has an obligation to connect all potential users that request connection to the Grid, identifying connection solutions on the basis of criteria that enable continuity and operating security of the grid on which the new plant is to be inserted. In particular, Terna is responsible for connecting to the National Transmission Grid plants with power of at least 10 MW, and for coordinating interconnection between the grids of other operators, such as distributors and/or grids with obligation of third party connection, when the requests received by the latter also determine the need for expansion also towards the NTG.

- Activities to provide access to the grid infrastructure is regulated by the Electricity and Gas Authority (AEEG). The current regulations govern many stages of the process of providing access to the grid infrastructure, establishing times and costs. Terna's activities include initial preparation and sending of the connection estimate to the applicant - necessary in order to obtain authorization from the agencies in charge - which includes a connection solution based on the assessment of the impacts the plant to be connected will have on the grid. After authorisation, it is once again Terna's responsibility to define a detailed technical solution which allows the final phase of the project to start.
- The following histogram shows the connection requests received by Terna starting in 2005, the year in which the procedure described was started. The graph reveals how, against an initial acceleration, pushed by the strong incentives on the regulatory front, today there is a contraction in the requests as incentives decrease. The cumulative curve lists the valid requests, processed by Terna over time, for which the authorization procedure is still under way with the agencies in charge. The 2012 reduction is linked both to plants that have completed their own grid connection process (plants that are now operating) and the expiry of certain initiatives.



EU6 Plant maintenance

Plant maintenance is essential for ensuring service quality and continuity.
To ensure that plants can be identified immediately and reached as quickly as possible, especially in the event of malfunctions, Terna's workers use a hand-held device that incorporates a navigation system that shows all the plants superimposed on a geo-referred map.
The main actions performed in 2012 with regard to electricity stations and lines were the following:
Plant monitoring and inspection: In addition to the checks prescribed by law, Terna:

- performed about 20,900 periodical technical and surveillance checks on stations at the different voltage levels;
- carried out inspections with visual checks on around 142,800 km of lines, 10,000 km of which by helicopter, amounting to an average of about 2 inspections per year;
- made around 19,800 instrumental checks, using thermal cameras to identify hot spots, and DayCor UV cameras to pinpoint the corona effect on insulators and conductors, also climbing pylons with LLW (live-line working) techniques.

Ordinary Maintenance: Terna identifies the work to be done on the basis of signs of deterioration signalled by the integrated remote-management system, online sensors, and the results of the plant monitoring process. Since 2005, it has made use of an special system to support line and station maintenance work called MBI (*Maintenance and Business Intelligence*) which enables optimisation of maintenance work.

EN12 **Controlling Vegetation:** for correct operation of the lines, continual monitoring is necessary to assess the growth of vegetation and prevent it from getting too close to energy conductors and causing possible short circuits and line interruption.
Vegetation control normally consists of cutting it down to the ground or – if there are particular environmental restrictions – in branch removal aimed at keeping trees at a safe distance. Herbicides are never used.
During 2012, vegetation was cut along 15,300 km of electric lines.
Live-line working (LLW): Approximately 3,400 monitoring and maintenance jobs were performed on live wires.
Performed with the line in operation, such work increases plant availability and contributes to the improvement of service quality and continuity.
Special Maintenance: during 2012, Terna reconstructed 62 km of overhead lines and 8 km of underground cables, and replaced approximately 3,100 km of energy and guard wires.

Line inspection by helicopter

Terna started and completed the LIDAR (Laser Imaging Detection and Ranging) project, with the objective of creating a geo-referred platform of the National Transmission Grid thanks to the use of laser imaging by helicopter. The technology adopted made it possible to create a database for the HV grid, and to survey the elements interfering with the overhead power lines, such as buildings, vegetation, and roads.
In 2012, Terna began testing a new method for visual and instrumental monitoring of High Voltage overhead lines with its own personnel in helicopters, in order to improve diagnostics, and to make line controls objective, through the registration of the results of the instrument surveys, in line with the best practices of the leading European Transmission System Operators.
In addition this method reduces survey times and makes the process independent of environmental conditions on the ground.
In view of the positive outcome of the testing, from 2013 the new monitoring method will become operational on a significant portion (approximately one third) of the National Transmission Grid.

The “BE.S.T. P.A.T.H.S.” research project co-financed by the 7th EU Framework Program

EU8

The European Union finances research through its 7th Framework Program, operative for years 2007-2013.
The funds are assigned by tenders for the best projects that have results that will help to define strategies for the 20-20-20 targets - the goal of the next EU “Horizon 2020” Program” - and which will translate into recommendations for the member states.
With an eye to a synergistic strategy, aimed at focusing research on national/Mediterranean topics of interest, Terna has joined the Working Group ENTSO-E R&D, from which the EU takes the themes for the tenders it intends to launch.
For Terna, qualified participation in the most important and prestigious international research projects is not just beneficial in terms of access to financing (which covers over 50% of the total budget) and the technological implications for a project already in the Development Plan, but also an opportunity to bring back into the company and the national economy a substantial portion of know-how and economic resources which in any case come out of public expenditure.
Specifically, Terna took part in the: “*Large-scale demonstration of innovative transmission system integration and operation solutions for (inter)connecting renewable electricity production*”, the most recent tender for sustaining research projects, at the demonstration and prototype phases, on the technological challenges deriving from the large-scale penetration of renewable production and the integration of the European electricity market.
This is research into the development of:

- smart electricity grids with demanding requisites in terms of “governance” and reliability and consequent reduction of system costs, and with a high rate of integration with the increasing production from renewable sources;
- new technologies and components for HVDC direct-current: innovative VSC converters, D switches, very high voltage, extruded insulation cables, high performance conductors and insulators;
- systems with marked interoperability features between the components and sub-systems of different manufacturers and relative technological standards.

These topics have a strong sustainability connotation since they coincide with the guiding principles of the evolution demanded of the transmission grid to comply with a de-carbonised electricity system with de-localised and distributed renewable generation and integrated horizontal and vertical management.
This research further reinforces the networks of collaboration at a European and international level, between utilities, manufacturers and research institutes, as well as public and private parties.
The research project proposal, finally approved by EC in April 2013, provides for a consortium, chaired by Terna, of 40 partners among which TSO (as well Terna, RTE, REE, 50Herts, Eia, Mavir, Stattnett, REN, EnergieNet), utilities (E-On, Iberdrola), manufacturers (ABB, Toshiba, Alstom, General Cable, Nexans, Silec, ECN, De Angelis), universities and research institutes (RSE, CERN, STRI, Columbus and many others).
The general co-ordinator of the project, which is structured into 5 complementary categories, is the Spanish TSO. Terna has assumed the role of leader of the main category (over 30 million euro out of a total of 75), relative to technological investigations of the components and systems aimed at restoring the SACOI connection (HVDC between Sardinia, Corsica and mainland Italy). Terna has also suggested the name/acronym for the entire project: *“BEST PATHS”* (*Beyond State-of-the-art Technologies for re-Powering AC corridors & multi-Terminal HVDC Systems*).

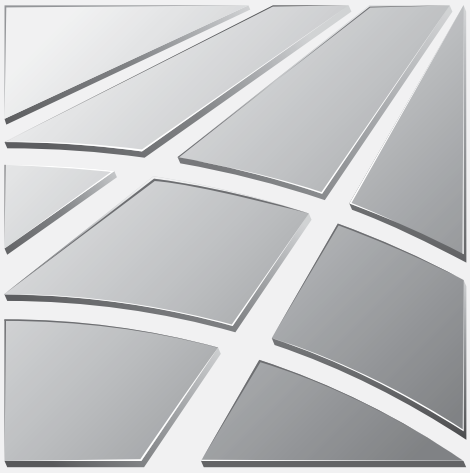
EU8 Engineering and innovation

To introduce new technological and plant solutions, new instruments and methods aimed at improving the reliability of plants and in turn, service quality, Terna mainly uses in-house technicians who base their work on the careful monitoring and analysis of the performance of equipment and plants. Terna also uses the specialised support of manufacturers, collaboration with universities, RSE S.p.A. (Ricerca Sistema Energetico) and CESI S.p.A., a specialised service company in which it has a 42.698% equity investment. In particular, in 2012, the Terna Group incurred costs of 15.6 million euro in regards to the associate CESI.
Research on innovation and the development of new engineering solutions is organized into four categories.

Aim	Projects and progress made in 2012
STRUCTURE AND MATERIAL OPTIMIZATION	
Designing towers with less visual encumbrance and/or better environmental integration	**International "Pylons of the Future" competition** Trials of real-scale prototypes was completed and production launched for pylons to be installed on the Trino-Lacchiarella 380 kV line.
Upgrading the transmission capacity of existing lines	**Innovative, high-performance conductors** Qualification tests were completed and ACSS-type High Temperature Conductors installed. These are characterised by a steel carrier with very high mechanical resistance and annealed aluminium cladding.
New technology for high voltage cables	**Recyclable cables** A leading supplier has made a High Voltage cable available made entirely from recycled raw materials (technology already well-established for Medium Voltage). It will enable a reduction in the environmental impact of grids and, at the same time, an increase in their energy transport capacity. The launch stage involves work on laboratory testing of the prototype, and installation of a pilot on a plant under construction is planned in the first half of the year.
New test protocols for AT cables	**Tests for cables and compounds** A test protocol is currently being defined in collaboration with the University of Bologna for cables and the relative insulating material so as to verify the constancy of the chemical-physical characteristics required of all AT cable suppliers.
ATR Fences and Foundations	**Design and Unification of Fences and Foundations** Some types of station enclosures (pre-fabricated, cast in place, grating) were engineered and unified. • The types studied were differentiated on the basis of seismic risk and wind and on the basis of the need or lack thereof of an intruder-proof perimeter. • ATR Foundations. The types studied were differentiated on the basis of the level of voltage of the transformation, the size of the machine and the degree of external stresses to which the foundation is subject. The purpose is to make a catalogue available to the company which can be used to select the best solution.
Station Layouts	**Station layout - Update and new arrangement** • The layouts of Control and Auxiliary Service buildings were updated, reducing floor area and optimizing the subdivision of internal spaces. • New layouts were finalized for integrated buildings to be used in small Switching and Transformation stations. • New compact station layouts were prepared with a reduction of surface area. The development of the optimized 380 kV section is at the completion stage. Development for 220 and 150 kV voltage will follow.
EQUIPMENT DIAGNOSTICS	

Aim	Projects and progress made in 2012
Station Equipment and Machinery Monitoring	**New sensors on equipment and machinery** In the Lacchiarella station, work has been completed on the 380 kV section, installing new types of sensors positioned on board equipment and machinery. Installation is currently under way of another type on the 132 kV section. These will be trialled with a view to potential widespread installation. Once installation of the 132 kV equipment monitoring system has been completed, (June 2013) we will have the first completely monitored Terna station.
Analysis and monitoring of line components	**Insulator test laboratory** A project is planned for development of an Experimental Station for the study and monitoring of surface contamination of insulators. The feasibility study permitting identification of the best sites has been concluded. Installation is planned during 2013.
Monitoring of partial discharges on High Voltage cable systems	**PDM (Partial Discharge Monitoring)** Systems to monitor partial discharge at joints and terminals have been installed on a number of cable connections. A comparative measurement was also carried out with a new instrument which does not need any connection to the component to be tested. Examination of the data collected is aimed at finalising a specific technique for the acquisition of such systems and at defining the criteria for installation and use to test first installation cable systems.
NEW EQUIPMENT	
Compact, rapidly installable stations	**SCRI** Given the advantages of this solution, tested with the SCRI 150 kV, the 380 kV mobile station was also designed. The possibility of building such stations has been verified with constructors and trials are under way.
PLANT SAFETY	
SicurTrafo Project	**Project for a system of containment barriers to protect ATRs** Development of the final project for a system of barriers used to contain power transformers (ATRs), on all four sides of the machine is under completion. The project provides for three fixed barriers and one mobile barrier, at the front, to enable the machine to be moved. The project has uniform features so that it can be used all over the country. The functional purpose of the barrier is to screen both flames and the impact of flying fragments if the transformer explodes, increasing safety in the plant. Studies have also begun to determine the applicability for ATRs of a system capable of preventing fires in the machinery in the event of serious faults.
Reduction of seismic vulnerability	**Application of earthquake-resistant devices to the most vulnerable equipment** A study of the seismic vulnerability of the plants is in progress in collaboration with the University of Roma Tre, focusing particularly on the equipment most at risk. The purpose of the study is to define earthquake-resistant devices to be inserted between the foundations and equipment supports in order to improve response to earthquakes.

2012



Economic responsibility

Terna

Our approach

For Terna, service objectives are integrated with those of economic performance. The synthesis of the two aspects lies in the search for operating efficiency and opportunities for growth, while fulfilling service obligations, in particular the security of the electricity system.
In Italy, Terna manages the transmission of electricity as a monopolist. Therefore, it cannot increase its business or revenue by enlarging its market share and pursues these objectives mainly by:

- promptly carrying out the investments provided for in the Grid Development Plan, which is also useful for improving the electricity service for society and provides a source of corporate income;
- seeking operating efficiency and optimizing its capital structure;
- developing non-traditional activities connected to the transmission;
- seeking business opportunities in industries other than transmission.

Other opportunities for growth lie in the expansion of activities abroad. The search for new investment possibilities in the transmission industry have focused on the southern Mediterranean and the Balkans, where a number of projects are being developed, in particular in regards to the construction of interconnection lines.
For a detailed presentation of the economic and financial results achieved by the Group, see the Annual Reports available online at www.terna.it in the Investor Relations section, especially the 2012 Annual Financial Report. In any case, the main results of the last three years are reported in this chapter, in conjunction with the subject discussed.
The paragraph "Revenue and Risk Management" provides information on the difference sources of Terna's revenues - with particular regard to the effects of the regulatory framework - and their respective relative weights, as well as the measures implemented by the Company to prevent and cope with the risks connected with its business.
The economic effects of Terna's business do not end with its financial results. The "Terna's Economic Impacts" section reports the most important qualitative and quantitative information connected with the Company's relationship with specific stakeholders. The most significant of these relationships are described in the final sections of the chapter, devoted to relationships with shareholders, with suppliers and with operators of the electric industry.

Revenue and risk management

Revenue structure and regulatory framework

In 2012, the Terna Group's revenue amounted to 1806 million euro Most of this (about 95%) comes from activities subject to remuneration established by the Electricity and Gas Authority (AEEG) and only 5% is related to other activities, which consist mainly in specialised services provided by the Terna Group to third party entities, such as maintenance activities for HV systems owned by third-parties, plant engineering, maintenance of the fibre optic network owned by third parties, housing of TLC equipment, as well as other consulting activities in the transmission field.

Regulated revenue

The Company's regulated revenue is generated by different rate components – the most important of which is the payment for transmission – paid to Terna by different categories of companies in the electricity industry (Distributors, Single Buyer and Dispatching Users) in proportion to the specific allocation drivers established by the AEEG (quantity of energy, power available, number of injection/withdrawal points).
Annually, the AEEG determines unit sum of the rate components, on the basis of rules defined at the beginning of every four-year regulatory period. The contributing factors are, first, Terna's recognized costs, including margins, and second, the reference quantities(forecast) of the aforementioned allocation drivers. The cost components considered to determine the transmission rates mainly belong to three categories:

- **Remuneration of the RAB.** The value of the RAB (*Regulated Asset Base*) is revalued annually on the basis of the Istat number on the change in the gross-fixed-investment deflator and updated on the basis of Terna's net investment. This investment is for both the construction of electric infrastructure (lines and stations) to renovate or develop the grid (work included in the Grid Development Plan) and the enhancement of managerial instruments (for example, IT systems or technologies to improve the security of the electric system). The RAB is remunerated by the AEEG at a rate of return

linked to the market rate, or 7.4% for investments carried out up to 2011 and 8.4% for investments carried out starting in 2012. This rate is increased - for a limited number of years - for certain categories of development investment that are considered of particular strategic importance. In 2012, remuneration of the RAB constituted about 49% of Terna's recognized costs.

- **Depreciation and amortisation.** Provision is made for the annual adjustment of the depreciation and amortization recorded due to the effects of new investments, divestments, the termination of the useful life of assets, and revaluation based on the change in the deflator of gross fixed investment. The share of amortisation remuneration represented in 2012 approximately 29% of the total recognised costs.
- **Operating costs.** Operating costs are typically the costs of labour and the procurement of goods and services that do not constitute investments. The component covering these costs, which in 2012 came to about 22%, is based on annual operating costs, valid for the entire regulatory period, revalued annually on the basis of inflation and reduced annually by an efficiency factor (price cap mechanism).

Once the unit amounts of the different rate components have been established, Terna's revenue depends on the actual dynamic of the allocation driver of recognized costs and in particular of the energy transmitted and the demand for electricity: in effect, because of the volume effect, it can turn out to be higher or lower than that foreseen. The sharp business contraction that began in the second half of 2008 together with the increase in the energy input onto the distribution networks (which "locally" satisfies part of the demand and therefore reduces the energy transported on the transmission grid) made forecasting the trend in energy transported more uncertain and led the AEEG to confirm, for 2012 and 2013, the mechanism to partially neutralize the volume effect introduced with Resolution ARG/elt 188/08. This mechanism provides that the AEEG:

- supplement Terna's remuneration regarding the volume share exceeding an exemption of 0.5% if the final volume is smaller than the one used for the rates;
- require Terna to return the increased earnings regarding the volume share exceeding an exemption of 0.5% if the final volume is larger than the one used for the rates.

The 199/11 resolution provided that the transmission rate would become binomial starting in 2013. In other words, based on two allocation drivers: energy transported and power available at the connection points between the transmission grid and the distribution networks. Certain implementation difficulties have led the Authority to postpone adoption of the same and to confirm the pre-existing monomial rate for 2013.

Pass-through items

In addition to regulated revenues and those generated by non-regulated activities, other Terna revenue comes from covering the costs for transactions for which the rules require a zero balance: these are considered pass-through items that do not influence the net income of the Terna Group in its Income Statement.

Part of these items, for example, are amounts such as the so-called *capacity payment* that Terna collects from withdrawal dispatching users and pays to the producers who make the capacity available on the market, or the amounts that Terna collects from the withdrawal dispatching users and pays to the subjects that supply the right to interrupt the load.

A significant part of the pass-through items is represented by so-called *uplift*, a rate component which includes various system costs, including covering the net expenses incurred to procure resources on the DSM. On one of the Uplift components (the component covering the energy purchase and sale transactions carried out by Terna on the DSM in order to keep the electric system balanced) the AEEG established an incentive scheme for Terna which establishes bonuses and penalties based on the volume of resources procured (see the following paragraph) in order to contain costs for end users.

Even if it does not influence Terna's profitability, pass-through revenue - also because of its size - has important repercussions on its relationship with industry companies with regard to the commercial and administrative management of contracts and billing of receivables and payables.

In 2012, Terna's pass-through revenues - and expenses - totalled 6,327 million euro (5,026 in 2011), of which 1,529 (about 1,261 million euro in 2011) relative to the procurement of resources on the DSM.

2012 Incentive schemes

The AEEG has introduced a specific bonus and penalty scheme aimed at incentivizing service improvement, in both technical and economic terms. Implicit in the incentive mechanisms is the assumption that if the objectives are achieved, the benefit for the users of the service will be a multiple of the incentive paid to Terna. In particular, in 2012 incentive mechanisms were provided for:

- the quality of transmission service. The AEEG has defined (Resolution 197/11) a framework of incentives and penalties, applicable for the three-year period 2012-2015, linked to the ENSR (relevant energy not provided) indicators evaluated by referring to three different sub-indicators: ENSR-TERNA, ENSR-TELAT and ENSR-ALTRI, referred to three distinct portions of the national transmission grid. Temporarily, for the 2012-2015 period, economic effects are only associated with the first two sub-indicators and the bonus/penalty is calculated by multiplying a pre-established sum by the difference between the actual value and the target value of the indicator, net of an exempted range (+/-5% of the target

value of the indicator). The inclusion of the grid portion acquired in 2009 from Enel (Telat grid) within the incentive mechanism includes the application of diversified targets, converging in 2015. At present, the final calculation by AEEG of the indicator for 2012 by which the incentive is valued is not yet available;

- reduction of the volume of resources procured on the Dispatching Services Market (DSM). The mechanism was introduced in 2007 for a four-year period. It was modified by Resolution ARG/elt 213/09 and extended through 2012. The current mechanism provides for a differentiated unitary cap for each year and does not provide for a bonus *cap*;
- acceleration of investment to develop the NTG. This mechanism, originally introduced by Resolution ARG/elt 87/10 and modified by Resolutions ARG/elt 199/11 and 40/2013/R/eel provides for a 2% additional incentive for the work in progress on development projects with the most added value for the electric system (elimination of congestion between market areas, increased transport capacity with other countries), conditional on the achievement of a series of milestones agreed on with the AEEG. Starting in 2012 a penalty mechanism is also applied in the event that development works go into operation behind schedule. Furthermore, Resolution ARG/elt 199/11 provides that Terna's participation in the investment acceleration mechanism (optional without other consequences until 2011) is a necessary condition for access to the additional 2% remuneration for Category I3 investments.

The bonuses earned in 2012 for achieving the objectives established as part of the incentive schemes are included in Terna's total regulated revenue. In the case of the incentive for reducing the volume of resources procured on the MDS, compared to the result achieved in 2012 and in consideration of the three-year period of the incentive mechanism and its characteristics, Terna recorded 23 million euro in its 2012 Financial Statements (165 million total during the 2010-2012 three-year period, as adjustment of the related fair value, taking into account the risks connected to the determination of 2012 targets and performance as well as the possible corrections to the volumes booked for 2012.

INCENTIVE MECHANISMS ACTIVATED IN 2012

Objective	Resolution AEEG	Period applicable	2012 result
Quality of transmission service	Resolution 197/11	2012-2015	Being defined by AEEG
Reduced volume of resources procured on the MDS	Resolution 213/09	2010-2012	Bonus € 1 million
Acceleration of investment to develop the NTG	Resolution 199/11	2012-2015	Bonus € 14 million

The cost of transmission on the final user's bill

In accordance with current regulations, much of Terna's recognized costs are billed to end customers of the electricity service by the distribution companies. Even without an official breakdown of the cost for the end user which directly shows the impact of the costs resulting from Terna's activity, based on the figures published by AEEG it can be estimated that transmission costs have a weight of about 3% on the electric bill of an average user . Most of these costs are Terna's recognized costs (the consideration of other minor rate components have a negligible effect), net of pass-through items.

(5) Relation between the costs of transmission and cost of electricity for an average domestic consumer (family with 3 kW of committed power and 2,700 kWh of annual consumption); Terna processing of AEEG data.

Risk management

The analysis, prevention and management of risk regards the different aspects of corporate activities. Terna's business is exposed to market and financial risks (regarding the interest rate, inflation, liquidity and credit), risks connected with its financial requirements, operating risks connected with grid malfunction, regulatory risks and litigation risks. For a description of the procedures for preventing and managing such risk, see pages 83-84 of the 2012 Annual Report.
The following pages describe other aspects of risk, their relationship with Terna's activities, and the related measures for coping with them. The aspects considered are:

- risks and opportunities connected with climate change;
- risks connected with the electricity market and the electricity system.

The coverage of several obligations connected with employee benefits is also described.

Risks and opportunities connected with climate change

EC2

Terna is a utility whose principal activity is the transmission of electricity. The Company is not involved in any way in the generation of electricity and thus is not subject to any obligation to reduce emissions or to any emission trading schemes. Therefore, government intervention through taxation (e.g. a carbon tax) or regulation (emission-reduction targets, inclusion in emission trading schemes) with direct consequences on Terna's business and financial performance are to be excluded. Climate change does not constitute a threat for Terna as far as its foreseeable business prospects are concerned. On the contrary, climate change has stimulated a legislative evolution in favour of renewable energy sources, which has already provided Terna with opportunities to develop new business lines.
Terna's management recognizes the increasing importance of climate change and has identified - in addition to the opportunities - potential, albeit remote, risks and opportunities connected with the warming of the Earth and the reactions that it might cause in governments, as well as in the habits of consumers.
The fields in which risks and opportunities are anticipated for Terna's business are the following:

- The task of keeping injections and withdrawals of electricity on the transmission grid in balance, which Terna performs in Italy as the transmission system operator, becomes more difficult when the climate is extreme, for example when water is scarce or the temperature is extremely high. The probability of critical situations increases which can entail temporary disconnection of users in certain areas of the country and which consequently cause the attention of the public authorities and the mass media to focus their attention on Terna;
- concern about climate change or the increase in the price of energy raw materials could lead to a reduction in the income elasticity of the demand for energy. The trend towards energy conservation and the effort to improve energy efficiency could cause the growth in the demand for electricity to be lower than it is currently, all things remaining equal. The rules adopted so far by the AEEG for the remuneration of the transmission service make it very unlikely that the possible reduction in volume could translate into a decrease in revenue for Terna (see paragraph "Revenue Structure and Regulatory Framework"). The possibility of introducing a binomial rate - originally scheduled for 2013 - confirms this conviction: in accordance with what is proposed by the AEEG, about 95% of the recognized costs of transmission, today entirely allocated based on the energy transported, would be divided based on the power available at the connection points between the transmission grid and the distribution grids, while only the remaining part would be allocated based on the energy transported (see, in this chapter, the section "Revenue Structure and Regulatory Framework");
- the increase in the production of energy from renewable sources poses various challenges for Terna, connected to the increase in the requests for connection to the grid for renewable energy plants and the need to plan and carry out investments to resolve the grid congestion problems and for efficient and safe management of production that cannot be programmed.
  Critical aspects. The new power plants for production from renewable sources with power greater than 10 MW must request connection to the transmission grid from Terna. In recent years, there have been numerous requests. Only some of these requests led to the development, once connection was obtained from Terna, of an authorized project. Sometimes there was a time gap between the plant authorization and authorization of the connection work, which has now been resolved through the use of a single authorization process. This situation, along with the time necessary to realize the development investments required in order to make full use of the production capacity from renewable sources, can expose Terna to reputational risks regardless of how properly it acts. Furthermore, the intermittence of production, in particular wind production, makes dispatching activity more difficult, increasing power reserve and regulation requirements.
  Opportunities. The investments in the transmission grid made necessary by the connection to plants using renewable energy are a source of revenue for Terna. Furthermore, as explained in detail in the chapter on Environmental Responsibility, investment to develop them also entails significant consequences in terms of emissions reduction for the entire electric system (reduction of losses, improvement in the production mix, connection to new renewable-energy plants). Terna's image can be enhanced by this positive role. The Company can also develop business opportunities regarding the long-term development of solar plants in Africa to satisfy European consumption, which requires the

parallel development of infrastructure to interconnect the two continents. Terna has already planned shorter term investments in batteries which can concretely foster the use of renewable sources, while simultaneously resolving grid regulation problems. These investments open a new line of business for Terna indirectly connected to climate change, as already occurred in 2010-2011 with the construction of photovoltaic plants on land available inside or near the Terna electric stations, then sold with significant positive impact on the financial performance of the company.

Risks connected with the electricity market and system

Terna procures the resources it needs to manage the National Electricity System securely through the Dispatching Service Market. This activity is critical for the security of the electricity service and also has significant repercussions in economic terms (see the "Pass-through Items" and "Incentive Schemes" sections).
Analysis of the processes regarding Terna's interaction with the Electricity Market and the related risks has enabled the Company to identify those risks with the highest probability and greatest impact. In order to constantly monitor these risks, a dedicated system, called SIMM (Security Index Market Monitor) has been set up. This system enables the Company to follow the overall performance of the Electricity Market through several key indicators and to promptly pinpoint any deviations from pre-established benchmarks.
Terna also monitors the Electricity Market data on behalf of the AEEG. The Risk Management Unit, which is part of Terna's Monitoring Department (Integrated text on the monitoring of the wholesale electricity market and the Dispatching Service Market, Resolution No. 115/08 of AEEG), must ensure impartiality, transparency and security in acquiring and presenting information. For this purpose, Terna created the TIMM data warehouse, with the objective of monitoring the magnitudes and the indicators required by the AEEG. During 2011, the Company obtained certification of the TIMM process according to the ISO 27001 standard (see the section "Information Security" on page 61).
Its responsibility for making the National Electric System work securely requires Terna to identify related threats and vulnerabilities – for example, exogenous events or failure to observe the Grid Code – and to adopt appropriate mitigation measures. The status of the National Electric System is monitored in numerous ways, such as:

- monitoring of the status of the National Electric System;
- checks on the performance of the plants connected to the grid through the process of self-certification and analysis of related documentation;
- inspections of interruptible sites and checks on conformance with Terna's technical requirements;
- inspections of production plants under construction in cooperation with the Ministry of Economic Development to monitor delays in commissioning such plants and at the same time check the application of the Grid Code and the obligations of future production;
- monitoring the design and construction of station defence systems and automation techniques.

Coverage of obligations connected with employee benefits

EC3 There are no defined-benefit corporate pension plans in the Terna Group. In Italy the pension coverage provided by the public system, which originally was one of the highest in the OECD countries, has been reduced by a series of reforms that began in the 1990s. Terna offers its employees supplementary defined-contribution pension coverage on a voluntary basis. Specifically, senior executives may enrol in the Fondenel pension fund (http://fondenel.previnet.it) which provides for contributions by both the executive and the Company. In both cases, the amount varies according to the hiring date and the date the executive first joined a supplementary pension plan. Other employees (blue-collar workers, white-collar workers, and junior executives) may enrol in the Fopen pension fund (http://www.fondopensionefopen.it). In addition to pension plans, the employees of Italian companies receive other defined-benefit payments.
In particular:

- During their working life, all employees receive a contractual "loyalty bonus" when they reach their 25th and 35th year of employment at a company;
- When they terminate their employment they receive benefits that are owed all employees (severance indemnity), senior executives hired or appointed by February 28, 1999 (allowance in lieu of notice), and blue- and white-collar workers and junior executives hired by July 24, 2001 (IMA).
- Senior executives are entitled to post-employment supplementary health care (ASEM);
- Employees hired by June 30, 1996 are granted reduced rates on electricity consumed for household use (electricity discount).

The composition and changes of the severance indemnity and other personnel funds as of December 31, 2012 are shown in the following table.

Values in millions of euro	31.12.2011	Appropriations	Interest cost	Draw downs and other movements	31.12.2012
Benefits owed during employment					
Loyalty bonus	3.8	1.1	0.2	-0.5	4.6
Total	**3.8**	**1.1**	**0.2**	**-0.5**	**4.6**
Benefits owed at termination of employment					
Termination benefits	64.4	0.0	2.7	-4.1	63.0
IMA	6.5	0.2	0.4	-0.8	6.3
Allowance in lieu and similar benefits	2.7	0.0	0.0	-0.3	2.4
Total	**73.6**	**0.2**	**3.1**	**-5.2**	**71.7**
Post-employment benefits					
Electricity discount	30.9	0.6	1.3	-0.4	32.4
ASEM	10.9	0.0	0.3	-0.5	10.7
Total	**41.8**	**0.6**	**1.6**	**-0.9**	**43.1**
Total	**119.2**	**1.9**	**4.9**	**-6.6**	**119.4**

The item, equal to 119.4 million euro at 31 December 2012 (119.2 euro at 31 December 2011), shows an increase on the previous financial year of 0.2 million euro, attributable to allocations for the year and recording of the period discounting expense (totalling 6.8 million euro) offset by period uses 6.6 million euro.
The following table breaks down the costs regarding liabilities for benefits to employees recorded in the Income Statement.

Values in millions of euro	Severance Indemnity	Allowance in lieu and similar benefits	IMA	Loyalty bonus	ASEM	Electricity discount	Total
Current cost	0.0	0.0	0.2	0.2	0.2	0.6	1.2
Financial expense	2.7	0.0	0.4	0.2	0.3	1.3	4.9
Amortisation of actuarial gains/losses	-0.1	-0.4	0.0	0.5	-0.5	0.0	-0.5
TOTAL	**2.5**	**-0.4**	**0.6**	**0.9**	**0.0**	**1.9**	**5.6**

The following table shows the main assumptions used in the actuarial estimate of the liabilities for employee benefits.

Percentage values	2012	2011
Discount rate	2.05%	4.10%
Rate of increase of labour costs	2.0% - 4.0%	2.0% - 4.0%
Rate of increase of health-care costs	3.00%	3.00%

Terna's economic impact

EC1

Value added

In the period 2010-2012, the value added generated by the Group increased by 23.8% with regard to its continuing operations and by 9.5%, when the added value of discontinued operations relative to 2010 are included.
During the 2010-2012 three-year period, the incidence of remuneration of employees (on average 22.9%) and borrowed capital (on average 13.8%), relative to the total net added value of ongoing activities was essentially stable.
During the three-year period, the incidence of direct and indirect taxes on the total net value of ongoing activities increased by 8.9%, basically due to the application of the additional IRES (so-called Robin Hood Tax) introduced starting in 2011 through Decree Law No. 138 of 13 August 2011. During the three-year period, on average 31.6% of the total net overall value added was allocated to remuneration of risk capital, thanks to the Parent Company's dividend policy of the Parent Company, which has been linear over time and was again confirmed in the new 2013-2017 Strategic Plan approved in February 2013.
In 2012, the incidence of allocations to reserves recorded at the total net overall value added comes to about 4%, despite the negative impact on the 2012 result of the so-called Robin Hood Tax.

TERNA GROUP - VALUE ADDED STATEMENT [1]

Values in euro	Financial period 2012	Financial period 2011	Financial period 2010
Non-subordinate personnel	2,222,526	1,957,413	1,621,627
Subordinate personnel, direct remuneration	209,488,624	217,416,887	214,860,807
Subordinate personnel, indirect remuneration	64,055,525	63,742,596	64,879,119
A – Remuneration of personnel	**275,766,675**	**283,116,896**	**281,361,553**
Direct taxes	412,696,487	387,281,919	246,825,990
Indirect taxes	24,701,769	6,133,331	6,620,414
B – Remuneration of Government	**437,398,256**	**393,415,250**	**253,446,404**
Short-term loan expense	468	45,248	185,869
Interest on bank loans	82,220,620	92,634,544	80,378,970
Interest on bonds	129,226,227	89,522,207	40,810,758
D – Remuneration of risk capital	**211,447,315**	**182,201,999**	**121,375,597**
Dividends [2]	401,998,400	422,098,320	421,650,343
D. Remunerazione del capitale di rischio	**401,998,400**	**422,098,320**	**421,650,343**
Allocations to reserves	61,541,976.00	17,906,390.00	190,327,845
E – Remuneration of the Company	**61,541,976**	**17,906,390**	**190,327,845**
Total net global value added	**1,388,152,622**	**1,298,738,855**	**1,268,161,742**
of which net global value added of ongoing activities	1,388,152,622	1,186,035,046	1,121,314,030
of which net overall value added of discontinued operations destined for sale	0	112,703,809	146,847,712

(1) The amounts relative to the distribution of the Value Added are taken from the Consolidated Financial Statements, which were prepared according to the IFRS/IAS International Accounting Standards. Specifically, the Terna Group has used the IFRS/IAS International Accounting Standards since 2005.
(2) The 2012 dividends regard the advance distributed in November 2012 (140.7 million euro) and the balance proposed by the BoD of 15 March 2013 (261.3 million euro).

EC9 Other economic effects

Terna's economic impact does not end with the production and distribution of value added. One must also consider, **first of all, the economic repercussions of the electricity service**: Terna ensures a service of general interest over time and thus contributes to Italy's economic growth.
The Company's development of the electric grid is of particular importance. The development of interconnections between bordering countries makes it possible to import electric power at prices that are more competitive than those of domestic production, to have additional power reserves, and to enjoy more competition in energy markets. The reduction of grid congestion improves the exploitation of generation resources to cover requirements and makes it possible to use the most competitive plants, with positive effects on competition in the generation segment and on end prices.
In accordance with the regulatory framework, all of Terna's investment in the development of the grid is examined from the technical and economic points of view by comparing the estimated cost of the work with the related benefits in terms of reduction of overall system expense in order to maximize the cost/benefit ratio. Consequently, every euro invested by Terna generates on average a multiple of savings for grid users, which ultimately has benefits for the end consumer. It is therefore significant that Terna's investments (most of which are to develop the grid) have constantly increased in the last few years.

INVESTMENTS - TERNA GROUP

	2012	2011*	2010*	2009	2008	2007	2006	2005
€ million	1,235.2	1,229.2	1,162.7	900.4	764.9	606.0	345.5	263.5

* The values previously published for 2011 and 2010 - respectively 1219.8 and 1161.7 - referred only to core investments in ongoing activities, while this table also includes the values for non-traditional activities.

Compared to the overall investments shown in the table for 2012, 1,206.7 million euro refer to the investments in traditional activities and 28.5 million euro refer to non-traditional activities.

EC4 In 2012 public contributions to the plant account – recorded directly to reduce the value of the plants – amounted to 1,561,023.47 euro (2,316,994.17 euro in 2011 and 3,652,564.86 euro in 2010).

Another aspect to consider is the **creation of employment and procurement expenses**. As of 31 December 2012, Terna had **3,433 employees** of which over 900 worked in Rome, at the corporate headquarters, the National Control Center (CNC) of the transmission grid and the Rome Transmission Operating Area (AOT). The other employees (about 2,500) were uniformly distributed throughout Italy at the 7 other local operating areas of Turin, Milan, Florence, Naples, Palermo and Cagliari which are responsible for 32 Line Operating Groups (GOL), 32 Station Operating Groups (GOS), 8 Distribution Centers (CR) and 3 Remote-Control Centers (CT) which have offices all over the country.
Through the construction and maintenance of power lines, in 2012 Terna indirectly determined the employment of workers through by **contractors and subcontractors totalling the equivalent of 1,907 full-time employees**.

