Environmental Report 2004

Enel
ENERGY IN TUNE WITH YOU.

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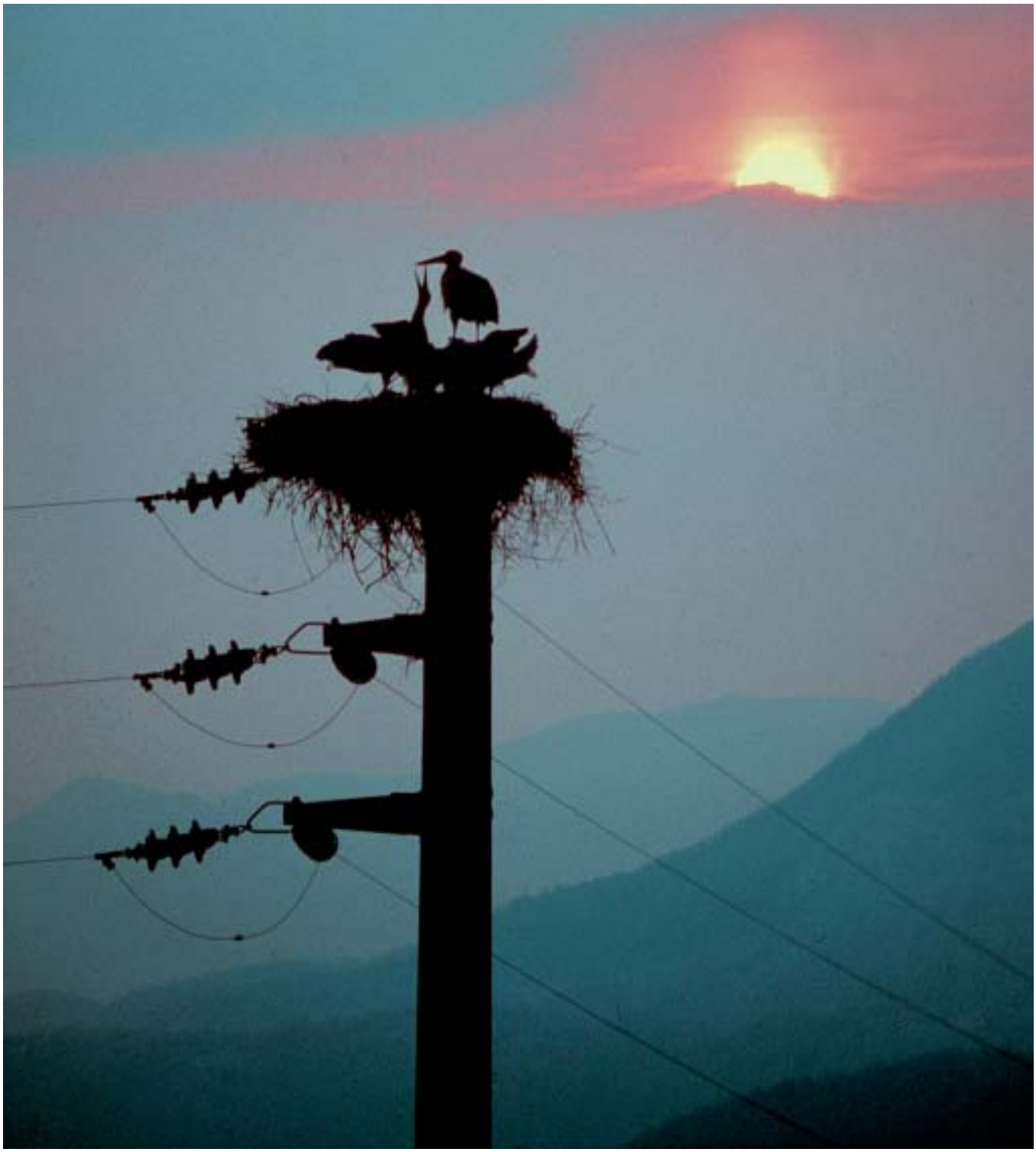

Environmental Report 2004

Enel

ENERGY IN TUNE WITH YOU.

The Environmental Report 2004 reviews the activities that Enel carries out in and outside Italy (Spain, Bulgaria, Americas) by means of companies included in its scope of consolidation with the full or proportional method.

The status data reflect their situation as of December 31, 2004 or in each of the considered years.
As far as the flow data are concerned, the Companies are considered in their configuration as of December 31, 2004 or in each of the considered years and with reference to the entire year, including acquisitions, if any, made in the course of the year.
All the reported data are equal to 100%, regardless of Enel's holdings in the Companies.
For instance, the data of both Deval (of which Enel has a 51% stake) and of Terna (of which Enel sold 50% in 2004) are equal to 100%.

The Report, which has the typical format of annual reports, consists of the following sections:

- Enel's organizational structure;
- environmental policy;
- environmental management organization;
- environmental governance;
- environmental features and highlights of Enel's Italian operations (with data sheets summarizing their environmental performance);
- Eco-Balance, which consolidates the results of Enel's Italian operations in each of the past five years and includes indicators and graphic presentations;
- review of Enel's non-Italian operations (with data sheets summarizing their environmental performance).

A special section is devoted to initiatives and results in the area of occupational health & safety.

The verifier's statement closes the publication.

For additional information on the general contents of the Environmental Report, contact:
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Contact persons for the various activities are specified in the data sheets.

CEO's message

Over the years, the publication of our Environmental Report has become an opportunity to take stock and give a detailed and transparent account of our environmental achievements.
Through the Report, we also reiterate our commitment to the search for electricity generation pathways that are innovative and increasingly environment-friendly. These pathways span from enhanced energy efficiency of power plants (through innovative concepts resulting from our research) to integration between renewable-energy power plants and gas-fired combined cycles ("Archimedes" solar project) and to the frontier of new energy carriers ("Hydrogen Project").

Enel's environmental performance in 2004 corroborated and rewarded our commitment to the environment. In addition to creating new shareholder value, all our activities and investments were framed into a context of sustainable development, with special emphasis on environmental care.

We achieved all our environmental targets.

After conducting a major program of conversion of oil-fired power plants to gas-fired combined cycles, we started construction work at the Torrevaldaliga Nord power plant site (Civitavecchia) as part of our "clean coal" operational plan.

Our emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x) and particulates into the atmosphere remained steady at the excellent levels of 2003.

We recovered and reused special waste (ash, gypsum, etc.) from our plants almost completely (over 95%).

In terms of climate change (greenhouse effect), Enel further curbed its specific CO_2 emissions, which dropped from 618 grams of CO_2 per kWh generated in 1990 to 504 grams in 2004.

Almost all of our industrial facilities (power plants and distribution grid) are ISO 14001-certified and all of our power plants are being registered under the EMAS Regulation.

Also in 2004, Enel continued its efforts for the development of renewable-energy power plants. We invested about 500 million euro in wind, geothermal, hydro, biomass and solar generation and we raised our generating capacity also through acquisitions abroad.

Nonetheless, our commitment to increasing generation from renewables is clashing with growing and unpredicted difficulties in obtaining authorizations or with unexpected local oppositions.

Last but not least, we launched an environmentalization program for the power plants that we acquired abroad, especially those in Central Europe.

Our challenge in the coming years will be to improve our targets in Italy and also to export them to countries where sustainable production processes are in their infancy stage.

The Chief Executive Officer

Paolo Scaroni

Enel SpA

The organizational structure of Enel, which took shape in the course of 2002, is organized into business areas (Generation and Energy Management Division, Networks, Infrastructure and Sales Divisions, Telecommunications Division, Services and Other Activities Division, Transmission Networks). Although these business areas still include multiple companies, they better respond to Enel's strategic change from a multi-utility model to an organization focused on electricity and gas.
In this context, Enel is preparing to sell its controlling interest in Wind.

Moreover, in compliance with Law no. 290 of October 27, 2003 (merger of ownership with management of the national transmission grid), Enel will decrease its holding in Terna (owner of the near totality of the national transmission grid) to 5%. As of December 31, 2004, Enel had already reduced such holding to 50%. Within October 31, 2005, part of the assets of GRTN (Gestore della Rete di Trasmissione Nazionale - National Independent Transmission System Operator) will be transferred to Terna. The new company arising from the merger will thus take over the electricity dispatching and power grid planning & development assets of GRTN, as well as its role of Independent Transmission System Operator.

In the current organization, guidance and monitoring activities are centralized in the so-called "Corporate".
In May 2004, as part of its "Corporate" activities, Enel created the "International" unit with the mission of supervising international operations and managing the development of its core business abroad, maximizing its value and ensuring both integration with the other "Corporate" activities and operational links with Divisions.

Corporate

Generation and Energy Management Division	Networks, Infrastructure and Sales Divisions	
	Electricity	Gas
Telecommunications Division	Services and Other activities Division	Transmission Networks

Environmental policy

Enel's environmental care is a well-established reality.
Mitigation of emissions, efficient use of resources, sustainable operation of installations and their integration into the landscape are priorities for Enel.
Environmental protection has thus become an asset of strategic and social relevance, which adds value to Enel's industrial policies.
Good environmental performance over the years led Enel to reiterate its environmental policy and underlying principles also in 2004 and to propose the achievement of the related targets with renewed impetus.

Principles

> Protecting the environment and the health & safety of workers.
> Safeguarding Enel's corporate value.
> Raising environmental and product quality standards.

Strategic targets

> Use of processes and technologies which prevent and/or mitigate impacts on the environment and landscape.
> Rational and efficient use of energy resources and raw materials.
> Optimization of waste recovery.
> Application of international environmental and safety management systems in the various activities.
> Optimized integration of installations into the landscape.
> Use of the best operating practices.
> Communication of corporate environmental performance to the public at large and to institutions.
> Environmental awareness, education & training of employees.

Environmental management organization

Enel's "Corporate" Public and Regulatory Affairs/Environmental Policies Unit has the mission of identifying Enel's strategic environmental targets, ensuring their consistency with the Divisions' programs and initiatives.
In particular, the Unit:

- promotes, implements and coordinates programs and agreements with environmental institutions and agencies;
- identifies indicators and monitors the progress of corporate initiatives in terms of environmental impact;
- conducts analyses on specific environmental issues having particular repercussions on Enel's system and arousing public interest;
- establishes relations with environment-focused institutions and agencies on technical matters;
- prepares Enel's Environmental Report.

Furthermore, depending on the specific issues to be covered, each Division may have in-house environmental teams and/or specialists.

Enel's total human resources that are full- or part-time dedicated to environmental matters in Italy amount to over 240 equivalent full-time units.

Environmental governance

The new organizational structure strengthened "Corporate" responsibilities, especially in terms of governance of cross-cutting processes, with a view to maximizing effectiveness and efficiency in the performance of business activities.
In this context, environmental governance helps raise the social credibility of Enel and is a measure of the competitiveness and value of its policies vis-à-vis shareholders, customers and communities.
Enel's environmental governance is currently implemented via reporting, management, awareness, training & education schemes, which also serve the purpose of transferring it to regional units so as to ensure consistent actions and behaviors.
Effective environmental governance also means careful management of financial resources.
Although Enel has not yet an environment-dedicated accounting system, its environmental expenses are recorded on a yearly basis in order to guide investments of an environmental nature.
Moreover, the governance process is designed in such a way as to address the inevitable environmental criticalities, which occasionally evolve into lawsuits.

Environmental reporting

The reporting system has become a key instrument for constantly monitoring the interactions of Enel's industrial activities with the environment.
The system was refined over the years, thanks to constant utilization and introduction of techniques and procedures that ensure data management reliability. Additionally, the formats for data collection were revised with a view to capturing data on occupational health & safety and on new aspects of governance and for making the reporting system more flexible and more adaptable to Enel's new organizational configuration and internationalization, as well as to evolving legislation.
Data reporting has become engrained into Enel's environmental management system and its methodology ensures the best homogeneity of the collected data.
Thanks to its high manageability, the reporting system has become an instrument for periodically monitoring the environmental performance of many of Enel's business activities vs. targets.

As part of this monitoring effort, the Power Grid Business Area of Enel's Networks and Infrastructure Division, implemented an intranet application software program, called "ambientesicurezza" (environment & safety) for gathering and handling process data and making available environmental documentation and legislation. On a quarterly basis, the application publishes an environmental report for internal use.

Moreover, Enel SpA is developing a fully automated environmental reporting system. The initiative will eliminate the manual steps still existing in the process, ensure a single and regular flow of data and reconcile strictly environmental requirements with Corporate Social Responsibility ones.

Environmental management systems

In 2004, once again, Enel was engaged in the application of environmental management systems in its electricity generating sites, in accordance with the international ISO 14001 standard and with the EMAS (Eco-Management and Audit Scheme) Regulation.

In particular, Enel is committed to certifying all of its Italian power plants under ISO 14001 and to subsequently apply for EMAS registration.

As of December 31, 2004, 70% of Enel's installed capacity (189 power plants) had been certified under ISO 14001; 28% of such capacity had also obtained the EMAS registration.

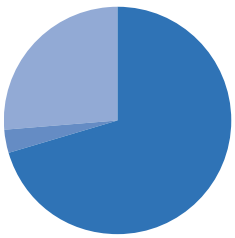
The ISO 14001-certified sites which have already been EMAS-registered are the thermal power plants of Fusina, La Casella, Leri Cavour, Montalto di Castro, Porto Marghera, Sulcis and Torrevaldaliga Nord, the hydro business units of Trento and Vittorio Veneto, the hydro power area of Taloro (province of Nuoro) and the hydro power plants on the Vomano river (provinces of L'Aquila and Teramo).

The thermal power plants of Brindisi Sud, La Spezia, Porto Corsini, Porto Tolle and Priolo Gargallo, the hydro business units of Bologna, Brescia, Cuneo, Napoli, Sardegna and Sondrio are only ISO 14001-certified, but are already preparing for EMAS registration. Furthermore, in 2004, the Power Grid Business Area of the Networks and Infrastructure Division (including organization and installations) gained the ISO 14001 certification. The event was accompanied by an impressive activity of training & education.

Also the Telecommunications Division (Wind) is certified under ISO 14001 and obtained its first three-year renewal of the certification in November 2003.

ISO 14001 in power plants

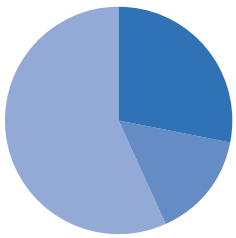
With reference to overall capacity: 42,047 MW



- Certified **70.4%**
- Certification under way **3.3%**
- Planned certification **26.3%**

EMAS in power plants

With reference to overall capacity: 42,047 MW



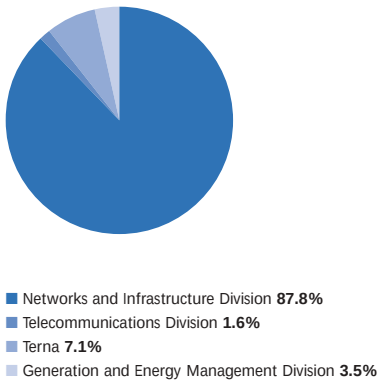
- Registered **28.1%**
- Registration under way **15.1%**
- Planned registration **56.8%**

Awareness, training & education

Environmental awareness, training & education initiatives have become core elements of Enel's yearly education plan for improving the skills and know-how of human resources.

In 2004, Enel developed education modules for its environment-dedicated personnel, delivering a total of over 43,000 man-hours of courses (about 10,000 in 2003). This outstanding result was achieved through the above-mentioned major education & training activity, which supported the ISO 14001 certification of the Power Grid Business Area of the Networks and Infrastructure Division. This activity, which relied on a special CD-Rom, involved more than two thirds of the field personnel.

Environmental education & training
Total: 43,054 man-hours



Also in 2004, Enel relied on communication activities for disseminating knowledge of its initiatives internally and externally.
After about four years, the "Environment" channel, dedicated to Enel's environmental and energy policies, was completely reconfigured and is now on line at www.enel.it.
The contents and graphic design of the channel were updated and its navigation logic was simplified. The new channel provides information about Enel's energy policies and activities and represents a source of documentation and debate on the energy sector at national, Community and international level. The channel is focused on political, economic and industrial issues, health aspects and environmental impacts of production activities.
In addition to key articles on topical issues, the homepage of the channel features scrolling news and provides access to its main sections:

> "Energy Dashboard": updated data on Italian electricity consumption;
> "Atlas" (interactive tool): environmental and energy data for all countries of the world;
> "Enel's Documents": Enel's Environmental Reports of the last four years, EMAS Environmental Declarations and Environmental Product Declarations;
> "Key documents": reasoned selection of documents on energy and the environment.

Financial resources

In 2004, the financial resources that Enel allocated to environmental protection in Italy were, once again, substantial:

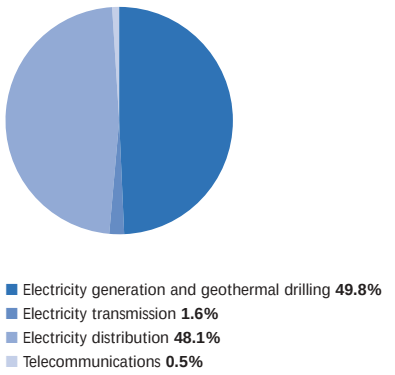
> 112 million euro of investments;

> 495 million euro of current expenditure.

The near totality of the above figures refer to electric activities.

In line with the guiding principles of Enel's previous environmental reports, environmental expenditure is defined as the costs incurred for preventing and mitigating environmental pollution and degradation and for restoring the quality of the environment, whatever the origin of such costs (legislation, agreements with local governments, corporate decisions, etc.).
This expenditure excludes the costs incurred for minimizing the use of natural resources, as well as for activities which, albeit beneficial to the environment, are carried out mainly for other purposes, such as hygiene and safety in workplaces and safety and security of power installations.