EC6 In 2012, the **economic value of Terna's procurement** of services, supplies and works came to about 1.6 billion euro. Most of the purchases were made from national suppliers, although the percentage of foreign suppliers recorded notable growth.
The predominance of Italian suppliers does not conflict with the Group's policy, which excludes selecting suppliers on the basis of their location and is due to the need for fast maintenance work on plants to ensure the utmost security for the electric system. Furthermore, suppliers located nearby have more competitive costs regarding the transportation of heavy and bulky supplies.
Terna makes most of its purchases from companies that are qualified pursuant to EU directives or through EU-wide tenders. Italian companies constitute a large majority of those that apply and qualify. In any case, it should be noted that a significant share of the sum spent on local purchases actually regards Italian branches of internationally significant industrial groups such as ABB, Siemens and Prysmian, which are predominant worldwide in the specific markets concerned.

The percentage of expense on total purchases (including Non-Traditional Activities) made during the 2010-2012 period is shown in the table:

PURCHASES FROM ITALIAN AND FOREIGN SUPPLIERS (PERCENTAGES ON TOTAL PROCUREMENT)

	2012	2011	2010
Italian	64	91	94
Foreign	36	9	6

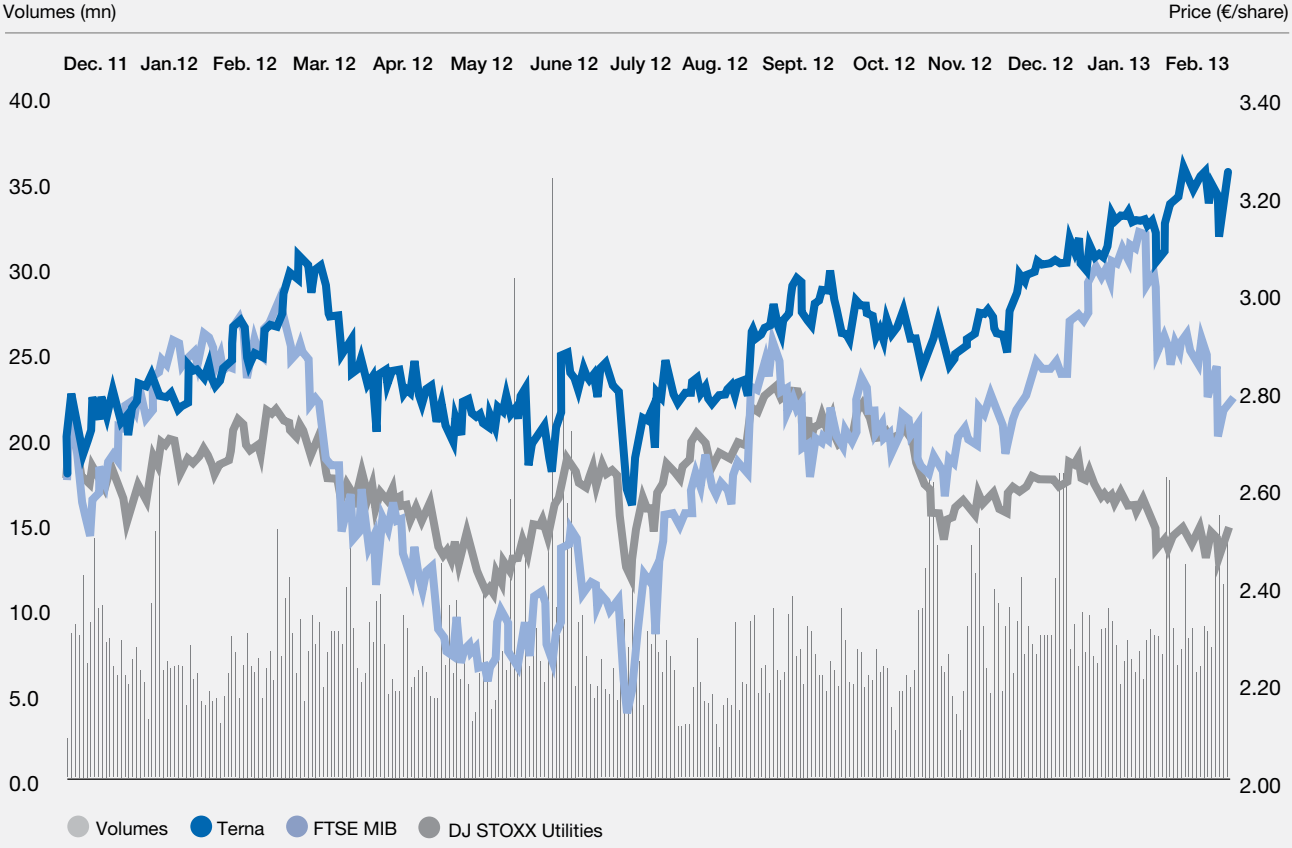
The quota of purchases from foreign suppliers is 36% of the total. The sizeable increase compared to the preceding year is mainly attributable to the activities connected to the Italy-Montenegro connection which included the participation of large international groups with headquarters abroad.
Other economic impacts connected with the resources that Terna dedicates to the support of charitable initiatives and in the artistic and cultural fields are described in the section entitled “Community initiatives” on page 159.

Relations with shareholders

Share performance

In 2012, the trend in the European exchanges was affected by the Eurozone crisis and by fears regarding the negative consequences on the real economy resulting from restrictive fiscal policies enacted by governments to comply with the budget restrictions. The ECB's August decision on the possible implementation of non-conventional monetary policy interventions aimed at reducing the spread between securities of the peripheral countries and the German bund improved this climate of uncertainty.
In the USA, signals that the recession was being contained and the agreement reached to avoid the "Fiscal Cliff", which could have negatively affected the growth of the country, positively influenced the annual performance of the Dow Jones (+7.3%).
Even if the main European markets were in a very volatile situation, they closed the year in the black, with the exception of Madrid (-4.7%) which was affected by the banking crisis. In this framework, the FTSE-MIB index registered a gain of 7.8%.
At the industry level, the European DJ Utilities index closed basically even (-0.7%) with listed shares out-performing those connected to generation. In this scenario, the Terna shares (+16.1%) out-performed its principal peers and the industry, with a performance double that of the FTSE-MIB. Also at the TSR (Total Shareholder Return) level, Terna's performance stands out with a total return for shareholders of 24.9% (more than double that of the FTSE-MIB +12.2%). The average of trades came to about 7.5 million pieces.
Lastly, it must be pointed out that during the first two months of 2013, the stock gained about 6%, better than the market (-2.2%) and the industry (-3.6 %).

TREND OF THE TERNA SECURITY AND THE FTSE MIB AND DJ STOXX 600 UTILITIES INDEXES



Source: Bloomberg. Data as of 28 February 2013

Total Shareholder Return

The most complete measure of the value created by a company for its shareholders is TSR (Total Shareholder Return), which is calculated by adding the increase in the price of the shares over a given period of time and the effect of the dividends per share paid in the same period. The calculation of the TSR shows the rate of return for an investor who bought Terna shares on date x and sold then on date y. This calculation considers all the dividends paid by the Company reinvested in Terna stock as of the ex-dividend date of the related coupon.
In terms of Total Return of the share, in 2012 Terna out-performed the Italian Blue Chips index (Terna +24.9% vs. FTSE-MIB +12.2%).
From the listing at the end of 2012, the TSR per shareholder reached 200.6%, bucking the trend of the returns of the average of the Italian Blue Chips which, during the period, lost 18.6%.

DIVIDENDS DISTRIBUTED BY TERNA S.P.A. [1]

	Year of payment	Ex-dividend date	Payment	Dividend (euro)
Interim dividend 2004	2004	18 October	21 October	0.045
Dividend balance 2004	2005	23 May	26 May	0.070
Interim dividend 2005	2005	21 November	24 November	0.050
Dividend balance 2005	2006	19 June	22 June	0.080
Interim dividend 2006	2006	20 November	23 November	0.053
Dividend balance 2006	2007	18 June	21 June	0.087
Interim dividend 2007	2007	19 November	22 November	0.056
Dividend balance 2007	2008	23 June	26 June	0.095
Interim dividend 2008	2008	24 November	27 November	0.0592
Dividend balance 2008	2009	22 June	25 June	0.0988
Interim dividend 2009	2009	23 November	26 November	0.070
Dividend balance 2009	2010	21 June	24 June	0.120
Interim dividend 2010	2010	22 November	25 November	0.080
Dividend balance 2010	2011	20 June	23 June	0.130
Interim dividend 2011	2011	21 November	24 November	0.080
Dividend balance 2011	2012	18 June	21 June	0.130
Interim dividend 2012[2]	2012	19 November	22 November	0.070
Dividend balance 2012[2]	2013	24 June	27 June	0.130

[1] Terna has adopted a policy providing for the payment of dividends twice a year.
[2] Submitted for approval of the Shareholders'Assembly of May 14, 2013

Relations with suppliers

As stated in its Code of Ethics, Terna puts transparency and fairness first in its relations with suppliers (1,951 contracted in 2012). Suppliers that satisfy conditions of non-involvement in illegal activities, observance of safety standards, respect for human rights, and organizational and professional solidity are welcomed to compete on quality and price as equals. Procurement is normally carried out on the basis of the outcome of **tenders** that ensure equal opportunity and the utmost transparency for participating companies. The objective of purchasing at the lowest cost for the level of quality and security required is combined with checking supplier requirements related to **ethical, social and environmental aspects**. For example, these requisites concern:

- the existence of clauses relative to compliance with the Terna Code of Ethics and Model 231;
- a request to sign a specific "Integrity Agreement" obliging the supplier to behave in accordance with the principles of honesty, transparency, and fairness and committing them to avoiding behaviours that could limit competition;
- the existence of a clause that obliges the suppliers to communicate detailed information to Terna regarding all the subcontracts assigned, with the goal of preventing the risk of criminal infiltration through its relationship with suppliers, implementing the Protocol of Understanding signed with the Finance Police;
- with regard to tenders, the request for UNI ENI ISO 9001 quality certification as a guarantee of an efficient corporate managerial and organizational system;
- the existence, in the case of tenders, of clauses guaranteeing the maximum protection of the personnel working for contractors, under penalty of rescission of the contract.

HR2

Starting 1 January 2013, Terna adopted a new "Regulation for Purchases" which governs both the contracts instrumental to the institutional activities, that is to say the contracts for work, supplies and services relative to the performance of the activities under licence, and contracts not instrumental to the institutional activities. The innovations introduced in the new Regulation focus on ensuring that Terna and its Italian subsidiaries adopt the updates implemented by the legislation regarding award procedures governed by national legislation (Legislative Decree 163/2006) which, in turn, implements specific European Community Directives.

In the most important areas for Terna's core business (supplies, contract work and services regarding electricity transmission, telecommunications and Information Technology) Terna uses a **supplier qualification system** through which only those companies which are able to satisfy a series of particularly strict requirements, which includes environmental and social issues, are included in the Register. The existence of the requirements is verified by Terna both during the first qualification phase and later, through constant monitoring.

During 2012, an analysis project of was launched regarding environmental and social impacts in the supply chain, aimed at evaluating the adequacy of the oversight of these aspects by the Terna purchasing and qualification procedures, and if necessary improve the same (see the box "The revision of the environmental and social oversight in the supply chain").

The qualification process and monitoring of suppliers

Scrupulous management of ethical, social, and environmental aspects in keeping with Terna's policies is a condition for inclusion in the register of suppliers for companies that belong to the product categories subject to qualification.

The qualification process enables Terna to assess suppliers with regard to their observance of the law, their technical, organizational, and economic solidity, and their conformance with the ethical, social, and environmental requirements of Terna's policy as expressed in the Company's Code of Ethics.

Among other things, the qualification requirements include:

- the application of conditions regarding rules and pay that are not inferior to those provided for by the collective-bargaining agreements applicable for the same kind of work;
- the observance of laws regarding the protection of the environment and occupational safety;
- the existence of documented procedures adopted for the protection of the environment and of the safety and health of workers.

The qualification requirements are correspondingly more severe in segments where environmental and social aspects have particular significance. Suppliers are asked for ISO certifications or in any case the existence of documented procedures adopted regarding environmental protection and occupational health and safety.

At present, of all qualified suppliers, more than 50% have or are acquiring certification in the OHSAS 18001 safety field and over 60% have or are acquiring ISO 14001 environmental certification.

The purpose of the monitoring is to ascertain whether the requisites are maintained throughout the three years in which the qualification is valid. This monitoring includes the use of IT systems to continuously screen information, such as reports from Company departments, external sources, or news reported by the media. During 2012, the Company monitored 508 suppliers, registered directly on the new (operational as of February 2012) IT application, which is located on the Terna Qualification Portal.

During 2012, relative to the product categories of work contracts for which training of personnel is scheduled according to Terna specifications (see the next section on Work Contracts), the position of Quality, Safety and the Environment (QSA) Manager has been added. The introduction of the aforementioned professional permits a single individual to be identified within the contracting company, who is in charge of monitoring the improvement and proper application of activities relative to Quality, Safety and the Environment, serving as a single interface for Customer-Company.
In line with the objective to continuously improve qualifications, the last three-year period has shown a consistent increase in categories and qualified companies, as well as in monitoring activity carried out.
In the event their behaviour is no longer in keeping with the qualification requirements, suppliers may be warned or temporarily removed from the Register. In the most serious cases, cancellation is provided for. In **2012**, following an analysis of non-compliance, **5** suppliers were temporarily suspended, while **4 were warned**; on the other hand, no cancellations from the Register were recorded. The entire company qualification process, from the initial qualification to the monitoring of actual behaviour and the infliction of sanctions is entrusted to Terna's **Company Qualification Committee**, which consists of eleven members of *top management* and an external independent Chairman with proven legal and technical expertise.

PROCUREMENT AND SUPPLIERS

	2012	2011	2010
Number contracted suppliers	1,951	2,314	2,316
Procedures adopted for awarding contracts [1]			
European tenders	71	51	53
Non-European tenders	23	35	35
Without tender	6	14	12
Qualification			
Companies qualified for entry in supplier register [2]	373	353	260
Qualified categories	41	41	40
% qualified suppliers [3]	64	43	48
Number of monitoring	508	749	593

(1) This is the percentage of the amounts awarded, for 2011-10 the figure excluded non traditional activities.
(2) For 2011, considering also the associated qualified companies in the consortiums, the total of the suitable companies in the Register would come to 372.
(3) Number of qualified suppliers out of the total number of suppliers with orders in amounts greater than 500,000 euro.

Revision of the environmental and social oversight in the supply chain

In 2012, Terna launched a project to verify the level of coverage offered by the current qualification procedures for Group suppliers and procurement, compared to the ESG (environmental, social, governance) dimensions, with the purpose of identifying and proposing possible improvements.
The project, which falls under the sustainability objectives identified as priorities for 2012, is a response to the attention placed on the supply chain by the 231 Model, and in general to the increasing interest in rating companies on sustainability and SRI investors.
The study studied the following aspects in depth:

- environmental - relative to both the impacts that the supplier generates during the realization phase of the product or the supply of the service (external impact), and on those which come under the corporate perimeter of Terna since they relate to the utilization and end of useful life disposal phases (internal impact);
- social - relative mainly to the subject of human rights, with particular reference to occupational safety and labour rights (i.e. trade union freedom, child labour, contribution compliance) by the supplier;
- governance - relative to the actual or potential use of suppliers with operations located in countries more at risk in regards to transparency, corruption, legality, and violation of civil and political rights.

The main fields explored were:

- During the tender award phase:
  - subjective requirements, decisive in terms of the supplier's admissibility, both during the qualification phase, and during the tender phase (competition);
  - objective requirements, considered for purposes of technical evaluation of the bids;
- During performance phase:
  - verification of actual behaviour during the performance phase of the contract;
  - a sanction system.

At the conclusion of the analytical phase of the project, certain lines of action were identified in order to improve environmental and social oversight in the various fields potentially involved, through technical specifications in qualification of suppliers and through monitoring of tenders. The project will continue with the definition of an improvement plan and the priorities for 2013.

Contract work

Considering the use of external labour on Terna's construction sites (see page 84), work contracts are subject to stricter rules regarding qualification and management, in particular relative to occupational safety. This is due to Terna's particularly scrupulous approach, as well as the strictness of regulations.
Italian law requires Terna to perform an analytical assessment of the risks regarding the health and safety of the workers employed by contractors and subcontractors for all the work done on construction sites.
With the objective of further reducing the risks regarding contract work, Terna requires additional specific certifications concerning contractor employees, such as: EU16

- certification that they know Italian, so as to ensure their access to information on construction-site safety;
- on sites for the construction of overhead electric power lines, certification that **all the workers** (mainly blue-collar ones) have examined and have been appropriately instructed on the use of personal protective equipment, the risks established in the Construction-site Safety Plan ("PSC") and the Operating Safety Plan ("POS") prepared by Terna, and the environmental-protection measures as established in the specific operating procedure called "Management of the environmental aspects during plant construction", which is attached to each contract; EU18
- for several specific roles (e.g. workers assigned to the installation and maintenance of overhead lines and to cutting vegetation, foremen, and safety heads), certification of specific training courses lasting between 24 and 32 hours designed – according to the content required by Terna – in cooperation with SINCERT-certified training schools specialized in the electricity industry;
- verification of the actual training of the personnel through a web platform – the Qualified Company Personnel project – which records the actual training of the personnel of the companies doing contract work on Terna's construction sites by comparing the information provided by the schools authorized to train personnel for work in the electricity industry with the names of the employees registered by the companies;
- the appointment of a person in charge of Health, Protection, and Prevention ("RSPP"), a head of construction-site safety, a person in charge of managing emergencies and his or her substitute, and an assigned doctor.

HR2 To reduce to a minimum the risk of violations of human and labour rights to the detriment of contractor employees, Terna also requires:

LA4
- a declaration that the collective-bargaining labour agreement is applied to all employees;
- certification that all social security and other contributions have been duly paid;
- a copy of an insurance policy covering tort liability, personal injuries, and damage to property, including the contractor's, for the entire duration of the work and in an amount appropriate for the kind of work performed;
- a periodical copy of the payment of social-security and other contributions;
- certification by the competent doctor that the contractor's employees are fit for their jobs.

Monitoring has enabled Terna to identify the areas that are most exposed with regard to the question of occupational safety. For companies operating in these areas, in addition to the activities already described, there are provisions for assistance in interpreting the law and communicating during safety training for workers.

In 2012, 35 construction sites building lines and stations for the transmission of energy entrusted to contractors (see also "Occupational Health and Safety" on page 150) were checked. The construction sites were chosen relative to the length of the work, by associating probable greater complexity with the longer term.

Relations with companies using the electricity service

Terna mainly deals with companies operating in the electricity industry and belonging to one or more of the following categories:

- **distribution companies**, with which Terna regulates the energy transmission service on its own grid;
- **dispatching users**, i.e. producers, end customers, or wholesalers with which Terna regulates the dispatching service;
- **interruptible customers**, i.e. end customers of withdrawals that grant Terna the right to interrupt their load;
- **owners of production plants and owners of grid segments**, to which Terna must guarantee the right to connection in compliance with regulatory and technical provisions.

Relations between industry companies and Terna are mainly regulated by the industry Authorities and are defined technically and commercially in the Grid Code.

In particular, with regard to the dispatching service, Terna regulates with the users of the injection dispatching service the economic items regarding **procurement of the resources necessary to safeguard the security of the National Electricity System**, thus maintaining the equilibrium between injections and withdrawals, as well as ensuring that grid parameters, such as voltage and frequency, are at appropriate levels.

The economic items regarding procurement on the dispatching service market ("MSD") and other injection side system charges are negative and in 2012 amounted to about 2.2 billion euro.

System charges relative to withdrawal dispatching, mainly composed of the Uplift payment for the MSD resources procurement, are positive and in 2012 amounted to about 2.9 billion euro.

Moreover, with the users of both injection and withdrawal dispatching users, Terna regulates the economic items regarding imbalances, understood as the difference between the plans the users presented on the electricity markets and the actual value of the electricity injected or withdrawn. As regards injection, the amount comes to about 0.2 billion euro (asset for the operator) while the amount relative to withdrawal comes to about 0.1 billion euro (liability for the operator).

Most of the interactions with electrical operators are managed through a platform created to optimize the commercial relationship with the counterparts: the My Terna Portal.

The portal represents the main access channel for services dedicated to operators, from management of the database for requests for connection to the NTG, to the stipulation of withdrawal contracts, to management of contacts, to the display of the principal data for every operator. The system provides for a front office and a back office controlled with a single instrument which allows processes to be tracked and for monitoring of progress status for procedures, using e-tickets.

To meet the needs of operators, the portal home page – accessible at the www.terna.it site – provides a manual for users an e-mail address that can be used for requests for clarifications and reports of any problems during the registration and utilization phase.

In 2012, Terna procured resources for the **interruptibility and instant load reduction services** aimed at making functioning of the National Electric System secure in the event the resources procured on the market turned out to be insufficient. In 2012 there were 234 assignees of the interruptibility and instant load reduction service for about 4,346 MW of power and the related negative economic item amounted to about 0.6 billion euro on an annual basis. EU3

RELATIONSHIP WITH TERNA OF COMPANIES OPERATING IN THE ELECTRICITY INDUSTRY NUMBER OF COMPANIES

COMPANIES	2012	2011	2010
Interruptible users [1]	234	171	154
Distributors directly connected to the NTG	24	20	19
Injection dispatching users (Producers and Traders)	88	91	86
Withdrawal dispatching users (Traders and end customers, including the Single Buyer)	130	110	109

(1) Also included are assignees of the instant-withdrawal-reduction service.

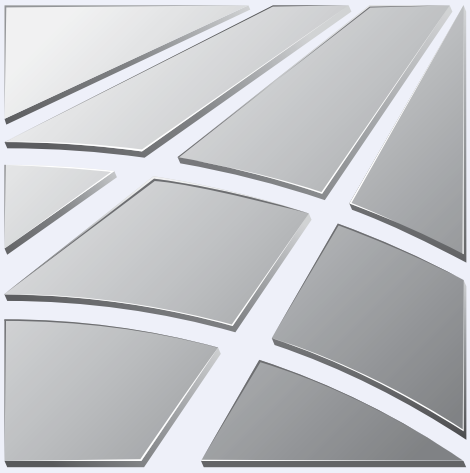
The Gaudì Portal

In 2011 the Gaudì (Management of the Single Database of the Plants) portal was implemented, created through the integration of the three main database archives managed by Terna: CENSIMP for the surveying of plants, RUP relative to the database of the Significant Production Units[1] and UPN6 relative to the database of non-significant production units.
The system, which was established by special provisions of the Electricity and Gas Authority, allows technical data for all plants and electricity production units to be received and archived. The goal is to centralize the registration data for all production initiatives carried out and being carried out within Italy with the transmission system operator for their grid manger activities, which involve only a small number of operators, regardless of the size and type of plant, thereby ensuring a complete and constantly updated database.
In 2012 there was an evolution in the qualification process for the plants managed through the Gaudì platform. The process, in accordance with the project road map established by Resolution AEEG 148 of 2011, underwent the following revisions: management and validation of the database also for purposes of measurement, reclassification of GSE commercial types and introduction of the most important features needed to manage the entire life cycle of the plants in operation.
In total there are over 500,000 plants registered in the system, of which more than 150,000 in 2012 alone. A toll-free number and a special e-mail address were activated to manage operator requests and reports. In 2012, a total of 36,121 calls and 20,137 emails were received. During the first few months of 2013, in line with what happened the preceding year, Terna planned three meetings - throughout Italy - with the operators and users interested in using the portal to explain Gaudì registration and user procedures.
The objectives set for 2013, are: total alignment of master data with the Distributors and GSE, complete integration of the process with Terna Group's company systems that use data of plants and production units in operation, the implementation of proper reporting that, as well as providing information on the status of the data, is capable of illustrating growth trends in the various energy production sectors.

[1] **Significant production units** are production units with overall power of the associated generation groups of not less than 10 MVA.


21320
PERICOLO
DI MORTE

2012



Environmental responsibility

Terna

Our approach

Terna recognises the importance of finding the right balance between energy requirements and safeguarding the environment and local communities. In carrying out its business, it therefore seeks appropriate solutions to ensure Italy the electricity it needs in the most reliable, economical, and environmentally sustainable way.
From an environmental point of view, the most significant impact of Terna's activities is not so much the use of natural resources or emission of pollutants, but rather the **physical presence of the lines and electricity stations**, and their interaction with the surrounding natural and human environment.
Growing environmental awareness and widespread local opposition to the construction of new infrastructure – a characteristic feature of many industrialized countries and certainly of the Italian situation – have led Terna to develop and consolidate an approach which pays great attention to the environment and to the needs of local communities. For construction of new lines the path chosen is that of **voluntary prior consultation with territorial Institutions** (Regions, Provinces, Municipalities, Park Authorities, etc.), in order to consider environmental needs right from the initial planning stages and take them into account in an increasingly detailed manner up to the construction stage.
As regards existing lines and their management, Terna's attention to the environmental impact of its activities is expressed in its **ISO 14001-certified** Environmental Management System. Certification regards all of Terna's activities and covers 100% of the transmission grid (stations, lines) and bases (offices).
The following **significant environmental issues** should be noted in particular:

- the visual impact of stations and lines;
- the impact of lines on biodiversity, with particular regard to birdlife;
- special waste and its disposal;
- the emission of electric and magnetic fields;
- greenhouse gas emissions.

Terna does not produce electricity, so the emission of greenhouse gases is not a feature of its activities. Our concern for emissions – which takes the form mainly of **controlling leakage of SF_6**, a gas present in station equipment, as well as controlling emissions of the corporate vehicle fleet – is thus the result of general sensitivity to the problem of global warming. It should also be noted that the investments included in the Grid Development Plan can have indirect positive effects on emission reduction by the National Electricity System.
Terna has established an Environmental Policy, which expresses its commitment to practices which limit and reduce its environmental impact even beyond the limits imposed by law, whenever this does not compromise the other general interests that Terna is obliged to protect.
Among Terna's main commitments to the environment, the following should be noted:

- in planning grid development investments, attention is paid to the needs expressed by stakeholders (in particular local institutions and environmentalist associations) and agreement is sought for solutions;
- in construction, management, and maintenance of the grid, procedures are adopted in accordance with the provisions of the law and, whenever possible, environmental impact is reduced;
- in relations with suppliers, they are required to gradually adapt to the standards of respect for the environment adopted by Terna;
- with regard to magnetic fields, regulations are strictly complied with and attention is paid to the development of scientific studies, while contributing to the correct presentation and understanding of the phenomenon;
- with regard to biodiversity, there is a commitment to limit the impact of the grid, particularly on birdlife, and to carry out mitigation actions, including programs agreed upon with environmentalist associations;
- with regard to climate change, the importance of the problem is recognised and there is a commitment to actions that foster the reduction of greenhouse gases.

In organizational terms, environmental matters are overseen by several Departments, responsible for specific aspects, which are coordinated by the Sustainability and Environment Steering Committee.
Monitoring of environmental indicators is entrusted to a permanent group of experts working with the framework of the Environmental Management system.

Compliance with the law

EN28 In the three years 2010-2012 no definitive administrative or judicial, monetary or non-monetary penalties were imposed for non-compliance with environmental laws or regulations. The "Tables of indicators" section and the paragraph "Disputes and litigation" contain further data on litigation and on complaints received in the environmental field.

EN23 In 2012, as in 2011, there were no significant leaks of pollutant liquids. In 2010 a fire in the Calenzano (Florence) transformer caused a leak of oil into the surrounding land. Following this event 400 cubic metres of earth (from an area of 450 square metres) were removed to avoid possible environmental damage.

During 2012, the operating instruction "Management and minimization of the risk of hydrocarbon pollution in the ordinary operation of Oil Collection Tanks" was also defined. The purpose of the document, which was drafted taking into account the 2011 census of the types of oil collection tanks installed in the Terna plants, is to prevent episodes of hydrocarbon pollution of the soil, subsoil, surface water or groundwater during normal performance of activities at Terna electric stations.
In 2012, Terna, making use of the support of accredited external bodies, completed monitoring of noise associated with overhead lines.
In 2012, together with the ANIE (National Federation of Electricity Companies), Terna prepared the document "Management of environmental safety in construction sites for activities on the national high-voltage electricity grid", which identifies guidelines for proper management of environmental aspects in the area of work on the national high-voltage electricity grid - sites for the construction and maintenance of electricity stations and overhead or underground power lines. In particular, the voluntarily prepared document recognises as essential aspects of corporate business: compliance with the legislation on environmental matters, minimizing any negative effects of its activities on the environment, limiting the production of waste aiming at increased recovery of materials, preventing any form of atmospheric pollution with particular reference to gas and dust emissions, contamination of the soil and pollution of surface water and groundwater, and encouraging suppliers and contractors to adopt environmentally-friendly rules of conduct.
Finally, in the early months of 2013 employee training began for those responsible for the work of installing and maintaining fire prevention and extinguisher systems containing fluorinated greenhouse gases, as set out in the legislation (Italian Presidential Decree No. 43/2012 transposing Regulation (EC) No. 842/2006 on certain fluorinated greenhouse gases).

Lines and local communities

SO10
SO9
SO1

The construction of new lines responds to the technical needs of the electricity system – such as removing congestion and eliminating overload risks – and to increase energy production and consumption, which accompanies the economic growth of specific areas, or of the entire country. Terna includes necessary new construction in the Grid Development Plan, which every year follows a complex authorization procedure (for the authorization procedure of each specific project see the monitoring platform "Terna's Construction Sites for Italy" available on the website www.terna.it). If grid development caters to society's general interests, the environmental impact associated with the construction of new power lines is instead concentrated in the local area affected by the route of the line. In addition, the population density of many parts of Italy and the value of the art, culture and landscape of many others make planning more complex and construction more difficult. In response to these problems, Terna has voluntarily adopted an approach that includes dialogue and consultation with Institutions to seek solutions that make it possible to preserve the richness and potential of the country's environmental and cultural assets.
The need to intervene on existing lines is usually due to the fact that many lines were built some decades ago. The gradual transformation of rural areas into urban settlements and the adoption of new legal rules, modifying parameters previously in force regarding the interaction between power lines and the territory, determine the need to make changes to portions of the existing grid.

Consultation

EN26
EU19
EC8

Starting in 2002, Terna opened a new framework for the construction of infrastructure in Italy. Up to that point, discussions with local communities only began, as dictated by law, at the start of the development work authorization stage, when the planning of the infrastructure was already well-defined. This approach led to strong opposition from local Institutions and the residents of the areas affected, with the result that profound changes to the original prospects were often required, in addition to extended timeframes and in some cases, projects that were brought completely to a halt.
Terna's response was to **voluntarily move forward discussions with local communities to the planning stage of projects** – power lines and electricity stations – included in its Development Plan. The methodology developed provides for prior discussions with the Public Administrations at various levels (Regions, Provinces, Municipalities), based on agreeing upon the criteria to characterise the territory (the so-called "ERPA Criteria") and aimed at **optimal location of new installations**. The solutions agreed upon with the Local Administrations are confirmed through signing of specific agreements between Terna and said Administrations. Basically, Terna's approach has entailed the voluntary development of a method of relating to stakeholders in local communities based on the purpose, inherent in the Strategic Environmental Assessment (SEA), of integrating the environment into the planning process.

The SEA, at the time the subject of an EC Directive (Directive 2001/42/EC), was to be transposed into Italian law only many years later (in 2007 with Italian Legislative Decree 152/2006) and with much less detailed implications at the level of relations with local institutions.
The decision to adopt the foundations of the SEA to build a participative, transparent, documented and viable planning process led to the signing, with Regions and local authorities, of Protocols of Understanding and Planning Agreements, to establish in a formal manner the progress of reciprocal commitments. Since 2002, Terna has reached agreements with a growing number of Regions, 18 as of today, including the Autonomous Province of Trento.

1. Autonomous Province of Trento
2. Valle d'Aosta
3. Lombardy
4. Piedmont
5. Liguria
6. Tuscany
7. Lazio
8. Campania
9. Sardinia
10. Emilia-Romagna
11. Marche
12. Umbria
13. Abruzzo
14. Molise
15. Apulia
16. Basilicata
17. Calabria
18. Sicily

Agreements signed

More information on the SEA is available in the website section devoted to the "Electricity Service" (http://www.terna.it/default/home_en/electric_system/sea.aspx) from which you can also gain access to the dedicated map portal (the so-called "SEA Portal"), which has been active since 2011 to facilitate consultation and sharing of data relating to the SEA of the National Electricity Transmission Grid Development Plan, with particular reference to the related maps, for the benefit of the public and of the institutions involved.

Criteria of territorial characterisation

As part of consultation with local institutions, one of the most effective instruments for selecting the alternatives with the least impact consists of agreeing on the **ERPA (Exclusion, Repulsion, Problematicity, and Attraction) location criteria**.
The territory to be studied, with its land use classifications and related protections, is characterised on the basis of criteria that express greater or lesser appropriateness for hosting electricity infrastructures. In the national SEA, Terna and the Regional administrations agreed on a system of criteria based on four classes:

- **Exclusion**: areas in which all construction is excluded.
- **Repulsion**: areas which would preferably not be affected by projects, unless there are no alternatives or if there are only alternatives with less environmental compatibility.
- **Problematicity**: areas in which passing is problematic for an objective reason, associated with specific aspects of the territory documented by the authorities involved, which therefore require further territorial analysis.
- **Attraction**: areas to favour whenever possible after checking the area's carrying capacity.

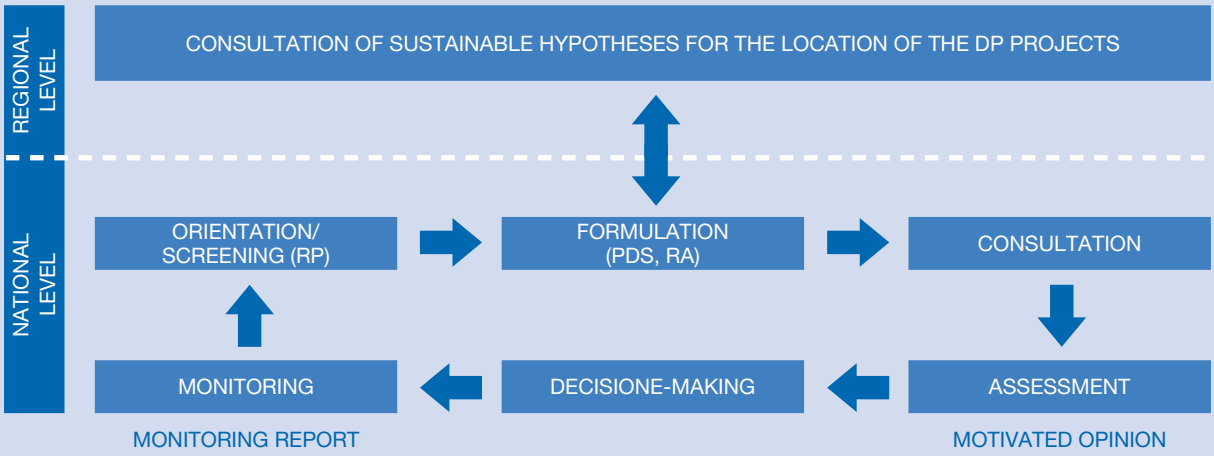
Each class of ERPA criteria includes several categories. Currently, the Exclusion criterion includes areas recognised by the law as areas of absolute exclusion, such as airports and military zones, and areas not directly excluded by law, which are however binding, through agreements on the subject made in advance between Terna and the authorities involved.
The Repulsion criterion includes areas that may be taken into consideration only in the absence of alternatives, protected natural areas, with regard to which specific agreements are made, and areas that are to be taken into consideration only if there are no more environmentally-compatible alternatives.

The Attraction criterion instead includes areas with good landscape compatibility and areas that already host line infrastructure, such as infrastructure and energy corridors, in which the location of a new line – if it is compatible with the area's carrying capacity – is more sustainable than in new areas that do not have any line infrastructure.
The use of GIS (Geographic Information System) technology makes it possible to consider in an integrated manner all the information relating to the different types of land use mentioned and the binding protections (territorial, naturalistic, cultural, landscape, etc.), opportunely redistributed within the different ERPA criteria classes, so as to identify possible locations – in terms of "corridors" – that are sustainable for the NTG development projects, because they are in keeping and compatible with the organisation of the territory that they will be affecting.

The integrated planning process

S01

COEXISTENCE AND INTEGRATION OF DIFFERENT DECISION-MAKING LEVELS



The scheme illustrates the integrated planning process that Terna has implemented over the years. This process makes use of the prior consultation approach developed by Terna ("regional level"), harmonizing it with the procedure required by current legislation ("national level").
"Integrated planning" is understood to mean that the work of planning the electricity system includes constant and reciprocal dialogue through consultation activities.
The national level is the formal level of application of the SEA procedure, as defined by current legislation (Italian Legislative Decree 152/2006 and later amendments and additions), which applies to the Development Plan and provides for the preparation of an Environmental Report (ER), in which the effects that the implementation of the plan or programme could have on the environment are identified, described, and assessed.
The national level is organised into the following different stages: orientation, formulation, consultation, approval, and monitoring. These are linked to the Plan, the Environmental Report associated with it and the Preliminary Report (PR) which characterizes the stage of orienting or screening.
The regional level constitutes the concrete level of the "dialogue with local institutions", i.e. of the prior and voluntary consultation that Terna has carried out since 2002 with regional and local governments to seek and agree on the most viable and sustainable solutions for the location of the infrastructure necessary for NTG development.
An essential aspect of the integrated planning process described above is coordination between the two levels, leaving the appropriate decision-making autonomy at the regional level, which in any case proceeds according to the criteria and methods established at the national level.

The SEA Portal

To improve quality and transparency with its stakeholders, in 2011 Terna created a new interactive corporate portal, specifically devoted to the SEA procedure of the NTG Development Plan.
Through the SEA Portal (http://portalevas.terna.it) users can consult not only the Environmental Report, with reference to the maps, but also the data on **SEA monitoring** of implementation of the Plan.
The map portal also makes it possible to follow the organisation of the Plan on a regional basis, in the environmental, social, technical and economic dimension only, or as a whole, using the assessment indicators and the aggregate sustainability indexes.
Finally, within the SEA Portal, it is possible to use the web to monitor the **gradual implementation of the Plan**, using maps, on the basis of specific indicators defined to assess any changes that may occur between the plan agreed ("*ex ante*"), the project authorized ("*in itinere*") and the work done ("*ex post*").

Reducing environmental impact

To reduce the impact of power lines on local communities and the environment, Terna can implement a series of solutions, which are described below.

Work on the grid

Rationalization is complex work, which involves several grid components at the same time and often includes the dismantling of some grid segments and the construction of new lines.
Rationalization work mainly consists in:

- replacing plants with better ones, such as, for example, introducing new 380 kV connections to replace a larger number of lower-voltage lines;
- eliminating parts of the grid whose usefulness is nil or negligible after the construction of new infrastructures constituting an upgrade;
- integrating new grid components, for example stations, to avoid having to upgrade saturated lines.

When rationalization is possible, the construction of a new plant may also have the effect of reducing the geographical space occupied by power lines, due to removal of old lines. Above all, near towns and cities, rationalization projects make it possible to reduce the presence of electricity infrastructure in areas of gradual urbanization. Of all the rationalizations envisaged by the Development Plan, there are many more demolitions than new constructions, with a net positive effect in terms of the presence of power lines around the country. Dismantling stretches of line, made possible by the construction of new power lines, is the most significant contribution benefiting the environment that derives from grid development activity.
Burial of cables eliminates or reduces the negative impact on the landscape typical of stretches of overhead lines. For this reason, burials are often requested by the local institutions as the first option for the construction of new lines. In reality, burial entails various technical and economic problems: buried lines are less reliable over time compared with overhead power lines and require a much longer time to repair in the event of a fault: for this reason they often, do not guarantee an adequately secure electricity system and service continuity. In addition, buried cables bring greater impacts in the construction stage – for example in terms of road traffic – and also much higher construction costs (normally from five to ten times the cost of an overhead line).
Reclassification provides for conversion of existing power lines to a higher voltage, through the construction of new conductors and supports in place of the existing ones. This action can involve replacement of the old support with a larger one which therefore takes up more space. However, reclassification has the advantage, compared with the construction of a new line, of generally using pre-existing infrastructural corridors, avoiding the occupation of new portions of the territory.
Requalification projects are aimed at reducing the population's exposure to electromagnetic fields (see the box below), for example by using taller supports. Requalification may also involve moving the route and at the same time dismantling stretches close to urban areas.

Electric and magnetic fields: the legal limits

The main reference values for the emission of electric and magnetic fields currently provided for by the law (Prime Minister's Decree of July 8, 2003) are the following:

- exposure limits: in case of exposure to electric and magnetic fields at a frequency of 50 Hz generated by electricity lines, the limit is 100 microteslas for magnetic induction and 5 kV/m for the electric field, understood as effective values;
- values of concern: as a precautionary measure of protection from possible long-term effects connected with exposure to magnetic fields generated at the grid frequency (50 Hz), at playgrounds, homes, schools, and places where people stay for at least four hours a day, the value of concern for magnetic induction is 10 microteslas, understood as the median value over 24 hours under normal operating conditions;
- quality objectives: in planning new power lines near playgrounds, homes, schools, and places where people stay at least four hours a day, and in planning new settlements and areas such as the aforementioned in the vicinity of electric lines and installations already present, in order to gradually minimize exposure to electric and magnetic fields generated by power lines operating at a frequency of 50 Hz, the quality objective is set at 3 microteslas for the value of magnetic induction, understood as the mean value over 24 hours under normal operating conditions.

The values of the three parameters, and in particular the value of concern (10 microteslas) and the quality objective (3 microteslas) show that Italian legislation has adopted the precautionary principle expressed in Article 15 of the Rio Principles. Observance of the law in its activities implicitly entails Terna's adoption of the same principle.
Terna carries out inspections of its lines to ensure compliance with the limits set out by current legislation. In the event of any reports and requests by responsible bodies and administrations, Terna provides the data needed to assess effective exposure to electric and magnetic fields generated by its plants.

Measures adopted in the planning stage

Terna can reduce the impact of power lines on the landscape, identifying **routes in areas with good landscape compatibility and choosing supports which integrate well with the territory**. In the last few years Terna has expanded the alternatives available, also making use of the design of new supports by internationally-famous architects. For the construction of new electricity stations similar considerations apply.

Mitigation

In the case of existing plants mitigation measures are aimed at **reducing visual impact and/or improving integration into the environment of the structures** which make them up. In particular, Terna develops masking systems for station fences, requalifies buildings and makes use of naturalistic engineering techniques.

Construction-site management

EU13

To manage construction sites Terna has adopted an Operating Instruction – "Management of environmental aspects during plant construction" – to ensure observance of the environmental policy adopted by the Company. Specifically, it establishes that **the construction site areas and new access roads be positioned**, as far as compatible with technical and planning needs, **in zones with less vegetational value** (agricultural areas).
However, if the areas contain natural or semi-natural habitats, at the end of construction work, environmental regeneration and requalification works must be undertaken, to restore the area to a condition as close as possible to its preceding one. The timing of the construction site stages must take account of the vital needs of the species potentially involved, avoiding high-impact activities during reproductive periods for said species.
Furthermore, particular care must be taken in managing waste produced on the construction site, in accordance with the relevant regulations in force, such as avoiding spills and the temporary storage of polluting substances.

Contract work

The prescriptions on environmental matters that are applied in the work contracts awarded to external firms are formulated in accordance with the provisions of the applicable environmental laws and the prescriptions of the ISO 14001 standard and include aspects such as: preventing contamination of groundwater and limiting damage to vegetation, managing accidental events, minimizing atmospheric emissions and noise, vehicle use, and correctly managing waste and excavated earth (on this subject see also the paragraph "Relations with suppliers" on page 89).

Biodiversity

EN26
EN12

Terna's grid is spread out all over the country. The interaction of the grid with the surrounding natural environment and its impact on biodiversity take on different features during construction of new lines and operation of existing lines. **In the construction stage the impact on biodiversity is associated with site work**: opening of passages to arrive and erecting pylons, excavating the ground, removing residual materials. The work of constructing new lines and stations requires particular attention if it occurs near to or in protected areas.
Once the line has been built, the relationship with biodiversity is two-fold. On the one hand, **the route of the line may be a factor in increasing biodiversity** and the protection of certain species. For example, when lines cross vast open areas or large areas with cereal monocultures, pylons and their bases constitute "islands" of biodiversity concentration. The bases of pylons, above all the largest ones, carrying High Voltage lines, are the only zones saved from intensive agriculture and subtracted from the activity of working and transforming the land. These are areas in which wild herbs and thorn bushes flourish and in them wild rodents take refuge because their den systems are not regularly destroyed by ploughing activities. They are also those around which birds of prey, which are the predators of these rodents, are concentrated. In fact, birds, and in particular birds of prey, often use power lines and pylons both as points from which to observe the territory and as nesting structures.
On the other hand, the presence of lines has potentially negative effects on biodiversity, which concern birds in particular. The risk of electrocution is not a concern for Terna's plants, because it is present only in the small space between the conductors typical of low- and medium-voltage lines, which can cause birds – above all large ones – to be electrocuted if they cross the route. The presence of High-Voltage lines is associated instead with the risk of collision. The actual occurrence of collisions depends on the density of birdlife and on the frequency of transits in flight near the lines. The significant factors in this sense are the routes of migratory birds – particularly important in Italy which is a "bridge" country from Europe to Africa – the location of wetlands around the country, and the presence of protected areas, reserves and parks.
In 2008 Terna signed an agreement with the LIPU (the Italian partner of Birdlife International) for a scientific study on the interaction between High-Voltage lines and birds.
The project was **an important opportunity to study, for the first time in a systematic way and on a large national scale, the real interactions of birdlife with High- and Extra High-Voltage power lines of the National Electricity Transmission Grid (NTG)**. The only studies already available involved death by electrocution of birds that touch two wires at the same time with their two wings, typical of low- and medium-voltage grids.
The LIPU study, which was completed at the end of 2011, showed that the risk of birds colliding with High- and Extra High-Voltage electricity lines is modest in 4 of the 7 areas monitored. Near Lake Montepulciano and in the area of Mezzano – wetlands subject to migratory flows – there seem to be more risks for birdlife which require supplementary observations, also using new experimental approaches, to correctly assess the risk and identify possible mitigation measures. In the study carried out on the Strait of Messina, the need emerged for more detailed monitoring with the aid of appropriate technology, such as radar.

EN26

EN14

Sorgente - Rizziconi line: monitoring of migratory flows of birdlife for optimal planning of decommissioning

Last year we published news of the experimental use of radar to monitor the passage of birdlife near the Strait of Messina, an area heavily crossed by migratory routes. The study made it possible to exclude significant risks for birds in the area where the Sorgente – Rizziconi line is planned to pass.

In 2012 Terna again monitored the passage of birdlife between Calabria and Sicily, within the "Nature Network 2000" areas, to obtain useful indications for planning the decommissioning of the old lines currently present in these areas, as prescribed by the Environmental Compatibility Decree for the Sorgente – Rizziconi line.

This second monitoring was of a traditional type, i.e. with observers on the ground, and was conducted 24 hours a day at the time of the spring migration of birds, from the middle of April to the middle of May 2012.

10,130 birds were counted in Sicily and 28,776 in Calabria.

The data recorded confirmed the low migratory flow in the area affected by the Terna power line both in the more easterly Peloritani zones and in the area of Aspromonte, showing that the zone in which the new power line is planned to pass is little involved in the birds' migration, particular birds of prey, which cross further to the South-East or along the Ionic coast, depending on the wind direction.

Most crossings are far from the future line, while those closer are at a height of more than 100 metres, a height which leads us to believe that the future line will not interfere with migration.

These positive results are currently being studied by the planning offices to define the technical aspects of future decommissioning.

Lines in protected areas

EN11

Considering the importance of that proximity to protected areas or areas of natural interest can have on the risk of Terna's plants having a negative impact on birdlife, the interaction between lines and these areas is constantly monitored. The main tool for identifying critical stretches of line is a very complete territorial database, populated with data provided by Regions and Ministries. This data was acquired through exchange agreements with numerous public bodies and administrations. The data collected has been made uniform and entered in a standard mapping system at the national level. Besides the location of power lines, the main information in the database regards geological, hydro-geological, naturalistic and landscape aspects, among which the following are notable:

- degree of seismicity;
- climate data;
- national polluted sites;
- the official list of protected areas, riverside parks, natural parks, reserves, terrestrial and marine national parks
- Sites of Community Importance (SCIs) and Special Protection Zones (SPZs);
- *Important Bird Areas* (IBAs);
- landscape-risk map;
- legislative restrictions and administrative boundaries.

With the support of the database, Terna has carried out an **inventory of possible interferences between its structures (lines) and protected or high-biodiversity areas**, combining the data on the electricity grid with those of a territorial nature, present in the database, using the most accredited GIS (Geographic Information System) tools. Considering all types of protected areas defined by various national and regional laws, national and regional reserves, SCIs - Sites of Community Importance, SPZs - Special Protection Zones), and eliminating overlaps, **9% of Terna's electricity grid (4,950 km) crosses protected areas** for stretches of a length ranging from a few hundred metres to several tens of kilometres.

In all, net of overlaps, protected areas cover 22% of Italy's territory (this figure does not take into account protected marine areas).

Management of impacts on biodiversity

Terna manages its impacts on biodiversity with a series of integrated instruments that consider such impacts right from the planning stage and, whenever necessary, by adopting appropriate mitigation and offsetting measures.

The approach is primarily preventive. Therefore, like other environmental variables, biodiversity – and in particular the presence of protected areas –constitutes an important feature in the sustainability-based planning of grid development. The biodiversity features of areas that could potentially host new infrastructure are carefully studied. The information collected becomes part of the criteria used to determine the final route and is available in the parts of the Environmental Report containing regional details that accompany the Grid Development Plan.

This approach was confirmed in the protocol of understanding signed by Terna and the WWF (see the box below) which provides for, among other things, the incorporation of environmental criteria consistent with the WWF's conservation strategy into the planning of new lines to be built.

EN13

EU13

TERNA, WWF ITALIA and the Park Authority together in the Gran Sasso Park

The collaboration between Terna and WWF Italia to create projects in the Eco-Regional Conservation (ERC) priority areas continued during 2012, resulting in a vegetation regeneration project in the Gran Sasso National Park, in Abruzzo.
In particular, the passage of the new Bolognano - Bussi line near the Gole di Popoli, an area characterised by steep slopes at serious risk of hydro-geological degeneration, created the basis for a project to re-establish the vegetation cover in areas affected by the excavation and positioning of eight electricity transmission pylons.
The craggy environment in which the project took place is one of the most unfavourable for plant life owing both to the micro-climatic conditions of the area and to the stresses caused by the surface movement of detritus, as well as the accentuated erosion of such disturbed soils by rain water: for this reason, the plant species used were selected on the basis of their ability to colonize the soil.
In August, on the Park Authority's indication, in the area and the immediate surroundings, these plants were cut to obtain native seeds which were subsequently sown.
To facilitate the establishment of new plants, naturalistic engineering practices were implemented, such as the use of "biomats" to reconstitute and consolidate the substrate. These encourage the accumulation of earth, necessary for the sowing and subsequent establishment of the young plants, and protect them against erosion.
The project in Abruzzo follows a series of other initiatives, which all result from a multi-year agreement between Terna and WWF Italia. These projects have involved the Tuscan WWF oases of Stagni di Focognano (Florence) and Padule-Orti Bottagone (Livorno), and the Sicilian oasis of Torre Salsa (Agrigento).
The next Terna - WWF Italia project will regard the Pollino Park, in Calabria and Basilicata, and will be focused on monitoring and controlling the migratory, nesting and wintering populations of birds of prey.
For further information see the "Sustainability" section of the Terna website under the Biodiversity item of the environment menu.

Despite the precautions taken in the planning stage, it is possible that interference may occur between individual works and certain species or habitats. To reduce this interference to a minimum, environmental mitigation measures are adopted, both in the construction stage of the work, and during operation. If the mitigation measures are not sufficient to reduce the interference to insignificant levels, environmental compensation measures are adopted, i.e. actions on areas near the power line.
The main **mitigation** and **offsetting** measures entail:

- **environmental regeneration,** carrying out naturalistic engineering works, capable of regulating the surface flow of rainwater and, therefore, controlling the phenomenon of soil erosion;
- **reforestation**, through the planting of native species of trees and shrubs that are part of local vegetation;
- EU13 **turfing,** by sowing seeds belonging to native species together with natural fertilizers and adhesives that help them take root. The use of native species prevents the phenomenon of floristic pollution via the introduction of species that are foreign to the environment;

- **offsetting**, i.e. compensating for the cutting down of trees along the planned lines by planting trees of the same species over equivalent areas. EN13

With regard to the species of flora and fauna potentially involved, see the 2012 Environmental Report, which is published in the "Electricity System" section of Terna's website.
During the construction of infrastructure, the habitats and species of the flora and fauna concerned are monitored. Environmental analyses are performed before construction and the data obtained are then compared to those from samples taken subsequently in order to promptly identify the appearance of any signs of deterioration.
As far as existing lines are concerned, Terna has tried out mitigation systems, in particular regarding interference between lines and birdlife, which are described in the following section.

Lines and birdlife

EN14

Terna's High-Voltage lines represent a collision risk for birdlife. It is for this reason that, **in stretches of line characterised by frequent bird crossings, special devices known as "dissuaders"** have been installed. These, due to their size and the noise they make when struck by the wind, **make electricity lines more easily perceivable to birds in flight**.

DISSUADERS FOR BIRDLIFE PRESENT ON THE NTG

	2012	2011	2010
Total number of dissuaders	11,146	9,116	8,917

In 2012 Terna again supported the "nests on pylons" initiative in collaboration with the ornithological association *Ornis italica*, which over the years has enabled the installation of more than 500 boxes suitable for nesting birds. The constant monitoring of the boxes by a group of researchers has enabled the collection of numerous biological and ethological data and revealed a positive effect in terms of biodiversity. Among the main species that have occupied the nesting boxes we can note Kestrels, a species of small falcon that have adapted to living in human environments, Scops Owls and European Rollers.
Also in the 2012 reproduction season, the boxes mounted on pylons were monitored to collect reproduction data (see the box below).
During 2012 Terna assigned a new scientific research project to *Ornis italica*, focused on the European Roller, a bird which has significantly increased its presence in Italy, in particular in the Province of Viterbo where the research activities were carried out, thanks to nests placed on Terna's pylons. The study was concerned with aspects of genetics and behavioural ecology.
The analysis of movements will make it possible to better understand the environmental needs of this species in relation to agricultural practices and to choose the most suitable habitats in which to install new nesting boxes.

TERNA'S NESTING BOXES AND MONITORING BY SPECIES HOSTED

	Boxes installed in 2012 (*)	Young born in 2012	Young ringed in 2012
TOTAL	**360**		**71**
-Red-footed Falcon	37	3	=
-Kestrel	214	NA	25
-European Roller/Scops Owl(**)	108	117	42
-Peregrine Falcon	1	4	4

(*) Approximate values which take into account the boxes originally installed and their possible wear over time.
(**) Nesting boxes for European Rollers are also used for nesting by Scops Owls.

In 2012 Terna also continued its collaboration with *Ornis italica* for the **"*birdcam*" project**, which involves the installation of video cameras in artificial nests to follow the birds' reproduction period on-line, on the website www.birdcam.it and on the Terna website. The link via the webcams also makes it possible, among other things, for researchers to scientifically observe the animals' behaviour remotely.

More new information on birdlife from the nests on Terna's pylons

The 2012 reproduction season reserved many surprises for researchers and birdwatchers who, thanks to the scientific collaboration agreement between Terna and *Ornis italica*, were able to follow all the stages via the webcams and "eggcams" placed inside the artificial nests.

European Rollers, in their third year of monitored presence in nests placed on Terna's pylons in Upper Lazio, between Tuscania, Monte Romano, Vetralla and Blera provided great satisfaction, in terms both of occupation of nests and subsequent hatchings of newborn chicks, and new information on the behaviour of the species.

Compared with 2011, occupation of the nesting boxes increased by one, up from 25 to 26 nests and as many as 22 couples of Rollers managed to bring their brood (an average of 4.5 chicks) to fledge. Of the approximately 100 new chicks, half were ringed by the *Ornis italica* ornithologists.

This high success rate is due, apart from the exceptional temperatures, which this species likes, to the installation of anti-predator protection on the nests. This is a Plexiglas tube applied to the nest entry hole which made it inaccessible to birds of prey. During monitoring carried out in the reproduction period, it was noted that nests preyed upon the previous year were not reoccupied, an unambiguous sign that the birds remember places.

Again in this zone, thanks to the rings, the return to the "pylon of birth" of a young couple of Rollers, probably born in 2011, was noted, confirming the colonial nature of this species.

The ringing stage coincided with a further scientific experiment, aimed at carrying out a study on the movements of European Rollers and Kestrels by positioning a small GPS recorder on the back of a number of birds. This is a sort of backpack, weighing a few grams, capable of tracking the bird's annual movements. Observation in the days after applying the GPS did not reveal anomalous behaviour or signs of suffering; the hope is to manage to recapture a GPS carrier the year after to find out the bird's migratory routes.

The presence of Scops Owls has fallen probably owing to the dominance of European Rollers in the area. The former seem to have moved towards Rome, at about 20 km from the "historical" nests near Viterbo. To support this apparent shift of the species, the *Ornis italica* volunteers installed 15 new nests for Scops Owls near S. Angelo Romano.

On the other hand, the number of Kestrels remained stable. For these birds 50 nests were replaced in the area of the Marcigliana and Decima Malafede reserves, near Rome.

New information came also from the couple of Peregrine Falcons, Aria and Vento which for years have been breeding in an urban environment, in a nesting box placed on the terrace of the Faculty of Economics of the "La Sapienza" University in Rome.

In fact, this year, Terna's webcam recorded, right from when the eggs were laid and for all the time the young were in the nest, the presence of a third individual, later identified by the ring number as a young male produced by the couple in 2011, that supported the parents in managing the brood. This was completely unheard-of behaviour also because the few similar cases documented in the literature always tell of a cruel end for the young. The two exceptional snowfalls of February 2012 in Rome, gave us really extraordinary images of Aria and Vento's nest.

Terna's commitment to protecting biodiversity was recognised, at the international level, by Vigeo, the first European extra-financial analysis agency which, in October 2012, published a study on biodiversity protection strategies based on an analysis of the conduct of 127 European listed companies divided into 9 sectors.

The study found that 74% of the companies examined state that they are committed to protecting biodiversity but only 25% of these have identified the main impacts on biodiversity connected with their business. With a score of 71/100 (average score: 34.5/100; energy industry score: 27/100), Terna took fourth place overall; third in relation to the relevance of its initiatives and eighth for the results obtained.

The study « Protéger la Biodiversité : les entreprises sont-elles responsables? » can be downloaded from Terna's website at the address: http://www.terna.it/default/Home/sostenibilita2/sost_ambiente/sostAmb_biodiversita.aspx

Energy efficiency and climate change

Terna's business is electricity transmission and it has no production activities, which in the electricity industry – and for all businesses in general – are those most responsible for greenhouse gas emissions. For this reason, Terna is not subject to emission reduction obligations under the Kyoto targets, nor to emission trading schemes of any kind. In any case, Terna has chosen to voluntarily commit itself to limiting its emissions.
In particular, in 2011 the "Energy Consumed for Own Use Management System" project was launched. As part of this project, in 2012, an "Initial Energy Analysis" was carried out, with the aim of aligning the system to the UNI CEI EN ISO 50001 standard, which establishes the requisites for creating, launching, maintaining and improving an energy management system with a focus on energy efficiency.
As well as monitoring and programmes to contain direct and indirect emissions, which are illustrated in the next few pages, a number of Terna's activities lead to significant reductions in CO_2 emissions by the overall electricity system. The following are notable:

- the investments provided for in the Development Plan (page 84);
- the reduction of resources procured on the Dispatching Services Market, which also entails lower demand for production with the same level of service (page 78).

Energy consumption

EN3
EN4

The transmission of electricity only requires the direct consumption of energy for a few activities that support the service:

- fuel for the company's vehicles (used for line inspections, repairs, and other activities mainly connected with the maintenance of lines and stations).
- diesel for emergency generators, which are used only in cases where electricity – the normal energy source for equipment - is lacking, specifically to ensure that the electricity system is controlled and normal service restored;
- oil and natural gas for heating, particularly in offices.

Indirect consumption of energy involves of the electricity used to run stations and operating plants (87% of the total) and in offices and workshops.
The table below show Terna's direct and indirect consumption. In some cases (oil for heating), purchases are monitored, with the consequence that the changes from one year to another may reflect procurement cycles rather than a trend of rising or falling consumption. As regards indirect consumption of electricity (offices and stations), the published value for 2012 is based on precise measurements taken from meter readings at 91% of stations and 70% of offices; an estimate of the missing measurements enables us to present figures covering 100% of plants and offices[6].
In detail, in 2012:

- fuel (petrol and diesel) consumption fell by 6%. The reduction in consumption was mainly due to modernization of the vehicle fleet. Compared with 2011, Euro 5 vehicles (better performing from a consumption point of view) increased, while there was a sharp drop in vehicles classified as Euro 4 or lower categories. In addition, vehicles running on petrol were almost completely eliminated (see the paragraph on page 121 in this section);
- consumption of natural gas and diesel remained in line with 2011, with a slight drop (approximately 2%). In particular, the reduced consumption of natural gas must also be seen in the light of the complete transfer of the Milan offices to the new Pero site, which is connected to a district heating plant;
- there was a 2% increase in electricity consumption due to the increase in stations in 2012 (3% compared with 2011).

(6) The change from an estimated figure to one based on measurement took place in 2011. The 2011 figure was based on precise measurements taken from meter readings at 79% of stations. The 2010 figure is the result of an estimate that also incorporates corrective factors which emerged thanks to the 2011 measurements.

DIRECT AND INDIRECT ENERGY CONSUMPTION BROKEN DOWN BY PRIMARY SOURCE - GIGAJOULES [1]

		2012	2011	2010
	Direct consumption			
EN29	Petrol for vehicles [2]	408	7,504	7,113
	Diesel for vehicles [2]	77,570	75,731	74,588
	Natural gas for heating	9,241	9,468	7,277
	Diesel for generators and oil for heating	11,058	11,289	12,890
	Total direct consumption	**98,277**	**103,993**	**101,869**
	Indirect consumption			
	Electricity for power to stations and offices [3]	638,050	627,480	591,840

(1) The direct consumption data in tonnes and thousands of m^3 are shown in detail in the indicator tables. To convert the volumes of primary resources into gigajoules the parameters indicated in the GRI – Global Reporting Initiative – G3 protocols were used.
(2) Only the consumption of operating vehicles is considered.
(3) The reference for the division of the production mix is the "Monthly Report on the Electricity System" with the results for December 2012, available on the website www.terna.it

EN16 Direct and indirect CO_2 emissions

Greenhouse-gas emissions connected with Terna's activities are caused by:
- direct consumption of energy sources (petrol and diesel for vehicles, diesel for generators, oil for heating, natural gas for heating);
- indirect consumption of energy sources (electricity consumption);
- leaks of SF_6 (sulphur hexafluoride), a greenhouse gas used in station equipment for its high insulating power;
- leaks causing consumption of R22 coolant gas, used in air conditioning systems.

SF_6 leaks are the main direct source of greenhouse-gas emissions by Terna; in particular in 2012 they account for 90% of total direct emissions. From 2010 to 2012 the quantity of SF_6 present in Terna's plants increased by 104 tonnes (+29%). This is a trend – common to many transmission operators – destined to continue in the next few years for technical reasons associated with the higher insulating performance of the gas and to the smaller size of stations built with equipment containing SF_6, compared with more traditional solutions. For this reason the indicator Terna looks at is the percentage of leaks compared with the total gas present in the equipment. Over the three years the percentage figure for leaks declined gradually and in 2012 was 0.59%. The programmes to limit the proportion of SF_6 leaks are illustrated in the specific paragraph on page 118.

TOTAL DIRECT AND INDIRECT EMISSIONS OF GREENHOUSE GASES - CO_2 EQUIVALENT TONNES [1]

		2012	2011	2010
	Direct emissions			
	SF_6 leaks	62,791	57,406	60,313
	R22 leaks	110	25	240
	Petrol for vehicles	28	520	493
EN29	Diesel for vehicles	5,741	5,605	5,520
	Natural gas for heating	518	531	408
	Oil for heating and for generators	818	836	954
	Total direct emissions	**70,007**	**64,922**	**67,928**
	Indirect emissions			
	Electricity	70,008	71,463	70,692

(1) Direct consumption is converted into CO_2 equivalent emissions using the parameters indicated by the Greenhouse Gas (GHG) Protocol Initiative. Indirect consumption of electricity is converted taking into account the proportion of thermoelectric production to total Italian electricity production for 2012. The reference for the division of the production mix is the "Monthly Report on the Electricity System" with the results for December 2012, available on the website www.terna.it.

CO_2 emissions: comparative data

Comparison of Terna with other companies as regards the emission of greenhouse gases was done by using total direct and indirect emissions in CO_2 equivalent thousands of tonnes as a reference.
Both the figures of the transmission companies (TSO panel), the bigger listed Italian companies (FTSE-MIB) and the international sustainability leaders (RobecoSAM-Supersector Leaders) were taken into consideration.
The emissions in absolute terms do not reflect the various companies' performance in the efficient use of energy and in limiting climate change emissions, which should be assessed over time and with reference to normalisation factors which eliminate the differences deriving from the varying nature of business and the size of the company.
In the absence of significant normalisation factors valid for all sectors, it was deemed in any case of interest to present the company data on CO_2 emissions in absolute terms - despite the limited comparability. Such figures, which vary greatly in terms of magnitude from one case to another, at least provide an indication of the size of greenhouse gas emissions - and therefore of the practical need to contain them from the point of view of sustainability, in the various sectors and various companies.
For example, of the TSOs, the highest figure, (in line with the analysis of the 2010 data) is for Eskom which operates in South Africa and includes electricity generation among its many activities while the lowest is for ISA, a TSO which operates in Latin America and does not deal with electricity production or distribution.
For 2012, the emission of greenhouse gases related to Terna' activities was 140.0 CO_2 equivalent thousand tons; in 2011, the year for which comparative figures are available, the emissions were 136.4 CO_2 equivalent thousand tons.

TSO Panel: 17 figures available; average CO_2 emissions: 26,121.9 thousand tonnes CO_2; minimum value: 3.5 (ISA – Latin America); maximum value: 231,900 (Eskom - South Africa). In this comparison Terna comes out below the average, which is the highest of the averages of the three panels and influenced by values registered by transmission operators who also own electricity generation businesses.

FTSE-MIB Panel: 23 figures available[(1)]; average emissions of CO_2: 9,472.7 thousand tonnes CO_2; minimum value: 12.3 (Ubi Banca); maximum value: 123,832.0 (Enel) Terna is one of the big Italian companies with lower emissions, well below average and with total emissions only just higher than those of banks and insurance companies, the category with the lowest values.

RobecoSAM Panel - Supersector Leaders: 19 figures available; average CO_2 emissions: 5,997.2 thousand tonnes CO_2; minimum value: 10.1 (Telenet Media); maximum value: 51,810.0 (Repsol – Oil and Gas). In this comparison too, Terna confirms a quantity of emissions well below average. The extreme variability of the company figures makes a graphic representation of little significance; the table shows the minimum, average and maximum values in the three panels considered.

Greenhouse gas emissions - thousands of tonnes CO_2 - 2011

	TSO	FTSE-MIB	RobecoSAM - Supersector Leaders
Average	26,121.9	9,472.7	5,997.2
Max	231,900.0	123,832.0	51,810.0
Min	3.5	12.3	10.1
Standard deviation	62,294.2	27,556.6	14,484.9
Terna		136.4	

(1) In the case of the indicator of CO_2 emissions, for two of the companies on the FTSE MIB panel the figure published in the document "CDP Italy 100 Climate Change report 2012" as part of the Carbon Disclosure Project, was considered.

For further information on how the panels are composed and in general on comparisons with other companies, see the Methodological note, page 15.

EN17 Other indirect CO_2 emissions

In addition to the emissions corresponding to the consumption of electricity, other indirect emissions caused by Terna's activities are connected with:
- grid losses;
- flights taken by employees.

EU12 Grid losses 2012

Grid losses are defined as the difference between energy input by producers and imports and final consumption; significant losses for Terna are those associated with the transmission grid. The figure presented in the table below is based - for the first time - on the direct measurement of energy put into and taken out of the transmission grid (approximately 7,500 measurers), to which corrective technical coefficients are then applied in cases in which the point of measurement does not coincide with the boundaries of the transmission grid. It must be stressed that the responsibility for measuring the energy put into the NTG is Terna's, while for the energy taken out Terna may, on the basis of specific agreements, remotely read the measurements, which however remain the responsibility of the distributor companies. This entails a margin of uncertainty on the correctness of the measurements of electricity taken out, which has been reduced over the years thanks to cross-checks and the gradual resolution of discrepancies with distributors' data. For these reasons, starting from 2012, it was decided to use the arithmetic mobile mean of losses with a three-year window (the three years 2010-2012 for the year 2012) as the annual figure: in this way the margin of uncertainty and the risk of interpreting the effect of measurement errors as real trends are reduced.

GRID LOSSES

	% proportion with respect to energy demand	GWh
EHV and HV grid	1.4	4,485

In previous publications the values presented were the result of a division of the losses of the electricity system (also including distribution grids) proportionally to the voltage levels, starting from calculations made assuming particular grid configurations and considering losses on lines owing to the corona effect, directly proportional to the voltage, and owing to the joule effect, directly proportional to the current, and losses on transformers. These values differed significantly from what emerged from the data based on measurements presented in the table, resulting in 8,710 GWh for 2011 and 8,663 GWh for 2010. Because of this, it was decided to not compare the 2012 data with the historical series produced up to now.

It is, anyway, necessary to specify that Terna can only contribute to determining the amount of losses, which are not completely under its control. To explain this point it is useful to distinguish between dispatching operations and grid development activities.

Dispatching operations are necessary to guarantee a constant balance between deliveries and withdrawals and avoid the onset of grid security problems and poor service. These operations are carried out, according to regulated criteria, in the context of production structures determined by the energy market, and therefore cannot be influenced by Terna with the aim of minimizing losses. It should also be noted that the energy market implicitly favours more efficient production and therefore entails a trend to reduce emissions of a much greater amount than that of grid losses.

With the same production structures, grid development activities would determine greater efficiency and therefore a reduction of losses. However, grid development enables the creation of production structures which were previously not possible and also enables the growth of consumption. Moreover, grid development itself is in part dictated by the need to connect new plants, the location of which is not decided by Terna. The overall effect on losses of grid development work cannot therefore be predetermined and is not even under the control of the transmission operator: other factors may more than offset the increased efficiency deriving from grid development. This applies both in terms of the absolute amount of losses, and in terms of the proportion of losses to total energy consumed.

Considering the production mix of the Italian generation system the CO_2 emissions associated with grid losses amounted to 1,771,477 tonnes for the year 2012.

Flights by employees

Emissions corresponding to flights taken by employees show slight fluctuations over the three years. In particular this year they were down 3% compared with 2011, the year during which intensification of activities in the Balkans and the Mediterranean had led to an increase in air miles and emissions associated with international travel.

INDIRECT EMISSIONS OF CO_2 FOR FLIGHTS BY EMPLOYEES

	Miles			CO_2 emissions (tonnes)		
Kind of flight	2012	2011	2010	2012	2011	2010
Domestic	3,171,164	3,174,881	3,065,573	1,046	1,048	1,010
International	1,365,577	1,523,415	1,128,909	329	367	271
Intercontinental	475,926	521,433	945,914	99	109	195
Total	**5,012,667**	**5,219,729**	**5,140,397**	**1,475**	**1,523**	**1,477**

Other atmospheric emissions

Other emissions with impacts on the atmosphere relating to coolant gases and nitrogen oxides are described below.
Coolant gases Some coolant gases have an effect on the environment because they damage the ozone layer or contribute to the greenhouse effect or because they have both these characteristics.
The table below shows the main types of gas present in Terna's equipment.

COOLANT GASES – AMOUNTS IN KG

	2012	2011	2010
R22	1,965	2,972	4,716
R407C	1,434	2,470	1,647
R410A	3,449	2,973	494
Other coolant gases [1]	828	686	210

[1] In 2012 the quantity of "Other coolant gases" was made up of 61% R134a gas, and 32% R422 gas.

In accordance with the provisions of current legislation (Regulation EC No. 1005/2009 of the European Parliament and Council) the quantity of R22 gas used in the equipment has been declining constantly.
In fact - in the event of dispersion - only R22 gas has harmful effects both on the ozone layer and as regards the greenhouse effect. The other types of gas present have no effect on the ozone, and only contribute to the greenhouse effect.
In 2012 there were no new purchases of R22 gas, but some quantity of gas was dispersed following the malfunctioning of some conditioning systems which are being replaced.
Unlike previous years, the table below shows only the quantity relating to actual leaks and no longer consumption.

COOLANT GAS LEAKS -KG

EN19

	2012	2011	2010
R22	61	14	133

Nitrogen oxides The activities performed by Terna do not include combustion processes and therefore do not entail significant nitrogen oxide (NOx) emissions. In 2012, however, we began monitoring NOx emissions associated with consumption by corporate operating vehicles.

NITROGEN OXIDE EMISSIONS – KG

EN20

	2012
NO_x	4,920

The figure is calculated on the basis of the data provided by car manufacturers in registration documents and estimates of vehicles mileage. The figure shown in the table represents 59% of the corporate operating vehicles.

EN18 Initiatives to reduce emissions

Terna focuses its attention on a number of voluntary action programmes aimed at reducing its main sources of greenhouse gas emissions:

- **a programme to limit the proportion of SF_6 leaks:** Terna has launched several initiatives, such as identifying leaks promptly by means of on-line monitoring systems and seeking technological solutions which increase the sealing of equipment and components;
- **feasibility studies for initiatives on energy conservation** in electricity stations;
- **a program for reducing the consumption per km of the corporate vehicle fleet**, which entails a reduction of CO_2 emissions per km (g/km) based on replacing vehicles with better performing equivalents;
- **a program for the energy efficiency** of buildings (offices).

The first two cases are initiatives which can have a significant quantitative effect, but only in the medium/long term. In the third case, the results are already tangible but regard a less significant source of emissions from a quantitative point of view.

Containment of SF_6 leakage

Thanks to its chemical and physical properties, which make it an excellent insulator, SF_6 (sulphur hexafluoride) gas is used as a means of insulation in certain electrical devices such as switches, current transformers and armoured plants. These enable the construction of electricity stations in smaller spaces with reduced maintenance requirements. Thanks to these properties, Terna expects to use more equipment with SF_6 gas insulation, as other transmission operators are also doing abroad.