Environmental investments by business activity
Total: 111.8 million euro



Overall investments are more or less equally shared between electricity generation and distribution. Generation accounts for over 70% of investments in existing installations (65% of the total). Among these investments, it is worth mentioning the beginning of environmental retrofits on the Fusina power plant units 1 and 2 and of the conversion of the Torrevaldaliga Nord power plant to coal firing. Conversely, distribution has the lion's share of investments in new installations (35% of the total).
The latter investments mainly concern the construction of environmentally sustainable power lines (new or replacements). Considering that Enel, also for financial reasons, relies on well-established standard construction practices, the following costs are regarded as environmental investments:

> extra costs for the use of overhead cables vs. bare conductors in medium-voltage lines in areas of low population density;

> extra costs for the use of underground vs. overhead cables in low-voltage lines in the above areas;

> costs for the use of underground cables, if any, in high-voltage lines, whatever their location.

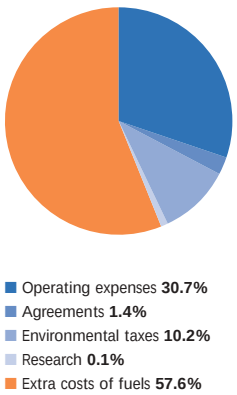
Electricity generation has the largest proportion of the 2004 current environmental expenditure. Fifty-eight per cent of this expenditure (285 million euro) is due to extra costs of fuels, i.e. costs incurred for using low-sulfur fuels in order to comply with environmental regulations, instead of using the originally planned fuels. These costs are computed by determining the difference between the cost of low- and very low-sulfur fuel oil or of natural gas and the cost of medium-sulfur fuel oil, in each fuel-oil or fuel-oil/natural gas power plant.

152 million euro (90% attributable to electricity generation) account for operating expenses (operation and maintenance of equipment and systems for environmental protection, waste disposal, implementation and operation of environmental management systems, personnel of Enel and of contractors involved in these activities, environmental education & training, etc., but also costs arising from operating limitations for environmental protection, e.g. limitations to the temperature of cooling water releases from some thermal power plants and regulations requiring hydro power plants to release part of the diverted water into the original streambed, the so-called minimum in-stream flow).

50 million euro represent eco-taxes (above all, carbon tax, tax on polluting emissions and contributions for geothermal resource prospecting and exploitation).

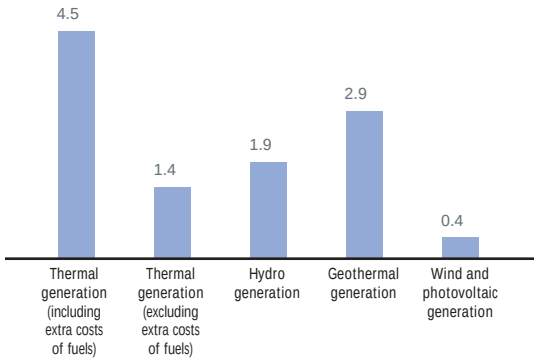
Items of current environmental expenditure

Total: 494.7 million euro



Current environmental expenditure per kWh generated

By type of generation (thousandths of euro/kWh net)



In 2004, Enel initiated a process of reclassification of its environmental expenditure in line with the criteria indicated by Istat (Italian statistical institute). The classification used so far is based on the scheme that the Istat-Fondazione Enrico Mattei Commission developed in the early 1990s. Istat's new criteria arise, among others, from Regulations EC no. 58/97 and no. 2056/2002 concerning structural business statistics. The Regulations require the statistical institutes of member countries to

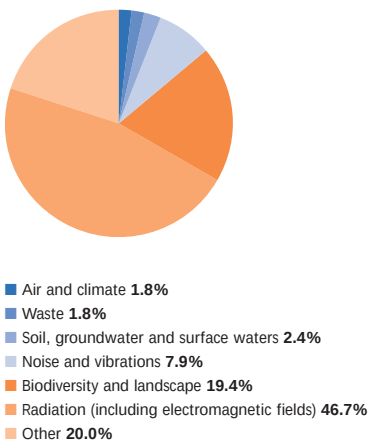
provide Eurostat with a number of data. So, on a yearly basis, Istat records the main items of expenditure that companies incur for environmental protection.
On initiating the process, Enel aimed at putting in place procedures minimizing the exercise of discretion, which characterizes the classification of environmental expenditure.
After completing most of its environmental expenditure reclassification (also through meetings with Istat), Enel is identifying procedures for extracting the items of expenditure from its cost accounting system, minimizing (or defining criteria for) the assessment of non-accounting items.

Environmental criticalities

The use of the most rigorous and advanced organization and management measures cannot avoid the occurrence of environmental criticalities, which originate from various factors, including the excessive emphasis that the media place on some issues, thus inducing a wrong perception of reality and improper expectations among communities.
Environmental criticality is the rejection of or opposition to installations (and/or to the impact deriving from their operation). Such rejection or opposition is expressed – obviously for environmental reasons – by a third party feeling disturbed, damaged or threatened by present or future installations.
Environmental opposition translates into initiatives which may involve significant costs owing to failed authorizations, suspension of works, modifications of installations, etc.

The environmental criticalities arising from Enel's activities in Italy as of December 31, 2004, were 165: 62% involved the power distribution grid, 23% telecommunications and 15% electricity generation.
The most recurring criticalities concern electric & magnetic fields, followed by biodiversity and landscape, and noise & vibrations.
Most of the criticalities regarding electric & magnetic fields, biodiversity and landscape are due to the power distribution grid, whereas noise and vibrations are due, above all, to telecommunications systems.
61% of the criticalities originated from complaints, while the remaining part resulted from administrative measures and warning letters (including written protests).
The originators of these initiatives were public administrations (58%) and private parties.

Environmental criticalities by environmental domain
Total: 165



Environmental litigations

As of December 31, 2004, Enel had 344 pending lawsuits in Italy, of which 91% administrative and civil and 9% criminal.

Most of the judgments concern the electricity transmission and distribution grids. The distribution of lawsuits by environmental domain (limited to administrative and civil lawsuits) shows that electric & magnetic fields are dominant (71%), followed by biodiversity and landscape, air and climate and, with low figures, by waste, and noise & vibrations.

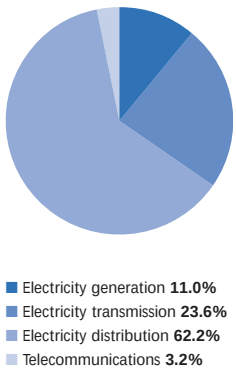
In 2004, 44 new lawsuits were filed and 20 were settled.

It should be pointed out that the above lawsuits are only the civil and criminal lawsuits where Enel was sued, as well as those originating from third parties' appeals seeking the cancellation of administrative measures in favor of Enel.

Lawsuits concerning workplaces are excluded.

Pending environmental litigations
as of Dec. 31, 2004 (by business activity)

Total: 344

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Italian Operations

Generation and Energy Management

In Enel's current organization, Generation and Energy Management is the Division that gathers all assets of electricity generation in and outside Italy (Spain, Bulgaria, North America, Latin America), as well as electricity sales in Italy to customers with a yearly consumption of over 100 million kWh and to resellers.
Moreover, the Division sells natural gas to distributors in Italy, trades it on international markets and provides fuel handling services.
Generation and Energy Management consists of six Business Units, including those engaged in electricity generation from both fossil and renewable sources:

> "Thermal Generation", which manages and operates Italian thermal power plants;
> "Renewables", which develops and operates renewable-energy plants in Italy.

The Generation and Energy Management Division is implementing programs which have a positive impact on the environment: rationalization of the use of energy resources, development of renewables, increased efficiency of power plants and reduction of CO_2 emissions.
Particular emphasis is placed on improvement of the quality of services. In 2004, the Division launched its QUASAR (Quality of Services, Assets and Resources) project. The project, initially prepared for the Fusina, Leri Cavour and Montalto di Castro plants, will be extended to all thermal power plants with the purpose of enhancing the performance of the overall Division.

Efficiency of the thermal generating mix

In 2004, with the completion of the first of the two units of the Termini Imerese power plant (Palermo), the total capacity of ultra-high efficiency (55%) natural gas-fired combined-cycle plants exceeded 5,000 MW.
This capacity will grow by another 1,100 MW upon completion of the project for converting the oil-fired plants of Termini Imerese and Santa Barbara (Arezzo).
The conversions of the original conventional oil-fired power plants are bound to cut specific CO_2 emissions by over 50% and practically zero SO_2 emissions.

For a balanced mix of fuels, Enel plans to use not only high-efficiency natural gas, but also "low-grade" fuels, supported by advanced technologies.
In this context, always in 2004, works were started for converting the power plant of Torrevaldaliga Nord (Civitavecchia – Rome) from oil to coal firing. The plant is expected to reach an efficiency of 45% (vs. 38% before the conversion).
Specific CO_2 emissions will thus remain unaltered and, thanks also to modern combustion and abatement systems, stack concentrations of SO_2, NO_X and particulates will be equal to half of the regulatory limits.

Directive 2003/87/EC

Directive 2003/87/EC of October 13, 2003 established a scheme for greenhouse gas emission allowance trading within the Community.
As is known, the "emissions trading" market instrument is one of the flexible mechanisms included in the Kyoto Protocol with a view to facilitating the achievement of the related targets.
At present, the scope of the Directive is limited to CO_2 emissions from some industrial sectors (energy, production and processing of ferrous metals, cement, glass, ceramic products, paper).

As set forth in the Directive, in July 2004, the Italian Government submitted to the European Commission its National Allocation Plan (NAP), specifying its emission allowances by sector for the 2005-2007 testing period.
In its allocations to the various sectors, the Government took into account the high efficiency that the Italian industrial system has already reached. Furthermore, with a view to guaranteeing energy supply security and companies' competitiveness, the Government planned, among others, extensive reliance on emission credits coming from projects in other industrialized countries and in transition economies (JI: Joint Implementation) or in developing countries (CDM: Clean Development Mechanism).
Part of the provisions of the Directive were transposed into Law Decree no. 273 of November 12, 2004, which was amended and converted into Law no. 316 of December 30, 2004.

In this framework, in December 2004, Enel obtained authorizations from the Environment and Productive Activities Ministries to emit greenhouse gases in all of its plants covered by the Directive and submitted to the same Ministries historical and forecasting data on the same plants.

The census was extended to all operators, thus enabling the NAP to be supplemented, in February 2005, with the emission allowances of each plant.
However, in May 2005, the Italian NAP had not yet received the green light from the European Commission and many of the obligations laid down in the Directive had not been incorporated into the national legislation.

In spite of the uncertainty generated by these delays, Enel is pursuing a specific strategy to respond to the emissions trading challenge, reconciling it with its targets of source diversification and generation cost reduction. This strategy may be summarized as follows: substantial renovation of its thermal generating mix, increased electricity generation from renewables and use of credits from CDM and JI projects.

Continued commitment to renewables

In 2004, Enel gave further impetus to its program of development of renewables with about 130 MW of new capacity.

> New wind facilities in Sicilia and Sardegna:
- Caltavuturo 2 (completion: 7.7 MW), Gangi (27.2 MW) and Montemaggiore 1 (10.2 MW), province of Palermo;
- Nicosia (46.8 MW), province of Enna;
- Sedini (first tranche: 27 MW), province of Sassari.

> New mini-hydro plants:
- Rocca Sparvera (1.9 MW), province of Cuneo;
- Tirso 2 (4.5 MW), province of Oristano.

> Renovation of five hydro power plants – Balma (Biella), Campliccioli (Verbania), Capodacqua (Ascoli Piceno), Ischia (Campobasso), Zevio (Verona) – and of the geothermal power plant of Radicondoli, province of Siena.

> Continuing of the experimental project of co-firing (refuse-derived fuel – RDF – and coal) at the Fusina power plant.

Environmental Product Declaration

In June 2004, after obtaining the Environmental Product Declaration for the electricity generated by its wind power plant of Sclàfani Bagni (province of Palermo), Enel initiated the process also for its geothermal power plant of Bàgnore 3 (province of Grosseto). The certification is expected to be released by mid-2005.

Environmental Product Declarations are based on the application of the Life Cycle Assessment (LCA) methodology, along the lines indicated in the ISO 14040, 14041, 14042 and 14043 standards. They are defined as "Type III Environmental Declarations" in the ISO/CD 14025 standards, which also require their verification and validation by a certification body.

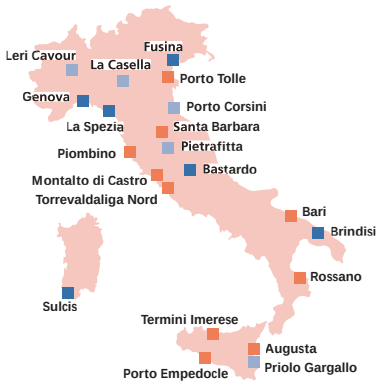
Enel opted for the EPD® scheme EPD introduced in Sweden in 1999 and managed by the Swedish Environmental Management Council (www.environdec.com) on a voluntary basis. In particular, Enel joined the Intend project (www.intendproject.net), funded by the 2003 European LIFE Environment program; as part of Intend, a demonstration project involving Sweden and Italy was launched in the 2003-2005 period, with the goal of disseminating the scheme at the international level.

The EPD® implements the ISO standards through specific procedures and rules applying to product categories, by providing objective and comparable product data. The Declaration does not provide comparisons but enables to make them within equivalent product categories. Given the level of detail of the product data that are provided, the scheme is suitable for use by companies rather than by mere consumers.

The LCA underlying the EPD® takes into consideration different categories of impact (renewable and non-renewable sources, acidification and eutrophication, greenhouse effect, ozone layer depletion, formation of photochemical oxidants, toxic substances, waste) in various process stages (generation – i.e. building, operation, maintenance and end-of-life of the plant – and product distribution).
To make the results comparable to those of other contexts, reference is made to a "functional unit". In the case of the "electricity" product, this unit is the kWh delivered to the grid and the kWh, decreased by grid losses, that is subsequently delivered to customers.

Enel joined the EPD® scheme in order to improve acceptance of its infrastructures, to supply an additional tool of transparent environmental communication and to use it as a system for internal validation and decision support.
The Sclàfani Bagni plant thus gained the first certification issued in Italy to the electricity product.
Instead, Bàgnore 3 will be the first EPD®-certified geothermal power plant in the world.
The EPD® results of the Sclàfani Bagni power plant show that: operation and maintenance have negligible environmental impacts; emissions of greenhouse gases and, obviously, utilization of raw materials are typical of the construction stage, in which also water consumption is higher; solid waste production is practically limited to the end-of-life stage.
The EPD® of the Sclàfani Bagni plant has a validity of three years.

Thermal Generation



Business unit
- Generation from coal and orimulsion
- Generation from fuel oil and gas
- Generation from combined cycles and gas turbines

For additional information, contact:
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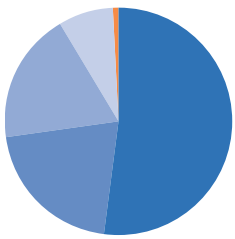
Thermal power installations

	Power plants no.	Generating units no.	Net maximum capacity MW
Steam (condensing)		57	14,145
Repowered with gas turbines		9	5,556
Combined-cycle gas turbines		14	5,005
Gas turbines		30	2,104
Diesel		49	27
	46	**159**	**26,837**

Net maximum capacity

Total: 26,837 MW



- Steam **52.7%**
- Repowered with gas turbines **20.7%**
- Combined-cycle gas turbines **18.7%**
- Gas turbines **7.8%**
- Diesel **0.1%**

Storage and handling of fuel oil

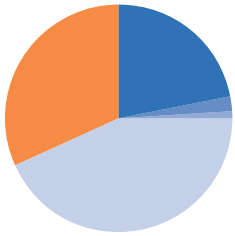
The Thermal Generation Business Area also operates an integrated fuel-oil storage and handling facility in Ravenna. The facility (I.I.C.O.), equipped with pumping and heating systems, supplies fuel oil via a pipeline to the Porto Tolle power plant.

Length of supply pipeline from the sea terminal (km)	9
Length of supply pipeline from AGIP dock (km)	1
Capacity of storage tanks (m^3)	180,000
Length of transfer pipeline to Porto Tolle (km)	90
Fuel oil transferred to Porto Tolle (t)	900,000
Heat production (steam at 15 bar and 210°C – million kcal)	53,860
Electricity consumption (million kWh)	2.5

In the following pages, the other flow data (consumption of natural gas and gas-oil, expendables, water for industrial uses, waste waters, emissions into the atmosphere and water, waste) are included in the thermal generation data.

Net fossil-fired thermal generation

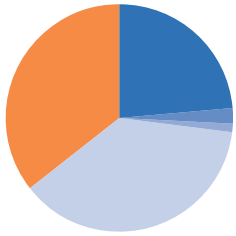
Total: 91,854 million kWh



- Fuel oil **22.3%**
- Orimulsion **1.1%**
- Gas-oil **0.1%**
- Natural gas **44.2%**
- Coal **32.3%**

Fuel consumption

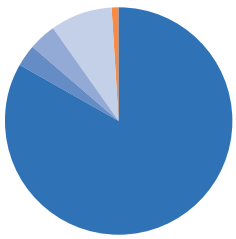
Total: 20,133,730 t of oil-equivalent



- Fuel oil **24.1%**
- Orimulsion **1.2%**
- Gas-oil **0.2%**
- Natural gas **38.1%**
- Coal **36.4%**

Expendables

Total: 253,604 t

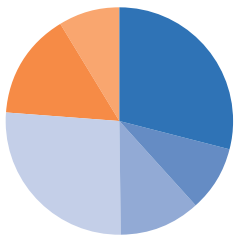


- Limestone for flue gas desulfurization **83.5%**
- Caustic soda, sulfuric & hydrochloric acids **3.1%**
- Resins, hydrazine, carbohydrazide, lime, sodium hypochlorite & chlorine dioxide **3.9%**
- Ammonia **8.8%**
- Other **0.7%**

Water for industrial uses

Total requirements: 48,076,544 m³

Total abstraction from inland waters: 23,972,177 m³



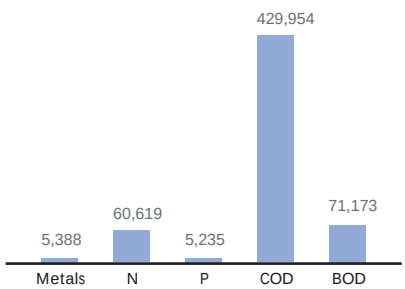
- From rivers **29.0%**
- From wells **9.3%**
- From aqueducts **11.5%**
- From the sea (as-is) **26.4%**
- From the sea (desalinated) **15.1%**
- From waste waters (used inside plants) **8.7%**

Waste waters

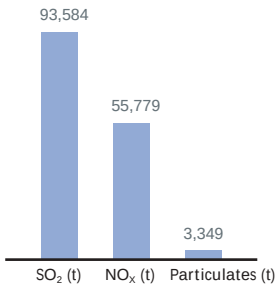
Discharged (m³)	13,010,762
Used inside plants (m³)	4,187,595

Waste waters include those meteoric waters that are susceptible to pollution and are therefore fed to treatment systems before being discharged or used.