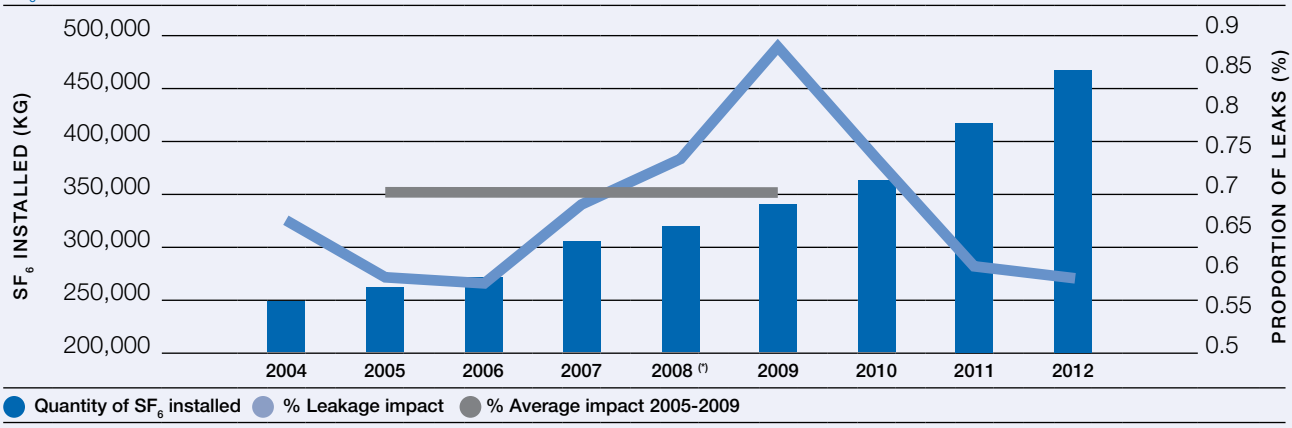
Some of the gas present in the equipment is dispersed into the atmosphere owing to defective seals, on the occasion of breakdowns and, sometimes, during re-pressurising operations. SF_6 is classified as a greenhouse gas: Terna operates in order to **keep SF_6 leaks under control**, to limit and if possible reduce **the percentage** with respect to total gas used. If leaks in absolute terms may increase owing to the greater use of gas, a reduction in the proportion of leaks could, precisely for this reason, have a significant impact in terms of emissions avoided.

Although the proportion of SF_6 leaks has been identified as a significant indicator of its performance in relation to climate change, Terna is still studying the matter to identify a target. There are in fact several elements of uncertainty:

- the growth of awareness and attention to the subject is reflected in an improvement in measuring leaks, entailing – precisely in the years in which the containment activities began (2009-2010) – worsening performance which was most probably only apparent;
- the occurrence of breakdowns with significant gas leaks – which are increasingly probable given the growing use of SF_6 gas in large station equipment – may considerably alter the trend;
- while on the one hand the installation of equipment with better sealing performance tends to reduce the proportion of leaks, on the other, as the equipment already installed gets older leaks may increase;
- Terna already has a low proportion of SF_6 leaks compared with other TSOs (see the specific box in this paragraph), so further reductions, which have growing marginal costs, can only be limited and with a high probability of being offset by the adverse factors already mentioned, of potentially greater impact.

Net of exceptional breakdowns and of any effect deriving from the ageing of equipment in operation, it is estimated that the installation of new devices with better seals (such as highly reliable transformers), which began in 2009 and continued in the years 2010-2012, could lead to a reduction in the proportion of leaks estimable at 0.1% over five years from the start of the installation campaign, provided that the new equipment is actually available. On the basis of this estimate, and again excluding the factors mentioned, it is expected that by the end of 2014 the proportion of leaks will converge towards figures fluctuating around 0.6%, considering that the average proportion in the period 2005-2009 was 0.7%.

SF$_6$ LEAKAGE



(*) leaks excluding an exceptional event (1.07% including such an event).

In 2012 the proportion of leaks was 0.59%, down compared with the two previous years (2011: 0.60; 2010: 0.73%). As explained above, the information available does not enable us to interpret these results with certainty as a convergence towards the target.

In 2012 application of the SF_6 gas refill adjustment procedure begun in 2010 continued successfully. The objective is to identify equipment with anomalous leaks and assess the feasibility of a targeted maintenance programme. The results of the study will enable us to more precisely define a target figure for the proportion of SF_6 leaks.

The programmes and initiatives in progress since 2008 for managing SF_6 gas are described below:

- **procedure for monitoring leaks and reducing dispersion** of the gas in the re-pressurising stage: the detection procedure involves recording the gas used and dispersed for each station (up to 2007 the measurement of leaks was given by the total quantities of SF_6 purchased net of new installations);
- **compact multi-functional modules** (set of different devices) which enable a 30% reduction in the quantity of SF_6 necessary for insulation compared with other devices. After the positive performance test results, compact modules are considered an application standard and are installed as necessary;
- **new measurement transformers** (TAs), sealed, and more reliable with maximum leaks of 0.1% per year: the plan to replace old equipment with the new transformers has been in progress since 2010.

Energy conservation in stations

Electricity is used in electricity stations to enable the equipment and remote control of the same.

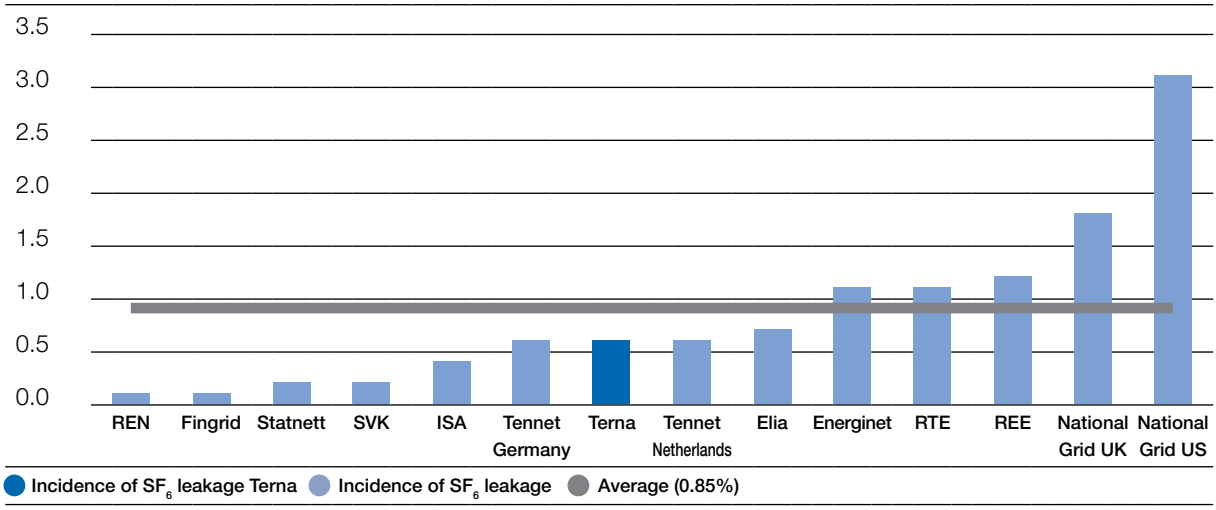
We are studying initiatives to assess savings opportunities in relation to the main sources of consumption:

- cooling power transformers;
- external lighting;
- conditioning and heating systems of technical rooms;
- auxiliary command, control, and protection circuits of all equipment and machinery.

SF_6 leaks: comparative data

The use of SF_6 gas is a specific feature of the transmission operators sector, only figures for the companies belonging to the TSO panel were considered.
The comparison between Terna and other transmission operators relative to SF6 leaks was conducted by taking the percentage of leaks compared to the total gas used as the reference.
In 2012, the average incidence of SF_6 leaks for Terna was 0.59%; in 2011, the year for which comparative figures are available, the incidence was 0.60%.
Compared to the other transmission operators the incidence of SF6 leaks for Terna was better than average, confirming the results reported in the Sustainability Report for the last two years.
TSO Panel: 14 figures available; average incidence of SF_6 leaks: 0.85% (a decrease from the 2010 values); minimum value: 0.1%; maximum value: 3.1%; standard deviation: 0.8%. Terna comes out better than average.
The comparison with figures for 2011 is based on a larger number of companies (14 instead of 11). Considering for 2011 also, only the 11 companies considered in the previous edition, the average incidence value would be 1.1%, in line with the calculations of last year.

INCIDENCE OF SF6 LEAKAGE*



* The incidence of the leaks was calculated as the percentage of leaks out of the total gas contained in the equipment.
For further information on how the panel is composed and in general on comparisons with other companies, see the Methodological note, page 15.

EN5 **Reduction of emissions connected with energy consumption in offices**

In offices the main sources of energy consumption are connected with lighting, heating and air-conditioning, and the use of computers and printers.
In 2012 the replacement of computers and printers continued. The new models enable considerable savings in average energy consumption of 80% and a consequent reduction of carbon dioxide emissions. The reduction achieved in 2012 is in addition to that already recorded in the two years 2010-2011 (relating to replacing monitors and desktops for PCs with lower consumption) for a total of 93 fewer tonnes of CO_2 emitted in the three years.

Energy efficiency

In 2011 the "Energy Consumed for Own Use Management System" project was launched. This is coordinated by the technician responsible for the conservation and rational use of energy – the Energy Manager.
Electricity consumption for own uses was analysed starting in 2008; accuracy in data collection has therefore gradually improved, enabling a survey of electricity consumption for own uses.
The first objective achieved in 2012 was the initial energy analysis, which was carried out considering both consumption of electricity stations and consumption of the Terna Group's office buildings.
Besides the general initial energy analysis, four detailed energy analyses were carried out in relation to the following buildings:

- Rome headquarters;
- National Control Centre offices in Rome;
- San Rocco al Porto Operating Group offices in Lodi;
- Operating Area offices in Palermo.

The working group, supported by external consultants, carried out the preliminary energy audit of the buildings, focusing analysis on the main electricity supply and heating systems of the buildings. During the visits, the energy management of the buildings, and the state of efficiency of the technological plants and of the building shell were checked on site, by filling in the specific data collection forms. An inventory was also taken of all the equipment present which consumes energy.
Following the analyses, as a preliminary step, a hierarchy of actions was identified to resolve the main critical issues found, and various opportunities to improve energy efficiency were suggested.
The 2013 objective is to prepare an Energy Consumed for Own Use Management System, in line with the UNI CEI EN ISO 50001 standard and in accordance with the "Environmental Management System".

Reduction of emissions connected with mobility

The company's vehicle fleet – used mainly to inspect lines and for fault repair work – is not concentrated in a few places, but used over a vast area. There is therefore no problem of impact on specific areas, but rather a general polluting effect. The main actions to reduce the impact of transport on the environment consist in modernising the vehicle fleet and scrupulous maintenance.

TERNA VEHICLE FLEET [1]

EN29

	2012	2011	2010
Hybrid	9	9	9
Euro 5	1,148	138	131
Euro 4	15	985	1,009
Euro 3 (or lower)	169	219	240
Total vehicles	**1,341**	**1,351**	**1,389**

(1) The table shows the vehicles of the Terna fleet which in the period in question filled up at least once as recorded on the fuel card. Only operating vehicles are considered.

Terna uses operating vehicles daily to inspect lines and reach operating plants located throughout Italy. Such inspections often require the use of all-terrain vehicles because pylons can be reached only by unpaved paths.
In 2012 there was a reduction in fuel consumption and consequently CO_2 emissions fell by 355 equivalent tonnes. The lower consumption is attributable mainly to the replacement of the older models in the vehicle fleet. 1,020 models with Euro 4 or lower engines were replaced with 1,010 models with Euro 5 engines.
The replacement campaign begun at the end of 2011 envisages an offsetting project for the CO_2 emissions of the new vehicles purchased, involving the creation and protection of new green areas in Rome, in the Madonnetta Park, in Madagascar and in Costa Rica.
Achievement of this objective is ensured by the collaboration between Terna, the motor manufacturers that supply the vehicles and Lifegate's Impatto Zero (Zero Impact) project.
From 2012 to 2016, the creation and protection of these wooded areas will offset the carbon dioxide emissions, quantified as 10,222,763 kg, generated by 840 vehicles in Terna's operating fleet.

The emissions were estimated from the average carbon dioxide emissions per vehicle (a figure provided by the manufacturers) for each km travelled and from the estimated number of kilometres travelled annually by the vehicles in Terna's operating fleet.
The areas involved are 14,000 sq m in Rome, 510,756 sq m in Madagascar and 2,019,848 sq m in Costa Rica.
The offsetting will cover more than 33% of the annual CO_2 emissions of Terna's vehicle fleet.
During 2012, Terna confirmed the actions taken to reduce the impact of employee mobility on the environment.
Finally, in January 2013 the **"Company Car Sharing"** project was launched, in an experimental form for involving the operating areas of Bari and Rome. Through the use of dedicated software and a hardware device to manage the vehicles, the availability of the latter and the itineraries, the kms travelled and the maintenance will be monitored. The stages of booking, picking up the keys and returning the vehicle will also be automated.
The aims of the project are proper distribution of the corporate fleet around the country, route optimization (and therefore lower emissions and consumption), and greater attention to maintenance (with better performance in terms of quality, safety and respect for the environment).

The Development Plan and reduction of the electric system's CO_2 emissions

The construction of new lines and stations provided for by the Development Plan will produce positive effects not only in terms of service security and the final cost of electricity, but also in reduced emissions by the electric system. The effects achievable upon completion of the Plan will be of three kinds:
- reduction of grid losses;
- improvement of the production mix and interconnection with other countries;
- connection of plants using renewable energy.

Overall, the reduction of CO_2 emissions within the time horizon of the 2013-2022 Plan could reach an amount of approximately 12.5 million tonnes a year.

Reduction of grid losses

Grid losses depend on, among other things, the distance the electricity travels on the transmission grid. Simplifying as much as possible, the further the point of consumption (of withdrawal from the NTG) from the point of production (of delivery into the NTG), the greater the losses for the same consumption. In addition, for the same distance the losses are more on a lower voltage line.
Development work that improves the grid mesh brings withdrawal and consumption points closer: all other conditions being equal, it leads to a reduction in grid losses. The same result is produced by upgrading a stretch of the grid, for example when a 380 kV line replaces one at 150 kV over the same route.
With the completion of the work set out in the 2013 Development Plan, the decrease in losses at the peak could reach a power value of 200 MW, corresponding to a reduction in grid energy losses estimated at around 1,200 GWh/year. Assuming that the reduction of these losses is equivalent to a reduction in production from combustible sources, it can be stated that the work can also have the added positive effect of a decrease in CO_2 emissions, somewhere between 500,000 and 600,000 tonnes every year.

Improvement of the production mix and interconnection with other countries

One of the main purposes of developing the electricity transmission grid is to overcome transport limits between "electricity zones". The existence of these limits impose a number of restrictions on the possibility of production by more efficient generation units, that is to say units which pollute less in terms of CO_2 emissions, and at the same time makes production by obsolete stations necessary for grid security.
The work envisaged in the Development Plan, together with the expansion of interconnection with other countries, would enable a more efficient production mix than the current one, with a larger proportion of production by plants with higher yields. The same quantity of final consumption would thus be covered with a smaller quantity of fuel: the benefits are quantifiable as a reduction in CO_2 emissions of up to 6,200,000 tonnes a year.

Connection of plants using renewable energy

The main contribution to the reduction of CO_2 emissions comes from connecting production plants using renewable sources which are among the projects in the 2013 Development Plan. The production of energy from renewable sources has been a fast-growing potential source of energy in the last few years. In particular, generation plants using wind and photovoltaic energy have increased considerably, above all in the regions of the South and the Italian islands. Specifically, in 2012 the installed power reached figures of around 17,000 MW for photovoltaic and around 8,000 MW for wind energy.
One of Terna's main tasks is to plan the upgrading of the grid in order to encourage production of electricity from renewable energy sources by trying to overcome any grid and operating limitations that could limit input into the grid of such energy into the grid, which is entitled to dispatching priority. The limitations on production using non-programmable renewable sources (NPRSs) can be divided essentially into two categories:

- limits due to problems of operating the electricity system securely, associated, that is, with dispatching constraints that require verification of the generation-load balance also in the event of a sudden lack of production capacity from non-programmable renewable sources;
- limits directly attributable to insufficient transmission capacity of the portions of grid (in general High Voltage) to which plants using non-programmable renewable sources are connected.

The development solutions planned in response to these critical issues therefore include both actions to strengthen sections of the primary grid, which make it possible to indirectly reduce the limits on the operation of NPRS production, and actions to locally expand the sub-transmission grids to which the NPRS generation is directly connected.
Besides this work NPRS collection stations on the Extra High Voltage grid are planned. These will make it possible to limit the construction of new power lines which would otherwise be necessary (see also the paragraphs dedicated to electricity system security, smart transmission solutions and accumulation systems in the section devoted to Responsibility for the Electricity Service, and in the Profile).
The works included by Terna in the 2013 Development Plan will release about 4,700 MW of power from renewable sources, thus obtaining a reduction of CO_2 emissions amounting to about 5,900 kt of CO_2/year.

MAIN WORKS IN THE DEVELOPMENT PLAN WITH EFFECT ON INPUTS OF ENERGY FROM RENEWABLE SOURCES

Category	Work	Power from renewable sources (MW)
Grid upgrading indirectly functional to the reduction of operating limitations in dispatching generation, which favour production from Non-Programmable Renewable Sources	380 kV "Sorgente-Scilla-Rizziconi" power line and upgrading of the EHV grid in Sicily	1,000
	Upgrading of interconnection capacity between Sardinia and Corsica/continental Italy	500
	New 380 kV "Aliano-Montecorvino" power line	900
	380 kV "Foggia-Villanova" power line	700
	Upgrading of 380 kV "Foggia-Benevento" power line	500
Work to upgrade and decongest EHV and HV grid sections into which Terna feeds production from Non-Programmable Renewable Sources.	Upgrading the transmission grid in southern Italy	1,100

Reduction of CO_2 emissions in 2012

During 2012 the benefits in terms of reduction of CO_2 emissions were mainly due to the installation of new "zero emission" production units. The provisional figure for power installed from renewable sources in 2012 is presented below.

Energy source	power installed - MW
Wind	~8,000
Photovoltaic	~17,000
Total	**25,000**

From the 2012 provisional figures it can be seen that in 2012 gross production using wind and photovoltaic energy increased by approximately **12,000 GWh**; this figure corresponds to a reduction of approximately **6,600 of ktCO_2**[7].

(7) Considering a conversion coefficient of 0.550 tCO_2/MWh and assuming that the newly installed renewable capacity replaces an equivalent thermoelectric capacity.

Resource use and waste management

The production of a service does not normally require significant material inputs, and in the same way does not entail the treatment of significant quantities of waste. The case of the energy transmission service is no exception, as regards materials that enter into and exit from the production cycle of the service: the most significant consumption is of energy and this has already been dealt with in the paragraph "Energy consumption".
However, the provision of the transmission service requires the construction and maintenance of a large endowment of capital assets: power lines (pylons, wires, insulators), transformation stations (transformers, switches, other station equipment), and control systems are the main components.
The use of materials is related in particular to the work of constructing electricity and ICT infrastructures. Terna's waste management primarily concerns maintenance of electricity infrastructures.

EN1 Resources

As regards materials, **Terna does not use raw materials, but electrical equipment**, wires and other elements that are combined to be used in the transmission service. The table below provides an overview of the principal materials in supplies used by Terna. The weight is calculated starting from the quantity used, from the average or typical weight of the single elements and from the proportion of materials contained. In some cases the elements are made of a single material (for example, insulators are made of 100% glass or ceramics, terminal boards of aluminium); in other cases an estimate was made of the main material (for example, copper accounts for 60% of the weight of an ATR transformer). At the moment, no information is available on the use of recycled material on the part of suppliers of the materials and equipment used (as regards the environmental criteria in the procurement process see the specific box in the section on Economic Responsibility on page 91).

MAIN MATERIALS IN SUPPLIES (tonnes)

	2012	2011	2010
Porcelain	229	967	663
Polymeric	131	322	350
Copper	3,861	2,569	3,853
Aluminium	4,069	9,588	4,927
Steel	6,163	23,875	17,114
Glass	863	2,078	1,573
Dielectric oil	61	974	1,413
SF_6	50	54	23

The quantities shown in the table reveal an overall reduction in materials purchased with the exception of copper. In particular the quantities of dielectric oil, which have fallen constantly are in line with the trend of preferring the installation of SF_6 equipment (see page 118). The generalized drop in the consumption of materials is associated with less construction of new lines in 2012. A large proportion of the supplies purchased related to cable connections (in particular the Italy - Montenegro connection). The analysis of the main materials in cables is at the implementation stage and was therefore not yet available for the purposes of creating this table. In office work, the main consumable is paper.

PAPER CONSUMPTION (tonnes)

	2012	2011	2010
FSC paper	52	70	83

Paper consumption refers to the quantity purchased. A trend is therefore not clearly identifiable and the changes in the three years relate mainly to stock management in certain territorial areas in 2011.

All the paper purchased since the end of 2009 has been made with TCF pulp – that is, Totally Chlorine Free – and certified by the FSC (Forest Stewardship Council www.fsc.org) – which guarantees that the forests providing the cellulose are managed in accordance with sustainability criteria from the point of view of both the environment and human rights. EN2

Water is not used in the electricity transmission and dispatching production cycle. Normally water used – for hygienic uses, to clean offices and for cooling systems – comes from connections to the water main for civil uses. Consumption grew in the three years considered, in line with the increase in the number of stations managed (+9%). EN8

In particular the figure for 2012, which was higher than those recorded in previous years, was affected by:

- much higher leakage (approximately 12% of total consumption shown in the table) at the Line Operating Group (LOG) offices;
- an improvement in data collection which made it possible to record exact consumption at a greater number of stations compared with previous years. This was possible thanks to constant monitoring of the MBI information system used in managing lines and stations. In fact, every month the system records the meter readings of the more than 460 Terna stations scattered around the whole country.

WATER CONSUMPTION - (CUBIC METRES)

	2012	2011	2010
Water withdrawal	219,311	176,525	184,979

Water consumption: comparative data

The comparison of Terna with other companies as regards the use of water was conducted by taking both total consumption and consumption in cubic metres per employee as reference figures.

The figures of the transmission companies (TSO panel), as well as of the bigger listed Italian companies (FTSE-MIB) and of the international sustainability leaders (SM-Supersector Leaders) were taken into consideration.

In all the panels the figures show substantial non-comparability, in that consumption reflects the varying importance of water in production processes, as well as the different sizes of the companies, not necessarily reflected by the number of employees. The companies involved in electricity generation which use water in the production process - generally for cooling the plants - are at the top of the ranking for pro capita consumption; those companies providing intangible services (such as banks) occupy the lowest positions. The highest pro capita consumption figure is for ESKOM, the South African TSO which includes among its activities the production and distribution of electricity, while the lowest is for an Australian and New Zealand Banking Group.

Despite the intrinsic limitations of the comparison and in the absence of more effective normalisation factors than the number of employees, it was deemed in any case of interest to present the main figures on water consumption. Such figures, while unsuitable for being interpreted as a reflection of the various companies' performance in the efficient use of the resource, do at least provide an indication of the importance of the use of water - and therefore of its practical importance in terms of sustainability - in the various sectors and various companies. In the comparisons made, the overall use of water was considered without distinction between fresh water and sea water.

For 2012, total water consumption for Terna was 219,311 (63.9 cubic metres pro capita), an increase compared to 2011 (see page 125), the year for which comparative figures are available, (176,525.0 total cubic metres, equivalent to 50.5 cubic metres pro capita).

TSO Panel: 11 figures available;

- total water consumption -thousands of cubic metres: average 31,626,504.3; minimum value: 64.8 (REE-Spain); maximum value: 327,252,000.0 (ESKOM - South Africa). The South African TSO is involved in the entire energy process, from production to distribution to the end customer. Last year the relative water consumption figures for Eskom were not included in the comparative data and this explains the sharp increase in the average figure, from 1,808,338.8 to 31,626,504.3 for total consumption and from 106,362.7 to 796,743.9 for pro capita consumption);
- pro capita water consumption -cubic metres: average 796,743.9; minimum value: 39.8 (REE-Spain); maximum value: 7,527,706.9 (ESKOM - South Africa).

Terna is well below average for both total consumption and pro capita consumption. The average was strongly affected by the figures for operators not acting exclusively in the transmission of electricity but who also possess businesses involving electricity generation or the transport of natural gas.

FTSE-MIB Panel: 23 figures available;

- total water consumption -thousands of cubic metres: average 125,863.1; minimum value: 37.5 (Banca Mediolanum); maximum value 2,583,870.0 (Eni);
- pro capita water consumption -cubic metres: average 1,704.5; minimum value: 18.8 (Assicurazioni Generali); maximum value 32,837.7 (Eni).

In this case too, Terna's consumption (total and pro capita) is well below average. Specifically, Terna's pro capita consumption is only slightly above the average of the 8 companies on the panel providing banking and insurance services.

RobecoSAM Panel - Supersector Leaders: 17 figures available;

- total water consumption -thousands of cubic metres: average 300,902.4; minimum value: 133.7 (Australian and New Zealand Banking Group); maximum value: 4,087,000.0 (Iberdola- Utilities);
- pro capita water consumption -cubic metres: average 9,396.3; minimum value: 9.8 (Australian and New Zealand Banking Group); maximum value: 124,569.5 (Iberdola- Utilities).

In terms of worldwide sustainability best practices, Terna is well below average consumption.
The extreme variability of the company figures makes a graphic representation of little significance; the table shows the minimum, average and maximum values and the standard deviation in the three panels considered.

	Water consumption: 2011					
	TSO		FTSE-MIB		RobecoSAM – Supersector Leaders	
	thousands of cubic metres	cubic metres/ employee	thousands of cubic metres	cubic metres/ employee	thousands of cubic metres	cubic metres/ employee
Average	31,626,504.3	796,743.9	125,863.1	1,707.7	300,902.4	9,396.3
Max	327,252,000.0	7,527,706.9	2,583,870.0	32,837.7	4,087,000.0	124,569.5
Min	64.8	39.8	37.5	18.8	133.7	9.8
Standard deviation	98,150,430.7	2,245,743.8	537,256.3	6,807.9	985,382.5	30,148.3
Terna	176.5	50.5	176.5	50.5	176.5	50.5

Wherever not directly available the pro capita consumption figure was obtained by dividing total water consumption by the number of employees. For further information on how the panels are composed and in general on comparisons with other companies, see the Methodological note, page 15.

Waste

EN22

Most of Terna's waste is recovered to be sent for production recycling. Only some residues are sent to the dump and therefore have an environmental impact. **81% of waste was recovered in 2012** (83% in 2011, 89% in 2010).
Like the resources used, waste is connected mainly with the modernisation and maintenance of the electricity infrastructure. These activities depend on technical considerations regarding the security and efficiency of the system. The quantity of waste may therefore change, even significantly, from year to year.
As far as the percentage of waste recycled is concerned, according to the Environmental Policy adopted by Terna, the recovery of materials is the first option to be assessed and pursued if possible. However, actual recycling depends on the materials which make up the waste. Some materials can easily be separated and consequently recycled (for example the steel parts of pylons); however, in some cases, it is impossible or too costly to separate the parts, especially for equipment purchased some years ago. **For these reasons the annual changes in the percentage of waste recycled must not be interpreted as representing a trend.**

WASTE BY CATEGORY [1] (tonnes)

	2012	2011	2010
Waste produced [1]	**6,208.1**	**7,198.1**	**5,515.9**
of which hazardous	3,297.4	3,887.3	3,013.3
of which non-hazardous	2,910.7	3,310.8	2,502.6
Recycled waste	**5,015.5**	**5,997.3**	**4,912.8**
of which hazardous	3,064.9	3,380.1	2,849.5
of which non-hazardous	1,950.6	2,617.2	2,063.3
Waste sent for disposal [2]	**1,080.4**	**1,153.3**	**626.4**
of which hazardous	215.6	450.8	191.5
of which non-hazardous	864.8	702.5	435.0

(1) Includes only specific waste from the production process, not that produced by service activities (urban waste). Up to 2010 waste belonging to the categories of earth and rocks from excavations and slurry produced was excluded because it has – above all in the case of significant quantities – exceptional characteristics associated with the construction of particular civil works in stations and would make the data series non-uniform. The figure for earth and rocks from excavations and slurry was 1,541 tonnes in 2010. From 2011, only waste relating to slurry produced was excluded because the category earth and rocks from excavations is no longer significant; the amount of slurry was 610 tonnes for 2012 and 675 tonnes for 2011.
(2) Waste sent for disposal may differ from a simple difference between waste produced and recovered owing to the temporary storage of waste from one year to the next.

The main **non-hazardous special waste produced** by Terna's operating activities consists of:
- **metal waste** (which accounts for more than 50% of the total of non-hazardous waste produced), deriving from the decommissioning of **transformers, electrical equipment and machinery** (for example, generators) no longer used, more than 96% of which is recycled;
- **wood** deriving mainly from the packaging of the materials purchased, about 90% of which is recycled.

The main **hazardous special waste produced** by Terna's operating activities consists of:
- **metal waste** (which accounts for more than 70% of the total of hazardous waste produced) deriving from the decommissioning of **transformers, electrical equipment and machinery** no longer used and contaminated by hazardous substances, more than 95% of which is recycled, after treatment by third parties;
- **batteries** (lead and nickel), which in the event of blackouts enable emergency generators to be turned on to keep the service of electricity transformation and transportation operating during emergencies, 100% of which is recycled;
- **dielectric oils** (which account for more than 20% of total hazardous waste) for the insulation of transformers replaced following the regular checks carried out for transformer maintenance and which are hazardous waste, around 100% of which is recycled. This percentage falls to 89% when oily emulsions and dregs from collection tanks mixed with rainwater are included, substances which are hard to recycle.

Waste sent for disposal consists mainly of materials used in the maintenance and cleaning of plants (mud, oily emulsions, and rags containing oils and solvents) and insulating materials containing asbestos for which no kind of recycling is available. All these items together account for less than 70% of the total destined for disposal (for the details of the quantity and types see the Tables of indicators).

Production of waste: comparative data

The comparison of Terna with other companies as regards waste was conducted by taking both total production and pro capita production in cubic metres as reference points.
The figures of the transmission companies (TSO panel), as well as of the bigger listed Italian companies (FTSE-MIB) and of the international sustainability leaders (SM-Supersector Leaders) were taken into consideration.
The figures - both absolute and pro capita - show substantial non-comparability, in that they reflect differences in the type of business performed, and therefore in the generation of waste in the production processes, as well as the size of the companies, not necessarily reflected by the number of employees. The highest pro capita figure is for Enel, while the lowest is for Banca Intesa Sanpaolo (both belonging to the FTSE-MIB panel).
Despite the intrinsic limitations of the comparison and in the absence of more effective normalisation factors than the number of employees, it was deemed in any case of interest to present the main figures on waste production. Such figures, while unsuitable for being interpreted as a reflection of the various companies' performance in limiting environmental impact do at least provide an indication of the importance of waste and therefore of its practical importance in terms of sustainability in the various sectors and various companies.

In 2012 Terna produced a total of 6,208.1 tonnes of waste. Waste production per employee was 1.8 tonnes, a decrease from 2011, the year for which comparative figures are available (7,198.1 tonnes total and 2.1 tonnes pro capita).

TSO Panel: 13 figures available;
- Total waste production – tonnes: average 222,711.8; minimum value 41.9 (ISA – Latin America); maximum value 1,700,000.0 (National Grid – UK).
- Pro capita waste production – tonnes: average 12.3; minimum value 0.1 (ISA – Latin America); maximum value 73.3 (National Grid – UK).

In this comparison Terna comes out below the average, greatly influenced by some transmission operators who also own electricity generation businesses.

FTSE-MIB Panel: 24 figures available;
- Total waste production – tonnes: average 691,932.9; minimum value 676.2 (Ansaldo); maximum value 11,639,212.0 (ENEL).
- Pro capita waste production – tonnes: average 12.1; minimum value 0.04 (Banca Intesa Sanpaolo); maximum value 154.4 (ENEL).

Compared to the listed companies in the FTSE-MIB, Terna comes out below average, with values comparable to those of service companies.

RobecoSAM Panel Supersector Leaders: 18 figures available;
- Total waste production – tonnes: average 273,607.0; minimum value 106.0 (Telenet, Belgian company operating in the media sector); maximum value 1,495,500.0 (UPM, Finnish company operating in the forestry and paper manufacturing sector).
- Pro capita waste production – tonnes: average 14.8; minimum value 0.1 (Telenet, Belgian company operating in the media sector); maximum value 93.8 (GPT Group, Australian real estate company).

Compared to worldwide sustainability best practices, Terna is well below average for waste production. The figure is strongly influenced by the extreme variety of the sectors considered, some of which produce large quantities of waste.
The extreme variability of the company figures makes a graphic representation of little significance; the table shows the minimum, average and maximum values and the standard deviation in the three panels considered.

Production of waste -2011

	TSO		FTSE-MIB		RobecoSAM – Supersector Leaders	
	t	t/employee	t	t/employee	t	t/employee
Average	222,711.8	12.3	691,932.9	12.1	273,607.0	14.8
Max	1,880,000.0	73.3	11,639,212.0	154.4	1,495,500.0	93.8
Min	41.9	0.1	676.2	0.04	106.0	0.1
Standard deviation	523,264.1	20.6	2,375,283.4	33.5	388,056.0	27.3
Terna	7,198.1	2.1	7,198.1	2.1	7,198.1	2.1

Wherever not directly available the pro capita waste production figure was obtained by dividing the total amount of waste produced by the number of employees.
For further information on how the panels are composed and in general on comparisons with other companies, see the Methodological note, page 15.

Disposal of equipment containing oils with PCBs

EN1

Polychlorinated biphenyls (PCBs) were used all over the world as insulators in transformers and other electronic equipment, because they were a good alternative to inflammable mineral oils. However, studies subsequently showed that PCB is extraordinarily bio-resistant and can thus have dangerous effects on living organisms.
Italian Legislative Decree 209/99, the CEI 10-38 standard, the Ministry of the Environment Guidelines and Community Law 62/05 introduced an obligation to declare the quantity of oils contaminated by PCBs possessed, and established the methods and times for disposal.
In compliance with this rule, Terna implemented a disposal programme, setting itself objectives in advance of the legal deadlines. Already and since 2009, there are no longer devices containing oils with PCBs at more than 500 ppm; for oils contaminated by PCBs with concentrations equal to or less than 500 ppm and more than 50 ppm the plan envisaged a reduction in the quantity to less than 20,000 kg for 2010. The result obtained (11,766 kg), is an improvement over the target and in practice completes the accelerated disposal programme. In 2011 and 2012 there were further reductions in the amounts present in Terna's equipment. Residual oil is present in small quantities in a large number of devices, which will be used until the end of their useful lives, as permitted by the law, owing to the excessive cost of replacing them in advance.

DISPOSAL OF EQUIPMENT CONTAINING OILS WITH PCBS

	kg of oil		
	2012	2011	2010 [1]
PCB concentration			
PCB > 500 ppm	0	0	0
50 ppm < PCB < 500 ppm	3,810	7,616	11,766

[1] The figure (8,266 kg) published in the 2010 Sustainability Report was corrected with the figure shown in the table (11,766) on the basis of evidence that emerged after publication.

Environmental costs

EN30

Terna's commitment to the environment is reflected in the costs incurred for environmental reasons, both as investment and as operating expenses. Environmental costs were shown separately on the basis of the definitions presented below, by aggregating information deducible from the company's general and industrial accounting. In 2012 these definitions and the methodology described below became an operating guideline for the Terna Group.

Recording methods

Environmental costs are first identified on the basis of available definitions, in particular those of the ISTAT (the National Statistical Institute), Eurostat and the GRI as well as on the European Commission's recommendation on the recognition, measurement and disclosure of environmental issues in annual accounts and annual reports (Recommendation 2001/453/EC). On the basis of this recommendation "the term 'environmental expenditure' includes the cost of steps taken by an organisation or on its behalf by others, to prevent, reduce or repair damage to the environment which results from its operating activities. These costs include, amongst others, the disposal and avoidance of waste, the protection of soil and of surface water and groundwater, the protection of clean air and climate, noise reduction, and the protection of biodiversity and landscape".
Secondly, the aforesaid definitions were applied to the environmental aspects considered significant (for example, station noise and electromagnetic fields) in the Company's ISO 14001-certified Environmental Management System to identify Terna's operating and investment activities with environmental significance in its main corporate processes.

Many of Terna's activities described in this Report entail environmental expenses. However, several limitations were introduced in determining the reporting boundary:

- exclusion of integrated costs, i.e. regarding activities whose purpose is not exclusively environmental (for example, the use of pylons with features that are innovative also from the point of view of their environmental integration) because of the subjectivity of accounting only for the environmental components;
- exclusion of additional costs connected with the consideration of restrictions or requests for safeguarding of the environment during the stage of planning and designing new lines (detours, burials).

Other conditions were that the costs had to be a) significant, b) consistent with the annual reporting of accounts (operating costs and investment clearly distinguished), and c) directly recognizable on the basis of the existing corporate accounting system. This last condition fulfils the need to minimize recourse to estimates based on off-the-books analysis.

Environmental costs

In the light of the above, the following table constitutes the best possible representation of the costs incurred by Terna for the environment.

These costs exclude expenses regarding internal resources and consider only expenses for external purchases. An exception is the "Environmental activities – existing plants" item, which includes the costs of internal personnel.

In accordance with the method adopted and the footnotes to the table, it should be noted that the environmental costs shown are a subset of the total environmental costs, as defined above, actually incurred.