Releases into water bodies (kg)



Emissions into the atmosphere



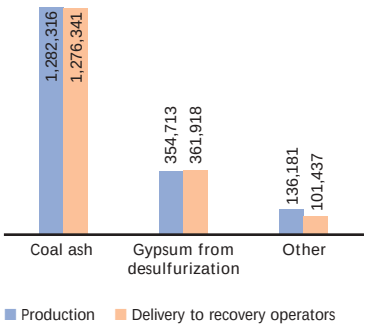
CO_2 (t)	63,388,052
> from combustion	*63,294,871*
> from desulfurization	*93,181*
SF_6 (kg)	598
(t of CO_2-equivalent)	14,290
Total (t of CO_2-equivalent)	**63,402,342**

Special waste

Total production: 1,792,844 t
Total delivery to recovery operators: 1,740,607 t

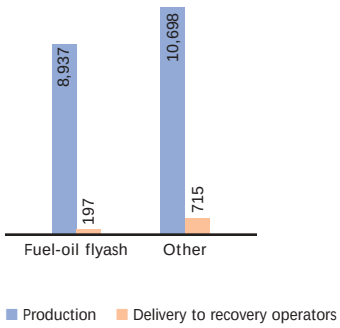
Non-hazardous

Total production: 1,773,209 t
Total delivery to recovery operators: 1,739,695 t



Hazardous

Total production: 19,635 t
Total delivery to recovery operators: 912 t



Renewables

Business unit
- Hydro generation Alps
- Hydro generation Apennines
- Geothermal generation

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Power installations

HYDRO	Power plants no.	Head installations no.	Net maximum capacity MW
Run-of-river	316	1,651.2	
Pondage/reservoir	193	5,185.5	
Pure/mixed pumped storage	20	7,481.1	
	495	**529**	**14,317.8**

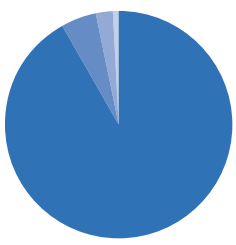
GEOTHERMAL	Power plants no.	Generating units n.	Net maximum capacity MW
Condensing	31	636.1	
Atmospheric exhaust	1	5.9	
	31	**32**	**642.0**

WIND	Power plants no.	Net maximum capacity MW
	18	**246.5**

PHOTOVOLTAIC	Power plants no.	Net maximum capacity MW
	5	**3.6**

Net maximum capacity

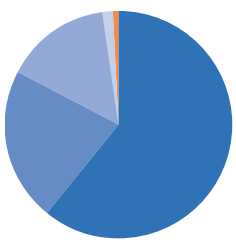
Total: 15,210 MW



- Hydro **94.14%**
- Geothermal **4.22%**
- Wind **1.62%**
- Photovoltaic **0.02%**

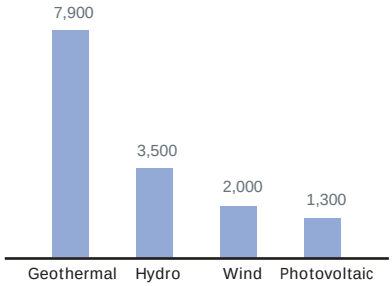
Net electricity generation

Total: 34,013 million kWh



- Hydro from natural flows **62.43%** (21,236 GWh)
- Hydro from pumped storage **21.82%** (7,422 GWh)
- Geothermal **15.05%** (5,120 GWh)
- Wind **0.69%** (233 GWh)
- Photovoltaic **0.01%** (2 GWh)

Yearly equivalent hours of utilization*



* On a statistical basis: yearly energy capability/capacity ratio.

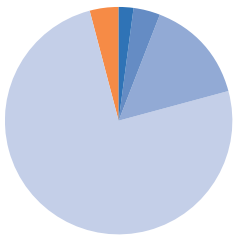
Geothermal fluid

Total fluid extracted (t)	45,800,646
Net of reinjected fluids (t)	34,075,066
Steam for electricity generation (t)	42,478,482
Fluid for non-electric uses (t)	804,988
> used directly	*272,659*
> used after expansion in atmospheric-exhaust turbine	*532,329*

Non-electric uses are uses of resources that do not have or have lost the thermodynamic properties making them suitable for geothermal generation. These uses fall under two main categories: supply of heat (especially for greenhousing and district heating) and extraction of substances (e.g.: carbon dioxide for foodstuffs).

Expendables (geothermal activities)

Total: 10,221 t



- Hydrochloric acid **2.1%**
- Bentonite **3.8%**
- Geothermal cement **14.9%**
- Caustic soda **75.1%**
- Other **4.1%**

Water for industrial uses (geothermal activities)

Abstraction from inland waters, entirely from rivers (m^3)	51,405

Gas-oil (geothermal activities)

Total consumption (toe)	2,306

Used for driving the drilling equipment.

Emissions into the atmosphere

SF_6 - all types of generation (kg)	775
(t of CO_2-equivalent)	18,534
CO_2 - geothermal drilling - from gas-oil combustion (t)	7,079

Carbon dioxide is produced by the combustion of gas-oil, which is used for driving the drilling equipment.

H_2S - from geothermal fluid (t)	23,485
CO_2 - from geothermal fluid (t)	1,892,603

A large debate is under way on the natural or anthropogenic origin of emissions of incondensible gases from geothermal fluid.

Avoided CO_2 emissions

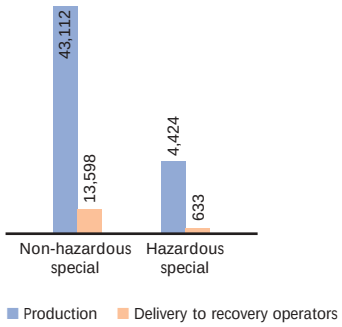
Hydro generation from natural flows (t)	14,651,000
Geothermal generation (t)	3,533,000
Wind generation (t)	161,000
Photovoltaic generation (t)	1,000
Total (t)	**18,346,000**

Avoided CO_2 emissions from the otherwise necessary conventional thermal generation. The contribution of geothermal generation is calculated on the assumption that the related CO_2 emissions are of natural origin.

Special waste

Total production: 47,536 t

Total delivery to recovery operators: 14,231 t



Other data

HYDRO GENERATION

Emptied reservoirs	quantity (no.)	23
	alluvial sediments removed and reused locally (t)	94,675
Fish ladders (no.)		33
Fish restocking campaigns	quantity (no.)	116
	restocked fish individuals	1,733,000
	in addition to kg	3,700

WIND & PHOTOVOLTAIC GENERATION

Wind systems	Surface area occupied by machines, buildings and roads (ha)	126
	Total surface area affected by the installations (ha)	20 to 100 times larger
Photovoltaic systems	Surface area occupied by modules (ha)	6.7
	Total surface area affected by the installations (ha)	10.0

GEOTHERMAL ACTIVITIES

Drilled wells	new (no.)	5
	deepened (no.)	0
	rehabilitated (no.)	0
Meters drilled		18,247
In-service wells	for steam production (no.)	283
	for reinjection (no.)	55

Networks, Infrastructure and Sales

In Enel's new organizational model, the assets and know-how of the electricity and gas grids were placed under the responsibility of two Divisions (Sales Division and Networks and Infrastructure Division) and the coordination of commercial activities was strengthened.
The Sales Division has the mission of developing an integrated offering of electricity and gas products and services, to be provided via focused distribution channels. The Division sells electricity and gas in the eligible and captive markets, provides public and artistic lighting and is generally active in demand-side management.
The Networks and Infrastructure Division has the task of operating electricity and gas distribution grids. Its Power Grid Business Area is in charge of electricity distribution throughout Italy, excluding Valle d'Aosta, which is served by Deval SpA, of which Enel has a 51% stake.
Its Gas Grid Business Area incorporated and integrated the companies that Enel acquired upon its entry and expansion into the gas sector (in 2004: Ottogas and Italgestioni).

The Divisions' commitment to the environment translates into multiple efforts. The more immediately perceivable ones are: mitigation of the environmental impact of power grids through the search for less invasive power line routes; use of insulated overhead cables in low- and medium-voltage lines; control of high-voltage power line interferences, if any, taking into account the attention values specified for electric & magnetic fields in the Prime Minister's Decree of July 8, 2003.

Certified Environmental Management System for the Power Grid

In October 2004, the Power Grid Business Area (Networks and Infrastructure Division) gained the ISO 14001 certification for its Environmental Management System developed in compliance with the reference international standard.
The Environmental Management System is applied to the entire organization of the Power Grid Business Area, which consists of: headquarters, 11 regional units (including 11 high-voltage centers, 29 operation centers, 129 zones and 11 material handling & storage facilities) and power installations (over 1 million km of power lines and over 400,000 substations).
The Environmental Management System ensures continuous monitoring of significant environmental aspects related to power grid design, construction, operation, maintenance and development.
An application software program, called "ambientesicurezza" (environment & safety) and running on Enel's intranet, supports the system. The application gathers and handles process data and makes available sector-specific documentation and legislation.

End-use energy efficiency

In the second half of 2004, the legislative and regulatory framework of end-use energy efficiency was finalized. On July 20, 2004, the Minister of Productive Activities, jointly with the Minister of the Environment and Land Protection, issued two decrees: one regarding enhanced end-use energy efficiency and the other energy savings and development of renewables.

The Decrees deeply changed the policy of promotion of rational energy use, by introducing an innovative system much ahead of the international legislative framework.

The objective of the Decrees is to curb Italian primary energy consumption by 2.9 million tons of oil-equivalent (Mtoe) within the first five years of application (2005-2009). The above figure is equivalent to the yearly average growth of gross domestic energy consumption in the past five years.

The system introduced by the Decrees of 20 July 2004 requires electricity and natural gas distributors to achieve specific yearly targets in terms of reduction of primary energy consumption. Therefore, the Power Grid Business Area, which covers 87% of the obligations to be fulfilled by electricity distributors, will play a crucial role.

Already in 2004, Enel launched various energy efficiency initiatives, such as public awareness campaigns focused on wise energy use. Awareness programs were also organized for handicraft firms and small enterprises in order to foster the adoption of energy consumption practices reconciling business economics with environmental protection.

Power grid

■ Regional unit and headquarters location

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Power installations

SUBSTATIONS	no.	Installed transforming capacity MVA
HV/MV	2,000	89,476
Satellite substations and MV units	359	-
MV/LV	347,839	67,189
MV/MV	61,282	-
	411,480	**156,665**

LINES (km)

	Overhead bare conductors	Overhead cables	Undergr. cables	Total
HV (>40 kV)	18,665	-	392	19,057
MV (1-30 kV)	204,060	7,498	122,902	334,460
LV (380 V)	126,731	381,161	224,216	732,108
	349,456	**388,659**	**347,510**	**1,085,625**

General data

Regional units (no.)	11
Operation centers (no.)	29
Zones (no.)	129
Municipalities served (no.)	7,865
Customers connected to the divisional grid (no.)	29,624,261
> supplied by the Division	*29,527,929*
> only using its wheeling service	*96,332*

The Power Grid Business Area also operates 199 isolated photovoltaic systems. With a net maximum capacity of 589 kW and a yearly energy capability of about 648,000 kWh, they offer a cost-effective and environmentally sustainable solution for supplying power to mountain huts, nature sanctuaries and other small isolated consumers.

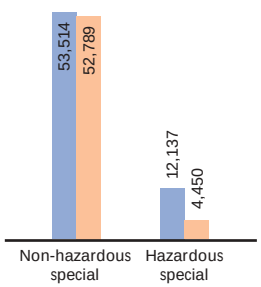
Electricity

Total electricity distributed (million kWh)	249,725
Own consumption (for grid operation – million kWh)	355

Special waste

Total production: 65,651 t

Total delivery to recovery operators: 57,239 t



■ Production ■ Delivery to recovery operators

Emissions into the atmosphere

SF_6 (kg)	2,808
(t of CO_2-equivalent)	67,111

Deval

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Power installations

SUBSTATIONS

	no.	Installed transforming capacity MVA
HV/MV	13	372
Satellite substations and MV units	4	22
MV/LV	1,336	240
MV/MV	200	30
	1,553	**664**

LINES (km)

	Overhead bare conductors	Overhead cables	Undergr. cables	Total
HV (>40 kV)	57	-	0.1	57
MV (1-30 kV)	818	51	512	1,381
LV (380 V)	8	1,849	925	2,782
	883	**1,900**	**1,437**	**4,220**

General data

Municipalities served (no.)	68
Surface area served (km^2)	3,132
Customers connected to Deval's grid (no.)	120,525
> supplied by Deval	*120,136*
> only using its wheeling service	*389*

Deval also operates 1 isolated photovoltaic system feeding an agricultural consumer (in a middle-mountain area) with a subscribed demand of 1.5 kW.

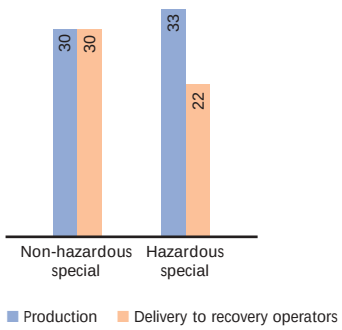
Electricity

Total electricity distributed (million kWh)	957
Own consumption (for grid operation – million kWh)	2.6

Special waste

Total production: 63 t

Total delivery to recovery operators: 52 t



Emissions into the atmosphere

SF_6 (kg)	10
(t of CO_2-equivalent)	229

Gas grid

■ Regional unit and headquarters location

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Installations

STATIONS (no.)

HP/MP	604
MP/LP with a power of > 1,200 kW	9,526
	10,130

PIPELINES (km)

HP (p > 5 bar)	184
MP (0.04 < p ≤ 5 bar)	11,052
LP (p ≤ 0.04 bar)	18,144
	29,379

Natural gas

Total natural gas distributed (million m^3)	3,633
Own consumption (million m^3)	4.8
Losses along the grid (million m^3)	12.7

Own consumption is the use of natural gas for its heating: before being distributed to customers, natural gas is heated in order to prevent it from freezing upon depressurization.
The gas is heated through an intermediate water circuit.

General data

Municipalities served (no.)	1,105
Surface area served (km^2)	34,493
Customers connected to the grid (no.)	1,966,264

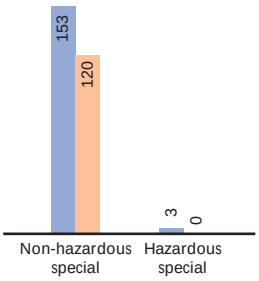
Resource consumption

Electricity (million kWh)	6.4

Used for cathode protection of pipelines, for powering gas-heating circuit water pumps and for lighting of installations.

Special waste

Total production: 156 t
Total delivery to recovery operators: 120 t



■ Production ■ Delivery to recovery operators

Emissions into the atmosphere

CH_4 (t)	6,560
(t of CO_2-equivalent)	137,757
CO_2 (t)	9,168

The emissions of methane are the share of this gas which is present in the natural gas lost along the grid.
The emissions of carbon dioxide are produced by the combustion of natural gas used for own consumption.

Telecommunications

The Telecommunications Division is featured by Wind, the company providing fixed & mobile telephony, as well as Internet services in an integrated way.
The take-over of Infostrada in 2002 enabled Wind to operate fixed-telephony services more effectively.
Wind provides Internet services through "Libero", which has become Italy's top-ranking Internet portal in terms of pages visited and market penetration.
Among the new Italian telecoms operators, Wind is the one with the largest fiber-optic transmission network.

Constant commitment to health, safety and the environment

In 2004, the Telecommunications Division renewed its commitment to environmental protection, safety and social accountability. This commitment is testified by the already achieved ISO 14001 and OHSAS 18001 certifications, as well as by the start of the process of ethical certification under the international SA 8000 standard.

The Division places constant emphasis on mitigation of electromagnetic fields, where it is at the forefront of research.
Right from the outset, the Division aligned itself with the maximum quality and safety standards.
Furthermore, in order to capture innovations, the Division participates in and supports "Elettra 2000", a research consortium whose members also include Fondazione Guglielmo Marconi, TIM, Vodafone Italia and the University of Bologna.
The Consortium is scientifically supported by Icemb (university center for the study of interactions between electromagnetic fields and biosystems), whose mission is to gain an in-depth understanding of the impact that electromagnetic waves emitted by telephony systems have on health, the environment and communities.
The Division also takes part in working groups on electromagnetic emissions established by Ministerial Decree, together with other players of the industry and technical institutions (Italian networks; ISPESL: Italian occupational & safety institute; APAT: Italian agency for environmental protection and technical services).

Moreover, the Division pays particular attention to energy and environmental management of office buildings. In this field, it created the position of Energy Manager, with the task of assessing potential savings of resources and drawing up a program for reducing consumption of energy (lighting and air conditioning/heating) and water.

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Installations

Fiber-optic networks (km)	18,294
Local loops (km)	2,374
Fixed telephony switches (no.)	67
Mobile telephony switches (no.)	51
Radio base stations (telephony aerials – no.)	8,485
Points of Presence – POPs (no.)	167

Usage

Voice – fixed telephony (billion minutes)	13.4
Voice – mobile telephony (billion minutes)	21.7
Internet (billion minutes)	19.5

General data

Fixed telephony active customers (millions)	2.4
Mobile telephony customers (millions)	11.6
Registered Internet customers (millions)	17.1
Population coverage by mobile network (%)	99

Resource consumption

Electricity (million kWh)	289

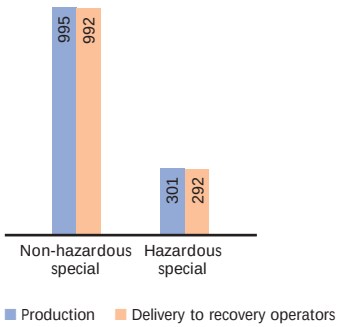
Used for powering telecommunications systems.

Gas-oil (toe)	1,082

Used in generating sets which supply electricity in emergencies and to installations not connected to the power grid.

Special waste

Total production: 1,296 t
Total delivery to recovery operators: 1,283 t



Emissions into the atmosphere

CO_2 (t)	3,322

The emissions of carbon dioxide are produced by the combustion of the gas-oil used in generating sets.

Terna

Terna owns more than 90% of the national power transmission grid and is responsible for its operation, maintenance and development on the basis of the directions given by GRTN (Gestore della Rete di Trasmissione Nazionale, the Italian Independent Transmission System Operator).
Terna's transmission grid is the country's most important infrastructure for energy transmission.
Terna supplies specialist services to owners of high- and extra-high voltage systems or of remote control and operation systems in accordance with customer care and environmental protection principles. The Company operates the high-voltage lines of the Power Grid Business Area (Networks and Infrastructure Division).
Terna also offers its infrastructures as supports for aerials, fiber-optic cables, sensors, etc., as well as related services to the Telecommunications Division and to third parties.

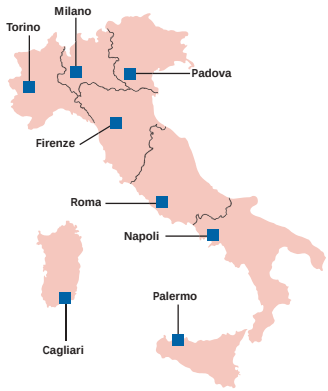
Innovation for the environment

The program of mitigation of the environmental impact of power lines continued successfully in 2004.
Terna installed single-mast towers along its "Laino-Rizziconi" 380-kV power line (Pollino Park, Calabria) and along the new "San Fiorano-Robbia" 380-kV power line (interconnecting Italy with Switzerland). Always in 2004, Terna completed preparations for construction of the power line towers that won the 1999 contest called "Power Line Towers for the Environment". The design of the towers was finalized and prototypes were tested. The new towers will be available for construction of the new "Tavarnuzze-Casellina" (Florence) 380-kV power line, in accordance with environmental regulations.

For minimizing the environmental impact of new power lines, Terna increasingly resorts to innovative design tools optimizing the integration of lines into the landscape and continuously searches for new technological concepts.
The design of new power installations is based on special maps, which are obtained from aerophotogrammetry: thanks to the high potential of this technique, the impact of future power installations on the affected area can be accurately assessed.
These maps are also a powerful tool to present new power installations, at an early design stage, to local authorities, which may proactively cooperate in the definition and improvement of the main environment and landscape criticalities.

With regard to the issue of electric & magnetic fields, Terna (jointly with CESI) developed a computational software code for georeferenced mapping of the electromagnetic fields induced by power lines.

Always in 2004, Terna formulated a plan for characterizing some electrical stations in terms of site remediation; the plan has already been implemented for the La Spezia electrical station, which is located in the national-interest site of "Pitelli" (referred to in art. 1 of Law no. 426 of December 9, 1998).



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Power installations

ELECTRICAL STATIONS	no.	Installed transforming capacity MVA
380 kV	125	80,360
220 kV	108	25,263
< 220 kV	67	2,856
	300	**108,479**

LINES (km)	Circuits	Route
380 kV	9,965	9,107
220 kV	9,121	7,603
< 220 kV	18,542	17,501
Direct-current links	1,068	747
	38,696	**34,958**

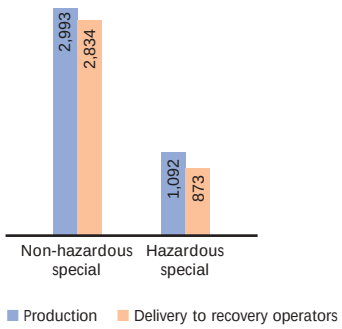
Electricity

Own consumption (for operation of the power grid – million kWh)	109

Special waste

Total production: 4,085 t

Total delivery to recovery operators: 3,707 t



Emissions into the atmosphere

SF_6 (kg)	1,636
(t of CO_2-equivalent)	39,103

Eco-Balance and Indicators

Eco-Balance

Electricity generation, transmission and distribution are the activities of Enel which have the most significant effects on and interactions with the environment.
Also in 2004, non-electric activities (geothermal drilling, fuel-oil storage & handling, gas distribution and telecommunications) recorded levels of consumption of primary energy (fuels and electricity) and water, air and water emissions of pollutants, greenhouse gas emissions and production of special waste, which individually never exceeded 1.5% of those of Enel as a whole.
However, the Eco-Balance extends to all the industrial activities that Enel carries out in Italy and quantifies their interactions with the environment in an integrated way.
The data of the Eco-Balance are divided into three sections:

> resources;
> processes and products;
> emissions.

For each item, the Eco-Balance gives the data for the past five years and related comments. Data on gas distribution and telecommunications are not reported for the first two years of the period, while data on fuel-oil storage & handling are reported starting with 2004.
It is worth recalling that, in the past few years, Enel recorded major changes in its assets:

> sale of Valgen (hydro generation in Valle d'Aosta) and of the so-called Gencos (the electricity generating companies Elettrogen, later on Endesa Italia, Eurogen, later on Edipower, and Interpower, later on Tirreno Power; these companies were included in the Environmental Report until 2000, 2001 and 2002, respectively); Enel sold the Gencos in compliance with Legislative Decree no. 79 of March 16, 1999 providing that each producer/importer shall not generate/import more than 50% of the total electricity generated in/imported to Italy;
> sale (but also acquisition) of power distribution grids in accordance with provisions on rationalization of the electricity distribution business (Legislative Decree no. 79 of March 16, 1999); this activity continued in 2004;
> transfer from Enel Distribuzione to Terna of some sections of the high-voltage distribution grid as per: Ministerial Decree of December 23, 2002, through which the Ministry of Production Activities changed the extent of the national transmission grid, by incorporating elements of the high-voltage grid previously belonging to distribution grids; and amendments to the same Decree approved by the Ministry and resolved upon by GRTN as part of its grid development plans; this activity went on in 2004;
> progressive expansion into the natural gas distribution business;
> in 2002, Wind's acquisition of Infostrada.

As a result of the above-mentioned changes in the size of Enel's activities, most of the variations in the data that occurred in the reported period are poorly significant or self-evident. Therefore, they have been omitted.

To facilitate the interpretation and assessment of the Eco-Balance data, the following table summarizes the number and type of Enel's installations in Italy as of December 31 of each of the years elapsing from 2000 to 2004.

Power generation

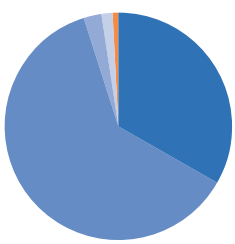
	2000	2001	2002	2003	**2004**
Power plants (no.)	711	658	613	593	595
> hydro	615	555	517	495	495
> thermal	59	59	48	45	46
> geothermal	33	33	34	34	31
> wind*	2	6	9	14	18
> solar (photovoltaic)**	2	5	5	5	5
* *in addition to wind test fields*	*1*	*1*	*0*	*0*	*0*
** *in addition to: photovoltaic test fields*	*1*	*0*	*0*	*0*	*0*
isolated photovoltaic units	*n.a.*	*n.a.*	*201*	*201*	*200*
Net maximum capacity (MW)	56,349	49,981	43,752	41,847	42,047
> hydro	16,890	15,061	14,344	14,330	14,318
> thermal	38,838	34,336	28,679	26,719	26,837
> geothermal	595	540	666	666	642
> wind	23	40	59	128	247
> solar (photovoltaic)	3.3	3.6	4.1	4.2	4.2

Power lines circuit-length (km)

	2000	2001	2002	2003	**2004**
Total	1,100,096	1,097,458	1,100,593	1,120,944	1,128,541
> high voltage (40 to 380 kV)	57,620	57,372	57,899	57,913	57,810
> medium voltage (1 to 30 kV)	331,793	331,181	332,055	334,546	335,841
> low voltage (up to 380 V)	710,683	708,905	710,639	728,486	734,890

Net maximum capacity of power plants as of Dec. 31, 2004

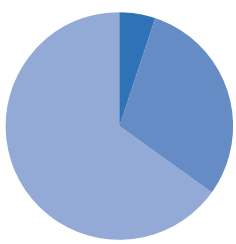
Total: 42,047 MW



Hydro **34.05%**
Wind **0.59%**
Thermal **63.82%**
Solar (photovoltaic) **0.01%**
Geothermal **1.53%**

Circuit-length of power lines as of Dec. 31, 2004

Total: 1,128,541 km



High voltage **5.1%**
Medium voltage **29.8%**
Low voltage **65.1%**

Gas pipelines length (km)

	2000	2001	2002	2003	**2004**
Total	1,300	9,847	24,890	27,194	29,379
> high pressure (p > 5 bar)	n.a.	n.a.	137	123	184
> medium pressure (0.04 < p ≤ 5 bar)	n.a.	n.a.	9,370	10,566	11,052
> low pressure (p ≤ 0.04 bar)	n.a.	n.a.	15,383	16,505	18,144

Telecommunications infrastructures

	2000	2001	2002	2003	**2004**
Fiber-optic networks (length - km)	11,230	17,500	18,275	18,200	18,294
Radio base stations (telephony aerials - no.)	3,296	5,655	7,369	8,076	8,485

Resources

This section shows the consumption of energy resources (fossil fuels, geothermal fluid, primary electricity) and non-energy resources (water for industrial uses, expendables).

Fossil fuels

In most of the cases, fossil fuels represent the energy source for thermal generation.
The consumption of fuel oils is indicated on the basis of their sulfur content (HS = high: >2.5%; MS = medium: >1.3% and ≤ 2.5%; LS = low: >0.5% and ≤1.3%; VLS = very low: ≤ 0.5%).
Orimulsion is an emulsion of bitumen in water, coming from the Orinoco basin (Venezuela); like coal, it is used in power plants equipped with flue gas desulfurizers and denitrification systems.
Gas-oil, a high-cost fuel, is used on an exceptional basis in single-cycle gas-turbine power plants that are not connected to the natural gas grid, as an emergency fuel in the other gas-turbine power plants, in diesel-engine power plants (supplying some minor Italian islands), in the start-up of steam-cycle power plants, in emergency generating sets and in auxiliary boilers. The maximum sulfur content in the gas-oil used for electricity generation is 0.2%, as specified in the applicable legislation. However, Enel uses gas-oil with a sulfur content of 0.05%.
The consumption of natural gas is broken down on the basis of its uses: non-technologically captive (when the use of gas is a corporate choice) and technologically captive (when gas feeds single-cycle, combined-cycle or repowering gas turbines, for which it is the only practicable option).
With the exhaustion of the mines adjoining the Pietrafitta and Santa Barbara power plants, the use of brown coal has been discontinued since 2001.

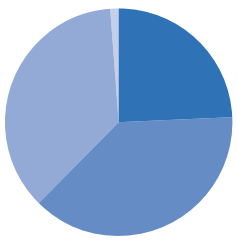
Natural gas and start-up gas-oil also feed the boilers which heat the fuel oil stored in Enel's facility of Ravenna (heating fluidifies fuel oil before its transfer to destination). Small quantities of gas-oil are also used for driving geothermal drilling equipment and in the generating sets of telecommunications installations.

Fuel consumption, obtained from data measured and certified in each installation, is expressed in metric units (thousand tons or million cubic meters). To facilitate the summing of the various contributions, overall fuel consumption is expressed in energy potential (thousand tons of oil-equivalent).

In 2004, the consumption of coal was maximized, considering its competitive price and the scarce availability of orimulsion. This policy, together with lower overall requirements of fuels, induced a further drop in the consumption of fuel oil, but also a decrease of natural gas consumption. The use of natural gas is in principle limited to ultra-high efficiency combined-cycle plants, where it represents a technologically-captive use. The program of conversion from oil-firing to combined cycles continued in 2004 with the commissioning of the first of the two Termini Imerese units. With regard to fuel-oil, massive use was made of LS and VLS products with a view to complying with point-source limits of emissions from existing power plants. These limits were introduced in Italy by Ministerial Decree of July 12, 1990, i.e. much earlier than European Directive 2001/80/EC.

Fuel consumption for thermal generation in 2004

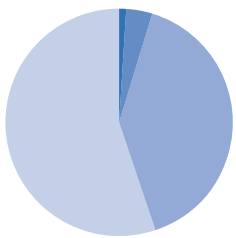
Total: 20,128 ktoe



- Fuel oil & gas-oil **24.3%**
- Natural gas **38.1%**
- Coal **36.4%**
- Orimulsion **1.2%**

Fuel-oil consumption for thermal generation in 2004

Total: 4,905 kt



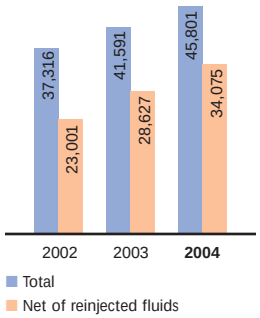
- HS **0.5%**
- MS **3.7%**
- LS **39.9%**
- VLS **55.9%**

Geothermal fluid

Geothermal fluid, in the form of steam at adequate pressure and temperature values, is the energy source for geothermal generation. A minimum amount of this fluid, whose thermodynamic properties are unsuitable for geothermal generation, is allocated to non-electric uses. These uses are: supply of heat (especially for greenhousing and district heating) and extraction of substances (e.g. carbon dioxide for foodstuffs). Non-electric uses also rely on the fluid which becomes available after expansion in Enel's only geothermal unit equipped with an atmospheric-exhaust turbine.

Consumption of geothermal fluid

thousand tons



In 2004, the amount of geothermal steam used for electricity generation confirmed its steady growth, after its drop in 2001 owing to the shutdown of some power plants for renovation works.

The capability of geothermal fields is mostly sustained by the reinjection of fluids into geothermal reservoirs. These fluids consist of: the water that is entrained by steam and separated from it at the well outlet; steam that is condensed after its expansion in the turbines, net of the fraction evaporated in the cooling tower; and the fluid remaining after non-electric uses. Thanks to reinjection, the geothermal reservoir represents a practically inexhaustible heat resource.
The practice of reinjection of fluids into the subsoil does not jeopardize shallow aquifers which, among others, are isolated from the wells by metal pipings, cemented to the soil and between them.

Primary electricity

Electricity is used as an energy raw material in telecommunications and, to a much lesser extent, in fuel-oil storage & handling and gas distribution.
In the first case, it is used for powering telecommunications installations.
In the case of fuel-oil storage & handling, it is used for pumping fuel oil into pipelines and for feeding the auxiliaries of the facility.
In the case of gas distribution, electricity is mainly used for cathode protection of gas pipelines and for driving the water pumps of the circuits which heat natural gas upon its depressurization.
The amounts of net electricity generation and of electricity wheeled on distribution grids (see paragraph on "Processes and products") take into account both own consumption and losses.

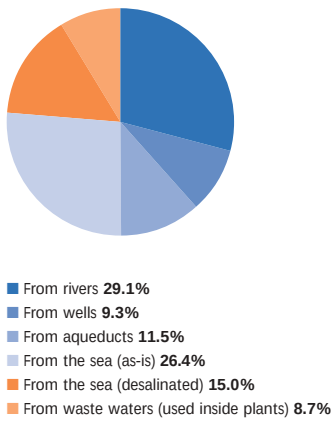
Water for industrial uses

Water for industrial uses is consumed in thermal power plants, mainly to make up for the amounts lost in the generation process of steam-turbine power plants and in closed-cycle wet cooling tower systems, to carry out clean-up jobs (especially of boilers), and to feed auxiliaries and desulfurizers.
To a much lesser extent, water is used:

> in geothermal activities for the preparation of the drilling slurry; the amounts of water used in these activities are very variable, depending on the type of activity (e.g. drilling of new wells, rehabilitation or deepening of existing wells) and on the characteristics of the geological formations crossed (by contrast, the functioning of cooling towers does not require water, since it is based on re-vaporization of part of the condensates of the steam discharged by turbines);

> in fuel-oil storage & handling, especially for generating steam for heating and fluidifying fuel oil before its transfer to destination.

Coverage of water requirements for industrial uses in 2004
48.1 million m³



Water requirements do not include the water used for open-cycle cooling of thermal power plants, because it is returned to the original water body without appreciable physico-chemical changes.

The increase in water requirements with respect to 2003 is mainly due to higher consumption of coal and consequent higher rate of operation of desulfurizers: in addition, replacing orimulsion with coal made it necessary to abate greater amounts of flue gases having lower content of moisture and higher concentration of particulates. However, the additional requirements were mostly covered by as-is sea water.

Expendables

Expendables complete the list of the resources used; the following are the main ones.

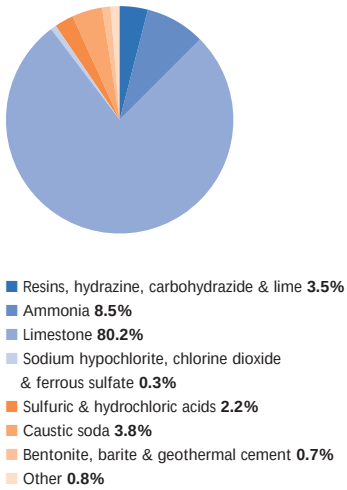
> Resins are used to produce (via ion exchange) the high-purity water which is needed for the thermal cycle of steam-cycle power plants.

> Hydrazine and carbohydrazide deoxygenate the thermal-cycle water and regulate its pH.

> Magnesium oxide is injected into the flue gas circuits of thermal power plants fed with vanadium-containing fuel, to prevent corrosion of heat-transfer surfaces due to the indirect action of vanadium.