ENVIRONMENTAL COSTS - INVESTMENT AND OPERATING COSTS - MILLIONS OF EURO

	2012	2011	2010
Investments			
Environmental offsets	4.1	1.1	10.3
Environmental impact studies	1.3	1.4	1.5
Environmental activities – new plants	6.0	4.2	4.0
Environmental activities – existing plants	9.6	14.2	15.7
Demolitions	2.4	2.8	5.8
Total investments	**23.4**	**23.8**	**37.4**
Costs			
Costs for environmental activities	15.1	10.3	9.7
Total operating costs	**15.1**	**10.3**	**9.7**

Environmental Offsets: these are amounts for offsetting the works set out in the Grid Development Plan, as determined by special agreements entered into with local institutions. Up to 2011, the amounts were recorded as investments at the time when the commitment was made, i.e. when the agreement was signed, regardless of the time of outlay/supply. In 2012, the method of accounting for the amount was changed and the figure refers to the portion actually disbursed in the year. The values relative to 2011-2010 were recalculated in accordance with the new method of accounting described and so because of this they differ from what was published previously.

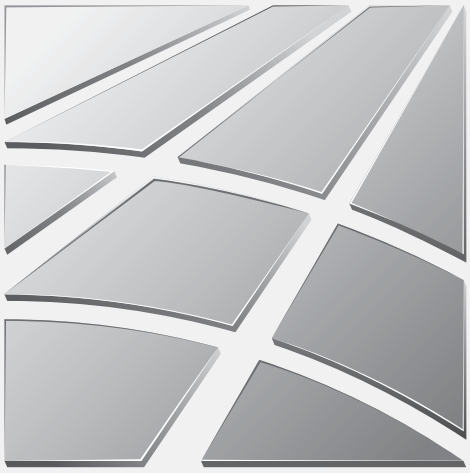
Environmental impact studies: these relate to plants provided for in the Grid Development Plan that are in the construction stage or in the process of being authorized by the relevant administrations.

Environmental activities – new plants: the amount shown is the result of an estimate. On the basis of an analysis of several large investment projects, it turned out that at least 1% of the total expenses of the project regard environmental items, usually determined by obligations (for example, masking with trees, barriers against noise, installation of dissuaders for birdlife, environmental monitoring, analysis of excavated earth and rocks). Therefore, a value of 1% of 2010-2012 investment costs for projects with similar features was considered.

Environmental activities – existing plants: expenses for upgrading existing plants in accordance with provisions and new regulations in the environmental field (for example, noise, visual landscape aspects).

Demolitions: costs for the definitive dismantling of lines as part of rationalization projects. For 2012, only the amount regarding the most significant demolition (Santa Barbara - Tavarnuzze and Chignolo Po - Maleo) was reported, because determination of the amounts corresponding only to demolition activities requires off-the-books analysis. Costs for environmental activities: cutting trees, cutting grass, waste management and demolitions/dismantling for small amounts not included in investments. These cost items, which can be determined directly from industrial accounting, do not include all of the year's environmental costs, but represent the majority of them. The increase in 2012 was due to an expansion of the activities recognised, extended also to grass cutting at stations, which was not considered previously.

2012



Social responsibility

Terna

OUR PEOPLE

Our approach

Our people have the technical skills - distinctive, rare or unique in the electricity industry - which enable Terna to carry out its activities as well as possible, with high levels of professionalism and operating efficiency. Attention to improving of these skills is a fundamental element of Terna's management approach to human resources. A second element, just as significant, is its attention to occupational safety, which is important for its operating activities that are associated with particular risks, such as work at many metres above ground and maintenance work on live lines.
Over time, the importance of these aspects has led to an approach based on:

- **concern for safety** and the prevention of injuries to ensure the physical integrity of employees;
- the design of Management and Development Systems aimed at **improving performance and developing individual skills**;
- **investment in training**, ensuring the growth of the company and its employees;
- **remuneration and welfare policies** aimed at aligning individual performance with the Company's goals and providing economic security for employees and their families;
- a well-organized system of **industrial relations based on the involvement of Trade Unions** in numerous aspects of corporate life;
- listening to employees through surveys of their opinions.

Policies regarding employees are established by the Human Resource and Organization Department, while resource management is also entrusted to the heads of other departments. Aspects regarding safety are the responsibility of the corporate Safety Department.
As far as relations with employees and the unions are concerned, see the section on stakeholder engagement in addition to the following pages.

Changes and composition of personnel

LA1
LA2
LA13

In 2012 the Group's personnel fell in number compared with 2011, after two years of growth. This reduction is a reflection of few recruitments in comparison to greater leavings – meaning that employees leaving the Group were only partially replaced. At the end of 2012, the Italian companies of the Group totalled 3,433 employees, in addition to the 3 employees of the Montenegrin subsidiary Terna Crna Gora d.o.o. Unless explicitly indicated, these last employees are excluded from the data presented in this chapter.
Retirement is by far the most common reason for employees leaving, and is concentrated in the highest age bands. The turnover rate in terms of spontaneous resignations is always very low (0.3%; 0.5% in 2011; 1.2% in 2010): the total turnover rate, therefore, essentially reflects resignations owing to retirement. The average length of service of employees who left the company in 2012 was 32.8 years.

AVERAGE YEARS OF EMPLOYMENT FOR EMPLOYEES LEAVING THE COMPANY [1]	2012	2011	2010
Total terminations	**32.8**	**32.3**	**31.6**
Men	33.5	32.1	31.2
Women	22.0	34.4	37.2
Less than 30 years old	2.3	3.5	1.6
Between 30 and 50 years old	11.9	6.7	9.1
Over 50	35.6	35.1	34.1

[1] In the case of employees who joined Terna following acquisitions of business units, the length of employment takes into account their previous employment.

For the sake of completeness, it should be noted that during 2012 Terna made use of 31 temporary workers (compared with 34 in 2011 and 28 in 2010) – these were employees of agencies that provide a temporary employment service to Terna. Although they are not employees of the company, these 31 people were employed in Terna's business for a pre-determined period and are included in the GRI definition of "total workforce" in their capacity as "supervised workers". These employees are excluded from the data on personnel shown in the tables.
The decrease in temporary workers (from 4.1% to 1.5%) reflects the stabilisation of 114 employees who moved to a permanent position after having been previously employed under trial contracts that expired in 2012, after 18 months of professional training.

PERSONNEL CHANGES	2012	2011	2010
Total employees	**3,433**	**3,493**	**3,468**
Employees recruited during the year	45	176	178
Employees leaving during the year	105	151	157
- men	99	139	147
- women	6	12	10
- less than 30 years old	3	2	7
- between 30 and 50 years old	9	13	7
- over 50	93	136	143
Turnover rate on termination (%) [1]			
Total	**3.0**	**4.4**	**4.6**
Men	2.8	4.0	4.3
Women	0.2	0.4	0.3
Less than 30 years old	0.1	0.1	0.2
Between 30 and 50 years old	0.3	0.4	0.2
Over 50	2.7	3.9	4.2

[1] The turnover rates report the percentage of terminations with respect to the number of employees as of December 31 of the previous year.

PERSONNEL COMPOSITION	2012	2011	2010
Total employees	**3,433**	**3,493**	**3,468**
By contract type			
- permanent	3,383	3,350	3,361
- temporary	50	143	107
By employment type			
- full-time	3,401	3,463	3,438
- part-time	32	30	30
By gender			
- men	3,041	3,105	3,095
- women	392	388	373
By age			
- less than 30 years old	464	522	472
- between 30 and 50 years old	1,487	1,496	1,494
- over 50	1,482	1,475	1,502
Average age of personnel (years)			
Average age	45.7	45.2	45.6

To facilitate the interpretation of several indicators regarding personnel composition, the following table breaks down the employees of the Terna Group by professional category.

PERSONNEL COMPOSITION BY CATEGORY	2012	2011	2010
Total	**3,433**	**3,493**	**3,468**
Senior executives	59	60	59
Junior executives	502	490	502
White-collar workers	1,925	1,966	1,890
Blue-collar workers	947	977	1,017

Personnel turnover: comparative data

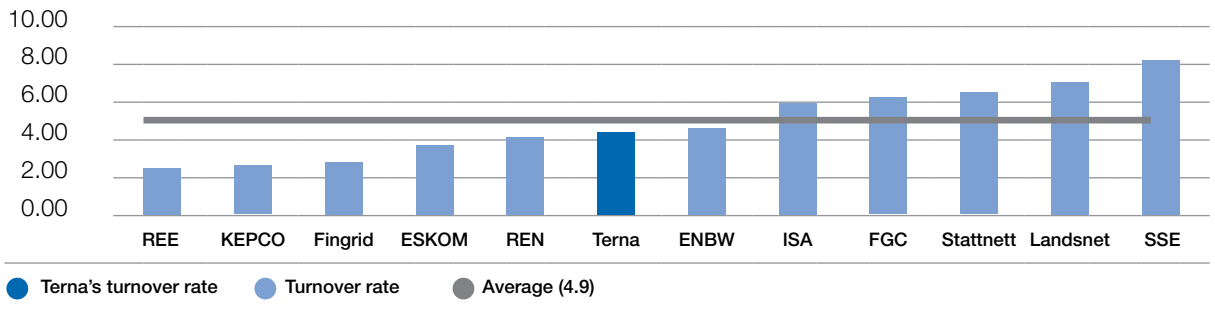
The comparison between Terna and other companies with regard to staff turnover was used a rate calculated by comparing the number of employees leaving to the number of employees at 31 December the previous year.
As the staff turnover rate is an indirect indicator of the internal climate that affects every division of the company, the figures for transmission companies (TSO panel) and those of large companies listed on the Italian stock exchange (FTSE-MIB) were taken into account, as well as those for international leaders in sustainability (RobecoSAM - Supersector Leaders).
For 2012 Terna had a turnover rate of 3.0%, a reduction compared to the 4.4% of 2011, the year for which comparison data was available. **Compared to other companies, Terna has a lower turnover rate than the average for all the reference panels.**

TSO panel: 12 figures available; average turnover rate: 4.9%; minimum value: 2.5%; maximum value: 8.2%; standard deviation: 1.9%. In this comparison, Terna is better than average, with the lowest value compared to the other panels, influenced by four companies with a rate of less than 4%.

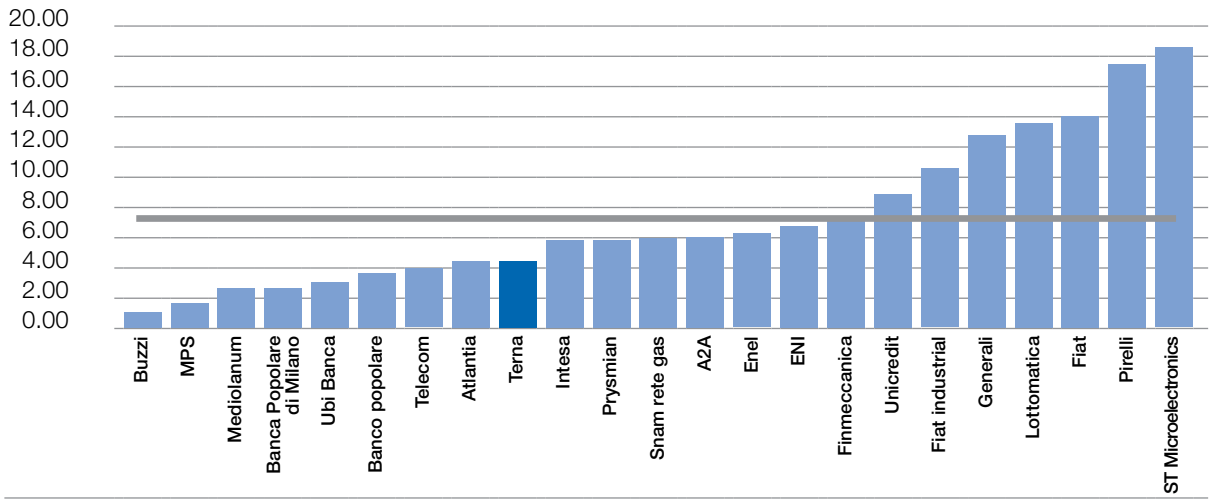
FTSE-MIB panel: 23 figures available; average turnover rate: 7.2%; minimum value: 1.0%; maximum value: 18.5%; standard deviation: 4.9%. Terna is better than average for the FTSE-MIB panel of companies.

RobecoSAM - Supersector Leaders panel: 14 figures available; average turnover rate: 10.5%; minimum value: 2.2%; maximum value: 18.4%; standard deviation: 4.7%.
Even compared to the best global sustainability practices, Terna has a low turnover rate.

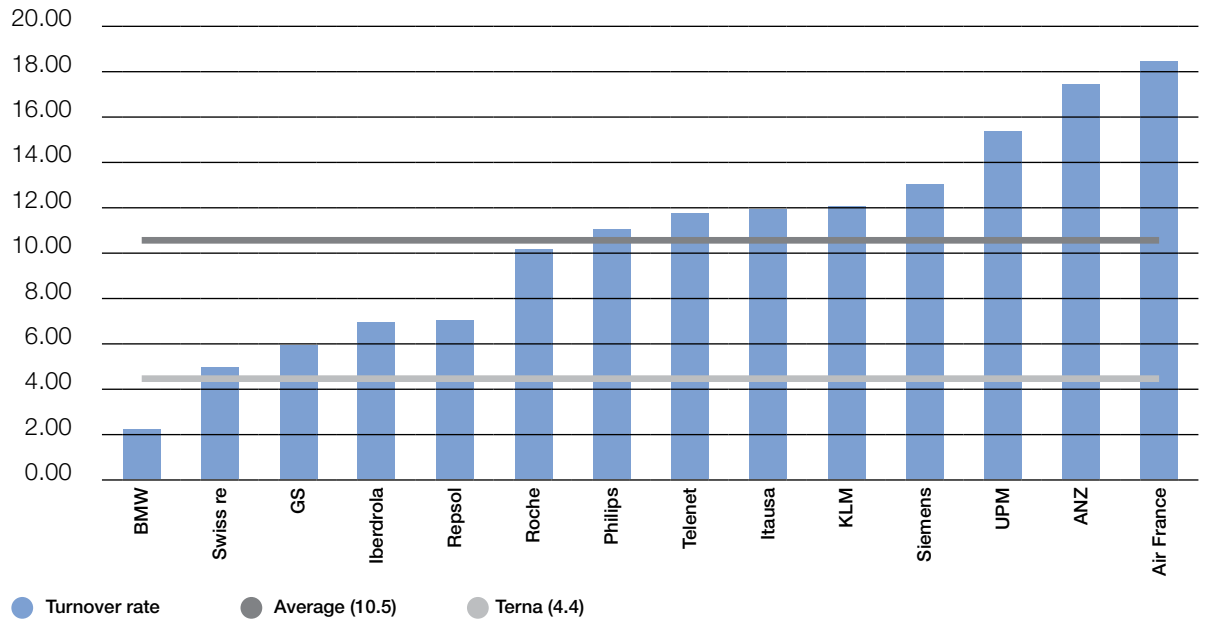
TSO TURNOVER RATE



FTSE-MIB TURNOVER RATE



ROBECOSAM - SUPER SECTOR LEADERS TURNOVER RATE



For more details about how the panels are constructed, and on the comparisons with other companies, please refer to the Notes on page 15.

Days worked in 2012 by employees engaged by contractor companies for work done on behalf of Terna were 419,543, equivalent to 1,907 full-time employees *(FTE - Full Time Equivalent)* working all over the country (mainly constructing electricity lines and stations). This data takes into account the term of the construction contracts and the variability of use of the workforce within them and relate to all Terna's work contracts, from large construction sites to cutting trees under power lines. The days worked and the FTEs are estimated starting from the average and daily presences at the largest construction sites and from the amounts paid for contract work on smaller sites. No further information is available on the types of contracts used by contractors.

EU17

EMPLOYEES OF CONTRACTORS AND SUBCONTRACTORS	2012	2011	2010
Days worked	419,543	456,807	434,044
Full-time equivalent	1,907	2,076	1,973

The management of generational turnover

EU15

The new Italian legislation regarding retirement (Art. 24 of Italian Law No. 214/2011), which raised the age and years of contribution requisites necessary to gain the right to a pension, reduced the "catchment area" of potential retirees for Terna. A summary table of potential retirees in the period 2012-2017 is shown below. The total of 508 people can be broken down as follows:

People who had gained the right to a pension under the old legislation at 31.12.2011		**115**
of which:	senior executives, junior executives and white-collar workers	88
	blue-collar workers	27
People who will gain the right to a pension under the new legislation		**393**
of which:	senior executives, junior executives and white-collar workers	228
	blue-collar workers	165

It should be noted that the probability of effective retirement in the five years considered is very high only for the first group of employees, for whom the reform guaranteed application of the previous requisites. On the other hand, for members of the second group, we expect more recourse to the possibility of opting to continue in employment and thus gain a higher pension. As regards expected retirements in the ten years 2012-2021, it should be remembered that the new legislation established that a mechanism related to "life expectancy" is to be periodically applied to the age requirements set out for access to the different retirement options. This is aimed at balancing pension fund management over the medium/long term. Consequently, at present it is not possible to reliably predict retirements over the decade.
Some time ago Terna began a series of initiatives to manage generational turnover. Among the most significant are:

- the transmission of knowledge and experience, often specific exclusively to Terna, by expanding the organisation of training courses taught by in-house personnel;
- professional orientation projects aimed at creating and transmitting technical and managerial skills enabling adequate performance of critical roles.

It should finally be considered that the entry of new, more highly-educated resources will make it possible to carry out the same activities as today more efficiently.

EU14 Search and selection

The search-and-selection process aims to ensure the Company the expertise it needs to achieve its objectives.
The personnel recruited from the external labour market are mainly university graduates – in particular engineers - and students with diplomas from professional secondary schools, most with an electrical specialization obtained upon concluding their studies. Once employed, the new recruits expand their knowledge and the necessary specific skills through dedicated introductory training courses.

Over time, the generational turnover the Company is experiencing, and its hiring policies, will lead to a decrease in the average age and an increase in the educational qualifications of the corporate population.

PERSONNEL COMPOSITION BY SCHOOLING

Percentage of employees	2012	2011	2010
University degree	22.2	21.6	19.2
High school diploma	46.8	46.6	46.5
Vocational school diploma	15.9	15.8	16.2
Elementary/Middle school	15.2	16.0	18.2

The process of searching for and selecting personnel is managed by the Human Resources and Organization Department, which also handles relations with schools, universities and employment agencies.
The preferred channel through which applicants are found is the ***Working at Terna*** **section of the corporate website**; to search for special profiles the company uses alternative channels, including announcements in newspapers or on websites. The methods and instruments used in the selection process differ based on the job profile (recent graduates, junior, middle/expert, senior), and the number of resources sought.
In line with the Company's policy of transparency and fairness in its relations with stakeholders, at the end of the **selection process** Terna always informs all participating applicants of the results, whether positive or negative.
Terna is expanding its relations with the world of universities, post-graduate training, and institutional training in general, to support the process of finding new resources and to create a virtuous circle of communication between the Company and the outside world.
In 2012, existing agreements with leading Italian universities and business schools (framework agreements valid for all faculties and masters degrees of a university, or agreements with single departments/faculties), went up from 27 to 30.
Seven masters degrees, promoted by universities, business schools or excellence centres, received a financial contribution and the chance for their students to do project work in 2012.

In addition, during the year, Terna's personnel taught university courses, masters degrees promoted by nationally recognised entities and at corporate universities sponsored by industry companies, for a total of 31 courses (for approximately 100 hours of teaching).
11 technical visits were also organized to electricity stations or to Terna's offices across Italy, 10 of which were for Universities/Masters, and 1 by a Technical Institute; a total of 450 visitors were welcomed to our locations.
In the context of the cooperative relationships defined by the agreements, 37 interns, trainees, and students writing their theses were hosted (38 in 2011, 34 in 2010); adding the 14 who completed the experience which had begun the previous year, in 2012, 51 young people were given the possibility of direct contact and training in the world of work. Some of them were subsequently admitted to selection processes and recruited.
The company participated in 13 career days (14 in 2011, 8 in 2010), confirming a clearly upward trend compared with the previous years. Finally the corporate profile was published in two of the most widely-read and distributed guides on the world of work.

Training

EU14

Training at Terna continuously embraces all aspects of professional life. It is aimed at creating value for people by increasing and diversifying skills and employability and creating value for the company – through the development of human capital in line with the mission and the business strategy.
The transfer of specialist know-how is ensured by a training model based on the willingness of the most expert human resources to serve as planners and teachers in the internal Campus Faculty, while also facilitating the development of a sense of belonging and integration within the company. Collaborations with universities, business schools and, more generally, with external centres of excellence, ensure the spread of corporate know-how in combination with stimulation arriving from the outside world.
Terna's training model prioritizes active methodologies in classroom training and uses on-the-job training to support the processes of introduction into the company or into roles with high professional content (e.g. workers on real-time control shifts). E-learning is used in wide-spread campaigns for the transfer of specific knowledge and information and may supplement or replace classroom learning.
Training activities are subject to systematic assessment of results. The tools used range from appreciation questionnaires to tests to ascertain the learning achieved. Periodically (the 2012 assessment is in progress, following the one done for 2010) a survey is carried out among all managers to verify the level of perceived effectiveness of the training initiatives for that year (correspondence with needs, quality, contribution given to the development of resources, etc.).
In June 2012 the new Campus headquarters was inaugurated; it will host the majority of training courses. The new campus has a staff room and 8 classrooms - including a 70-seat lecture theatre equipped with the best training technology - and makes it possible to train up to 200 employees simultaneously.
Training initiatives are categorized by subject area:

- **Context & Business Model** to increase knowledge about the internal and external business context in which Terna works and promote development of the corporate identity;
- ***Education,*** for managerial and personnel development;
- **Training,** to develop of technical and professional skills and acquire transversal skills (for example foreign languages, Office Automation);
- **Courses**, brief mid- and long-term training processes, devoted to specific targeted employees and made up of a mix of initiatives belonging to the three previous subject areas. They are designed for new recruits and in-service employees in homogenous professional categories (e.g. shift workers in the control room).

LA10

PERSONNEL TRAINING	2012	2011	2010
Average training hours			
By employee	41	51	49
By category			
Senior executives	12	19	27
Junior executives	25	30	40
White-collar workers	39	55	47
Blue-collar workers	55	55	58
By gender			
Men	44	51	0
Women	25	44	0
% coverage of employees [1]	86	97	96
Hours provided			
Total	**143,418**	**178,734**	**171,146**
- hours of internal teaching	86,227	132,190	n.a.
Hours of training by type of course			
Education	17,707	21,664	22,915
Context and Business Model	6,352	31,919	29,928
Training	119,359	125,151	118,303
Method of provision			
% of classroom training	99	98	97
% of on-line training	1	2	3

(1) Percentage of employees who took at least one training course.

The drop of approximately 35,000 hours provided with respect to 2011 should not be viewed as a decrease in the corporate focus on training, but as the reflection of a transition phase. Firstly, the decrease in the hours provided as part of courses for new recruits (down from 49,282 hours in 2011 to 14,744 hours) affected the result, while also influencing several other indicators. In fact, during the year there was a lower flow of newly-recruited university and high-school graduates. New employees were also concentrated at the end of the year, meaning that their training will occur in 2013. A second factor which contributed to the temporary drop in the hours provided, in particular with reference to executives and middle managers, is attributable to events of an organizational nature. During the first quarter the change in the Group's structure and, subsequently, the launch of the Terna Rete Italia reorganization project in the second half of the year , required an extraordinary commitments from the managers and it was held advisable to postpone to 2013 a number of training project devoted to them. Lastly, the aforementioned transfer of training activities during the year to the new Campus also had a partial effect.

In brief, in 2012, 86% of the staff attended at least one course for a total of 143,418 hours of training provided; 99% of which in classrooms. Hours per head were 41.

As regards the Context & Business Model section, 6,352 hours were provided (compared with more than 31,919 in 2011). These were for activities for new recruits and for completion of the Information Security training campaign. The usual initiatives devoted to the electricity market and the 231 Model were postponed to 2013, owing to the need to update their contents due to legislative changes.

On the subject of Education (17,707 hours were provided; a slight drop compared with 21,664 in 2011), the training event on business innovation and development launched in 2011 with Fondirigenti financing was completed. At the end of the year a significant plan of activities was presented for Fondimpresa financing. Launched in December, it will continue until November 2013. Two training plans which will be implemented starting in January 2013 were also presented to Fondirigenti.

The Training context, which is central owing to the technical nature of Terna's business, remained substantially stable with 119,359 hours provided compared with 125,151 hours provided in 2011. Within this, the Safety section recorded 41,137 hours, down owing to the lower number of new recruits and to the absence of widespread campaigns such as those organized in the last few years after significant legislative changes. At the end of the year a significant plan of activities was presented for Fondimpresa financing. Launched in December, it will continue until November 2013.

Training for employees: comparative data

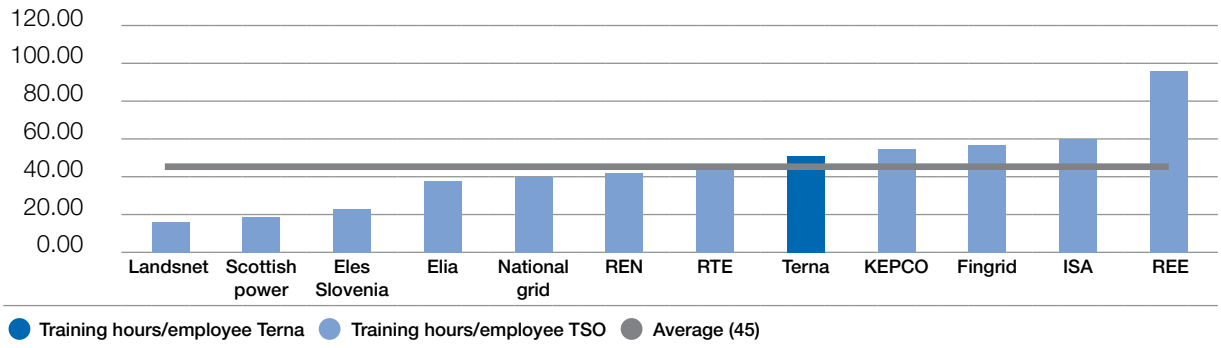
The comparison between Terna and other companies with regard to training was made by using the annual per capita training hours as a basis.
As the staff turnover rate is an aspect of sustainability that affects every division of the company, the figures for transmission companies (TSO panel) and those of large companies listed on the Italian stock exchange (FTSE-MIB) were taken into account, as well as those for international leaders in sustainability (RobecoSAM - Supersector Leaders).
In 2012, Terna delivered 41 hours of training per capita, a reduction compared to the 51 hours in 2011 (please see page 142 for an explanation).
Compared to other companies, Terna was in first place for all three reference panels.

TSO panel: 12 figures available; average hours per capita: 45.2; minimum value: 15.6; maximum value: 96.0; standard deviation: 21.8. In this comparison, Terna is above the average rate.

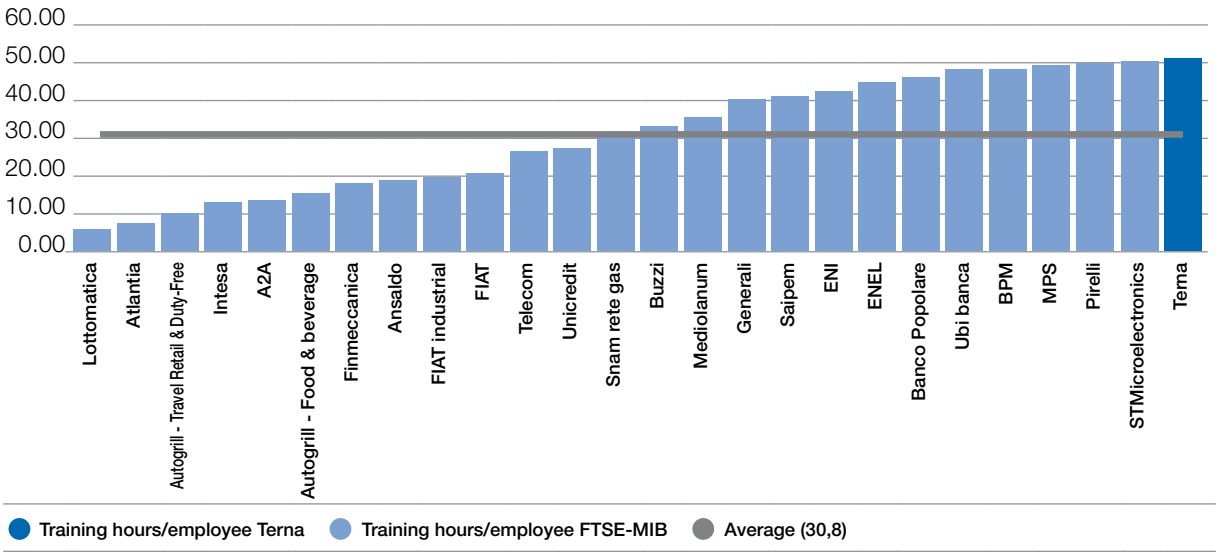
FTSE-MIB panel: 26 available figures (25 companies, one of which, Autogrill, has figures diversified by industrial sector), average hours per capita: 30.8; minimum value: 5.6; maximum value: 51.0; standard deviation: 15.4. Terna is in the top position for large Italian companies.

RobecoSAM - Supersector Leaders panel: 16 figures available; average hours per capita: 42.0; minimum value: 3.9; maximum value: 158.0; standard deviation: 39.0. Even with regard to the global best practices in sustainability, Terna is in the top position in terms of the quantity of training provided per employee.

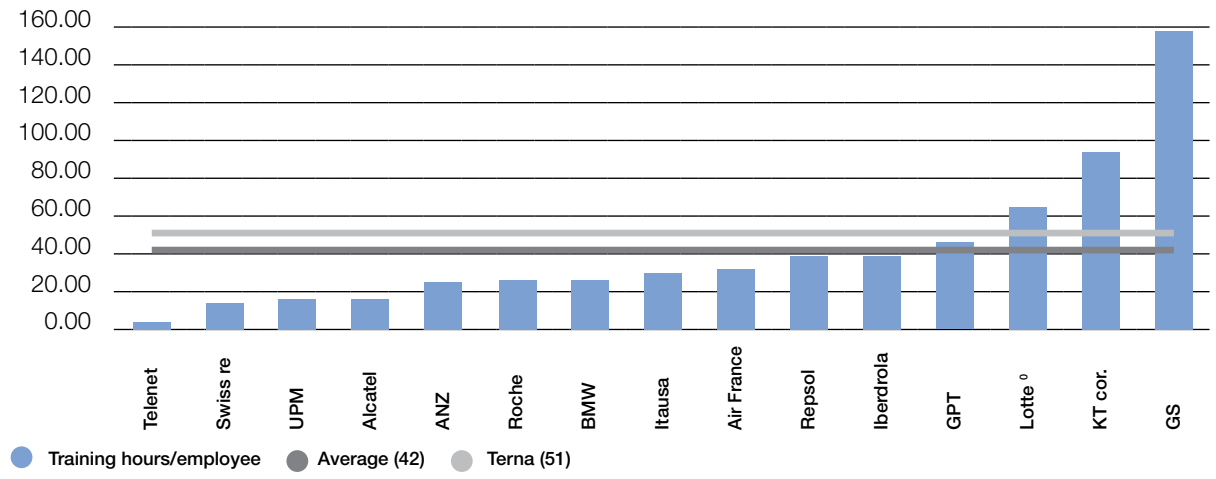
TRAINING HOURS/TSO EMPLOYEE



TRAINING HOURS/FTSE-MIB EMPLOYEE



TRAINING HOURS/ROBECOSAM - SUPERSECTOR LEADERS EMPLOYEE



Training hours were calculated on the basis of other published data. The transition from per capita training days two hours was made by assuming eight hours in a day.
For more details about how the panels are constructed, and on the comparisons with other companies, please refer to the Notes on page 15.

Personnel development and management

Terna's system for developing and managing human resources is based on performance as an indicator to orient growth. The heart of the system is the **Global Performance System (GPS)**, which is based on a definition of performance that includes two aspects: the first is the concrete achievement of pre-set targets, the second regards organized conduct put into practice to achieve those targets. Targets, conduct, assessments and feedback are collected in a software tool accessible to all personnel involved, which guarantees traceability over time. Annual repetition of the performance assessment cycle makes it possible to monitor and direct personal growth. Application of the GPS currently involves a group of employees with managerial and professional responsibilities: all senior executives, all junior executives (excluding the shift managers of the real-time network) and some white-collar workers.

LA12 In 2012 there were 754 employees involved, approximately 22% of the corporate total (38% of female personnel and 20% of male personnel). This number is destined to include new population targets with the aim of increasing transparency and communication in the manager-employee relationship.

For manual workers and other employees not included in the GPS other forms of assessment are applied, such as periodic discussions between managers and HR representatives. This is also because the requisites of the positions held and the professional growth paths are more strictly determined by clauses in the collective employment contract.

Measurement of performance is also related to payment of the variable parts of remuneration. For senior executives who perform the most significant duties in terms of achieving strategic results, a 2011-2013 "cash" **long-term incentive (LTI)** plan, linked to multi-year corporate targets, was established. For junior executives who hold key roles in the company, a "Fidelity bonus" has been created.

Annual performance targets are the basis of other variable remuneration schemes. **MBO** *(Management By Objectives),* which is reserved for the corporate Management, links the amount of individual bonuses to the degree that targets are achieved, both at the corporate and at the individual level. The monitoring and control of corporate activities also makes use of the **Balanced Scorecard** system, through which the achievement of targets linked to the Strategic Plan – including sustainability objectives – is assessed every quarter. The Balanced Scorecard system is linked to the MBO, connecting the sustainability targets to the variable remuneration system for executives.

Recognizing the importance of widespread employee involvement in the implementation of programs and plans regarding quality and productivity, Terna signed an agreement with the trade unions that regulates **a corporate-result bonus to encourage labour productivity** (see also the section on Industrial Relations).

The bonus involves a variable element of remuneration and consists of two parts:
- "corporate profitability" - linked to the Company's general performance and paid to most employees generally, with the exception of senior executives;
- "incentives for productivity/quality" - linked to the achievement of specific quality and productivity objectives connected with the employees' work and paid to blue- and white-collar workers.

As at other large electricity companies, the treatment of employees at Terna (pay, working hours, holidays and other aspects of employment) is substantially better than the Italian average.

In particular, the following benefits are provided to most employees: LA3
- supplementary health care;
- supplementary pensions (voluntary participation);
- insurance for non-occupational injuries;
- recreational associations;
- more favourable maternity-leave conditions than those provided for by the law;
- subsidized loans for purchasing a home, as well as for serious family problems;
- cafeteria service or meal coupons.

These benefits are available to all employees once they have finished their trial period. Part-time employees and those with beginner contracts are also included. Insurance coverage for occupational injuries is regulated by law and is extended to all employees. Terna has established better conditions for specific categories.

Furthermore, Terna's employees (excluding senior executives who have access to a different fund) are automatically enrolled in the **supplementary health-care fund FISDE** (Supplementary Health-care Fund for Employees of the Enel Group). FISDE organizes prevention campaigns for its members including preventive examinations and sessions providing information on major health risks. Among the topics of the information and prevention campaigns have been: smoking, alcohol, cancer, cardiovascular illnesses, ophthalmological illnesses, and disabilities. LA8

FISDE pays part of the cost of medical treatment for illnesses not only for its employee members, but also for the dependent members of their families.

Beneficiaries	Information on and prevention of risks	Treatment
Workers	Yes	Yes
Families of workers	No	Yes

Caring for children and family members

LA15

Italian law regulates the matter of maternity and parental leave, providing for a general coverage, with respect to which Terna offers more favourable conditions, in application both of the National Collective Employment Contract for the electricity industry and of company agreements. The most important measures are:
- 5 months of paid leave for maternity, paid to the mother and distributed before and after the birth. Terna guarantees 100% of normal pay compared with the 80% provided for by law;
- 6 further months of maternity leave paid at 30%. Terna raises this amount respectively to 45% and to 40% in the first and second month of use. The leave may be taken also by the father, within a maximum limit of 10 months for the sum of both parents' leave. If not used in the first year of the child's life, the leave can be used also later, up to the age of 8 years, but is unpaid;
- unpaid leave (paid only in the case of serious disability), without limits on use, in the case of illness of children under the age of 4;
- 3 days a month, or 2 hours a day, of leave to care for children or other family members, paid in the case of serious disability;
- extraordinary leave of 2 years in the case of serious disability of children or other close relations.

The table below shows the number of employees who made use of parental leave for at least 29 days.

NUMBER OF EMPLOYEES WHO MADE USE OF PARENTAL LEAVE	2012	2011
Total	**25**	**23**
- of whom women	21	18
- of whom men	4	5

Of the 23 employees who made use of the leave in 2011, 22 were still in service at the end of 2012 (96% of the total); one employee resigned in 2012. The processing of this information began with reference to 2011; information is therefore only available for 2012 on the number of employees in service 12 months after returning. However, a check on employees who left in 2011 reveals that, in the absence of dismissals, none of those who resigned and left had taken parental leave in 2010.

LA13 Diversity and equal opportunities

LA14

Terna adopts systems for selecting, developing, and paying personnel that recognize and reward merit and performance. All forms of discrimination, beginning with the selection and hiring process, are explicitly forbidden by the Group's Code of Ethics.

A large majority of employees are men, because of the traditional scarcity of the supply of female labour in more technical occupations. However, the presence of women is increasing, partly as a reflection of the general trend of the labour market and the greater participation of women in the labour force.

The percentage of female employees at Terna in Italy was 9.0% at the end of 2005 (the year in which Terna gained operating autonomy) and **has grown continually to 11.4% at the end of 2012**. The increase also regarded the most qualified, highest-responsibility positions: between 2010 and 2012, the percentage of women in managerial positions (senior executives and junior executives) rose from 16.8% to 17.3% of all managers.

During 2012, **31.3% of all newly hired employees** – net of manual workers – **were female**, a higher percentage than that of women already employed at the Company, again excluding blue-collar workers.