> Ammonia, too, is used to regulate the pH of the thermal-cycle water, but above all as a reagent in the flue gas denitrification process.
> Limestone is the reagent for the flue gas desulfurization process.
> Lime is mainly used in waste water treatment, thanks to its neutralizing and flocculating properties.
> Sodium hypochlorite and chlorine dioxide are occasionally added to the cooling waters of steam-cycle power plants to prevent deposits and fouling. Ferrous sulfate is used to protect condenser tube surfaces from corrosion.
> Sulfuric acid, hydrochloric acid and caustic soda are most commonly used in the regeneration of ion-exchange resins and in the clean-up of equipment. However, in geothermal activities, the primary application of soda is as an additive in the slurries used in the drilling of geothermal wells.
> Bentonite is a clay which is used as a slurry for the drilling of geothermal wells.
> Barite is used in some cases to thicken bentonite slurries, thereby improving their effectiveness upon the drilling of mechanically unstable rock formations.
> Geothermal cement is used for joining the steel walls of new wells and for permanent plugging of disused wells.

Expendables in 2004
Total: 263,825 t



The figures shown for expendables are obtained from the accounting records of purchases, which are held in each installation. Given the small size of stocks and the high number of installations surveyed, the amounts purchased are practically equivalent to those consumed.
The further decrease in the overall amount of expendables is ascribable to the reduction of limestone: replacing orimulsion with coal made it necessary to abate lower amounts of sulfur dioxide.

Resources

		2000	2001	2002	2003	**2004**
Fossil fuels						
Thermal generation						
fuel oil	thousand t	13,639	10,708	8,241	6,487	4,905
> HS	*thousand t*	*173*	*221*	*6*	*0*	*25*
> MS	*thousand t*	*5,741*	*4,446*	*2,518*	*83*	*180*
> LS	*thousand t*	*4,114*	*3,266*	*2,458*	*2,309*	*1,956*
> VLS	*thousand t*	*3,610*	*2,775*	*3,260*	*4,095*	*2,744*
orimulsion	thousand t	2,508	1,589	1,620	1,481	377
gas-oil	thousand t	136	75	58	93	42
natural gas	million m³	13,208	10,549	8,893	11,075	9,022
> non-technologically captive use	*million m³*	*9,547*	*6,452*	*6,487*	*4,520*	*3,209*
> technologically captive use	*million m³*	*3,661*	*4,097*	*2,407*	*6,555*	*5,813*
coal	thousand t	9,489	10,425	11,295	10,427	12,072
brown coal	thousand t	19	0	0	0	0
Total	thousand toe	32,083	27,022	23,864	23,294	20,128
Other activities: fuel-oil storage & handling, geothermal drilling and telecommunications	thousand toe	n.a.	n.a.	5.0	4.4	9.3
Grand total	thousand toe	n.a.	n.a.	23,869	23,299	20,137
Geothermal fluid						
Total fluid extracted	thousand t	n.a.	n.a.	37,316	41,591	45,801
net of reinjected fluids	thousand t	n.a.	n.a.	23,001	28,627	34,075
Geothermal steam for electricity generation	thousand t	37,500	35,374	37,112	41,372	42,478
Primary electricity (fuel-oil storage & handling, gas distribution and telecommunications)	GWh	n.a.	n.a.	199	259	298
Water for industrial uses						
from rivers	million m³	10.8	10.7	8.4	9.6	14.0
from wells	million m³	14.1	11.4	7.0	7.2	4.5
from aqueducts	million m³	5.8	5.6	5.5	5.5	5.6
Total abstraction from inland waters	million m³	30.7	27.7	20.9	22.3	24.0
From the sea (as-is)	million m³	6.9	5.1	5.8	9.2	12.7
From the sea (desalinated)	million m³	8.7	8.1	8.4	8.6	7.2
From waste waters (used inside plants)	million m³	3.6	3.2	3.1	3.2	4.2
Total requirements	million m³	49.9	44.1	38.2	43.4	48.1
for thermal generation	*million m³*	*49.7*	*44.1*	*38.1*	*43.4*	*48.0*
for geothermal drilling	*million m³*	*0.192*	*0.042*	*0.027*	*0.001*	*0.051*
for fuel-oil storage & handling	*million m³*	-	-	-	-	*0.069*
Expendables						
Resins	t	63	81	35	17	41
Hydrazine	t	47	35	51	12	5
Carbohydrazide	t	n.a.	1	13	14	14
Magnesium oxide	t	n.a.	213	153	116	93
Ammonia	t	18,703	20,455	22,909	19,869	22,343
Limestone	t	325,150	302,067	327,661	254,828	211,775
Lime	t	14,005	13,541	11,926	9,672	9,164
Sodium hypochlorite	t	1,071	962	612	888	799
Chlorine dioxide	t	n.a.	0	28	13	31
Ferrous sulfate	t	n.a.	0	3	1	0
Sulfuric & hydrochloric acids	t	8,354	7,440	5,432	6,931	5,765
Caustic soda	t	7,728	7,237	6,314	6,722	9,904
Bentonite	t	623	1,044	2,045	1,853	386
Barite	t	8	60	0	0	0
Geothermal cement	t	1,545	2,331	2,520	2,691	1,521
Other	t	8,915	4,360	3,002	2,508	1,985
Total	t	386,210	359,828	382,703	306,136	263,825

n.a.: not available (for 2000, the amounts of carbohydrazide, magnesium oxide, chlorine dioxide and ferrous sulfate are included in the "Other" expendables).

Processes and products

The strategy of diversification led Enel to add natural gas distribution and telecommunications (fixed & mobile telephony and Internet) to its electricity generation, transmission and distribution business.

Electric activities

As regards electricity generation, it is worth recalling that in 2001, 2002 and 2003, the extent of the electricity generating assets falling under Enel's responsibility changed. As a result: from 2001, the data exclude Elettrogen and Valgen; from 2002, the data also exclude Eurogen, while the 2003 data exclude Interpower, too.

Furthermore, it is worth mentioning that:

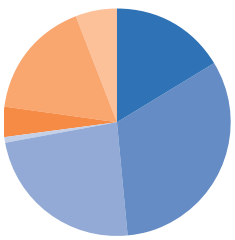
> the various contributions are net of the electricity consumed by power plant auxiliaries;

> the hydro generation from pumped storage is the electricity that is produced, in peak-load hours, through the falling of water pumped from a lower reservoir to an upper reservoir, using electricity surpluses in low-load hours (pumped storage is the only available option for storing significant amounts of electricity, albeit indirectly);

> the actually available generation is the total net generation, after deducting the electricity consumed for pumped storage.

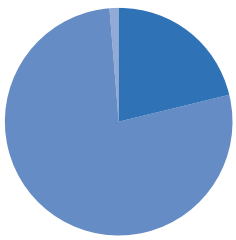
The 2004 data show a downward trend for overall generation and especially for thermal generation. Enel's overall generation diminished also because new plants, owned by third parties, went into service; thermal generation declined as a result of a sharp increase in hydro generation, which was made possible by abundant precipitation.

Net electricity generation by source in 2004
Total: 125,867 million kWh



- Fuel oil & gas-oil **16.3%**
- Natural gas **32.2%**
- Coal **23.6%**
- Orimulsion **0.8%**
- Geothermal, wind & solar **4.3%**
- Hydro from natural flows **16.9%**
- Hydro from pumped storage **5.9%**

Net electricity generation from renewables in 2004
Total: 26,591 million kWh



- Geothermal **19.3%**
- Hydro from natural flows **79.8%**
- Wind & solar (photovoltaic) **0.9%**

With regard to the other renewables, geothermal generation continued to grow after slowing down in 2001 due to plant shutdown for renovation works. Wind generation, instead, more than tripled thanks to the doubling of wind power plant capacity.

As regards electricity transmission, with the disaggregation of the vertically integrated electric activities, the transfer of the dispatching assets to GRTN (Gestore della Rete di Trasmissione Nazionale - Italian Independent Transmission System Operator) and the start of the liberalized market (option for "eligible" customers to choose their supplier), Enel has lost the possibility of measuring the electricity wheeled and, in general, of both measuring and directly controlling grid losses. In the past, these losses, which were expressed as a percentage of electricity demand, were among the indicators of power system efficiency.

From 2002, reference is only made to the electricity wheeled on the distribution grid (total electricity delivered to final customers connected to the grid). For 2004, the Eco-Balance also shows the value of own consumption of electricity, i.e. the electricity needed for the operation of the grid.

Fuel-oil storage & handling

As previously mentioned, this activity is complementary to thermal generation and is carried out at Enel's facility of Ravenna.
The amount of fuel oil transferred to destination is the main product of this activity. A by-product – necessary for fluidifying fuel oil prior to its transfer to destination – is heat, which is generated locally by steam-producing boilers.

Natural gas distribution

The amount of natural gas wheeled represents the total amount of gas that is delivered to customers.
The consumption of natural gas for grid operation ("own consumption") is due to the combustion of one fraction of the gas that is wheeled; this fraction is used for heating of the wheeled gas, to prevent it from freezing upon depressurization (passage from the high-pressure grid to the medium-pressure one and from the medium-pressure grid to the low-pressure one).
The natural gas losses from the grid are estimated on the basis of the amount of natural gas wheeled, using loss factors (average value in the years surveyed: 0.35% by volume) which take into account gas pressures, length and configuration of pipelines, their state of conservation, etc.
The gradual increase in the natural gas distributed depends on Enel's greater penetration into the gas market.

Telecommunications

Usage (voice and Internet) is the "product" of this activity, i.e. the quantity that defines the extent of the relevant process.
It should be noted that the values shown for the years until 2003 inclusive only refer to the actually invoiced usage.

Processes and products

		2000	2001	2002	2003	**2004**
Electricity generation (net)						
Thermal from fossil fuels	million kWh	141,391	118,569	104,735	106,669	91,854
from fuel oil & gas-oil	*million kWh*	*59,325*	*46,211*	*35,184*	*27,838*	*20,552*
from natural gas	*million kWh*	*52,147*	*42,259*	*37,024*	*48,802*	*40,602*
from coal & brown coal	*million kWh*	*23,316*	*25,883*	*28,038*	*25,978*	*29,659*
from orimulsion	*million kWh*	*6,602*	*4,216*	*4,489*	*4,052*	*1,041*
From renewables	million kWh	34,660	31,423	24,834	23,792	26,591
thermal from biogas	*million kWh*	-	*25*	-	-	-
geothermal	*million kWh*	*4,415*	*4,239*	*4,382*	*5,036*	*5,120*
hydro from natural flows	*million kWh*	*30,221*	*27,129*	*20,399*	*18,679*	*21,236*
wind & solar (photovoltaic)	*million kWh*	*24*	*29*	*53*	*77*	*235*
Hydro from pumped storage	million kWh	6,477	6,961	7,543	7,333	7,422
Total	million kWh	182,527	156,952	137,112	137,794	125,867
Consumption for pumping	million kWh	9,066	9,653	10,595	10,369	10,263
Available generation	million kWh	173,461	147,299	126,518	127,425	115,604
Fuel-oil storage & handling						
Fuel-oil transferred to destination	t	-	-	-	-	900,000
Heat production	million kcal	-	-	-	-	53,860
Electricity distribution						
Electricity wheeled	million kWh	n.a.	n.a.	258,469	244,426	250,682
Electricity consumption for grid operation	million kWh	n.a.	n.a.	n.a.	n.a.	358
Natural gas distribution						
Natural gas wheeled	million m^3	n.a.	n.a.	3,166	3,493	3,633
Natural gas consumption for grid operation	million m^3	n.a.	n.a.	1.9	5.8	4.8
Losses of natural gas along the grid	million m^3	n.a.	n.a.	11.1	12.2	12.7
Telecommunications						
Voice usage – fixed telephony	billion minutes	n.a.	n.a.	21.0	15.0	13.4
Voice usage – mobile telephony	billion minutes	n.a.	n.a.	7.8	9.5	21.7
Internet usage	billion minutes	n.a.	n.a.	27.0	24.7	19.5

n.a.: not available

Emissions

The tables display the amounts of emissions in the gaseous, liquid and solid form.

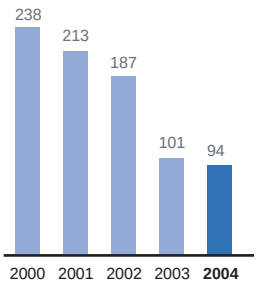
Emissions into the atmosphere

The emissions of some substances into the atmosphere have a polluting effect, while the emissions of other substances contribute to the greenhouse effect.
The most significant emissions into the atmosphere, which are quantitatively significant and typical of Enel's industrial activities, are as follows: in the first category, sulfur dioxide (SO_2), nitrogen oxides (NO_X) and particulates; and, in the second category, carbon dioxide (CO_2), sulfur hexafluoride (SF_6) and methane (CH_4).

> SO_2, NO_X and particulates originate from the combustion process which commonly takes place in thermal power plants. The amounts shown include both emissions yearly reported to the Ministry of the Environment (SO_2 and NO_X from "large combustion plants" and particulates from "thermal power plants") and emissions from other installations.
Their values are obtained by multiplying their concentrations in the flue gases (generally continuously monitored) by the volumes of the same flue gases. NO_X are expressed in terms of NO_2-equivalent.
Over the years, the emissions from thermal power plants fell significantly, thanks above all to: generalized use and constant tuning of advanced combustion systems (prevention measures); installation or upgrading of flue gas abatement systems (desulfurizers in large coal- and orimulsion-fired plants; denitrification systems in the same plants or in other plants when prevention measures prove

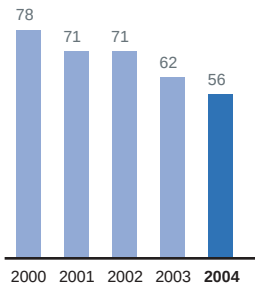
SO_2 emissions from fossil-fired thermal generation

only power plants included within Enel's present limits (thousand t)



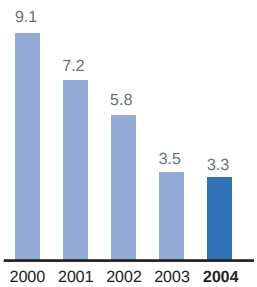
NO_X emissions from fossil-fired thermal generation

only power plants included within Enel's present limits (thousand t)



Particulate emissions from fossil-fired thermal generation

only power plants included within Enel's present limits (thousand t)



to be insufficient; particulate collection systems in almost all plants; the latter systems are usually based on electrostatic precipitators, but also on more efficient bag filters, which are suitable for all-coal-fired plants); as well as the use of high-grade fuels. Such a decrease is confirmed even when reference is made only to the power plants included within Enel's present limits.

> CO_2 is the typical product of combustion and, as such, the near totality of it derives from thermal power plants. Small amounts – reported here in view of the attention paid to the greenhouse effect – also derive from fuel-oil storage & handling (combustion of natural gas and gas-oil for generating process heat), geothermal drilling (combustion of the gas-oil which feeds the diesel engines of drilling equipment), distribution of natural gas (combustion of one fraction of the wheeled gas for heating of the gas upon depressurization) and telecommunications (combustion of gas-oil feeding the generating sets of telecommunications installations).
CO_2 is also contained, albeit in much lower amounts, in the reaction products from the process of desulfurization of the flue gases outgoing from the boilers of some thermal power plants.
The CO_2 from combustion is computed by applying specific emission factors to the consumption of the various fuels. These factors were recommended by IPCC (International Panel on Climate Change) in its 1996 Guidelines for national greenhouse gas inventories and were used in the second national report on greenhouse gas emissions (3.24 t of CO_2/toe for fuel oil; 3.38 for orimulsion; 3.10 for gas-oil; 2.35 for natural gas; 4.02 for coal; 4.24 for brown coal).
Each of these factors is then multiplied by a correction coefficient which accounts for the typical fraction of unburned carbon: 0.980 for solid fuels; 0.990 for liquid fuels; 0.995 for gaseous fuels.
The computation considers that the burned carbon fraction – whose value, as indicated above, is taken to be below 100% – is completely oxidized to CO_2.
The amount of CO_2 from the desulfurization process is computed stoichiometrically from the amount of limestone used.

> SF_6 is used in high- and medium-voltage electrical equipment as an insulant and for electric arc extinction; in these applications, it is irreplaceable. Its emissions into the atmosphere are due to leaks from the above equipment.
In 2004, 24% of SF_6 emissions were due to electricity generation, 28% to electricity transmission and 48% to electricity distribution.
These emissions are determined with a complex procedure, which takes into account replenishments (difference between the weights of SF_6 contained in the bottles used for replenishment, at the start of the year and at the end of the year, increased by the weight of SF_6 contained in the bottles purchased or acquired during the year and decreased by the weight of SF_6 contained in the bottles transferred during the year). In the event of breakage of SF_6-containing equipment, its nominal SF_6 content is considered as leakage. Given the care with which SF_6 is removed from end-of-life equipment, the above procedure yields fairly reliable data.

The amounts of SF_6 are expressed in weight of SF_6 emissions and in weight of CO_2-equivalent, in terms of Global Warming Potential (GWP = 23,900).
The values of SF_6, when expressed in CO_2-equivalent, appear to be extremely low (in 2004, 2.2‰ of Enel's overall greenhouse gas emissions). The variability of SF_6 emissions from one year to the other is largely due to the occasional character of the above-mentioned replenishments.

> CH_4 emissions are due to the losses of natural gas from the distribution grid.
They are determined on the basis of grid losses, taking into account the methane content of natural gas (average value in 2004: 92.9%) and its density (average value in 2004: 0.555 kg/m^3).
They are expressed both in weight of CH_4 emissions and in weight of CO_2-equivalent, in terms of Global Warming Potential (GWP = 21).
The values of CH_4, when expressed in CO_2-equivalent, appear to be extremely low (2.2‰ of Enel's overall greenhouse gas emissions in 2004).

With regard to "minor" pollutants (e.g. metals), Enel conducted extensive programs of monitoring of their concentrations in the flue gases released by thermal power plants, under different conditions of types of fuel and abatement systems. The results indicate that these concentrations comply – with wide margins – with the point-source limits of emissions established by the Ministerial Decree of July 12, 1990.

Separate considerations should be made for the gases contained in geothermal steam. As such gases are incondensible, they are emitted into the atmosphere when steam condenses after expansion in turbines. The main gases are:

> H_2S, the only potentially polluting substance which is present in significant amounts in geothermal fluid;
> CO_2.

A wide debate is under way on the natural or anthropogenic origin of these gaseous emissions.
The International Geothermal Association supports their natural origin: as spontaneous emissions are present in diffuse form in geothermal areas, geothermal power plants only convey them in concentrated form, thereby reducing them.
The IPCC Guidelines on national greenhouse inventories do not include CO_2 emissions from geothermal generation among those to be censused.
However, these CO_2 emissions were included in the second national report on greenhouse gas emissions.
In this Environmental Report, CO_2 and H_2S emissions from geothermal generation are indicated for information completeness.
Their values are estimated on the basis of periodical monitoring of the composition and flow rate of geothermal steam used by power plants.

CO_2 emissions reflect the trend of geothermal generation. H_2S emissions show an opposite trend: thanks to the growing use of abatement systems, H_2S emissions from geothermal power plants are lower than those that would be naturally present in geothermal areas without power plants.

In line with the aforesaid IPCC Guidelines, the Eco-Balance does not report the 2001 emissions of CO_2 from combustion of landfill gas, which was used for electricity generation in the power plants of Elettroambiente. Indeed, the CO_2 released by these plants counterbalanced the CO_2 which was absorbed by biomass (organic component of waste) during its growth.

Avoided CO_2 emissions

Avoided CO_2 emissions are an indicator of the environmental benefits arising from the mix of raw materials used for production processes and from the efficiency of the full cycle, from utilization of the raw materials to end-uses of the various products.
The tables show the CO_2 emissions that were avoided thanks to electricity generation from renewables, rather than from the otherwise necessary conventional fuels.
These emissions are determined by multiplying the electricity generation from each renewable source by the average specific CO_2 emissions from Enel's fossil-fired thermal generation. In the case of hydro power, reference is made only to generation from natural flows, excluding the contribution of pumped-storage power plants.
The reported percentage variations are obviously consistent with the corresponding variations in electricity generation.
In 2004, electricity generation from renewables avoided over 22% of CO_2 emissions, which would have been produced by Enel's electricity generation activities, failing any contribution by renewables.

Waste waters

Waste waters include residual process water and meteoric waters collected from the outdoor areas of thermal power plants and of the fuel-oil storage & handling facility of Ravenna. When they are returned to surface water bodies, they undergo a specific treatment. Waste waters are in part used inside the plants – thereby contributing to coverage of water requirements for industrial uses – and in part returned to water bodies or, more infrequently, discharged into the sewage system.
The volumes of waste waters are estimated by referring to the potential capability and utilization of water treatment systems, as well as to the modes of operation of the installations where these systems are located. As is obvious, waste waters reflect the trend of water requirements for industrial uses, except for a few deviations due to the variability of precipitation.

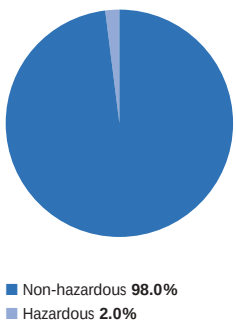
Releases into water bodies

Waste waters carry substances that alter the physico-chemical characteristics of the recipient water bodies, thus causing a potential negative impact on ecosystems and affecting subsequent water uses (e.g. drinking, farming and bathing).
In the case of Enel, the extent of the problem is much smaller than in other industries, such as the chemical industry. Nevertheless, the applicable legislation specifies strict limits for concentration of pollutants, with which Enel complies through the use of treatment systems.
Before treatment, waste waters are distinguished on the basis of their characteristics (acidic/alkaline, oily, coming from desulfurizer drains, meteoric, sewage) and, after treatment, some of their parameters (e.g. conductivity, pH, turbidity, dissolved oxygen and oil content) are continuously monitored. This monitoring activity ensures compliance with regulatory limits; indeed, when pollutant concentrations get close to regulatory limits, waste waters are treated again.
Also the waste waters that are reused inside Enel's power plants (reducing water requirements for industrial uses) usually undergo a prior treatment in order to comply with the applicable specifications.
In thermal power plants, the systematic use of environmental management systems (already certified or awaiting certification) made it possible, for the first time in 2003, to report the data on all waste water releases (i.e. net of the amounts used inside power plants): overall emissions of typical and quantitatively significant pollutants (metals and compounds, nitrogen and compounds, phosphorus and compounds), as well as COD (Chemical Oxygen Demand) and BOD (Biochemical Oxygen Demand). These data are obtained by multiplying the concentrations by the volumes of waste water releases.

Special waste

Special waste represents the refuse from Enel's industrial activities. This refuse is regulated by Legislative Decree no. 22 of February 5, 1997, as amended, which classifies it into non-hazardous and hazardous waste.

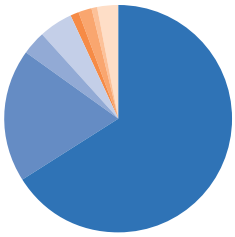
Special waste in 2004
Total production: 1,911,631 t



> Non-hazardous waste includes: i) the most representative items (specified in the tables): coal ash and gypsum from desulfurization; ii) "other" waste (only shown in the pie chart for the sake of simplicity): individually censused typical items like fuel-oil bottom ash; orimulsion ash (from 2002, only bottom ash); machinery & equipment and their parts, supports of power lines, conductors, and cables; sludges from water treatment; materials removed by Enel from the trashracks of hydro power plant intake structures; the portion of alluvial sediments that is removed from hydro basins upon emptying and is not reused locally; drill cuttings from geothermal activities; as well as "remaining" waste items of

Non-hazardous special waste in 2004

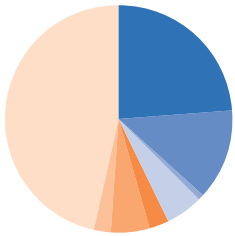
Total production: 1,874,006 t



- Coal ash **68.4%**
- Gypsum from desulfurization **18.9%**
- Machinery & equipment **3.4%**
- Sludges from water treatment **4.8%**
- Materials removed from trashracks **0.5%**
- Geothermal drill cuttings **1.2%**
- Packaging materials **0.1%**
- Remaining **2.7%**

Hazardous special waste in 2004

Total production: 37,625 t



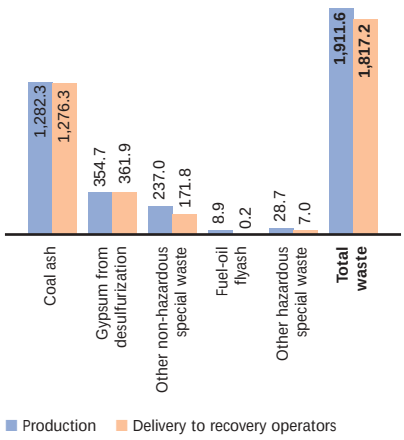
- Fuel-oil flyash **23.8%**
- Machinery & equipment **12.9%**
- Used oils with PCBs > 25 ppm **0.3%**
- Used oils free of PCBs or with PCBs ≤ 25 ppm **5.3%**
- Used batteries **2.9%**
- Asbestos-containing materials **5.5%**
- Sludges from geothermal cooling towers **2.4%**
- Remaining **46.9%**

a general or exceptional nature (clothing, debris from construction and demolition, etc.).

> Hazardous waste comprises: i) fuel-oil flyash (specified in the table as the most representative item); ii) "other" waste (only shown in the pie chart for the sake of simplicity): individually censused typical items like PCB-containing transformers and capacitors and their parts; used oils; batteries; asbestos; sludges from condensation of geothermal steam; as well as "remaining" waste items of a general or exceptional nature (oil-stained clothing, dirt and deposits, soil from remediation works, etc.).

Main categories of waste in 2004

(thousand t)



The waste data are those yearly reported to the Public Inventory of Waste. These reports are based on the qualitative and quantitative characteristics of the waste, recorded at least on a weekly basis in the books of incoming and outgoing waste.

"Waste production" refers to the amounts of waste recorded as "incoming waste" in the books of incoming and outgoing waste.

"Waste delivered to recovery operators" refers to the amounts of waste which are delivered to authorized waste recovery operators.

The following trends emerge from the data:

> the production of ash is obviously correlated with fuel consumption and characteristics, but it reflects fluctuations that depend on: frequency of ash removal from flue gas ducts and from the hoppers of boilers and of particulate collectors; possible addition of water to the ash to prevent the formation of dust during its temporary storage on the plant site; combustion of flyash in the upper part of boiler furnaces in the case of dual oil-gas firing, etc.;

> the increasingly marginal role of coal bottom ash vs. flyash (easier to deliver to recovery operators) is related to: better quality of fuels, modes of operation which minimize boiler fouling and bottom ash grinding (an increasingly common practice);

> the production of gypsum from desulfurization naturally reflects limestone consumption;

> the high share of the "remaining" hazardous special waste in total special waste may be attributed to:

- thermal generation (filtering materials, oil-soaked clothing and rags; neon lamps);
- geothermal generation (waste contaminated by geothermal fluid and rock wool from demolition, rehabilitation and renovation works as part of Enel's 2001-2006 Plan of Environmental Rehabilitation of Geothermal Areas);
- electricity distribution (meteoric waters collected in the vats underlying the transformers of high-voltage/medium-voltage substations; these waters are currently included in the category of liquid waste, when they are intercepted as an option for complying with the provisions of Legislative Decree no. 152/99 on waste water discharges.

In the tables, the volumes of "waste delivered to recovery operators" may exceed those of "waste production", when the waste has been temporarily stored on the plant site in a given year and delivered to recovery operators only in the subsequent year.

Finally, it is worth stressing that, in 2004, about 95,000 tons of alluvial sediments (removed with mechanical equipment upon emptying of hydro basins) were used locally (e.g. for restoring the embankments of basins) and thus not included in waste production.

Emissions

	Source		2000	2001	2002	2003	**2004**
Emissions into the atmosphere							
SO_2	fossil-fired thermal generat.	thousand t	354	284	196	101	94
NO_X	fossil-fired thermal generat.	thousand t	129	101	75	62	56
	fuel-oil storage & handling	thousand t	-	-	-	-	0.008
	Total	thousand t	129	101	75	62	56
Particulates	fossil-fired thermal generat.	thousand t	13.9	10.2	6.1	3.5	3.3
CO_2	*fossil-fired thermal generat. (from combustion)*	*thousand t*	*97,718*	*83,742*	*75,246*	*71,345*	*63,281*
	fossil-fired thermal generat. (from desulfurization)	*thousand t*	*143*	*133*	*144*	*112*	*93*
	total from fossil-fired thermal generation	thousand t	97,861	83,875	75,391	71,457	63,374
	geothermal drilling, fuel-oil storage & handling, gas distribution, telecommunications	thousand t	n.a.	n.a.	19	24	33
	Total	thousand t	n.a.	n.a.	75,410	71,482	63,408
SF_6	electricity generation, transmission & distribution	kg	4,906	4,398	4,652	5,099	5,827
		thousand t of CO_2-equivalent	117	105	111	122	139
CH_4	gas distribution	thousand t	n.a.	n.a.	6	6	7
		thousand t of CO_2-equivalent	n.a.	n.a.	120	132	138
Total greenhouse gases (CO_2, SF_6, CH_4)		thousand t of CO_2-equivalent	n.a.	n.a.	75,641	71,736	63,685
H_2S	geothermal generation	thousand t	28	25	21	24	23
CO_2	geothermal generation	thousand t	1,900	1,724	1,809	1,958	1,893
Avoided CO_2 emissions							
Hydro generation from natural flows		thousand t	20,917	19,191	14,684	12,513	14,651
Geothermal generation		thousand t	3,056	2,999	3,154	3,373	3,533
Generation from wind & solar		thousand t	17	20	38	52	162
Generation from biogas		thousand t	-	18	-	-	-
Total		thousand t	23,989	22,228	17,876	15,938	18,346
Waste waters (discharged quantity)	thermal generation	million m³	22.3	20.2	16.4	12.6	12.9
	fuel-oil storage & handling	million m³	-	-	-	-	0.1
	Total	million m³	22.3	20.2	16.4	12.6	13.0
Releases into water bodies							
Metals and compounds (expressed as metal equivalent)	thermal generation	kg	n.a.	n.a.	n.a.	4,605	5,339
	fuel-oil storage & handling	kg	-	-		-	49
	Total	kg	n.a.	n.a.	n.a.	4,605	5,388
Total nitrogen (expressed as N)	thermal generation	kg	n.a.	n.a.	n.a.	50,696	59,683
	fuel-oil storage & handling	kg	-	-		-	936
	Total	kg	n.a.	n.a.	n.a.	50,696	60,619
Total phosphorus (expressed as P)	thermal generation	kg	n.a.	n.a.	n.a.	3,381	4,727
	fuel-oil storage & handling	kg	-	-		-	508
	Total	kg	n.a.	n.a.	n.a.	3,381	5,235
COD	thermal generation	kg	n.a.	n.a.	n.a.	408,067	422,739
	fuel-oil storage & handling	kg	-	-		-	7,215
	Total	kg	n.a.	n.a.	n.a.	408,067	429,954
BOD	thermal generation	kg	n.a.	n.a.	n.a.	62,575	70,933
	fuel-oil storage & handling	kg	-	-		-	240
	Total	kg	n.a.	n.a.	n.a.	62,575	71,173

n.a.: not available

Emissions

	Source		2000	2001	2002	2003	**2004**
Non-hazardous special waste							
Coal bottom ash	fossil-fired thermal generation						
production		t	34,738	63,761	58,311	35,855	14,878
delivery to recovery operators		t	34,265	63,735	58,336	35,855	14,755
Coal flyash	fossil-fired thermal generation						
production		t	952,367	1,056,605	1,146,320	1,043,885	1,267,438
delivery to recovery operators		t	958,411	981,465	1,078,017	1,029,882	1,261,586
Gypsum from desulfurization	fossil-fired thermal generation						
production		t	562,220	470,240	579,777	442,598	354,713
delivery to recovery operators		t	574,151	428,666	547,872	431,009	361,918
Other							
production	electricity generation & geothermal drilling	t	135,950	168,867	219,723	203,717	179,278
	electricity transmission & distribution	t	87,842	61,598	52,218	45,853	56,537
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	233	1,053	1,162
	Total	t	n.a.	n.a.	272,174	250,623	236,977
delivery to recovery operators	electricity generation & geothermal drilling	t	81,222	116,938	99,950	95,553	115,034
	electricity transmission & distribution	t	83,074	57,145	49,422	45,751	55,653
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	116	1,012	1,112
	Total	t	n.a.	n.a.	149,488	142,316	171,799
Total							
production	electricity generation & geothermal drilling	t	1,685,275	1,759,473	2,004,131	1,726,055	1,816,307
	electricity transmission & distribution	t	87,842	61,598	52,218	45,853	56,537
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	233	1,053	1,162
	Total	t	n.a.	n.a.	2,056,582	1,772,962	1,874,006
delivery to recovery operators	electricity generation & geothermal drilling	t	1,648,049	1,590,803	1,784,175	1,592,299	1,753,293
	electricity transmission & distribution	t	83,074	57,145	49,422	45,751	55,653
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	116	1,012	1,112
	Total	t	n.a.	n.a.	1,833,714	1,639,061	1,810,058

n.a.: not available

Emissions

	Source		2000	2001	2002	2003	**2004**
Hazardous special waste							
Oil flyash	fossil-fired thermal generation						
production		t	27,588	14,532	14,911	11,479	8,937
delivery to recovery operators		t	4,393	2,639	656	948	197
Other							
production	electricity generation & geothermal drilling	t	6,882	6,298	10,126	12,769	13,020
	electricity transmission & distribution	t	4,472	6,864	8,373	9,528	13,262
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	32	133	2,407
	Total	t	n.a.	n.a.	18,532	22,430	28,688
delivery to recovery operators	electricity generation & geothermal drilling	t	1,699	1,408	1,414	1,085	1,348
	electricity transmission & distribution	t	2,807	4,417	5,730	6,571	5,345
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	0	127	292
	Total	t	n.a.	n.a.	7,144	7,783	6,985
Total							
production	electricity generation & geothermal drilling	t	34,471	20,830	25,038	24,248	21,956
	electricity transmission & distribution	t	4,472	6,864	8,373	9,528	13,262
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	32	133	2,407
	Total	t	n.a.	n.a.	33,443	33,909	37,625
delivery to recovery operators	electricity generation & geothermal drilling	t	6,092	4,047	2,070	2,033	1,545
	electricity transmission & distribution	t	2,807	4,417	5,730	6,571	5,345
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	0	127	292
	Total	t	n.a.	n.a.	7,801	8,730	7,182
Total special waste							
production	electricity generation & geothermal drilling	t	1,719,746	1,780,303	2,029,168	1,750,303	1,838,263
	electricity transmission & distribution	t	92,314	68,462	60,591	55,382	69,799
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	265	1,186	3,569
	Total	t	n.a.	n.a.	2,090,025	1,806,871	1,911,631
delivery to recovery operators	electricity generation & geothermal drilling	t	1,654,141	1,594,850	1,786,246	1,594,331	1,754,838
	electricity transmission & distribution	t	85,880	61,562	55,152	52,322	60,998
	fuel-oil storage & handling, gas distribution and telecommunications	t	n.a.	n.a.	116	1,138	1,404
	Total	t	n.a.	n.a.	1,841,514	1,647,792	1,817,240

n.a.: not available

Indicators

Indicators (ratios between homogeneous or heterogeneous quantities) are used to analyze Enel's environmental performance over time, regardless of the volume of activities in each year.
The following paragraphs describe the characteristics of the indicators presented in the tables and provide comments, if any, on their trends.

Conservation and quality of resources

> The net heat rate of fossil-fired thermal generation defines the average quantity of fossil fuels which are consumed by thermal power plants to generate one kWh net.
Its trend in the past few years is the result of two opposite effects: on one hand, the growing internal electricity consumption related to the dissemination of systems for abating emissions into the atmosphere (increased reliance on coal made their use more and more systematic); and, on the other hand, the entry into operation of new high-efficiency combined-cycle plants.

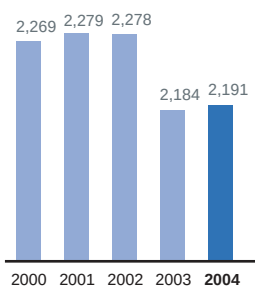
> The net heat rate of geothermal generation defines the average quantity of geothermal steam which is used by geothermal power plants to produce one kWh net.
Its value in 2004 does not affect the increasingly efficient utilization of the geothermal resource thanks, among others, to the renovation of some old plants; the increase shown is indeed comparable to the typical error of the instrumentation used for measuring the geothermal steam flowing into power plants.