Several favourable kinds of treatment prescribed by the law and provided for by the industry's collective employment agreement contribute to fostering the employment of women at Terna (also see the text on page 146 in this section).

EC7 The main indicators chosen by Terna to monitor the equal treatment of men and women show that the management systems adopted do not cause disadvantages for women. In particular, the percentage of women in managerial positions and promotions divided by gender (see the table below) are no different from those of men. The data on remuneration also show limited gaps for white-collar workers and junior executives, and more significant, but decreasing, gaps for senior executives.

Almost all employees are Italian (only 9 employees are foreign citizens). This figure – in the absence of specific corporate policies in this regard – shows that Terna is deeply rooted in the national economy. With reference to the presence of **personnel belonging to protected categories** (for example the disabled), the figure for 31 December 2012 was **131 people** (128 in 2011 and 116 in 2010). This figure is in line with the legislative provisions applicable to Terna (in particular Italian Ministerial Decree of 21 March 1996 and Italian Ministerial Decree of 15 May 2000), which foresee a gradual rise in the proportion of protected categories up to 7% (general legal obligation) by means of increasing the proportion of employees from protected categories in new recruits.

EQUAL OPPORTUNITIES FOR MEN AND WOMEN

Percentage values	2012	2011	2010
Women out of total employees			
Women out of total	11.4	11.1	10.8
Women out of total net of blue-collar workers	15.8	15.4	15.2
Female senior executives out of total senior executives	15.3	16.7	17.0
Female senior and junior executives out of total senior and junior executives	17.3	17.1	16.8
Employment growth % [1]			
Annual change: women	1.0	4.0	5.1
Annual change: men	(2.1)	0.3	0.1
Outflows %			
Outflows: women	1.6	3.2	2.8
Outflows: men	3.2	4.5	4.8
Inflows [1]			
Inflows: women	2.6	7.2	7.9
Inflows: men	1.1	4.8	4.9
Managerial positions %			
Female senior executives out of total women	2.3	2.6	2.7
Male senior executives out of total men (excluding blue-collar workers)	2.4	2.4	2.4
Grade promotions [2]			
Promotions to junior executive as % of previous grade: women	1.4	0.4	0.8
Promotion to junior executive as % of previous category: men	3.7	0.6	1.1
Salary gap women/men [3]			
Senior executives	79.2	79.6	78.0
Junior executives	94.5	93.7	92.6
White-collar workers	94.0	93.9	93.9
Salary gap women/men % [4]			
Senior executives	76.6	75.5	n.a.
Junior executives	97.5	96.9	n.a.
White-collar workers	89.9	90.2	n.a.

(1) The outflows (inflows) for women and men show the ratio of employees divided by gender who left (joined) in the year to total employees divided by gender at December 31, of the previous year.

(2) The figure is obtained from the ratio between promotions to junior executive that occurred during the year and employees categorized as white-collar workers in the previous year, calculated by gender. Promotions from blue-collar worker to white-collar worker and from junior executive to senior executive were not considered, because the number was not significant on an annual basis.

(3) The figure is the result of the ratio between the annual basic pay of men for the different grades and the annual basic pay of women for the same grades. The figure was not calculated for blue-collar workers, because there are no women in that category.

(4) The figure, calculated for the first time in 2011, is the result of the percentage ratio between the total annual remuneration of women for the different grades and the total annual remuneration of men for the same grades. The total remuneration includes, besides basic pay, production bonuses, the different types of incentives and the value of the benefits received over the year.

Finally, the following table shows the composition of Terna's 9-member Board of Directors, broken down by gender and age.

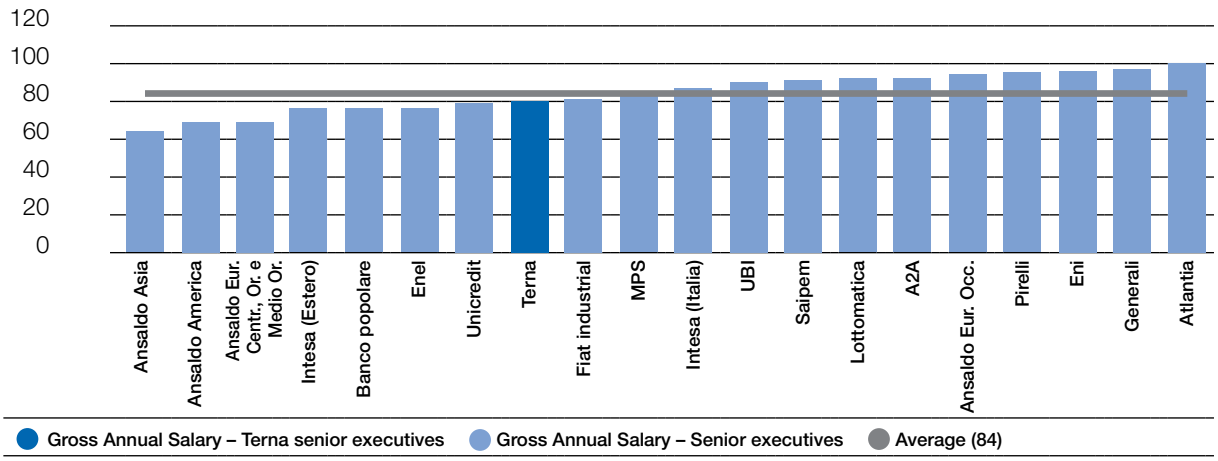
COMPOSITION OF THE BOARD OF DIRECTORS OF TERNA S.P.A.

Percentage values	2012	2011	2010
Men	100	100	100
Women	0	0	0
Less than 30 years old	0	0	0
Between 30 and 50 years old	33	33	44
Over 50 years old	67	67	56

Women/men remuneration gap: comparative data

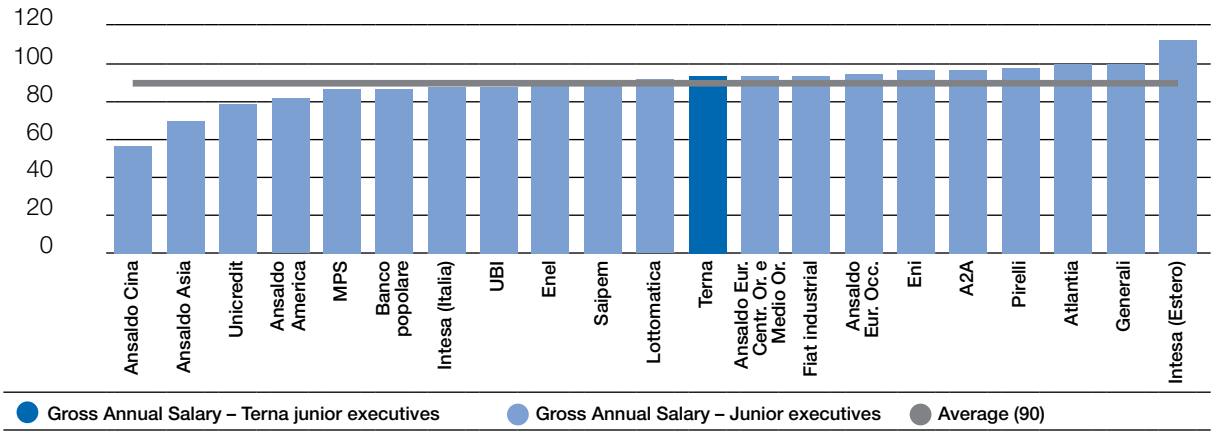
The comparison between Terna and the other companies in terms of equal opportunities is based on the percentage salary gap between men and women, the result of the ratio between women's and men's basic annual salary for the various categories.
Although the salary gap is an aspect of sustainability that affects all sectors of the company, it was only possible to make a comparison with the Italian companies quoted on the FTSE-MIB because, for those in the other two panels, workers are categorised differently depending on the company and country, and this does not translate into the categories of senior, and junior executives and clerical staff used by Terna and most other Italian companies.
The percentage differential between women's and men's salaries at Terna was 79% for senior executives, 94% for junior executives and 94% for clerical workers. In 2011, the comparison year, the differential for junior executives and clerical workers was the same as for 2012, while for senior executives it was 80%. In comparison to other Italian companies on the FTSE-MIB, Terna is above average in terms of the gender salary gap for junior executives and clerical workers.
FTSE-MIB panel: 21 figures available (15 companies, two of which have data diversified according to the country or area); average salary differential: 84% senior executives, 90% junior executives, 88% clerical workers; minimum value: 64% senior executives, 57% junior executives, 40% clerical workers; maximum value: 100% senior executives, 113.2% junior executives, 100.0% clerical workers; standard deviation: 11% senior executives, 12% junior executives, 13% clerical workers.
The cases of complete equality of average pay, by gender, of senior and junior executives and clerical workers that could derive from the reference to contractual minimums only, indicates a potential lack of conformity in the definition of the basic salary applied by various companies.

GENDER PAY GAP - FTSE-MIB SENIOR EXECUTIVES (1)

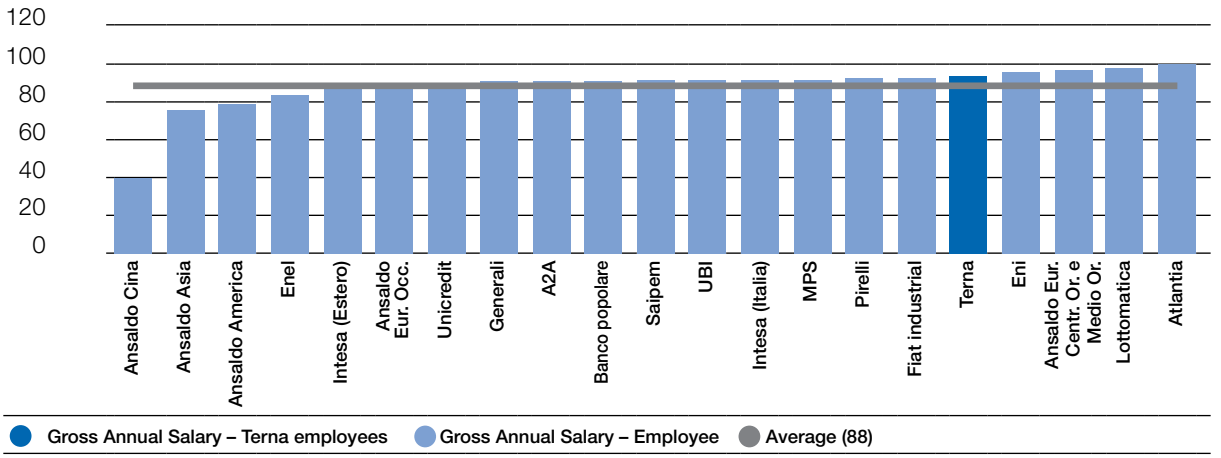


(1) For this table only, 19 figures were considered, as Ansaldo does not publish the value of the pay difference for senior executives in China.

GENDER PAY GAP - FTSE-MIB JUNIOR EXECUTIVES



GENDER PAY GAP - FTSE-MIB WHITE-COLLAR EMPLOYEES



Finally, in 2012, in line with the G3.1 version of the GRI protocol, some of the companies on the FTSE MIB panel also published data relating to the gender pay difference (for a definition of the pay difference and Terna's values please refer to page 147). With reference to 2011, a far lower volume of data was obtained for the salary gap compared to the figures referenced for the pay difference: this information was therefore not processed.

For more details about how the panels are constructed, and on the comparisons with other companies, please refer to the Notes on page 15.

Internal communication

Terna recognizes the fundamental role of internal communication in facilitating the exchange of information, creating integration, promoting teamwork, and improving processes. Internal communication is organized into two areas: that of tools – for example the corporate Intranet and the in-house publication "Terna News" – and events and special projects, with the annual We:Me convention, meetings between Top Management and Executives, and the CreativInTerna Competition. Among the initiatives in 2012, we can note:

Terna's new corporate structure
The launch of the new Group structure (April) was accompanied by a communication process aimed at all personnel. Managers were provided with materials to be used in the change, with the most important information.

Company Loyalty: celebrations for 25 and 35 years of service
In 2012, three years after the first edition, celebrations for those with 25 and 35 years of service in the company returned. The programme, which included dates in June and October, involved approximately 900 colleagues, invited together with a family member, to eight events organized in Terna's Operating Areas. All the events were attended by Chairperson Luigi Roth, the Human Resources and Organization Manager and the CEO of Terna Rete Italia, to pay homage, sometimes accompanied by managers, to colleagues who had reached this important milestone.

Fifth edition of the "CreativinTerna" internal photography and drawing competition
The new corporate framework launched in April 2012 provided the theme for the fifth edition of the "CreativInTerna" Art Competition: the employees and their children put themselves to the test on the subject "Teamwork". For the first time, at the suggestion of the employees themselves, a prize was introduced to be awarded through an on-line vote by colleagues. In five editions, CreativInTerna has accumulated almost 1,600 works, made up of photos and drawings. The winning images are reproduced in poster format and used in spaces at Terna's offices; in addition, every year the photos and drawings are used to make calendars or other objects distributed to employees at Christmas. Like past editions, CreativInTerna 2012 was again associated with a social partnership, this time the charity Intervita's "Frequenza 200" project, aimed at stopping adolescents from dropping out of school in the cities of Milan, Naples and Palermo.

We Transmit Energy: Terna for sport
In February 2012, through an initiative of the Padua Territorial Area, the first edition of SciInTerna was organized. This was a skiing competition in which more than 60 colleagues took part, together with a companion. SciInTerna will be held again in 2013.
In 2012 meetings of the Terna Running Team also continued. TRT is a corporate amateur running team that takes part in solidarity marathons such as the Komen Race for the Cure.

BiblioTerna (Terna Library)
BiblioTerna (the Terna library) was inaugurated at the headquarters in Viale Galbani: employees can donate books to be made available to everyone, thus facilitating sustainable reading. BiblioTerna, a bookshelf located inside the company cafeteria, has more than 200 books in stock. The initiative will be rolled out to other offices.

EU16

Occupational health and safety

Terna's commitment to safety should be seen in the context of the existing legislative prescriptions. The Italian law on the subject of safety (Italian Legislative Decree 81/2008 "Consolidated Act on Occupational Health and Safety") is one of the most stringent in Europe. The obligations for companies regard numerous themes: one of the most significant aspects is the obligation to carry out a detailed assessment of the risks relating to workers' health and safety. This assessment must concern the specific risks of each activity, the risk of work-related stress and, above all, an analysis of the risks deriving from the interference of work of contractors and subcontractors, for all operations that make up the work process at construction sites. The costs of eliminating or limiting the risks of interference are excluded from price competition in tender competitions.
In this context, Terna emphasizes the following points regarding occupational safety:

- **clear safety-policy guidelines:** the importance of protecting people from physical harm is affirmed in Terna's Code of Ethics. The Company's Occupational Safety Policy, which is an integral part of the integrated Quality, Environment and Safety Management System, specifies the guidelines of the Code of Ethics, for example with an explicit commitment to promoting accident prevention for all employees, including contractors;
- an **Environmental Safety & Security portal** found on the corporate Intranet and containing an up-to-date and complete **database of legislation** regarding occupational safety (national and regional regulations, technical standards issued by relevant entities);
- an **organizational unit responsible for safety** centrally coordinated and with local managers in the area offices and on construction sites. The unit also performs direct inspections of work places and construction sites;;
- an **OHSAS 18001-certified management system** (certification obtained in 2007, confirmed in 2010. Coverage: 100% of corporate activities). The system, which is integrated with that of service quality and the environment, is based on careful risk mapping. The management system consists of an organic and detailed collection of **Operating Procedures and Instructions**, with include greater details for activities that entail electrical risk (Rules for the Prevention of Electrical Risk - DPRET);
- **thorough supervision**: correct and full application of procedures is assured through inspections by the Safety, Prevention, and Protection Managers (twice a year for each, in the respective geographical areas of responsibility). I**nternal compliance audits** are carried out in all the Transmission Operating Areas. The **external audits** set up for confirmation of certification also contribute to increasing attention to the observance of rules of conduct and to safety issues, as do elected employees' representatives, responsible for verifying that the laws are applied (workers' safety representatives, see Indicator LA6);
- **thorough and ongoing information and training activities**: all personnel are made aware of the key points and of any changes on the subject of safety, through various channels including the corporate Intranet and the organization of informative meetings. Certain equipment present in the **Viverone (BI) training Centre** makes it possible, **in particular, to carry out safety training** for climbing pylons (through the use of natural-size pylons in the gym) and for live-wire work in a controlled environment;
- the insertion of **occupational safety performance targets** (in particular an "occupational safety index" made up of the injury rate and the lost-day rate) in the system of indicators linked to the variable remuneration of the Departments involved;
- **applied research**: a specific organizational unit of the Engineering Department experiments with safety materials and

devices, testing their reliability through resistance trials in extreme conditions;
- concern for safety conditions with regard to **contractors** that perform work on construction sites on behalf of Terna. Contracts to construct overhead power lines and electricity stations require a declaration that all personnel on the construction site have been informed about the risks and trained in the use of personal protective equipment. For several roles (e.g., workers assigned to the mounting and maintenance of lines, cutting vegetation, painting, construction-site and squad foremen, and safety managers) – Terna requires additional certification that they have received training (24-32 hours), designed in cooperation with certified training institutes.

Finally, during the supplier qualification process, Terna requires the existence of documented procedures that have been adopted to protect the health and safety of workers. In particular, companies in categories considered most significant with regard to safety and the environment must fill out a detailed questionnaire regarding specific organizational and procedural elements capable of ensuring good management practices in addition to compliance with all provisions of the law.

The main activities in 2012

Monitoring construction sites

In 2012, 35 inspections were carried out at the main construction sites, in continuation of the more than 100 carried out in the two previous years. The inspections, carried out with the assistance of a specialist external company, are attended by an inter-departmental working group which ensures know-how on safety, fraud management, the 231 model and the quality system. The purpose of these audits is to monitor all activities in general at the sites, making it possible to provide for any necessary corrective measures and improvements in a comprehensive manner.
Additionally, for some years Terna and ANIE (the National Federation of Electro-technical and Electronic Companies) have had a Working Group with the purpose of harmonizing and standardizing the safety rules at electricity construction sites. In particular in 2012 it completed the document "Organization of construction sites for the work of building, maintenance and demolition of HV power lines under the terms of Italian Legislative Decree 81/08". The document, which is awaiting confirmation of "good practice" on the part of the INAIL, is a summary of the experiences and issues, and the related technical solutions to be adopted, as seen by all companies in the industry, regarding the organization of safety at construction sites.
In 2012 the technical forums launched with the ANIE were also concerned with revising and updating:
- the document **"Methods of Climbing, Accessing, Moving, and Positioning on work at height"**, currently being completed;
- the **list of equipment and machinery** managed and required in the qualification stage necessary to perform work on the grid from 132 kV to 420 kV.

Training and information

In 2012 more than 40,000 hours of training were devoted to health and safety. The drop compared with 2011 was due on one hand to the completion of the training campaign on the DPRET (Rules for the Prevention of Electrical Risk), which had determined a peak of training hours in 2011, and on the other – as already indicated in this section - to the overall reduction in the number of new recruits joining the company.

HOURS OF TRAINING ON WORKERS' HEALTH AND SAFETY	2012	2011	2010
Total	**41,137**	**61,033**	**49,222**
Senior executives	0	206	175
Junior executives	1,908	2,536	3,897
White-collar workers	16,292	25,737	20,265
Blue-collar workers	22,937	32,554	24,885

Of particular significance among the training initiatives carried out during the year, was the training campaign on the subject of safety at construction sites.
Furthermore:
- the refresher activities provided for in TU81/08, (e.g. first aid, fire prevention) were completed;
- a training session was provided on safety issues which involved external project workers and temporary staff.

In 2012 the project **"Analysis of the context and identification of stimuli required to encourage safe conduct in the workplace"** was completed.

The initiative, which involved 320 colleagues, was an opportunity to collect ideas and suggestions in order to further improve practices and processes in the field of safety. The analysis, which concerned both the working context and the content of the work, revealed that employees are aware of the company's investment in safety values. The training, meetings and possibility to share results are positive experiences for employees.
The regional offices and the units involved received a report containing the analysis of data that emerged for their area and some suggestions for improvement.
In view of the results obtained, the objective is to continue with initiatives involving employees, making such initiatives a tool to support not only safety, but also the environment and service quality.
Finally, in 2012:

- The Group's OHSAS 18001 certification was confirmed;
- in compliance with the law, the Safety, Prevention, and Protection Managers and the Transmission Operating Area managers performed 157 inspections, and the company doctor made approximately 244 visits to work places.
- 25 internal audits were performed;
- periodical preventive medical examinations were also performed for atypical workers, as set out by Italian Legislative Decree 81/08.

LA7 Occupational injuries

As in the previous two years, in 2012 there were no fatal occupational injuries suffered by the Group's employees. The total number of injuries was in line with the previous years. The injury rate shows limited fluctuations over time, while the absentee rate confirms the falling trend. No hours of absence were ascribable to occupational disease because the type of activities carried out by Terna does not entail any work associated – on the basis of the official legal tables – with the possible onset of occupational diseases. Terna's occupational disease rate must therefore be considered always zero.
No fatal occupational injuries, nor cases of fatal or serious accidents occurred, even in previous years, for which in the three years considered corporate liability was definitively ascertained. In 2012 there were no accidents involving Terna's female employees.

OCCUPATIONAL INJURIES - TERNA EMPLOYEES

GRI-ILO DEFINITIONS[1]	2012	2011	2010
Injury Rate	1.77	1.67	1.74
Lost-Day Rate	63.0	46.4	65.0
Absentee Rate[2]	7,632.1	7,757.0	7,796.5
Occupational Disease Rate	0	0	0
Number of injuries	51	49	50
- of which serious	3	1	2
- of which fatal	0	0	0

(1) As required by the GRI protocols, the definitions adopted are those provided for by the International Labour Organization (ILO). To facilitate comparison with other sources, the following notes show the figures of the same indicators calculated with alternative formulae. It was not considered necessary to further break down the data by region, because Terna only operates in Italy.
Injury Rate. This is the number of injuries with at least one day's abstention from work divided by the number of hours worked during the year and multiplied by 200,000 (corresponding to 50 work weeks x 40 hours x 100 employees). To facilitate comparison with other sources, this indicator was also calculated using a multiplication factor of 1,000,000 instead of 200,000 (consequently obtaining an injury rate five times that of the ILO). With this calculation method, the injury rate came out at 8.8 in 2012, **8.3 in 2011, and 8.7 in 2010**.
Lost-Day Rate. This is the ratio between days not worked owing to injury and hours worked in the year, multiplied by 200,000. Days not worked are calendar days, counted starting from when the injury occurred. To facilitate comparison with other sources, this indicator was calculated using a multiplication factor of 1,000. With this calculation method, the lost-day rate came out at 0.3 in 2012, **0.2 in 2011, and 0.3 in 2010**.
Absentee Rate. This is the number of days of absence owing to illness, strikes and injuries out of the number of days worked in the same period, multiplied by 200,000. To facilitate comparison with other sources, this indicator was calculated as a percentage of days worked. With this calculation method, the absentee rate came out at 3.8 in 2012, **3.9 in 2011, and 3.9 in 2010**.
Occupational Disease Rate. This is the total number of cases of occupational disease divided by the hours worked in the year, multiplied by 200,000.
(2) The reasons for absence considered do not include maternity leave, marriage leave, study leave, leave for trade union activities, other cases of paid leave, and suspensions.

As shown in the table below, in 2012, 2 fatal accidents occurred among employees of contractors and subcontractors. These accidents occurred during tree cutting and demolition activities.

OCCUPATIONAL INJURIES OF CONTRACTORS AND SUBCONTRACTORS
GRI-ILO DEFINITIONS

	2012	2011	2010
Occupational injuries of contractors' employees	10	13	14
- of which serious	3	4	5
- of which fatal	2	0	0
Injury Rate [1]	0.63	0.75	0.85

[1] This is the number of injuries with at least one day's abstention from work divided by the number of hours worked during the year and multiplied by 200,000 (corresponding to 50 work weeks x 40 hours x 100 employees).
To facilitate comparison with other sources, this indicator was also calculated using a multiplication factor of 1,000,000 instead of 200,000 (consequently obtaining an injury rate five times that of the ILO). With this calculation method, the injury rate came out at **3.1 in 2012, 3.7 in 2011 and 4.2 in 2010**.

Industrial relations

Industrial relations between Terna and the trade unions that represent its employees take place at both the electricity-industry level and the Company level.

All Terna's employees[8] are covered by a **collective employment contract** adopted by the companies **in the electricity industry** (NCEC, in Italian CCNL – the National Collective Employment Contract for employees in the electricity industry). This industry-wide contract governs many aspects of employee pay and benefits, such as minimum pay for various professional grades, treatment of shift workers, holidays, overtime, supplementary health care, and supplementary pensions. Terna participates in establishing the industry's rules, because it is part of the employer delegation that negotiates the renewal of the contract with the Trade Unions. The current NCEC expired on December 31, 2012, and was renewed in February 2013. LA4

Relations with Trade Unions in the industry also give rise to the **regulation of indispensable tasks** that must be performed, **in the event of a strike**, to ensure continuity of service. At Terna, this issue is governed by the National Union Agreement signed in February 2013, which implements Italian Law No. 146 of June 12, 1990 regarding exercising the right to strike in essential public services and approved by the watchdog committee for the aforementioned law. HR5

As workers responsible for national transmission grid transmission and operating activities the following shift workers are exempted from strikes:

- operators responsible for real-time control of the national electricity system, for remote control of transmission plants, for verifying production plans and for acquiring the production resources necessary for the dispatching activity;
- workers with the task of carrying out the control, coordination and operation of computer systems, auxiliary services and infrastructures governing the dispatching of electricity nationwide;
- workers in the Security Operations Center.

As regards on-call personnel, the agreement in question establishes that, although they have the right to suspend normal performance during the strike, they are obliged to be on-call throughout the duration of said strike. Provided that strikes are called in compliance with legal and contractual provisions, there are no limitations on exercising the right to strike for Terna's remaining personnel.

The 2010 NCEC provided for the establishment of a bilateral body – at the electricity industry level – on "Health, safety and the environment", with the task of strengthening safeguarding of occupational safety starting from shared objectives agreed on between the parties. In particular, the body is to make proposals, monitor, and coordinate training regarding environmental and safety issues. Provision was made for the possibility of establishing – in companies with more than 500 employees – bilateral corporate committees to work in cooperation with the industry body. LA6 LA9

Employee involvement in matters of health and safety is currently regulated by the law, which provides for Employee Safety Representatives (ESRs) to be elected by all the employees. The ESRs thus represent 100% of the employees and their number varies according to the number of the company's employees and offices. Their role involves seeing that regulations regarding the health and safety of workers are applied. During the aforementioned renewal of the NCEC, the role of the ESRs was expanded to include environmental issues, so they are now ESERs.

Representatives can ask the Company to carry out inspections and are consulted about risk assessment and the

[8] The 3 employees of the subsidiary Terna Crna Gora d.o.o., operating in Montenegro, are covered by an individual contract which reflects the provisions of the local collective contract.

identification of preventive measures. At least once a year they attend meetings with the employer and other corporate figures responsible for health and safety to examine the appropriateness of the personal protective equipment and training programs, as well as the repercussions of introducing new technologies.
The relationship between Terna and the trade unions **at the company level** is governed by the *Protocol on the industrial relations system* which defines a system of relations divided into contract negotiation, discussions, consultation and advance and/or periodic information.
Terna's **employee union membership rate in 2012 was 61.7%**, which is high compared to the industry average and in line with the figure for previous years; membership is concentrated in the largest unions. Management of the *Protocol on the industrial relations system* has enabled the parties to develop and consolidate an effective network of relations at all levels, thus allowing the processes of change of significant corporate interest to be governed.
In the three years 2010-2012, bargaining with the industry trade unions led to the **signing of 41 written agreements**.
As regards **2012**, industrial relations activity was characterised, in the first half of the year, by discussions with the national trade union secretariats on the new corporate framework of the Terna Group which ended – after the procedure set out in Art. 47 of Italian Law No. 428/90 concerning rental of the business unit by Terna S.p.A. to Terna Rete Italia S.p.A. – with the signing of a written agreement.
In the second half of 2012, discussions also began with the National Secretariats of the trade unions on the new organizational model for Terna Rete Italia's Operations Department.
The project provides for the creation of three new Regional Departments, functionally integrating the operating activities currently performed in the context of the "Lines" and "Stations", and gradually introducing multi-skill figures, centralizing operating, planning and construction activities at the level of Regional Departments, allocating responsibilities for Regional Dispatching reporting to the competent Regional Departments, redefining the scope of work of the Central and Regional Engineering Units, and rationalizing the geographical distribution of the operating bases.
Adopting the new organizational model will make it possible to strengthen regional oversight of operating and plant maintenance activities and of management for operating processes, and will increase the effectiveness of integration between the Maintenance and Dispatching areas at the regional level, optimizing Grid management. It will also enable the introduction of multi-functional roles which will combine a management profile with traditional technical skills, as well as creating professional growth and development opportunities for the new multi-skill figures capable, among other things, of ensuring mixed availability (lines/stations). Finally, it will enable rationalisation of investment allocation.

LA5

The **involvement of the Trade Unions in the event of organizational changes** is one of the central aspects of industrial relations: it is regulated both by legal provisions, industry-wide contracts, and company agreements. According to law, in the event of mergers, acquisitions or other significant changes in the company's ownership structure identified by the law itself, the workers' representatives must be informed and consulted at least twenty-five days before any binding agreements.
In accordance with the union agreements in effect at Terna, in the event of significant organizational changes, preliminary discussions with the unions must be held, to be concluded within three months. In these discussions the Company must make available the documentation necessary to ensure a complete overview of the organizational project, enabling observations and proposals to be formulated. At this stage, advance information remains at the collective level. Individual employees are informed in advance only if the organizational change entails them being transferred to a different office. In this case, workers must be informed in writing at least thirty days in advance.

SOCIETY

Our approach

Terna is an infrastructure company that is strategic for the Italian economy and provides a public utility service. Society – understood in both a general sense as the recipient of Terna's service, and a local sense as the communities more directly affected by projects for developing the transmission grid – is an essential stakeholder.

SO1 Terna's approach to the local communities that host the construction of new infrastructure is discussed in-depth in the chapter "Environmental responsibility", because the visual and landscape impacts are the most significant of such activities. In this chapter, other possible impacts on individuals and society are discussed.

SO9

EU20 The construction of new power lines does not involve the physical displacement of people or entire communities, but only the use of from about 30 to about 250 square meters of land – usually agricultural land – for each pylon. Terna's use of innovative solutions, for example, single-pole pylons, tends to diminish the physical encumbrance, as well as the visual impact, of new lines.

Even though Terna is authorized by the law (Italian Law No. 1775 of 1933 and Presidential Decree 327/2001 Consolidated Act on Expropriations) to use an expropriation procedure to obtain land, the Company prefers solutions based on mutual consent, paying one-off compensation for the right of way of the line through private property (mounting pylons, installing overhead conductors, laying underground cables). In these cases, owners are no longer be able to use the land physically occupied by the pylons, it being understood that if the lines are dismantled, the land will again be at their complete disposal.

EU22 The pursuit of a consensual solution only fails in a minority of cases, in which coercive measures become necessary. In the three-year period 2010-2012 Terna constructed power lines which entailed obtaining easements from about 18,141 land owners (7,463 in 2012; 7,092 in 2011; 3,586 in 2010); in 8% of cases it was necessary to use a coercive easement procedure.

When Terna constructs a station, which occupies much more land, the Company normally purchases the necessary land. Considering its role as the provider of a service to society and the regulatory context in which it operates, Terna complies scrupulously with the laws and regulations that concern it.

In keeping with this fair and respectful approach, Terna considers the identification and implementation of social, humanitarian, and cultural initiatives to be an integral part of its mission, as a concrete sign of participation in the civil development of the communities in which it operates.

As set out in its Code of Ethics, in Terna's relations with institutions and associations, it represents its interests in a transparent, meticulous, and consistent manner, while avoiding collusive behaviour.

Human rights

HR1

HR3

HR4

HR5

HR6 The Terna Group operates in Italy, where the legal framework and the level of civil development amply guarantee respect for human rights, freedom of association, and collective bargaining, thus making it non-critical for a company to take particular actions on these issues through the implementation of special management policies. In the whole of 2012, Terna's projects abroad (in the Balkans and North Africa) did not involve operating activities. The Montenegrin company Terna Crna Gora, incorporated in June 2011 (3 employees with local contract at December 31, 2012), also has the purpose of supporting Terna's activities, deriving from its equity investment in the share capital of the Montenegrin TSO CGES (see "The Terna Group" on page 26). This company adopted the Group's Code of Ethics in February 2012.

HR7

HR9

HR10

HR11 **In 2006, Terna adopted the principles of the Global Compact, referring to them in its Code of Ethics,** thus establishing a reference point – an insuperable limit – for all situations in which the Company might operate around the world. This commitment was further strengthened in December 2009, when the Board of Directors resolved to formally join the Global Compact (see the relevant paragraph in the section "Profile" on page 38).

In view of the above, and of the fact that there are currently no critical issues, the managerial responsibility for human rights as a principle belongs to the Human Resources and Organization Department, while – considering that many aspects regarding human rights are dealt with in Terna's Code of Ethics – the Audit Department is entrusted with ensuring that the rules are correctly applied. As regards the guarantees of respect for human rights and of workers' protection in contracted and subcontracted works performed on Terna's behalf, the Procurement and Contracts and Security and Services Departments play a crucial role; on this point see the paragraphs "Relations with suppliers" and "Occupational health and safety", respectively on pages 89 and 150 of this Report. Finally, the Corporate Social Responsibility Unit tracks changes in external references (e.g. international conventions), also with an eye to Terna's possible future activities in other countries.

Safeguarding legality and preventing corruption

For Terna, the prevention of corruption is a strategic activity which meshes with the Internal Control Systems. Legality and honesty are two of the general principles on which the Code of Ethics and the conduct of the Company's business are based. Terna's strategy in this regard focuses on three major areas:

Risk Management: in 2001 Terna adopted a 231 Organizational Model (a model pursuant to Legislative Decree 231/01), a set of continually updated guidelines, procedures, training commitments, and control mechanisms which forms an integrated system for the prevention of specific risks, including crimes of corruption. In February 2013, with the involvement of all the affected companies and departments of the Group, an update of the model was begun to take into account the changes introduced by the "anti-corruption" Law, No. 190/2012.

During the 2010-2012 period, the Audit Unit examined all the corporate departments (100%) and the Company's subsidiaries several times with regard to various kinds of risks, including those concerning corruption, and produced audit and risk-assessment reports for corporate processes and departments at risk.

Monitoring: the Security Department's Fraud Management Unit performs tasks regarding: SO2

- preventing and dealing with crimes, carried out by:
  - systematically analysing the pre-conditions characteristic of incidents of fraud, identifying the critical areas in which the phenomena can be facilitated and possible causes in the organizational and operating aspects of processes;
  - defining specific monitoring and control procedures to mitigate risks;
  - continually monitoring the effectiveness of the prevention measures adopted;
- checking and assessing new subjects and counterparties with the aim of containing the risks deriving from transactions with third parties;
- *ex ante* validation of requests for awarding consultancy services, professional appointments, IT services and procedures for awarding contracts to predetermined suppliers;
- in accordance with the Protocols of Understanding signed with them, sending data, information, and news on contractors and subcontractors to the institutions responsible, in order to prevent criminal infiltration of construction work on the National Transmission Grid infrastructure.

Personnel training: Terna continually runs training courses on the Code of Ethics and the 231 Organizational Model. The objective of these courses is to ensure awareness and dissemination of the rules of behaviour and the procedures established for the prevention of crimes at all the corporate levels, and to inform and train the personnel regarding the areas at risk for crimes and the potential crimes with regard to the activities performed. SO3

During 2012, the courses on the 231 Model, after the training campaign which during the 2009-2011 three-year period involved 21% of the corporate population and 27% of the senior executives, involved only a small number of colleagues. HR3 In fact, the training campaign is currently being revised to take into account the regulatory updates, the adjustments to the model and organizational changes which have occurred.

In 2012, as in the three previous years:

- there were no cases of litigation regarding corruption;
- there were no disciplinary penalties for incidents of corruption;
- there were no ascertained reports of violation of the Code of Ethics with regard to corruption. SO4

As of December 31, 2012, no litigation regarding corruption was pending.

Participation in Associations

In keeping with the commitments taken on in its Code of Ethics, Terna cooperates and discusses with, and supports the work of the associations to which it belongs, to contribute to the general improvement of the electricity industry and its regulations and technical standards.
Terna takes an active part in the CEI (Italian Electro-technical Committee), a body entrusted with tasks regarding the industry's technical standards. Terna employees with technical roles often belong to professional associations whose purpose is to keep their members up to date, such as the CIGRE (Conseil International des Grands Réseaux Électriques) and the AEIT (Italian Federation of Electro-technics, Electronics, Automation, Information Technology, and Telecommunications), which bring together electrical engineers and other industrial specialists.
In November 2012, Terna signed a Protocol of Understanding with the ANIE to reduce the environmental impact of activities at construction sites to respect the local land.
Since November 2011, Terna has been a member of the Renewables Grid Initiative (RGI), an association of European grid operators and non-governmental organizations that promotes integration of 100% of the electricity produced by renewable sources.
During 2012, RGI produced the first European Grid Report, a collection of best practices on the subject and signed the extension of the first European Grid Declaration on Transparency and Public Participation (EGD), which expresses the need for greater transparency in the decision-making processes of the TSOs and greater involvement of European citizens, together with NGOs and Authorities, in the process of network development.
Terna is also a member of international and national associations engaged with the themes of corporate social responsibility, working actively with them to spread a culture of sustainability, and to promote its experience with a view to sharing best practices. In particular, Terna actively supports the following organizations:

IIRC – The International Integrated Reporting Council – Pilot Programme
Since 2011 Terna has taken part in the Pilot Programme launched by the IIRC, the international organisation involved in defining and testing a framework for integrating financial, environmental, social and governance information. 80 companies and organizations which are leaders at the global level (of which 7, besides Terna, are Italian) take part in the programme, which has been extended to the whole of 2013 (*data at 22/01/2013 – source:* www.theiirc.org).

LBG (the London Benchmarking Group) - Corporate Citizenship
After joining the LBG - the London Benchmarking Group, a British benchmarking organization which brings together more than 120 companies with a view to measuring the contributions and impacts of Corporate Community Investment, Terna adapted the monitoring tools set out by the LBG methodology to the Italian context and to its specific features for a more precise measurement of the effects (outputs) of its initiatives in the community. The 2012 reporting describes Terna's corporate giving activity over the last three years, classified according to the LBG model. For more details on activity in 2012, see the paragraph "Initiatives in the community" on page 159.

Sodalitas
Terna is one of the founders of the Sodalitas Foundation which, since 2008, has continued the commitment of the Association of the same name to spreading corporate sustainability and to promoting dialogue between the business and non-profit worlds. Currently, the Foundation can count on the contribution of 97 supporter companies, which generate an economic value of 30% of GDP, and 80 voluntary managers (*source: Sodalitas, January 2013*).
During 2012 Terna supported the second edition of "Sodalitas Social Innovation", a programme designed to help non-profit organizations finalize high-quality social business plans capable of attracting the interest of companies, with a view to creating new partnerships.
123 non-profit organizations took part in the 2012 edition with 129 projects, which were assessed by Committees made up of representatives of the Sodalitas Foundation (including Terna), the Italian Donation Institute, companies and Institutions. Terna also took part in the work of the Workshop on employee volunteering, organized by, in addition to the Foundation itself, Ciessevi and SDA Bocconi. Workshop activities ended in November 2012 with the creation of the tool kit "Employee Volunteering: a practical guide for collaboration between profit and non-profit activities", presented officially in January 2013 (See the box "Terna takes part in the creation of the first Italian tool kit on employee volunteering" on page. 161).

Foundation for Sustainable Development
In 2011 Terna became a member of the Foundation for Sustainable Development. Its activities mainly consist of studying – from a cultural and technical point of view – the themes of sustainable development through research, seminars and meetings. Since then, it has taken an active part in the initiatives of the Foundation which in 2012, among other things, had

the task of preparing and organizing the General Assembly of the Green Economy (Rimini, November 2012).

CSR Manager Network Italia
Terna supports the activity of CSR Manager Network Italia, the association of reference for professionals engaged with sustainability and Corporate Social Responsibility in their capacity as corporate managers, consultants and researchers. The network offers members the possibility of comparing their experiences, identifying elements of innovation, learning about best practices in Italy and abroad, by having an organization at their disposal that represents them in the world of public institutions, associations, and non-profit bodies, able to participate in discussions at national and international levels.
During 2012 Terna supported the joint CSR Manager Network-ISTAT project aimed at creating a link between GRI indicators, national statistics and international projects for measuring collective well-being.

"Anima per il sociale nei valori d'impresa"
Since 2010 Terna has been a member of *"Anima per il sociale nei valori d'impresa"*, ("Soul for society in business values"), a non-profit association founded in 2001 and promoted by the *Unione degli industriali e delle imprese di Roma* (Rome Association of Industrialists and Businesses), which brings together managers and companies united by the desire to spread an entrepreneurial culture in their community that combines profit with the creation of well-being for said community.

EC1

Community initiatives

In 2012, in keeping with the desire to contribute to Italy's civil growth beyond its infrastructural role, Terna confirmed its support for social, cultural and environmental initiatives.
Terna's corporate giving activities consist mainly of financial support to beneficial initiatives. In addition to this, there are resources devoted to organizing its own initiatives for the benefit of the community, the donation of corporate assets no longer useful in the production cycle and support provided in the form of working time devoted by Terna's employees to various initiatives, in particular paid hours destined for voluntary work.

S06

In any case, as set out by Terna's Code of Ethics, contributions are never made to political parties or their representatives.
IIn order to have accurate reporting on these matters at its disposal for internal monitoring and external comparison, since 2011 Terna has been a member of the London Benchmarking Group (LBG), an international group of companies engaged in corporate giving that developed a standard of the same name to classify community initiatives and the related inputs (cash and in-kind donations, employee time) and outputs (benefits actually generated by the initiatives for both the ultimate beneficiaries and the company). The LBG model constitutes a conceptual reference framework to define, classify and account for corporate giving. Accounting for contributions sometimes requires recourse to non-accounting criteria (for example, the "fair value" of goods given or the proportion of a sponsorship which translates into an effective beneficial activity) and is therefore affected by interpretative aspects, but has the advantage of comparing, in a coherent manner, the costs and benefits of beneficial initiatives, enabling strategic planning and rational management of corporate giving.

EC8 The following table shows all community initiatives, classified according to the LBG model, carried out by Terna in 2012.

COMMUNITY INITIATIVES

Values in euro	2012	2011	2010
Total value of contributions (excluding internal overhead costs)	1,223,987	1,923,500	1,558,825
Breakdown by contribution type			
- In cash	1,095,888	1,833,550	1,436,743
- In kind (free-of-charge transfers of corporate property)	46,120	42,414	34,547
- Working time	81,979	47,536	87,535
Breakdown by initiative type			
- Donations	563,510	1,338,914	808,085
- Investment in the community	300,205	244,336	114,283
- Commercial initiatives in the community	360,272	340,250	636,457
Breakdown by purpose			
- Education and youth	469,300	498,936	81,297
- Health	21,800	22,404	35,086
- Economic development	38,687	479,000	171,575
- Environment	18,600	21,000	32,240
- Art and culture	492,590	545,900	751,644
- Social well-being	22,720	30,000	66,250
- Support for emergencies	35,000	61,850	5,000
- Other	94,190	264,410	415,733

(*) **Donations:** occasional contributions, typically in response to requests for funds from charities considered worthy.
Investment in the community: expenses for initiatives coordinated/organized by the company as part of a medium/long-term programme, often in partnership with an NGO.
Commercial initiatives in the community: marketing initiatives with beneficial repercussions (only the part of the expense which constitutes a beneficial contribution is accounted for).

Compared to 2011 there was a drop in the total value of contributions, mainly donations, while there was a steady increase in funds allocated to community investments. Initiatives were concentrated in the areas of youth education, art and culture.
Support for environmental causes was not included in this table because normally it is associated with the construction of new lines and was therefore classified among environmental expenses (see the specific paragraph in the Environmental Responsibility section on pages 129-130).
Work to monitor the effects of corporate giving initiatives continued this year, through an LBG questionnaire sent out to a sample group. On this point we can note:

Art and culture

- **NO'HMA "Teresa Pomodoro" Theatre Space:** Terna supported the 2011-2012 theatre season, focused on the theme "Dark, light and its colours" and the third edition of the Teresa Pomodoro International Prize for Inclusive Theatre. The Space is an established thought-laboratory able to increase its success through ever-increasing appreciation and audiences, due to the themes it tackles and free of charge admission.
  The LBG survey highlighted significant cultural enrichment for an audience of 30,000 people who would otherwise be excluded from enjoyment of the traditional theatre circuits.

Health

- **"Marina Minnaja" Charitable Foundation:** Terna supports this three-year project, which began in 2011, for the education and training of organ transplant patients, both while on the waiting list and after surgery, by assisting them during the transplant process and producing educational and informative material.
  Compared with the previous year the LBG survey highlighted consolidation of changes in behaviour and attitudes with a consequent improvement in the patients' quality of life and the acquisition of professional skills on the part of personnel.

Education and youth

- **Barbaiana Sports Club:** Terna supported the activities of the Barbaiana Sports Club which promotes participation in football, volleyball, table tennis and archery among young athletes aged 6-16.
  The LBG questionnaire highlighted the use to which Terna's contribution was put (construction of a 100-seater stand) and the consequent impact, in terms of improving public facilities, on the community of reference.

Terna takes part in creating the first Italian tool kit on employee volunteering

Developed in 2011 by the Sodalitas Foundation, Ciessevi and Cergas Bocconi, the workshop on employee volunteering finalized the first Italian tool kit "Employee Volunteering: a practical guide for collaboration between businesses and non-profit bodies" destined for companies and non-profit organizations that intend to create employee volunteering projects. It can be downloaded from the Terna website at www.terna.it/sustainability/.
The document was created thanks to the contributions of 11 business members of Sodalitas and 17 non-profit organizations (NPOs) which, for around two years, worked together on the subject to measure its impact, improve levels of employee involvement and explain what makes it a winning tool for improving the internal climate and relations with the community.
A total of 10 other companies, besides Terna, took an active part in contributing their best practices to the electrification of Kami (see the website). The perspective of Non-Profit Organisations was represented by ABIO Milano, AISM, Arché, CIAI, CoLomba, Comunità Nuova, Cooperativa Sociale Noi Genitori, COOPI, Fondazione Aiutare i Bambini, Fondazione Banco Alimentare, Fondazione Enaip Lombardia, Fondazione Ivo de Carneri, HUMANA People to People, Legambiente, Società di San Vincenzo de Paoli, VISPE and the WWF.
The workshop activities began with an exploration of the most advanced international experiences (in particular: Business in the Community and LBG - London Benchmarking Group) to arrive at an agreed definition of employee volunteering: *"a project in which the business encourages, supports or organizes the active and concrete participation of its personnel in the life of the local community or in support of Non-Profit Organizations, during working hours"*. From here the group moved on to outline true Guidelines for creating an effective employee volunteering programme, constructed starting from the experience in the field of company and NPO participants in the Workshop.
In particular, 5 stages were identified through which the creation of an effective and successful employee volunteering initiative passes: Planning, Programming, Implementation, Assessment, and Project Management and Communication. The tool kit analyses each of these in detail and accompanies the description with the experiences of the 11 companies and 17 NPOs involved.
Alongside the contents of a methodological nature, in the section "Comparing Profit and Non-profit activities" edited by Cergas Bocconi, the Guide examines the reasons that lead companies and non-profit organizations to employee volunteering, and the critical issues to be overcome in order to improve the effectiveness of collaboration. The types used for employee volunteering activities are mainly temporary secondment of the company's employees to the organization, skill volunteering and pro-bono volunteering; both individual and in teams and Community Days. Finally, both companies and NPOs were in agreement on one point: the need to prepare tools and metrics that make it possible to report and measure the impact of employee volunteering.

Terna, a solidarity "square"
In October, in Rome and in all the main offices around the country, Terna hosted the *Lega del Filo d'Oro* for the "Pasta della Bontà" fund collection: with a minimum offer of 7€, employees had the chance to purchase a shopping bag with three packets of Gragnano pasta, thus helping to support the Association's activities. More than 8,000 € was collected.
In 2012, during the Christmas holidays, a new solidarity project was created; this is described in the box below.

At Christmas Terna creates a chain of solidarity

The end of the year holidays were, also in 2012, an occasion to create a concrete, inclusive solidarity project in keeping with values such as hospitality and solidarity which have are celebrated most enthusiastically at Christmas.
Continuing that done in 2011, Terna identified minors in difficulty as the natural beneficiaries of the project, returning to the concept of Christmas presents, which became the first ring of a "solidarity chain", capable of generating a good return for everyone.
The partner was selected following the criteria which have oriented Terna in these choices for some time: reliable management, organizational solidity, transparency, focus on the theme chosen and reporting ability.
The choice made was the Christmas hampers that the Ai.Bi – "Amici dei Bambini" (Friends of Children) Association, a Non-Governmental Organization concerned with children's rights since 1983 -– proposes as a solidarity gift.
The hampers were made by Accademia San Biagio, a company based in Assisi which supports a number of non-profit organizations – including Ai.Bi. – preparing Christmas presents for them and passing a portion of the profits on to them.
By choosing the Christmas hampers proposed by Ai.Bi, Terna supported the "Pan di Zucchero" Family Services Centre in Rome, an open space which assists children in difficulty, also including parents in their recovery process. Thanks to the work of the AiBi volunteers, this centre offers a concrete response to problems such as early withdrawal from school and bullying, which the economic crisis has contributed to increasing.
Terna chose to not confine itself to simply donating through solidarity presents and doubled its commitment by simultaneously supporting a second Ai.Bi project, located in Lombardy.
This project is a new group home, ready to welcome children temporarily separated from their families of origin because the latter cannot, for various reasons, meet their children's needs.
The "solidarity chain" finally completed its task on the morning of December 23, the day on which Banco Alimentare, a Non-Profit Organization which since 1989 has been concerned with collecting surplus food for redistribution, collecting in Assisi items donated in hampers, distributing them to people in need in time for Christmas Day, through its network of welfare organisations, specifically to families in difficulty in Perugia.

The Terna 04 Prize brings together the arts and the land

In 2012 the Terna 04 Prize received the High Patronage of the President of the Republic, a recognition by which the Head of State expresses support for the goals pursued by Italian initiatives considered particularly worthy and of the highest profile. It involved more than 2,800 participants who discussed a subject of strategic interest for the company: the land.

On the occasion of the competition's launch, Terna also renewed its commitment to promoting and enhancing Italian contemporary art by renewing the three-year Protocol of Understanding between Terna and the Ministry for Cultural Assets and Heritage.

"In and Out of Place. Without a Net. The Territory for Art" is the subject on which the artists are asked to express their creativity; it is an invitation to reflect on the concept of Territory and Territoriality understood as a relationship with physical places and spaces, but also as an introspective dimension, sense of belonging, of inclusion or exclusion, opening or boundary, of relations with others. The land becomes a place which hosts creativity and itself an engine of creativity.

With the 2012 edition of the Prize, the pylon becomes a contemporary element of the landscape. In fact, Terna invited famous artists, in the Terawatt category, to create artistic works on an electricity line under construction in the south of Italy between Foggia and Benevento, an important high-voltage artery, collecting electricity produced from renewable sources. The initiative is in line with Terna's commitment to designing new solutions for supports with low environmental impact and which are more in harmony with the landscape.

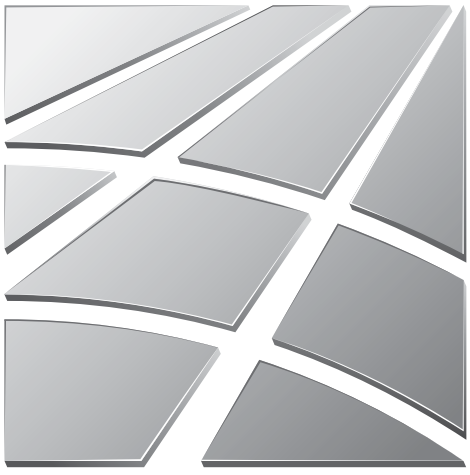
There were numerous innovations in the fourth edition: the opening of the competition to installations, a prize for talented young people under 23 (Young Galleries Prize), and the partnership with the musicians of the Accademia Nazionale di Santa Cecilia (National Academy of St Cecilia), Art Generates Art, besides the usual international connection, this year with Moscow, to complete the year of Italian culture in Russia.

Important changes also took place on the site www.premioterna.it: a 3D art gallery available to each artist to create a new Territory for Contemporary Art directly on the web. The new website concept, associated with the theme of the competition, recreated a "live" environment which took form on the basis of the entries to the competition. It is a true map of Italian creativity which emphasizes the network created by the Prize.

The Jury was chaired by Luigi Roth and Flavio Cattaneo, Terna's Chairperson and Chief Executive Officer and included Marzia Corraini, a publisher and author; Antoine de Galbert, a French collector; Alda Fendi, a collector; Kamel Mennour, an international gallery owner; Camilla Nesbitt, a collector and TV producer; Michelangelo Pistoletto, an internationally famous artist, Olga Sbiblova, director of the MAMM in Moscow, and Alessandro Villari, a landscape designer. They chose the 12 winners of the competition in December 2012.

The winners of the Terna 04 Prize, together with the famous artists' projects, were put on show at the final exhibition in the exhibition spaces of the Temple of Hadrian in Rome during the Christmas period and were visited by more than 20,000 people.

2012



Indicator Tables

Terna

INDICATOR TABLES

The following tables include indicators that are additional to those provided for by the G3.11 "*Sustainability Reporting Guidelines*", which Terna believes it is important to publish in order to describe its performance in the field of Corporate Social Responsibility. In several cases, data already presented in the body of the Report are also shown for completeness. The indicators are organized in five areas corresponding to the structure of the Report, divided in thematic sections according to the following scheme:

Area	Section
1. Terna's profile	*Corporate Governance* Ethical Auditing
2. Responsibility for the electricity service	The grid
3. Economic responsibility	Shareholders Providers of capital Suppliers Customers – Regulated market
4. Environmental responsibility	Environmental performance
5. Social responsibility	Number and composition of employees Employee satisfaction and development *Safety* Relations with labor unions

For each indicator the tables show:
- the unit of measurement;
- the figures for 2012, 2011 and 2010;
- if it is significant, the absolute change between 2011 and 2012;
- if it is significant, the percentage change between 2011 and 2012.

Data is usually calculated as of December 31 and flow indicators regard the entire year.
To facilitate reading the indicators, the following table shows the units of measurement in which they are expressed. See also the table of acronyms and the glossary after the indicators.

Units of measurement legend

#	Category
%	Percentage
€	Euro
€/000	Thousand euros
€/Mln	Million euros
GWh/year	Gigawatt hours per year
H	Hours
Kg	Kilograms
Km	Kilometres
Min	Minutes
MW	Megawatt
MWh	Megawatt hours
no.	Number
Ton	Tons
Y	Years

Terna's Profile

Corporate Governance

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Board of Directors						
Total members BoD	no.	9	9	9	0	-
Independent Directors on BoD	no.	6	6	4	0	-
Directors designated by minority shareholders	no.	3	3	3	0	-
Women on BoD	no.	0	0	0	0	-
Meetings of BoD	no.	7	10	9	-3	-30.0%
Meetings of Remuneration Committee	no.	4	5	4	-1	-20.0%
Meetings of Control and Risk [1] Committee	no.	6	4	4	2	50.0%
Meetings of Committee for Transactions with Related Parties	no.	1	4	1	-3	-75.0%

(1) In implementation of the provisions of the new Governance Code of listed companies, published by the Corporate Governance Committee, December 2011 edition, during the meeting held on 19 December 2012, the Board of Directors resolved the necessary adjustments to the competences of the Committees in place; consequently, the "Internal Control Committee", already established in Terna in accordance with the provisions of the previous editions of the Governance Code, took on the name of "Control and Risks Committee" and the related competences specified by the new provisions of the Code, without making any change to its members. The number of meetings specified therefore refers to all the work of the Committee carried out during FY 2012.

Ethical Auditing

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Implementation of the Code of Ethics						
Total reports received [1]	no.	3	3	4	0	
- Areas of reports received [2]						
- Employee management			1	1	-1	-100.0%
- Supplier management		1		1	1	
- Environment and Safety			1	2	-1	-100.0%
- Corruption/Corporate loyalty		1	1	1	0	
- Terna's compliance/Other		1	1	2	0	
Outcome of reports	no.				0	
- Unfounded		2	3	3	-1	-33.3%
- Provisions [3]		1	0	1	1	
- Under assessment		0	0	0	0	

(1) Of the 3 reports received in 2012, 2 were submitted to the audit department and 1 to the ethical committee; in 2011, 2 were submitted to the audit department and 1 to the ethical committee; in 2010, 3 reports were submitted to the ethical committee and 1 to both the audit department and the ethical committee.
(2) Each report or violation may regard more than one management area.
(3) The provision may consist in applying a sanction and/or in other action – such as reviewing procedures, internal controls, etc. – aimed at avoiding that the event that caused the report reoccurs.

Responsibility for the electricity service

The grid

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Power stations						
380 kV						
stations	no.	150	147	141	3	2.0%
power transformed	MVA	103,648	93,448	92,498	10,200	10.9%
220 kV						
stations	no.	154	153	150	1	0,7%
power transformed	MVA	30,227	30,084	30,114	143	0.5%
Lower voltages (≤150 kV)						
stations	no.	164	154	140	10	6.5%
power transformed	MVA	3,077	3,234	2,960	-157	-4.9%
Total						
stations	no.	468	454	431	14	3.1%
power transformed	MVA	136,952	126,765	125,571	10,187	8.0%
Power lines						
380 kV						
length of 3-conductor circuits	km	11,810	11,808	11,759	2	0.0%
length of lines	km	10,894	10,893	10,860	1	0.0%
220 kV						
length of 3-conductor circuits	km	11,987	12,058	12,089	-71	-0.6%
length of lines	km	9,638	9,710	9,737	-72	-0.7%
Lower voltages (≤150 kV)						
length of 3-conductor circuits	km	39,652	39,760	39,730	-108	-0.3%
length of lines	km	36,908	37,047	37,040	-139	-0.4%
Total						
length of 3-conductor circuits	km	63,448	63,626	63,578	-178	-0.3%
in underground cable	km	1,369	1,328	1,249	41	3.1%
in submarine cable	km	1,348	1,348	1,348	0	0.0%
in 200, 400 and 500 kV direct current	km	2,066	2,066	2,066	0	0.0%
length of lines	km	57,440	57,651	57,638	-211	-0.4%
in underground cable	km	1,369	1,328	1,249	41	3.1%
in submarine cable	km	1,348	1,348	1,348	0	0.0%
in 200, 400 and 500 kV direct current	km	1,746	1,746	1,746	0	0.0%
Incidence DC connections						
- 3-conductor circuits	%	3.3	3.3	3.2	0.0	0.3%
- lines	%	3.0	3.0	3.0	0.0	0.3%
Grid efficiency						
Power supplied	GWh/year	325,259	334,640 [1]	330,455	-9,381	-2.8%
Technical quality						
Service continuity indexes						
ASA (Average System Avalibility) [2]	%	99.32	99.33	99.23	-0.01	0.0%
SAIFI + MAIFI (System Average Interruption Frequency Index)	no.	0.23	0.14	0.14	0.09	64.3%
AIT (Average Interruption Time) [3]	min	0.57	0.49	0.89	0.08	16.3%
ENSR (Regulated Energy Not Supplied) [4]	MWh	NA	1,210.0	1,238.0		

(1) The 2011 figure was recalculated using the final data of the same year, and thus is different from the one reported in the previous edition of the Sustainability Report, amounting to 332,274, which was calculated according to the provisional data for 2011.

(2) The indicator is the total ASA % (used in international benchmarks), calculated with regard to individual Local Areas or for the entire country taking into account: Planned Unavailability, Occasional Unavailability, Unavailability due to Malfunctioning, Unavailability due to External Events, and Unavailability due to Development Work.

(3) Average interruption time of the National Transmission Grid in a year, calculated as the ratio between the energy not supplied in a certain period (ENS alue) and the average power absorbed by NTG in the period considered.

(4) The index also includes energy not supplied to Users directly connected, due to events on other connection grids that are not part of the NTG and a share of the energy not supplied due to force majeure events or significant incidents (by “significant incident” is meant any interruption during which the energy not supplied amounts to more than 250 MWh. The share affecting the ENSR index is a decreasing percentage of energy not supplied in the individual significant incident). Service performance improves the lower the indicator level is. The final calculation, by the AEEG, of the ENSR indicator for 2012 is not yet available.

Economic responsibility

Shareholders

Indicator	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Composition of shareholders base						
Cassa Depositi e Prestiti SpA	%	29.85	29.85	29.86	0.00	0.0%
Major institutional investors [1]	%	0.00	4.40	11.44	-4.40	-100.0%
Other institutional and retail investors	%	70.15	65.75	53.60	4.40	6.7%
Enel SpA	%	0.00	0.00	5.09	0.00	-
Socially Responsible Investors (ISR) [2]						
% SRI out of total share capital held by institutional investors [3]	%	8.4	NA	6.5	-	-
Share Performance						
Financial performance of shares	%	16.1	-17.6	5.3	33.7	191.7%
Dividend Yield [4]	%	6.73	8.12	6.66	-1.39	-17.10%
Terna in stock indexes						
FTSE Italia ALL SHARE	%	1.8	1.8	1.6	0.0	-0.6%
FTSE MIB	%	2.1	1.8	1.8	0.4	19.6%
Shareholder return						
EPS (Earnings per share)	€	0.231	0.219	0.306	0.01	5.5%
DPS (Dividend per share)	€	0.200	0.210	0.210	-0.01	-4.80%
Total Shareholder Return (TSR)						
- since the IPO	%	200.6	140.6	171.8	59.9	42.6%
- since the beginning of the year	%	24.9	-11.4	12.2	36.4	317.6%
Communication with shareholders						
Meetings/conference calls with investors (“buy-side”)	no.	214	197	270	17	8.6%
Meetings/conference calls with financial analysts (“sell-side”)	no.	283	468	368	-185	-39.5%
Meetings with investors dedicated to or with time for CSR issues	no.	5	3	5	2	66.7%
Requests for information from Retail Investors [5]	no.	21	28	18	-7	-25.0%
Economic performance [6]						
Revenues	€/million	1,806	1,554	1,505	/	/
EBITDA	€/million	1,390	1,122	1,069	/	/
EBIT	€/million	969	773	751	/	/
EBT	€/million	876	764	663	/	/
Net income	€/million	464	454	432	/	/
ROACE	%	11	10	11	/	/

(1) Shareholders with a stake in the share capital of Terna S.p.A. above the thresholds indicated in the Consob decision no. 11971/99 (based on the information available, and communications from Consob).
(2) Investments made on the basis of ethical criteria/ESG (Environmental Social Governance) in additional to traditional ones).
(3) More details on socially responsible investors are given on page 29 of the “Profile” chapter of this Report.
(4) The value was calculated as the ratio between the dividend paid for the year considered and the average reference price in December.
(5) The figure takes into account requests received via e-mail.
(6) For 2012, given the corporate changes made within the Terna Group during the year, data is given from the Terna Group; for FY 2011 and 2010 on the other hand, the parent company Terna data remained as published in the 2011 Sustainability Report; this is why no changes are specified from 2011 to 2012.

Providers of capital

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Debt						
Financial debt	€/million	5,855	5,123	4,977	732	14.3%
Equity	€/million	2,794	2,751	2,773	43	1.6%
Debt to Equity	%	210	186	180	23	12.6%
EIB loans						
Remaining debt on EIB loans	€/million	1,285.7	1,345.4	1,080.1	-59.7	-4.4%
Rating [1]						
S&P (as of Sept. 2, 2004)						
Outlook	Index	Negative	Negative	Stable		
M/L Term	Index	A-	A-	A+		
Short Term	Index	A-2	A-2	A-1		
Moody (as of Sept. 2, 2004)						
Outlook	Index	Negative	Negative	Stable		
M/L Term	Index	Baa1	A3	A2		
Short Term	Index	Prime-2	Prime-2	Prime-1		
Fitch (as of May 4, 2006)						
Outlook (Issuer)	Index	Negative	Negative	Stable		
M/L Term (Issuer)	Index	A-	A	A		
Short Term (Issuer)	Index	F2	F1	F1		
FitchSeniorUnsecured Debt	Index	A-	A	A+		

[1] These refer to the latest assigned assessments.

Suppliers

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Number of suppliers						
Number of suppliers with contracts	no.	1,951	2,314	2,316	-363	-15.7%
Procurement of materials and services						
Supplies	€/million	1,257.5	454.6	404.9	802.9	176.6%
Work	€/million	261.2	516.5	772.8	-255.3	-49.4%
Services	€/million	115.4	201.2	151.1	-85.8	-42.7%
Management instruments						
Eligible companies registered	no.	373	353	260	20	5.7%
Categories qualified	no.	41	41	40	0	-
Implemented monitoring	no.	508	749	593	-241	-32.2%
Litigation with suppliers						
Proceedings pending	no.	22	24	22	-2	-8.3%
Proceedings initiated	no.	0	2	6	-2	-100.0%
Proceedings concluded	no.	2	0	0	2	

Customers - Regulated market

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Customer portfolio						
Interruptible customers		234	171	154	63	36.8%
Distributors directly connected to the National Transmission Grid	no.	24	20	19	4	20.0%
Users of injection dispatching	no.	88	91	86	-3	-3.3%
Users of withdrawal dispatching	no.	130	110	109	20	18.2%
Litigation with customers						
Proceedings pending	no.	14	14	12	0	-
Proceedings initiated	no.	0	3	4	-3	-100.0%
Proceedings concluded	no.	0	1	0	-1	-100.0%

Environmental data

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
SF_6 quantity and emissions						
Percentage of SF_6 leakage out of total	%	0.59	0.60	0.73	-0.01	-2.4%
Emissions of SF_6 greenhouse gases	kg	2,754.0	2,517.8	2,645.3	236.2	9.4%
SF_6 quantity	kg	466,652.1	416,553.1	362,174.2	50,099.1	12.0%
- in operating equipment	kg	427,175.9	367,523.6	325,852.6	59,652.3	16.2%
- in cylinders	kg	39,476.3	49,029.5	36,321.6	-9,553.2	-19.5%
Waste management [1]						
Waste produced	tons	6,208.1	7,198.1	5,515.9	-990.0	-13.8%
Waste recycled	%	80.8	83.3	89.1	-2.5	-3.0%
Non-hazardous special waste						
Machines, equipment, towers, cables, conductors						
- quantity produced	tons	1,559.5	1,737.4	1,682.5	-178.0	-10.2%
- quantity delivered for recycling	tons	1,451.0	1,671.6	1,614.5	-220.7	-13.2%
Packing						
- quantity produced	tons	252.0	354,3	275,2	-102.3	-28.9%
- quantity delivered for recycling	tons	207.7	333,9	259,5	-126.2	-37.8%
Other						
- quantity produced	tons	1,092.1	902,3	544,9	189.8	21.0%
- quantity delivered for recycling	tons	292.0	294,9	189,4	-2.9	-1.0%
Total non-hazardous special waste						
- quantity produced	tons	2,910.7	3,310.8	2,502.6	-400.1	-12.1%
- quantity delivered for recycling	tons	1,950.6	2,617.2	2,063.3	-666.6	-25.5%
Hazardous special waste						
Machines, equipment, towers, cables, conductors						
- quantity produced	tons	2.404,0	2,789.5	2,226.6	-385.4	-13.8%
- quantity delivered for recycling	tons	2.277,1	2,680.7	2,194.9	-403.6	-15.1%
Oils						
- quantity produced	tons	744.5	736.6	649.2	7.9	1.1%
- quantity delivered for recycling	tons	661.2	563.6	536.3	97.6	17.3%
Lead batteries						
- quantity produced	tons	118.7	125.9	106.5	-7.2	-5.7%
- quantity delivered for recycling	tons	118.7	125.9	106.5	-7.2	-5.7%
Waste deriving from asbestos containing materials						
- quantity produced	tons	0.0	0.5	0.0	-0.5	-100.0%
- quantity delivered for recycling	tons					
Other						
- quantity produced	tons	22.2	234.8	31.1	-212.7	-90.6%
- quantity delivered for recycling	tons	7.8	10.0	11.8	-2.2	-21.7%
Total hazardous special waste						
- quantity produced	tons	3,297.4	3,887.3	3,013.3	-589.9	-15.2%
- quantity delivered for recycling	tons	3,064.9	3,380.1	2,849.5	-315.3	-9.3%
Consumption						
Direct consumption						
Gasoline for vehicles [2]	tons	9.1	167.5	158.8	-158.4	-94.6%
Gas oil for vehicles	tons	1,790.2	1,747.8	1,721.4	42.4	2.4%
Gas oil for generating groups and heating	tons	255.2	260.5	297.5	-5.3	-2.0%
Methane gas for heating	Thousands of m^3	237.0	242.8	186.5	-5.8	-2.4%
Indirect consumption						
Consumption of electricity	GWh	177.2	174.3	164.4	2.9	1.7%
Environmental litigation						
Proceedings pending	no.	132	138	153	-6	-4.3%
Proceedings initiated	no.	13	12	16	1	8.3%
Proceedings concluded	no.	19	27	26	-8	-29.6%

(1) Only waste from the production process is included, and thus waste produced by service activities (urban waste) is excluded. Waste belonging to the "Excavation earth and rocks" and "Effluent" categories is excluded, since – being linked to the construction of works in stations – it is exceptional and would therefore make the data series non-homogeneous, especially if the quantity is significant. The value of the "Excavation earth and rocks" and "Effluent" amounted to 1,541 tons in 2010 (16,053 tons in 2009). For 2011, only waste referring to the "Effluent" category were excluded since the "Excavation earth and rocks" category was not significant any longer; the figure for the "Effluent" category was equal 610 tons in 2012 and 675 tons in 2011.

(2) During the two years 2011-2012, petrol-powered vehicles dropped by more than 90%.

Social responsibility

Number and composition of employees

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Number						
Number of employees	no.	3,433	3,493	3,468	-60	-1.7%
Inflow during the year	no.	45	176	178	-131	-74.4%
Outflow during the year	no.	105	151	157	-46	-30.5%
Composition						
Professional status						
Senior executives	%	1.72	1.72	1.7	0.0	0.1%
Junior executives	%	14.6	14.0	14.5	0.6	4.2%
White-collar workers	%	56.1	56.3	54.5	-0.2	-0.4%
Blue-collar workers	%	27.6	28.0	29.3	-0.4	-1.4%
Education						
University graduates	%	22.2	21.6	19.2	0.6	2.6%
High school graduates	%	46.8	46.6	46.5	0.2	0.5%
Vocational school graduates	%	15.9	15.8	16.2	0.1	0.3%
Elementary/middle school graduates	%	15.2	16.0	18.2	-0.8	-5.1%
Age and years at Terna						
Average age	y	45.7	45.2	45.6	0.5	1.1%
Average years at Terna [1]	y	20.4	20.0	20.5	0.4	1.8%
Flexible employment contracts and terms						
Fixed-term contracts [2]	no.	50	143	107	-93	-65.0%
Beginner and training contracts that became permanent during the year	no.	114	54	61	60	111.1%
Interns and apprentices	no.	37	38	34	-1	-2.6%
Part-time employees	%	0.9	0.9	0.9	0.1	8.5%
Overtime work	%	8.9	8.2	6.3	0.7	8.9%

(1) In the case of employees who began to work at the Company following the acquisition of corporate divisions, the average number of years at Terna takes into account their previous employment.
(2) The figures include beginner contracts and fixed-term contracts.

Employee satisfaction and development

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Compensation						
Average cost per employee [1]	€	77,591	79,432	78,564	-1,841	-2.3%
Executive employees with stock options [2]	no.	0	9	14	-9	-100.0%
Executive employees with Long Term Incentive (LTI)	no.	46	46	47	0	-
Variable compensation as % of fixed pay [3]	%	10.0	9.4	9.4	0.6	6.2%
Training						
Hours of training per employee	h	41.2	50.8	49.0	-9.7	-19.0%
Training expense per employee [4]	€	329.3	289.6	387.9	39.7	13.7%
Training coverage [5]	%	86.3	97.0	96.0	-10.8	-11.1%
Corporate climate						
Total spontaneous resignations	no.	12	16	41	-4	-25.0%
Absences per employee [6]	h	58.7	59.4	59.1	-0.7	-1.2%
Litigation with employees						
Proceedings pending	no.	16	25	32	-9	-36.0%
Proceedings initiated	no.	1	3	7	-2	-66.7%
Proceedings concluded	no.	10	10	12	0	-

(1) By employee is meant every employee of the Company, including executives.
(2) The figures relating to managers with stock options refer to a single plan resolved on 21 December 2005 and as of today concluded.
(3) The figures regard the incentives paid to all employees, including executives. Fringe benefits are excluded.
(4) Training expenses do not include the cost of sessions missed nor the hours of instruction provided directly by employees.
(5) % of employees who took at least one training course during the year.
(6) This figure regards the number of non-contractual absences during the year (illness, accident, leave of absence, strike, unpaid absence).

Safety

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Occupational injuries						
Occupational injuries	no.	51	49	50	2	4.1%
- fatal	no.	0	0	0	0	-
- serious	no.	3	1	2	2	200.0%
Injury Rate [1]	%	1.8	1.7	1.7	0.1	6.0%
Lost Day Rate [2]	%	63.0	46.4	65.0	16.7	36.0%
Periodical health inspections	no.	2,490	2,983	2,364	-493	-16.5%
Occupational injuries of contractor employees						
Occupational injuries of contractor employees	no.	10	13	14	-3	-23.1%
- serious	no.	3	4	5	-1	-25.0%
- fatal	no.	2	0	0	2	-

(1) This is the number of injuries with at least one day of abstention from work divided by the number of hours worked during the year, multiplied by 200,000 (corresponding to 50 work weeks x 40 hours x 100 employees). To facilitate comparison with other sources, this indicator was also calculated using a multiplication factor equal to 1,000,000 and not 200,000 (thus obtaining a Frequency Rate 5 times higher that the ILO Frequency Rate). On the basis of this calculation method, the Injury Frequency Rate is equal to **8.8** in **2012**, **8.3** in **2011** and **8.7** in **2010**.

(2) This is the ratio between the days not worked because of injury and the hours worked during the year, multiplied by 200,000. The days not worked are calendar days and are counted from the day the injury occurred. To facilitate comparison with other sources, this indicator was also calculated using a multiplication factor equal to 1,000. On the basis of this calculation method, the serious injury rate is equal to **0.3** in **2012**, **0.2** in **2011** and **0.3** in **2010**.