> The net efficiency of hydro generation from pumped storage expresses, in percentages, the ratio of net electricity produced by pumped-storage hydro power plants to electricity consumed for pumping.

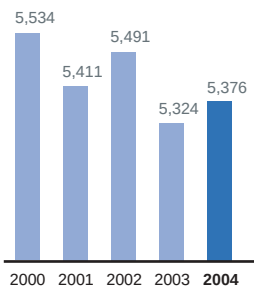
> The natural gas consumption for grid operation and the losses of natural gas from the grid are expressed as percentages of the total gas distributed.

> The net specific requirements of water for industrial uses in thermal generation express the amount of water consumed per kWh net of thermal generation.
Their increase in 2004 (whose causes are mentioned in the paragraph on “Resources” of the

Net heat rate of fossil-fired thermal generation
(kcal/kWh)



Net heat rate of geothermal generation
(kcal/kWh)



"Eco-Balance") is much less significant if the contribution of as-is sea water (main source for covering the water requirements of desulfurizers) is excluded.

> For the first time in 2004, the overall contribution of inland waters (rivers, wells and aqueducts) to coverage of the requirements of water for industrial uses lay below 50%.

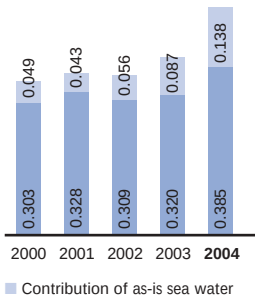
> The fossil fuel consumption share reflects: a further decrease of fuel oils (now only low- and very low-sulfur – LS and VLS – oils are used), a smaller contribution of natural gas (which is still the dominant fuel) and the second position of coal.

> The share of geothermal fuel having suitable thermodynamic characteristics and thus allocated to electricity generation accounts for the near totality of the geothermal fluid extracted.

> The generation from renewables, expressed as a percentage of total electricity generation, has the highest value in the period, thanks to the high value of the hydro energy capability index, but also shows the progressive growth of all other contributions.

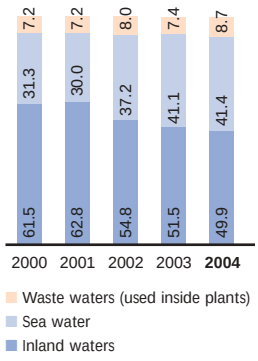
Net specific requirements of water for industrial uses in thermal generation

(liters/kWh)



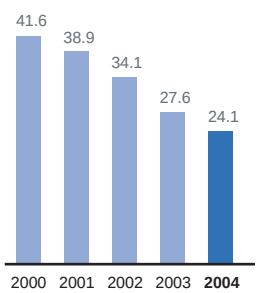
Coverage of requirements of water for industrial uses

(%)



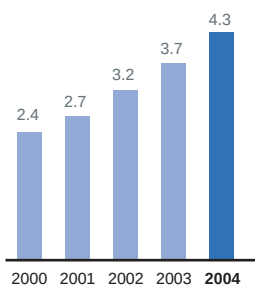
Relative consumption of fuel oil

(% of total consumption of fuels for fossil-fired thermal generation)



Thermal generation from biogas, geothermal, wind & solar (photovoltaic) sources vs. total electricity generation

(%)



Specific emissions into the atmosphere

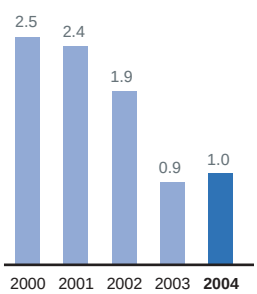
In electricity generation, they express the amounts of the typical and significant substances (see paragraph on "Emissions into the atmosphere" of the Eco-Balance) that are released into the atmosphere per kWh net of thermal, geothermal or total electricity generation.
The specific emissions from fossil-fired thermal generation represent:

> for SO_2, NO_X and particulates: the cumulated effect of the fossil fuel mix, of the efficiency of thermal power plants and of direct prevention and abatement measures;
> for CO_2: the cumulated effect of the fossil fuel mix and of the efficiency of thermal power plants; the contribution due to the operation of desulfurizers is definitely marginal but included in the data.

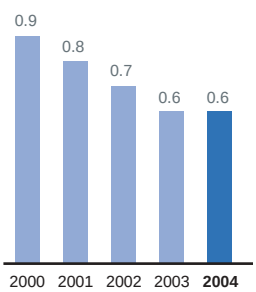
The trends of specific emissions of SO_2, NO_X and particulates show progressive reductions in the first four years of the period, thanks to the combined effect of: i) advanced combustion systems; ii) flue gas emission abatement systems, whose phasing-in was completed as part of the plan for retrofitting thermal plants for environmental compliance; iii) growing reliance on high-grade fuels; and iv) increase of the average efficiency of thermal power plants. From 2003 to 2004, instead, these emissions show a stable trend.

Specific CO_2 emissions from fossil-fired thermal generation are fairly variable in the period owing to the variability of their determinants. Excellent results were achieved with respect to 1990 (738 g/kWh net).
In line with a practice adopted by many electricity companies, specific CO_2 emissions are also determined with reference to total (net) generation of electricity, thereby mirroring also the effect of the overall mix of energy sources.
Also from the latter standpoint, the value of specific CO_2 emissions is the lowest in the period (thanks, above all, to electricity generation from renewables) with a more marked difference with respect to their 1990 value (618 g/kWh).

Specific SO_2 emissions from fossil-fired thermal generation
(g/kWh net)

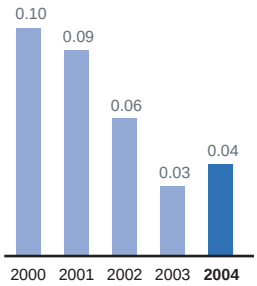


Specific NO_X emissions from fossil-fired thermal generation
(g/kWh net)



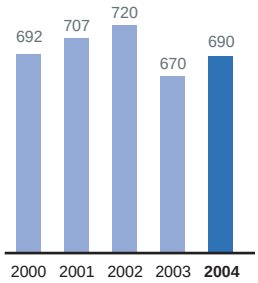
Specific particulate emissions from fossil-fired thermal generation

(g/kWh net)



Specific CO_2 emissions from fossil-fired thermal generation

(g/kWh net)



Relative SF_6 emissions, which concern all electric activities, express the ratio of the yearly emissions of SF_6 to the volume of SF_6 contained in in-service & in-stock equipment, as well as in the bottles used for replenishments.
The percentages of SF_6 over the years show fluctuations, due above all to the occasional character of replenishments. However, they all lie below the value indicated in the 1996 IPCC Guidelines for national greenhouse gas inventories (1%).

The ratio of CH_4 emissions to the total gas wheeled expresses the specific emissions of this gas during distribution.
The reported values are well below those suggested by the 1996 IPCC Guidelines for national greenhouse gas inventories (2.5-6.2 g of CH_4 per m^3 of natural gas distributed). Nonetheless, it should be pointed out that the IPCC values refer to all the activities of natural gas transport and distribution in Western Europe.

Specific emissions from geothermal generation (taking into account the considerations made about their origin, see paragraph on "Emissions" of the Eco-Balance) express:

- for H_2S: the cumulated effect of the composition of geothermal steam and of the efficiency of geothermal power plants and abatement systems;
- for CO_2: the cumulated effect of the composition of geothermal steam and of the efficiency of geothermal power plants.

Both of them display significant and steady decreases in the period.

Specific releases into water bodies

They express the amount, per kWh net of thermal generation, of typical and significant substances (see paragraph on "Releases into water bodies" of the Eco-Balance) which are entrained by the portion of waste waters of thermal power plants that are returned to water bodies.
As is obvious, these releases are chiefly dependent on the efficiency of waste water treatment systems and cannot be easily correlated with other factors concerning the power plants and their modes of operation.

Specific waste production

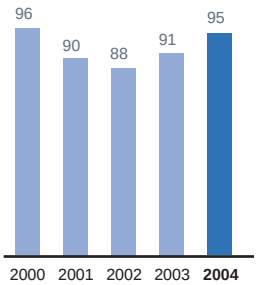
Ash is the only waste which has a significant correlation with the volume of activities. As a result, the tables show the production of coal ash (bottom ash and flyash) and of fuel-oil flyash per kWh net generated by each fuel.
The use of better quality fuels (lower production of ash) and the generalized application of advanced particulate collection technologies (higher production of flyash) have opposite effects which are accompanied by fluctuations that depend on contingent circumstances, as previously pointed out with reference to the waste production figures in absolute terms.

Waste recovery

For the main groups of waste, this indicator expresses the ratio of the quantities delivered to recovery operators to the quantities produced.
The trends infer that:

- > recovery of the near totality of coal ash and gypsum characterized the entire period;
- > recovery of fuel-oil ash has become marginal, reflecting a progressive drop in demand by the markets of recovered materials (heavy metals);
- > recovery of "other" non-hazardous waste had a new and more significant increase, due to its sharp growth in electricity generation and geothermal drilling activities;
- > recovery of other hazardous waste dropped considerably; the drop is mainly due to the fact that geothermal activities produced an exceptional amount of this waste (see paragraph on "Emissions" of the Eco-Balance), which had to be delivered to disposal facilities.

Total waste recovery
(% of production)

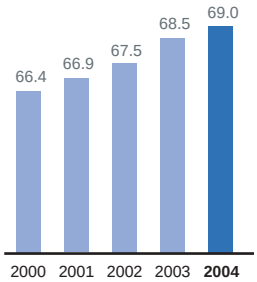


Land

With regard to landscape and land conservation, note the progressive increase in the percentage of overhead and underground cables for low- and medium-voltage lines and, accordingly, the gradual decrease of bare conductors.

Overhead and underground cables in low- and medium-voltage lines

(% of entire LV and MV grid)



Indicators

		2000	2001	2002	2003	**2004**	% ('04-'00)/'00	% ('04-'03)/'03
Resource conservation and quality								
Net heat rate of fossil-fired thermal generation	kcal/kWh	2,269	2,279	2,278	2,184	2,191	-3.4	0.3
Net heat rate of geothermal generation	kcal/kWh	5,534	5,411	5,491	5,324	5,376	-2.9	1.0
Net efficiency of hydro generation from pumped storage	%	71.4	72.1	71.2	70.7	72.3	1.2	2.3
Consumption of electricity for distribution grid operation	% of electricity distributed	n.a.	n.a.	n.a.	n.a.	0.143	n.a.	n.a.
Consumption of natural gas for grid operation	% of natural gas distributed	n.a.	n.a.	0.06	0.16	0.13	n.a.	-20.6
Losses of natural gas along the grid	% of natural gas distributed	n.a.	n.a.	0.35	0.35	0.35	n.a.	0.0
Net specific requirements of water for industrial uses in thermal generation								
including contribution of as-is sea water	liters/kWh	0.352	0.371	0.364	0.407	0.523	48.7	28.5
excluding contribution of as-is sea water	liters/kWh	0.303	0.328	0.309	0.320	0.385	27.0	20.2
Coverage of requirements of water for industrial uses								
from rivers	% of requirements	21.7	24.2	22.0	22.2	29.1	34.2	30.9
from wells	% of requirements	28.2	25.9	18.2	16.5	9.3	-67.2	-44.0
from aqueducts	% of requirements	11.5	12.7	14.5	12.7	11.5	0.0	-9.4
from the sea (as is)	% of requirements	13.8	11.6	15.3	21.3	26.3	91.0	23.6
from the sea (desalinated)	% of requirements	17.5	18.4	21.9	19.8	15.0	-14.2	-24.0
from waste waters (used inside plants)	% of requirements	7.2	7.2	8.0	7.4	8.7	20.2	17.9
Fossil fuel consumption for thermal generation								
fuel oil	% of total fuel consumption	41.6	38.9	34.1	27.6	24.1	-42.1	-12.8
orimulsion	% of total fuel consumption	5.1	3.9	4.5	4.2	1.2	-75.8	-70.3
gas-oil	% of total fuel consumption	0.4	0.3	0.2	0.4	0.2	-50.5	-47.2
natural gas	% of total fuel consumption	34.6	33.1	31.7	40.3	38.1	10.0	-5.5
coal	% of total fuel consumption	18.2	23.9	29.5	27.4	36.3	99.9	32.5
brown coal	% of total fuel consumption	0.01	0.00	0.00	0.00	0.00	-100.0	-
HS fuel oil	% of total fuel-oil consump,	1.2	2.0	0.1	0.0	0.5	-61.1	-
MS fuel oil	% of total fuel-oil consump,	41.6	41.1	30.0	1.2	3.6	-91.4	186.8
LS fuel oil	% of total fuel-oil consump,	30.1	30.4	29.7	35.0	39.3	30.7	12.4
VLS fuel oil	% of total fuel-oil consump,	27.1	26.5	40.2	63.8	56.6	108.8	-11.2
natural gas, non-technologically captive use	% of tot. natural gas consump,	72.1	62.5	72.9	41.0	35.8	-50.4	-12.8
natural gas, technologically captive use	% of tot. natural gas consump,	27.9	37.5	27.1	59.0	64.2	130.0	8.9
Geothermal steam for electricity generation	energy % of total geothermal fluid extracted	n.a.	n.a.	99.5	99.5	97.2	n.a.	-2.4
Electricity generation from renewables								
thermal from biogas	% of total generation	-	0.016	-	-	-	-	-
geothermal	% of total generation	2.4	2.7	3.2	3.7	4.1	68.2	11.3
hydro from natural flows	% of total generation	16.6	17.3	14.9	13.6	16.9	1.9	24.5
wind & solar (photovoltaic)	% of total generation	0.013	0.018	0.038	0.056	0.187	1,320.5	234.0
Total	% of total generation	19.0	20.0	18.1	17.3	21.1	11.3	22.4
Specific emissions into the atmosphere								
SO_2 (fossil-fired thermal generation)	g/kWh fossil-fired thermal net	2.5	2.4	1.9	0.9	1.0	-59.3	8.0
NO_X (fossil-fired thermal generation)	g/kWh fossil-fired thermal net	0.9	0.8	0.7	0.6	0.6	-33.3	4.1
Particulates (fossil-fired thermal generation)	g/kWh fossil-fired thermal net	0.10	0.09	0.06	0.03	0.04	-62.8	11.5
CO_2 (fossil-fired thermal generation)	g/kWh fossil-fired thermal net	692	707	720	670	690	-0.3	3.0
	g/kWh total net	536	534	550	519	504	-6.1	-2.9
SF_6 (electric activities)	% of SF_6 in stock or in equipment	0.9	0.8	0.8	0.8	0.9	-3.3	7.5
CH_4 (gas distribution)	g/m³ of natural gas wheeled	n.a.	n.a.	1.8	1.8	1.8	n.a.	0.0
H_2S (geothermal generation)	g/kWh geothermal net	6.4	5.9	4.8	4.8	4.6	-28.5	-5.3
CO_2 (geothermal generation)	g/kWh geothermal net	430	407	413	389	370	-14.1	-4.9

n.a.: not available

Indicators

		2000	2001	2002	2003	**2004**	% ('04-'00)/'00	% ('04-'03)/'03
Specific releases into water bodies (thermal generation)								
Metals and compounds (expressed as metal equivalent)	mg/kWh thermal net	n.a.	n.a.	n.a.	0.04	0.06	n.a.	34.6
Total nitrogen (expressed as N)	mg/kWh thermal net	n.a.	n.a.	n.a.	0.5	0.6	n.a.	36.7
Total phosphorus (expressed as P)	mg/kWh thermal net	n.a.	n.a.	n.a.	0.03	0.05	n.a.	62.4
COD	mg/kWh thermal net	n.a.	n.a.	n.a.	3.8	4.6	n.a.	20.3
BOD	mg/kWh thermal net	n.a.	n.a.	n.a.	0.6	0.8	n.a.	31.6
Specific production of waste								
Coal ash	g/kWh net from coal	42	43	43	42	43	2.1	4.0
Fuel-oil & gas-oil flyash	g/kWh net from fuel oil & gas-oil	0.47	0.31	0.42	0.41	0.43	-6.5	5.4
Waste recovery								
Coal ash	% of production	101	93	94	99	100	-1.0	0.8
bottom ash	% of production	99	100	100	100	99	0.5	-0.8
flyash	% of production	101	93	94	99	100	-1.1	0.9
Gypsum from desulfurization	% of production	102	91	94	97	102	-0.1	4.8
Other non-hazardous special waste								
electricity generation & geothermal drilling	% of production	60	69	45	47	64	7.4	36.8
electricity transmission & distribution	% of production	95	93	95	100	98	4.1	-1.3
fuel-oil storage & handling, gas distribution and telecommunications	% of production	n.a.	n.a.	50	96	96	n.a.	-0.4
Total	% of production	n.a.	n.a.	55	57	72	n.a.	27.7
Total non-hazardous special waste								
electricity generation & geothermal drilling	% of production	98	90	89	92	97	-1.3	4.6
electricity transmission & distribution	% of production	95	93	95	100	98	4.1	-1.3
fuel-oil storage & handling, gas distribution and telecommunications	% of production	n.a.	n.a.	50	96	96	n.a.	-0.4
Total	% of production	n.a.	n.a.	89	92	97	n.a.	4.5
Fuel-oil & gas-oil flyash	% of production	16	18	4	8	2	-86.2	-73.3
Other hazardous special waste								
electricity generation & geothermal drilling	% of production	25	22	14	8	10	-58.1	21.8
electricity transmission & distribution	% of production	63	64	68	69	40	-35.8	-41.6
fuel-oil storage & handling, gas distribution and telecommunications	% of production	n.a.	n.a.	0	95	12	n.a.	-87.7
Total	% of production	n.a.	n.a.	39	35	24	n.a.	-29.8
Total hazardous special waste								
electricity generation & geothermal drilling	% of production	18	19	8	8	7	-60.2	-16.1
electricity transmission & distribution	% of production	63	64	68	69	40	-35.8	-41.6
fuel-oil storage & handling, gas distribution and telecommunications	% of production	n.a.	n.a.	0	95	12	n.a.	-87.3
Total	% of production	n.a.	n.a.	23	26	19	n.a.	-25.9
Total special waste								
electricity generation & geothermal drilling	% of production	96	90	88	91	95	-0.8	4.8
electricity transmission & distribution	% of production	93	90	91	94	87	-6.1	-7.5
fuel-oil storage & handling, gas distribution and telecommunications	% of production	n.a.	n.a.	44	96	39	n.a.	-59.0
Total	% of production	n.a.	n.a.	88	91	95	n.a.	4.2
Land								
LV cable lines								
overhead cable (insulated)	% of entire LV grid	50.8	51.5	52.1	52.0	52.1	2.7	0.2
underground cable	% of entire LV grid	29.8	29.7	29.6	30.4	30.6	2.7	0.7
Total	% of entire LV grid	80.6	81.2	81.7	82.5	82.8	2.7	0.4
MV cable lines								
overhead cable (insulated)	% of entire MV grid	1.12	1.54	1.88	2.15	2.25	100.7	4.4
underground cable	% of entire MV grid	34.8	34.8	35.2	36.1	36.7	5.7	1.8
Total	% of entire MV grid	35.9	36.4	37.1	38.3	39.0	8.7	1.9
Double-circuit 380-kV lines	% of total 380-kV lines	8.7	8.6	9.2	9.4	9.4	8.9	-0.1

n.a.: not available

Non-Italian Operations

Operations outside Italy

Enel is present outside Italy with different percentages of company ownership:

> in Spain (electricity generation and distribution);
> in the Balkan countries (thermal generation in Bulgaria and telecommunications in Greece);
> in the Americas (renewables in Canada, United States, Costa Rica, El Salvador, Guatemala, Chile and electricity transmission in Brazil).