Relations with labor unions

	Unit	2012	2011	2010	Change 11-12	Change 11-12%
Employee union membership						
Union membership rate	%	61.7	60.6	61.2	1.2	1.9%

Acronyms

ACEA	Azienda Comunale Energia e Ambiente (Municipal Energy and Environment Company)
AEEG	Autorita per l'Energia Elettrica e il Gas (Italian Authority for Electricity and Gas)
AGCM	Autorita Garante della Concorrenza e del Mercato (Italian Antitrust Authority)
AIT	Average Interruption Time
AOT	Area Operativa Trasmissione (Transmission Operational Area)
ASA	Average System Availability
AU	Acquirente Unico (Italian Single Buyer)
BoD	Board of Directors
CdP	Cassa Depositi e Prestiti
CEI	Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee)
CESI	Centro Elettrotecnico Sperimentale Italiano (Italian Electrotechnical Testing Centre)
CIGRE	Conseil International des Grands Reseaux Electriques a Haute Tension
CONSOB	Commissione Nazionale per le Societa e la Borsa (National Commission for Companies and the Stock Exchange)
CSR	Corporate Social Responsibility
DAEM	Day Ahead Energy Market
DP	Development Plan of the National Transmission Electricity Grid
DPS	Dividend Per Share
DSM	Dispatching Service Market
DT	Distance Training
EBIT	Earnings Before Interest and Taxes
EHV	Extra High Voltage
EIA	Environmental Impact Assessment
EMO	Energy Market Operator
EMS	Energy Management System
ENS	Energy Not Supplied
EPS	Earnings Per Share
EPSES	Emergency Plan for the Security of the Electricity System
ERPA	Exclusion, Repulsion, Problems, Attraction
ETSO	European Transmission System Operators
GAAP	Generally Accepted Accounting Principles
GIS	Geographic Information System
GRI	Global Reporting Initiative

GRTN	Gestore della Rete di Trasmissione Nazionale (National Transmission Grid Operator)
GSE	Gestore Servizi Elettrici (Electric Services Management)
HV	High Voltage
IBA	Important Bird Areas
IEA	International Energy Agency
IPO	Initial Public Offering
ISPRA	Istituto Superiore per la Protezione e la Ricerca Ambientale
ISTAT	Italian National Statistics Institute
MBI	Maintenance and Business Intelligence
MBO	Management By Objectives
MED	Ministry for Economic Development
MEF	Ministry of Economy and Finance
MELS	Ministry for the Environment, Land and Sea
MPA	Ministry for Productive Activities (now the Ministry for Economic Development - MED)
N.A.	Not Available
NCC	National Control Centre
NTG	National Transmission Grid
OECD	Organization for Economic Cooperation and Development
PCB	Polychlorinated biphenyls
PCT	Polychlorinated terphenyls
PPE	Personal Protective Equipment
ROACE	Returns on Average Capital Employed
S&P	Standard & Poor's
SCADA	Supervisory Control And Data Acquisition
SEA	Strategic Environmental Assessment
SETSO	South European Transmission System Operators
SISTAN	National Statistical System
SRI	Socially Responsible Investment
TFR	Trattamento di Fine Rapporto (Staff Severance Indemnity)
TSO	Transmission System Operator
TSR	Total Shareholder Return
UCTE	Union for the Coordination of Transmission of Electricity
ZPS	Special Protection Area

Glossary

231 Organizational Model
231 Organizational Model takes is named after Legislative Decree no. 231, 2001. This decree imposes a Company liability in case of specific crimes committed by managers, employees or partners in the interest or advantage of the company itself (e.g. public managers' bribery, company frauds, crimes against private person, market abuse). The model is a set of guidelines, procedures, training commitment and control mechanisms that aim at preventing the risk of committing such crimes. 231 Organizational Model thus represents an integrated system to avoid specific risks; when defined according to law provisions, this system ("231 Organizational Model") can also avoid sanctions to the company - or reduce their extent - in case the crimes are actually committed.

Accident frequency index
This is calculated using the following formula: N/H*1,000,000, where N is the number of accidents with at least one day's absence from work during the year, and H is the number of hours worked during the same period.

Accident seriousness index
This is calculated using the following formula: G/H*1,000, where G is the number of effective days of unavailability during the year, and H is the number of hours worked during the same period.

AIT (Average Interruption Time)
Average duration of interruption of supply to the electrical system during the year.

ASA (Average System Availability)
Average real availability of all elements of the National Transmission Grid during the period.

Availability of a grid element
The condition in which a grid element may be used for transmission activities under the conditions provided under operational consistency as set forth in Attachment 1 of the Operator/Owner Standard Agreement.

Average number of outages per grid user (N)
The average number of outages per grid user directly connected to the NTG is defined by the following formula:

$$\frac{\sum_{i=1}^{n} Ui}{Utot}$$

Where the sum includes all outages that occurred in the period and/or calendar year and area, and where:
- Ui is the number of users involved in the ith considered outage;
- Utot is the total number of users directly connected to the NTG during the calendar year.

Balancing Services Market (BSM)
The market provided and regulated within the Dispatching Service Market (DSM) for the procurement of the resources necessary for balancing.

Bay
Group of power plants and accessory plants serving a power line or a transformer which connect the Grid elements to the bar system of a power station.

Bersani Decree
Legislative Decree no. 79 of March 16, 1999, which was issued to implement EC Directive no. 96/92/EC, regarding shared standards for the domestic electricity market and the liberalisation thereof.

Bilateral contract
An energy supply contract between two market operators.

Code of Ethics
It is often called a "business charter", as it represents the foundation of the company's culture and explicitly sets forth the rights and duties and areas of responsibility that the business undertakes to respect in dealing with its stakeholders. It is an official document, signed by the BoD, which requires the compliance of all personnel.

Congestion Resolution Market (CRM)
The market provided and regulated within the Dispatching Service Market (DSM) for the procurement of the resources necessary for resolving congestion.

Connection
The group of grid elements forming the transmission line, and the bays at the borders of the same, including the related circuitry isolating apparata. Connections are classified by voltage level with reference to rated voltage. The length of the connection is generally the length of the line which forms the connection itself.

Connection line
Any power line that links the power distribution plant with the user's plant, or the power distribution plant with the connection station.

Connection station
Power station which is part of the NTG, whose supply plant is connected to one or more power lines.

Control area
Electricity system able to regulate its own production by maintaining exchanges of power with other interconnected systems at planned levels, and to contribute to the regulation of the interconnection frequency.

Control Center
A group of plants used for the control and operation of the NTG or a User's electricity system (different from a Production System).

Control System
A group of calculation systems, data transmission lines and apparata which enables the secure and economic control of the entire electricity system.

Controlled electricity system
The group including the National Transmission Grid and directly connected users' plants, including the associated devices for ancillary services

Corporate Governance
The form of governance of the company, meaning the system of relations between managers, directors, shareholders and other stakeholders of the company.

Corporate Social Responsibility (CSR)
It is the responsibility of the companies for their impact on the society. Compliance with the applicable legislation and the collective contracts by the social parties represents an essential requirement in order to meet this responsibility.
To fully meet their social responsibility, enterprises should have in place a process to integrate social, environmental, ethical questions, human rights and consumer concerns into their business operations and core strategy in close collaboration with the relative contacts, with the objective of doing everything possible to create a shared value between their owners/ shareholders and their other stakeholders and the company in general and to identify, prevent and mitigate their possible adverse effects.
(European Commission Communication 681/2011 "Renewed strategy of the EU for 2011-2014 regarding social responsibility of businesses").

Customers
Businesses or distribution companies, wholesalers and the final buyers of electrical energy.

Data privacy
Data are considered confidential if, when transferred from one telecommunications and/or processing system, the data content is not to be read by unauthorised persons. This is a data and information treatment condition of direct commercial importance.

Day Ahead Energy Market (DAEM)
The trading of bids for the purchase and supply of electrical energy for each hour of the next operating day following that of trading. This market deals with the energy units which define the production and withdrawal plan for the following day (preliminary cumulative programmes).

Defence plans
The control activities - automatic and/or manual - set forth by Terna and carried out through single systems and/or plants designed to maintain or to return an electricity system to a normal condition, also passing through a reinstatement stage, once such a stage has already begun, or emergency conditions are already present.

Development
Works on the electricity grid which lead to the adjustment or upgrading of the transport, transformation, connection and interconnection capacity, or an increase in operating flexibility of the grid, or the removal of grid elements.

Direct connection to the NTG
Connection of all plants with existing circuit continuity at least in one point, without the interposition of ancillary power plants, to the NTG.

Dispatching
The activity aimed at issuing provisions for the coordinated use and operation of production plants, the National Transmission Grid, the grids connected to the same, and ancillary services of the electricity system.

Dispatching Service Market (DSM)
The market for the negotiation of the procurement of several resources required for the dispatching service. In general, it is required to be composed of several markets: Congestion Resolution Market (CRM), Reserves Market (RM), Balancing Services Market (BM).

Distribution
The transport and transformation of electrical energy on high-, medium- and low-voltage distribution grids for supply to the final customers.

Dividend Yield
Calculated as the ratio of the last dividend distributed by a company and the current price of its shares. It indicates the immediate profitability of a share.

DPS (Dividend per Share)
Dividend per Share: calculated as the total amount of dividends distributed by a company divided by its total number of ordinary shares.

EBIT (Earnings Before Interest and Taxes)
One of the key profitability indicators for typical company management. It measures company profits before taxes, financial income/charges and extraordinary components; it is also called operating profit or operating income.

EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortisation)
Profit before taxes, financial income/charges, write-downs, amortisation and extraordinary components. It is similar to the term GOP (Gross Operating Profit), which measures operating profits gross of amortisation and allocations to provisions.

EBT (Earnings Before Taxes)
A company's profits (losses) before tax.

Electricity Grid
A group of plants, lines and stations for transferring electrical energy and supplying the necessary ancillary services.

Electricity Exchange
The system of wholesale selling of electricity, which determines which power generation systems or plants will be used to meet the demand at any moment and the price of energy at that specific moment.

Electricity markets
Intended as the combination of the Energy Market and the Dispatching Service Market (DSM).

Electrocution
Phenomenon known as an electric “shock”, caused by contact between a body and electrical current. This can have damaging and/or lethal effects on an organism depending on the intensity of the current and the duration of exposure.

Eligible customer
The natural person or legal entity who is free to stipulate supply contracts with any producer, distributor or wholesaler, both in Italy and abroad. Starting from May 1, 2003, eligible customers are defined as those consuming more than 100,000 kWh per year.

Emergency condition of an electricity system
Operational situation of an electrical grid which results in exceeding operating limits of grid elements and/or outages of load portions, due to faults or disturbances.

Emergency measures
Group of operations executed following anomalies or faults on plants, to ensure the recovery of efficiency of such plants as quickly as possible and/or enable, in emergency conditions, the local running of the plants.

Emergency Plan
Group of automatic and manual procedures implemented during critical operating periods, in order to avoid or limit outages of the electricity system itself or part of it.

Emergency Plan for the Security of the Electricity System (EPSES)
In case of critical events, EPSES sets forth the methods for selectively suspending the supply of electricity to domestic and industrial users, with different levels of severity.

Energy market
Intended as the combination of the Day Ahead Energy Market (DAEM) and the Real Time Energy Market (RTEM).

Energy Not Supplied (ENS)
Energy Not Supplied due to outages, defined by the following formula:

$$\sum_{i=1}^{n}\sum_{j=1}^{m}(P_{i,j} * T_{i,j})$$

where the sum includes all outages that occurred in the period and/or calendar year and area and, for each of these, all direct and indirect users affected by the same outage, where:
- n is the number of outages in the period under observation;
- m is the number of users affected by the ith outage;
- Ti,j is the duration (in hours) of the outage and interrupted power (MW) for the jth user affected during the ith outage;
- Pi,j is the average constant value of the 15 minutes preceding the outage if the duration of the interruption is less than or equal to 15 minutes; if the length exceeds 15 minutes, this is estimated based on the forecast and/or historic capacity power diagram.

EPS (Earnings Per Share)
Calculated as the ratio of net profit to the number of a company’s outstanding ordinary shares.

Equity
Term used to indicate the shareholders’ equity of a company; in the context of asset management, it is used to refer to the stock segment.

Ethical Auditing
Consists in verifying the application of and compliance with the Code of Ethics. The company management assigned this task must ascertain and promote continuous improvement in ethics with the company through analysis and evaluation of the ethical risk control processes.

Extra high voltage (EHV)
Rated voltage with a value higher than 220 kV.

Extraordinary maintenance
Performed for the recovery and extension of the useful life of a plant, without modifying the functional consistency or technical characteristics, as specified in Attachments 1, 2a and 2b of the Operator-Owner Standard Agreement.

Fault
The yielding of an electric component or a condition of danger to persons or things, which results in a grid element being immediately taken offline. The fault can be:
- transient, when it is eliminated through the automatic sequences of immediate opening and reclosure of the circuit breakers;
- permanent, in all other cases.

Final customer
The natural person or legal entity who purchases electrical energy exclusively for their own use.

Free market
Market where producers and wholesalers of electrical energy, both Italian and foreign, compete freely to provide electrical energy to eligible customers.

Frequency
The number of oscillations per second, in which the value of the alternating current, such as voltage, varies from positive polarity to negative polarity. It is measured in Hertz (Hz).

Fringe Benefit
Compensation in kind, meaning benefits which do not consist in the payment of money, but the use of a service or an object; such as the company canteen, lunch vouchers, company car or mobile telephone.

FTSE4Good
Financial Times index which groups the best companies meeting specific sustainability requirements. These companies are identified by the EIRIS, through specific questionnaires.

Gestore Mercato Elettrico (Energy Market Operator - GME)
Joint stock company created in 2000 by GRTN, which is in charge of the economic management of the electricity market in compliance with criteria of transparency and objectivity, in order to promote competition between producers, ensuring the availability of a suitable level of power reserves.

Gigawatt (GW)
Unit of measurement equal to one billion Watts (1,000 Megawatts).

GRI (Global Reporting Initiative)
An independent international association responsible for developing and distributing the Sustainability Reporting Framework, in order to support companies which voluntarily decide to publish data regarding their economic, social and environmental performance.

Grid Code (Code for transmission, dispatching, development and security of the grid)
The document that governs the procedures regarding the activities of connection, management, planning, development and maintenance of the National Transmission Grid, as well as dispatching and measurement of electricity. More specifically, the Grid Code sets forth transparent, non-discriminatory regulations for:
- access to the Grid and its technical regulation;
- development, management, and maintenance of the Grid;
- the performance of dispatching services;
- the supply of services of measurement and the aggregation of measurements;
- the settlement of financial charges connected to the various services;
- security of the national electricity system.

Grid diagram
Circuit infrastructure of the grid, represented in a single line diagram at a sufficient level of detail to illustrate the elements of the Grid, as well as the components making up such elements.

Grid management
The activities and procedures which determine the operations and the operations forecast, under any conditions, of a power grid. Said activities and procedures include the management of electric power flows, interconnection devices and necessary ancillary services, as well as the decisions to perform maintenance and development works.

Grid operator
The natural person or legal entity who manages a power grid, also without owning said grid.

Grid user
The natural person or legal entity who supplies or is supplied by a transmission or distribution grid.

High voltage (HV)
Rated voltage greater than 35 kV and lower than or equal to 220 kV.

Indirect connection to the NTG
Connection of all plants relevant in terms of the operations of transmission and dispatching, with existing circuit continuity at a minimum of one point, with the interposition of ancillary power plant, to the NTG.

Interconnection line
High-voltage power line in alternating current (AC) or direct current (DC) which links two different electrical transmission or distribution grids or even two generation plants.

Interconnection of electricity grids
Connection between electricity grids required for the transfer of electricity.

Internal Dealing
Governs transparency obligations in relation to the market, for operations in financial instruments of a company or its subsidiaries, performed by persons having significant company decision-making powers, and access to price-sensitive information.

Interruption
Condition in which the voltage of the terminals delivering electrical energy for a user is lower than 1% of the rated voltage.

Interruption with notice
Interruption generally due to the execution of planned intervention and manoeuvres on the grid, preceded by notice to users involved of the duration of the interruption, using suitable means and with advance notice of no less than one day.

Interruption without notice
All cases of interruption where users are not notified in advance through suitable means and with advance notice of no less than one day. An interruption without notice may be classified as:
- long-term interruption, if it has a duration of more than three minutes;
- short-term interruption, if it has a duration of more than one second but no more than three minutes;
- transient interruption if it has a duration of no more than one second.

IPO (Initial Public Offering)
Indicates an initial offer of shares of a company being listed. It is a synonym of “Public Offer for Sale”, “Public subscription of shares” and “New listing”.

Italian Authority for Electricity and Gas (AEEG)
Independent authority created by Law no. 481 of November 14, 1995, which is charged with regulating and controlling the electrical energy and gas sectors.

Kilowatthour (kWh)
Unit of measurement that expresses the quantity of electricity equal to 1,000 Watts provided or requested in one hour.

kV
(kilovolt=1,000 Volts) unit of measurement of voltage.

kW
(kilowatt) unit of measurement of power (1 kW=1,000 J/sec), which expresses the amount of energy per unit of time.

kWh
(kilowatthour) and its multiples MWh (Megawatthour, 1,000 kWhs), GWh (Gigawatthour, 1,000,000 kWhs) and TWh (Terawatthour, 1,000,000,000 kWhs) measure electrical energy. They are equal to a power of 1 kWs (and multiples) over one hour.

Load curve
Diagram which shows the power demand on an electricity grid over time.

Maintenance
Operations and works for the maintenance or recovery of efficiency, and smooth operation of the electricity plants, taking into account any decrease in performance.

Medium voltage
Rated voltage greater than 1 kV and lower than or equal to 35 kV.

Megawatt (MW)
Unit of measurement equal to one million watts (1,000 kilowatts).

Monitoring
All the actions through which the current operational status of an electricity system is ascertained.

National electricity system
The national electricity system comprises the total of production plants, transmission and distribution grids, auxiliary services and interconnection and dispatching devices located in the Italian territory.

National Transmission Grid (NTG)
Electricity grid for national transmission as set forth by the Minister of Industry Decree dated June 25, 1999 and subsequent amendments and additions.

Normal alarm condition of an electricity system
Situation in which the total load demand is satisfied, in stable regime there are no violations of operating limits of system components, but the required security criteria are not met.

Normal condition of an electricity system
Situation in which the total load demand is satisfied, in stable regime there are no violations of operating limits of system components, and the required security criteria are met (criterion n-1).

Operation
The methodical use of power plants and accessories according to procedures codified in the implementation of the decisions regarding the operation of the Grid. Operation includes:
- the running of the plants in order to carry out Terna's orders and autonomous deliveries;
- emergency assistance following fault or anomalies;
- operations for going offline and for the security of the plants;
- the monitoring of the status of the plants;
- plant inspections.

Operations planning
Preparation of plans and schedules for the operation of the electricity system.

Outage
Interruption.

Partial availability of a grid element
State in which a grid element may be temporarily used under conditions different to those provided under operational consistency as set forth in Attachment 1 of the Operator/Owner Standard Agreement.

Permanent disturbance
Disturbance in which, following the automatic opening of the circuit breakers as a result of operation of the protection systems, irrespective of execution of the automatic rapid reclosure or slow reclosure (automatic or manual) of the circuit breakers, repair works are required on grid elements or plant components.

Planned maintenance
Maintenance, not of an urgent nature, which lasts more than or equal to 5 total days, scheduled in the annual unavailability plan, or subsequently agreed.

Planning
Definition of the usage plans, for a specific period of time, for the available means of production and transmission, in order to satisfy the energy requirements with respect to quality and continuity of service.

Power recovery
The activities coordinated by Terna in order to restore an electricity system after a black-out.

Power restart plan
Group of automatic and manual procedures which enable reinstatement of the electricity system to normal operational conditions, following the going offline of the electricity system itself or part of it.

Power station
The part of a grid which is concentrated and closed in a specified site, and used for switching electrical energy among the lines of a grid, for transferring the electrical energy between grids with different levels of voltage, and for transforming the electrical energy to the lowest voltage usable by the user.

Power supply quality
Continuity and regularity over time of the voltage and frequency values of the electrical energy supplied.

Production
Generation of electrical energy, in any way.

PPE (Personal Protective Equipment)
Any equipment designed to be worn or held by the worker, for the purpose of protecting him/her against one or more risks likely to threaten his/her safety or health in the workplace, as well as any complement or accessory designed for such purpose. IPDs must comply with Directive EEC 686/89 and subsequent modifications, with the EN 345 regulations, as well as Legislative Decree no. 475 of December 4, 1992.

Rated voltage of the system
Value of the voltage used to designate or identify the system.

Rating
Letter symbol which expresses the level of risk of securities representing a specific debt. This is one of the most significant § tools for forecasting and controlling the risk of insolvency in modern securities markets. Ratings are published by .1 specialized rating agencies. The most well-known, on the global level, are Moody's and Standard & Poor's. Ratings are w announced at the time of issuing the security, but may be subsequently modified (uprating or downrating), thus positively or negatively influencing the image of the company and a significant part of trading. The highest rating is indicated by the symbol "AAA", "AA+", reaching down the worst rating, indicated by "D".

Real Time Energy Market (RTM)
The site of trading of bids for the purchase and supply of electrical energy in order to adjust the programmes of energy input and withdrawal defined on the Day Ahead Energy Market (DAEM).

Reinstatement condition of an electricity system
Situation in which, following total or partial load disconnection, the actions required to return the system to normal conditions are carried out.

Reliability
The fulfilment of two conditions:
- availability: capability to respond, statically and in every moment, to the customers' global demand for power and electrical energy at the connection points, taking into account planned and forced going offline of the components of the electricity system;
- security: capability to respond to sudden disturbances such as short-circuits or forced loss of components of the electricity system. Thus, this aspect specifically considers transition effects which are not covered by the first criterion.

Remote control and telemetry system
Group of remote data transmission devices which allows for the management of plants and the control and measurement of the supply to the client.

Remote control equipment (with reference to the registration of the interruptions in the distribution of electrical energy)
The system used to remotely manage and supervise the high- and medium-voltage distribution grid. This system also registers, automatically and continuously, the events of opening and closure of circuit breakers and other command devices (caused both by remote commands and interventions of protection or by automatic equipment), and events of black-out in the interconnection points with the National Transmission Grid or with other operators.

Requirement
Demand for electricity to be satisfied by the national electricity system. It shows a variable trend throughout days, months and years.

Reserves Market (RM)
The market provided and regulated within the Dispatching Service Market (DSM) for the procurement of the secondary and tertiary reserves.

ROACE (Returns on Average Capital Employed)
Index of return on invested capital; it is calculated as the ratio of the EBIT and net average capital employed by a company.

Routine maintenance
Activity carried out on plants or parts of plants for maintenance or recovery of efficiency and correct functioning, in relation to a fall in performance, without any modification of the number or function of the plants involved. Routine maintenance is defined as:
- periodic or cyclical if the activity regards regularly scheduled interventions independent of external causes;
- conditional or predictive if the activity follows the verification or monitoring of plant functionality;
- occasional if the activity follows upon the existence of anomalies.

Occasional routine maintenance is divided into:
- deferrable maintenance, if the execution of the activity may be delayed by at least one week from the moment that Terna's notified of the anomaly;
- non-deferrable if the execution of the activity, based on the owner's evaluation must be performed immediately and no more than one week from the notification of the anomaly to Terna, in order to avoid danger to persons or things, or the existence of a fault;
- on the fault, if the activity follows upon the existence of anomalies.

Secondary power reserve
Share of power in the generation pool which must cover the imbalance between production and load, due to random variations in requirements, errors in the forecast of requirements, unexpected unavailability of generation (for example, due to breakdowns) and unexpected variations in the programmes of exchange with foreign countries. Generally, based on the operational status of the groups which can make the reserve available, it can be classified into two categories: rotating reserves and cold reserves.

Service quality of electricity supply
Quality of the technical/commercial services provided to users, and the quality of the electric parameters of the energy supplied.

Single Buyer
A stock company established in 2000 by the National Transmission Grid Operator (GRTN) to guarantee Captive Customers the supply of electrical energy under conditions of continuity, security and efficiency of the service. The Single Buyer guarantees the application of a single national tariff to these customers.

SRI (Socially Responsible Investment)
Investments which take into account not only economic performance, but also social, environmental and ethical criteria. The choice of shares is guided by negative criteria (exclusion) or positive criteria (inclusion): the first type excludes specific types of companies (e.g. tobacco producers, arms manufacturers etc.) or countries which do not respect human rights or workers' rights, while the second type socially responsible companies are chosen for investment (i.e. those with CSR policies).

Stakeholder
Everyone (individuals, groups, organizations, institutions) interested in the company, especially if directly affected by company's activities in economic terms - such as shareholders, employees, customers and suppliers - but also when only indirectly affected, such as the general public bearing an interest in the protection of the environment.

Static power meter
Energy meter in which the current and voltage, when applied to an electronic measurement element, produce frequency pulses in proportion to the power.

Supervisory Control and Data Acquisition System (SCADA)
Computerized system for controlling production and transmission, with data acquisition functions and man-machine interface, for presenting data to operators in the control centres.

Telecommunications system
Infrastructure composed of a physical means and hardware/software devices required by the Primary Acquisition System in order to acquire the measurement data from the measurement devices.

Transformer
Electrical device used for the connection and transfer of energy between grids at different voltage levels.

Transforming station
Part of a grid composed of a group of apparata used for transferring electrical energy between grids with different levels of voltage.

Transmission
Electricity transport and transformation activities along the interconnected high- and extra-high-voltage grid for the purposes of delivery to customers, distributors, and recipients of self-produced energy.

Transmission activities
The activity of transferring and transforming electricity on the grid. Transmission activities include:
- the unified management of the Grid and the parts of power stations not included in said grid, but connected and functional to transmission activities pursuant to art. 3, paragraph 5, of the Decree of the Minister of Industry, Commerce and Crafts dated June 25, 1999;
- the planning and identification of development activities;
- annual authorization of maintenance works.

Transmission line
High- and extra-high-voltage power line, overhead or cable, used for the transfer of electricity from the production plants to the distribution grids or to users.

Transmission plants
Infrastructures dedicated to the transmission of electricity, belonging to the NTG, such as lines and switching stations and transforming stations.

Triad
Group of three conductors (or groups of conductors), each prepared for the transfer of one of the phases of the three 5 phase electric field used on the grid in alternating current.

TSR (Total Shareholder Return)
This is the most complete measurement of value created by a company for its shareholders. It is calculated using the following formula: (Share price at end of period - Share price at beginning of period + Dividends)/Share price at beginning of period. The calculation of TSR provides the annual rate of return for an investor who purchased a security on a certain date and sold it on another date. This calculation considers all paid dividends reinvested in the security at the coupon payment date.

Unavailability of a grid element
Situation in which an element of the Grid cannot be used by the operator for transmission activities. Unavailability may be:
- planned, if it is included in the annual unavailability plan or in the quarterly unavailability plan, and has a duration of less than five days;
- occasional, if not included in the annual plan, but included in the quarterly unavailability plan and has a duration greater than or equal to five days; or it is not included in the quarterly plan but in the monthly plan.

Occasional unavailability may be:
- deferrable, if it involves occasional maintenance which can be deferred;
- non-deferrable, if it involves occasional maintenance which cannot be deferred;
- due to fault, if the result of the existence of a fault;
- due to external causes, if the result of the needs of third parties or events which cannot be attributed to the owner, such as: works or tests requested by operators/owners of bordering grids or other operators, natural disaster, or requirements of public authorities.

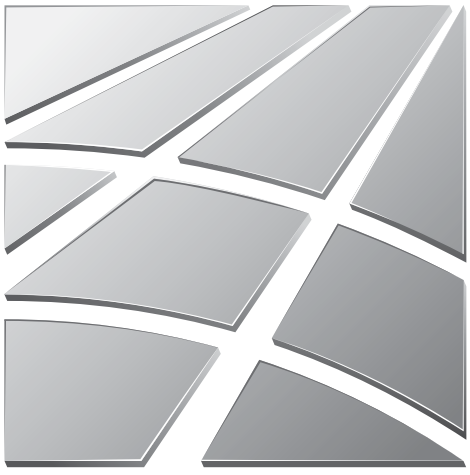
Unified Grid management
Coordinated management of all portions of the NTG.

Volt
Unit of measurement of voltage.

Watt
Unit of measurement of electric power.

Wholesale customer
The natural or legal person which purchases electrical energy without carrying out production, transmission, or distribution activities in the countries of the European Union.

2012



Report of the External Auditors

Terna

TERNA SPA

INDEPENDENT REPORT
ON THE LIMITED ASSURANCE ENGAGEMENT
OF THE SUSTAINABILITY REPORT 2012

INDEPENDENT REPORT ON THE LIMITED ASSURANCE ENGAGEMENT OF THE SUSTAINABILITY REPORT 2012

To the Shareholders of
Terna S.p.A.

1 We have carried out the limited assurance engagement of the Sustainability report as of 31 December 2012 (hereafter the "Report") of the Terna Group (hereafter the "Group") following the verification procedures summarized in paragraph 3 of the present document. The Directors of Terna S.p.A. are responsible for the preparation of the Report in accordance with "Sustainability Reporting Guidelines & Electric Utilities Sector Supplement" (EUSS), issued in 2009 by the GRI – Global Reporting Initiative, and with the GRI 3.1 Guidelines updated in March 2011, that are detailed in paragraph "Methodological note" of the Report. The Directors are also responsible for the definition of the Group objectives regarding the sustainability performance and the reporting of the achieved results. We are responsible for the preparation of this report on the basis of the work performed.

2 Our work has been conducted in accordance with the principles and guidelines established by the "International Standard on Assurance Engagements 3000 - Assurance Engagements other than Audits or Reviews of Historical Financial Information" (ISAE3000), issued by the International Auditing and Assurance Standards Board. ISAE3000 requires the compliance with ethical principles ("Code of Ethics for Professional Accountants"), including professional independence. It also requires that our work is planned and performed with the aim of obtaining a limited assurance, rather than a reasonable assurance, that the Report is free of material errors.
A limited assurance engagement of the sustainability report consists in interviews, primarily with company's personnel responsible for the preparation of the information included in the sustainability report, in the analysis of the sustainability report and in other verification procedures.

3 The verification procedures performed on the Report are summarized as follow:

a) comparison between the economic and financial information and data included in the Report with those included in the Group consolidated financial statements as of 31 December 2012;
b) analysis of design and implementation of governance and management system of sustainability topics related to strategy and operation of the Group;
c) analysis of processes underlying the generation, recording and management of quantitative data included in the Report. In particular, we have carried out the following procedures:

- meetings and discussions with management representatives of Terna S.p.A to achieve a general understanding of the information, accounting and reporting systems in use to prepare the Report, as well as of the internal control processes and procedures

PricewaterhouseCoopers Advisory SpA

Sede legale: Milano 20149 Via Monte Rosa 91 Tel. 02667201 Fax 0266720501 Cap. Soc. Euro 3.200.000,00 i.v. - C.F. e P.IVA e Iscrizione al Reg. Imp.Milano N. 03230150967 – Altri Uffici: **Bari** 70124 Via Don Luigi Guanella 17 Tel. 0805640311 Fax 0805640349 - **Bologna** Zola Predosa 40069 Via Tevere 18 Tel. 0516186211 - **Firenze** 50121 Viale Gramsci 15 Tel. 0552482811 Fax 0552482899 - **Napoli** 80121 Piazza dei Martiri 58 Tel. 08136181 - **Padova** 35138 Via Vicenza 4 Tel. 049873431 Fax 0498734399 - **Palermo** 90141 Via Marchese Ugo 60 Tel. 0916256313 Fax 0917829221 - **Roma** 00154 Largo Fochetti 28 Tel. 06570831 Fax 06570832536 - **Torino** 10122 Corso Palestro 10 Tel. 0115773211 Fax 0115773299- **Treviso** 31100 Viale Felissent 90 Tel. 0422315711 –**Trieste** 34125 Via Cesare Battisti 18 Tel. 0403480781 Fax 040364737 – **Verona** 37135 Via Francia 21/C Tel. 0458263001

www.pwc.com/it

supporting the collection, aggregation, processing and transmission of data and information to the department responsible for drawing it up.;

- on-site verifications at Transmission Operational Area (AOT) - Milan.

d) analysis, on a sample basis, of the documentation supporting the Report, in order to confirm the reliability of data and information collected through meetings, interviews and on-site verifications and to confirm they were properly managed;
e) verification of processing of data and information generated by the audited local site and afterwards aggregated and consolidated;
f) analysis of the completeness and internal consistency of qualitative information included in the Report in comparison with the reporting guidelines referred to in paragraph 1 of this report;
g) obtaining a representation letter, signed by the legal representative of Terna S.p.A. relating to the completeness and reliability of the Report and of the information and data included in it, as well as to the compliance with the guidelines identified in paragraph 1 of the present document.

Regarding the comparative data relating to the Sustainability Report 2011, reference should be made to our assurance statement dated 24 May 2012.

A limited assurance engagement is less in scope than a reasonable assurance engagement carried out in accordance with ISAE3000 and, as a consequence, it provides a lower level of assurance that we became aware of all the significant events and circumstances that a reasonable assurance engagement could have identified.

4 Based on the procedures carried out, nothing came to our attention that causes us to believe that the Sustainability Report as of 31 December 2012 of the Terna Group is not in compliance, in all material respects, with "Sustainability Reporting Guidelines & Electric Utilities Sector Supplement" (EUSS), issued in 2009 by the GRI – Global Reporting Initiative, and the GRI 3.1 Guidelines updated in March 2011 that are detailed in paragraph "Methodological note" of the Report.

Turin, 23 May 2013

PricewaterhouseCoopers Advisory S.p.A.

Signed by

Paolo Bersani
(Partner)

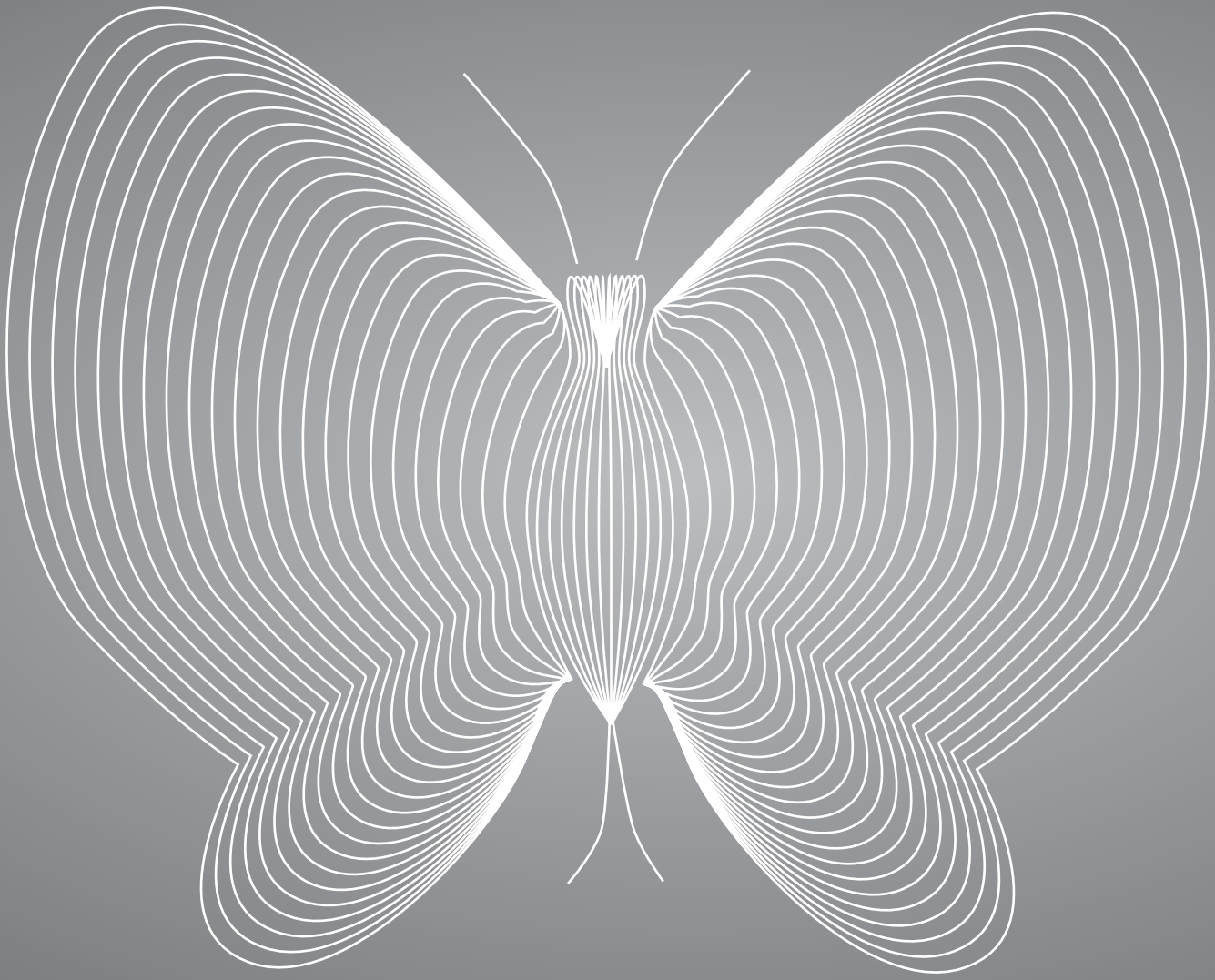
This report has been translated from the original, which was issued in Italian, solely for the convenience of international readers.

Coordination and Development by Terna S.p.A.

External Relations and Communication Department

Editing
Intrawelt s.a.s. Porto Sant'Elpidio

WE WORK FOR A **GRID** THAT'S **LIGHT** FOR THE ENVIRONMENT



WORKING FOR SUSTAINABLE DEVELOPMENT
ALSO MEANS TRANSMITTING ENERGY RESPONSIBLY.
THIS IS TERNA'S JOB.

Terna

www.terna.it

00156 Rome Viale Egidio Galbani, 70
Ph. +39 06 83138111

Terna