In 2005, Enel is continuing its international expansion with moves for the acquisition of controlling interests in two Romanian regional companies (active in the electricity distribution business) and in the Slovak company Slovenské Elektrárne (operating thermal, nuclear and hydro power plants).
In the geothermal sector, Enel acquired concessions in Chile, to be developed together with the state-owned company ENAP.

Enel's chief objective is to align its foreign power plants (especially those in Central Europe) with its environmental standards. This environmentalization program involves, among others, the brown-coal-fired thermal power plant of Maritza East III, in Bulgaria.

Enel's electricity generation abroad has two distinctive features: high reliance on renewables (30%: hydro, wind and biomass) and almost exclusive use of indigenous fuels (coal and brown coal by Viesgo Generación in Spain and brown coal by Maritza in Bulgaria).
It should be stressed that, at the end of 2004, Viesgo Generación successfully completed the Environmental Impact Assessment process for an 800 MW gas-fired combined-cycle power plant, which will replace its old coal-fired power plant of Escatrón (one 65 MW pressurized fluid bed unit).
The generating mix of Enel Unión Fenosa Renovables (Spain) stands out by the presence of combined heat & power generation plants; in these plants, electricity generation is integrated with production of process heat, which is used by food, textile, chemical, pharmaceutical and other industries, with excellent overall efficiencies.

Activities of electricity distribution outside Italy are based in some Atlantic provinces of northern Spain and are carried out by Viesgo Distribución (Electra de Viesgo Distribución and its subsidiary BEGASA – Barras Eléctricas Galaico Asturianas).
In 2004, Viesgo Distribución devoted particular efforts to: renovation of facilities for temporary storage of hazardous waste; preparation of documentation and environmental impact studies on high- and medium-voltage lines and electrical stations; undergrounding and removal of sections of high- and medium-voltage overhead lines; and other power grid projects, such as tree-fencing of areas occupied by substations.

In Brazil, the companies Transmissora Sudeste Nordeste and Novatrans Energia built two 500-kV transmission lines jointly with Enelpower and operate them under thirty-year concessions. The first line (transmission capacity: about 2,000 MVA) went into operation in the first half of 2003, while the second one (about 1,300 MVA) was progressively put into service between June 2003 and April 2004. The transmission lines represent the backbone linking the country's northern and northeastern energy areas with central-southern ones. As these areas have different hydrological regimes, the transmission lines play a crucial role in the equilibrium of the national power system, in which hydro power generation covers over 80% of domestic electricity requirements.
Under the Brazilian legislation, the two lines are among the infrastructures whose planning, construction, operation and maintenance require the preparation of environmental studies and programs.
As the lines often cross protected or integral protection areas and indigenous lands, particular care was taken in the design of their routes and accesses, as well as in the selection of the height of their towers and of the characteristics of their foundations.

The data sheets and tables in the following pages summarize the activities conducted by the above-mentioned companies.

Viesgo Generación

Coal/brown coal-fired thermal power plant
Fuel-oil/gas-fired thermal power plant
Hydro generation area

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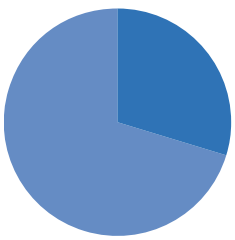
Power installations

HYDRO	Power plants no.	Net maximum capacity MW
Pondage/reservoir		299
Pure/mixed pumped storage		373
	12	**672**
Fish ladders (no.)		2

THERMAL	Power plants no.	Generating units no.	Net maximum capacity MW
Steam (condensing)		6	1,527
Pressurized fluid bed with flue-gas-recovery turbine		1	65
	6	**7**	**1,592**

Net maximum capacity

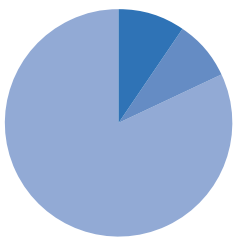
Total: 2,264 MW



Hydro **29.7%**
Thermal **70.3%**

Net electricity generation

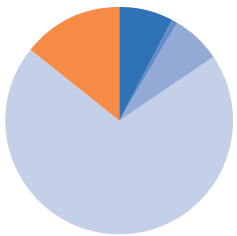
Total: 6,088 million kWh



Hydro from natural flows **9.5%** (578 GWh)
Hydro from pumped storage **8.5%** (518 GWh)
Thermal (fossil-fired) **82.0%** (4,992 GWh)

Fuel consumption

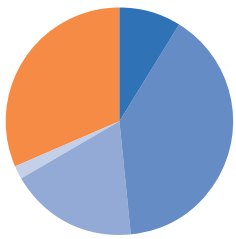
Total: 1,318,578 t of oil-equivalent



- Fuel oil **7.7%**
- Gas-oil **0.2%**
- Natural gas **7.0%**
- Coal **70.8%**
- Brown coal **14.3%**

Expendables

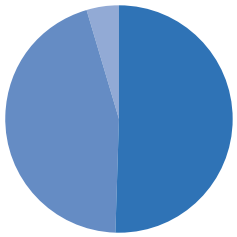
Total: 2,721 t



- Caustic soda **8.8%**
- Sulfuric & hydrochloric acids **39.6%**
- Sodium hypochlorite **18.2%**
- Ammonia, resins, hydrazine and lime **1.9%**
- Other **31.5%**

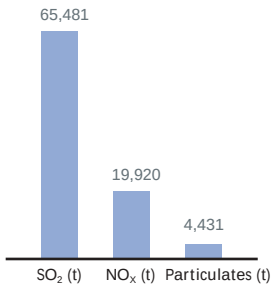
Water for industrial uses

Total requirements: 6,735,650 m³



- From rivers **50.5%**
- From wells **44.9%**
- From aqueducts **4.6%**

Emissions into the atmosphere



CO_2 (t)	5,013,135

Hydro generation from natural flows avoided about 610,000 t of CO_2 emissions into the atmosphere from the otherwise necessary thermal generation.

Waste waters

Total discharged quantity: 1,934,330 m³

Waste waters include those meteoric waters that are susceptible to pollution and are therefore fed to treatment systems before being discharged or used.

Special waste

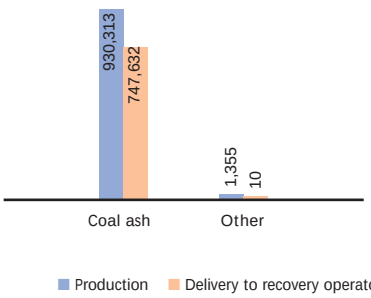
Total production: 932,681 t

Total delivery to recovery operators: 748,620 t

Non-hazardous

Total production: 931,668 t

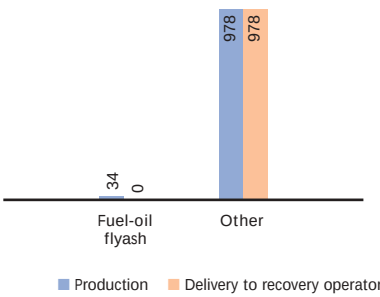
Total delivery to recovery operators: 747,642 t



Hazardous

Total production: 1,012 t

Total delivery to recovery operators: 978 t



Production of electricity and heat

Installations

	Viesgo Generación (Spain)		Enel Unión Fenosa Renovables (Spain)		Maritza (Bulgaria)		Enel North America (Canada, USA)		Enel Latin America (Chile, Costa Rica, El Salvador, Guatemala)		**Total**	
	Power plants (no.)	Net maximum power capacity (MW)	Power plants (no.)	Net maximum power capacity (MW)	Power plants (no.)	Net maximum power capacity (MW)	Power plants (no.)	Net maximum power capacity (MW)	Power plants (no.)	Net maximum power capacity (MW)	Power plants (no.)	Net maximum power capacity (MW)
Thermal	6	1,592	11 (1)	163	1	732	1 (2)	21			**19**	**2,508**
Hydro	12	672	34	89			66	286	6	171	**118**	**1,218**
Wind			22	535			3	67	1 (3)	24	**26**	**626**
Total	**18**	**2,264**	**67**	**787**	**1**	**732**	**70**	**375**	**7**	**195**	**163**	**4,352**

(1) Combined heat & power (2) Biomass (3) Costa Rica

Net electricity generation

Million kWh

	Viesgo Generación	Enel Unión Fenosa Renovables	Maritza	Enel North America	Enel Latin America	**Total**
Thermal from fossil fuels	4,992	1,027	3,213			**9,231**
Fuel oil and gas-oil	*378*	*504*				*882*
Natural gas	*324*	*523*				*847*
Coal	*3,621*					*3,621*
Brown coal	*668*		*3,213*			*3,881*
Total from renewables	578	1,380		1,265	929	**4,152**
Thermal from biomass				*170*		*170*
Hydro from natural flows	*578*	*235*		*918*	*858*	*2,590*
Wind		*1,145*		*176*	*71*	*1,392*
Hydro from pumped storage	518					**518**
Total	**6,088**	**2,407**	**3,213**	**1,265**	**929**	**13,901**

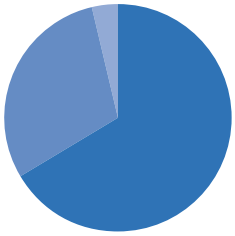
Heat production from combined heat & power plants

Million kcal

	Enel Unión Fenosa Renovables
Total	**548,300**

Net electricity generation by source

Total: 13,901 million kWh



- Thermal from fossil fuels **66.4%**
- Total from renewables **29.9%**
- Hydro from pumped storage **3.7%**

Fuel consumption

Thousand toe

	Viesgo Generación	Enel Unión Fenosa Renovables (1)	Maritza	Enel North America	**Total**
Fossil fuels	1,319	230	980		**2,529**
Fuel oil and gas-oil	*104*	*108*			***211***
Natural gas	*92*	*122*			***214***
Coal	*934*				***934***
Brown coal	*189*		*980*		***1,169***
Biomass				74	**74**

(1) For both electricity generation and heat production.

Emissions into the atmosphere from fossil fuel combustion

Thousand t

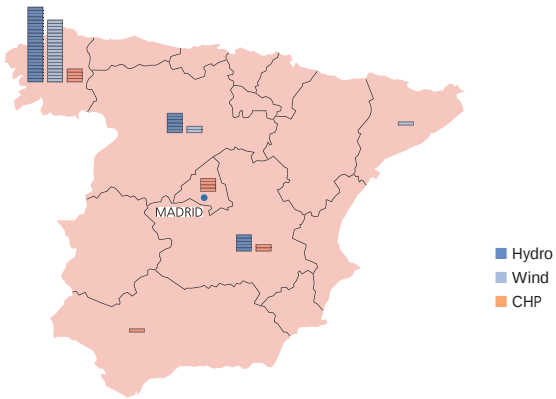
	Viesgo Generación	Enel Unión Fenosa Renovables	Maritza	**Total**
SO_2	65	n.a.	231	**n.a.**
NO_x	20	n.a.	7	**n.a.**
Particulates	4	n.a.	4	**n.a.**
CO_2	5,013	631	4,069	**9,713**

n.a.: not available

By generating electricity from renewables outside Italy, Enel avoided over 4 million tons of CO_2 emissions into the atmosphere from the otherwise necessary fossil-fired thermal generation.

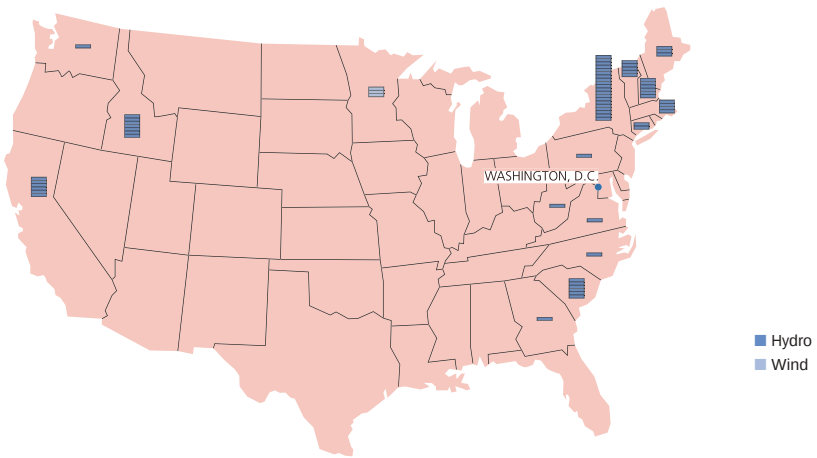
Enel Unión Fenosa Renovables

Distribution of power plants in Spain



Enel North America

Distribution of power plants in the USA



In Canada, Enel North America owns a hydro plant in the province of Newfoundland and a biomass plant in the province of Québec.

Viesgo Distribución

High-voltage distribution grid perimeter
- BEGASA
- Electra de Viesgo Distribución

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imalo@viesgo.es

Power installations

SUBSTATIONS	no.	Installed transforming capacity MVA
HV/MV	84	3,383
Satellite substations and MV units	4	-
MV/LV	9,196	1,734
MV/MV	250	-
	9,534	**5,117**

LINES (km)	Overhead bare conductors and cables	Underground cables	Total
HV (220 and 130 kV)	2,034	17	2,051
MV	8,789	993	9,783
LV	16,011	1,650	17,661
	26,834	**2,660**	**29,495**

General data

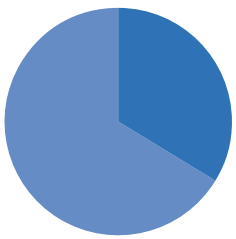
Surface area served (km^2)	16,494
Customers connected to Viesgo Distribución's grid (no.)	609,509

Electricity

Total electricity distributed (million kWh)	5,216
Own consumption (for grid operation – million kWh)	7
Losses along the grid (million kWh)	377

Special waste

Total production: 299 t



- Non-hazardous **33.7%**
- Hazardous **66.3%**

Total delivery to recovery operators: 0 t

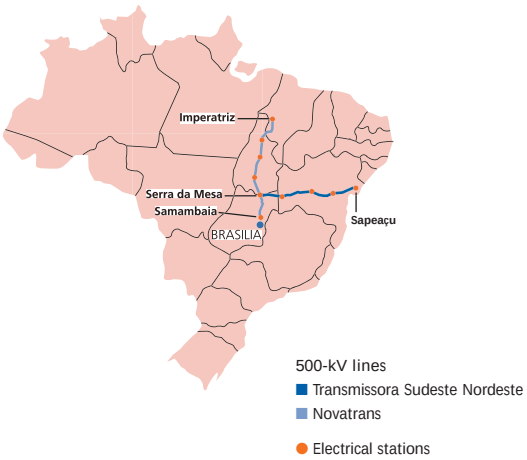
Emissions into the atmosphere

SF_6 (kg)	1.5
(t of CO_2-equivalent)	36

On January 1, 2005, Viesgo Distribución sold its electricity transmission assets (one 400 MVA 380/220-kV transforming station, 8 220-kV switching stations and 108 km of 220-kV lines) to Red Eléctrica (owner of the Spanish transmission grid).

Transmissora Sudeste Nordeste

Novatrans



Power installations

ELECTRICAL STATIONS

	no.	Installed transforming capacity MVA
500 kV	5	1,800
230 kV	2 (1)	-
	7	**1,800**

(1) Electrical switching stations.

LINES (single circuits - km)

500 kV	1,062
230 kV	15
	1,077

Special waste

No waste was produced by these installations after their delivery by the building contractor, also because no maintenance was carried out on them.

Emissions into the atmosphere

SF_6 (kg)	165
(t of CO_2-equivalent)	3,944

Power installations (500-kV)

ELECTRICAL STATIONS (switching stations - no.)	6
LINES (single circuits - km)	1.278

Special waste

No waste was produced by these installations after their delivery by the building contractor, also because no maintenance was carried out on them.

Emissions into the atmosphere

SF_6 (kg)	245
(t of CO_2-equivalent)	5,856

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Tellas

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Installations

Fiber-optic networks (km)	1,593
Local loops (km)	84
Fixed telephony switches (no.)	3
Points of Presence – POPs (no.)	7

Usage

Voice – fixed telephony (billion minutes)	1.6
Internet (billion minutes)	0.7

General data

Fixed telephony active customers (no.)	701,960
Registered Internet customers (no.)	9,504

Resource consumption

Electricity (kWh)	263

Used for powering telecommunications systems.

Gas-oil (toe)	2

Used in generating sets which supply electricity in emergencies and to installations not connected to the power grid.

Special waste

Total production: 2 t

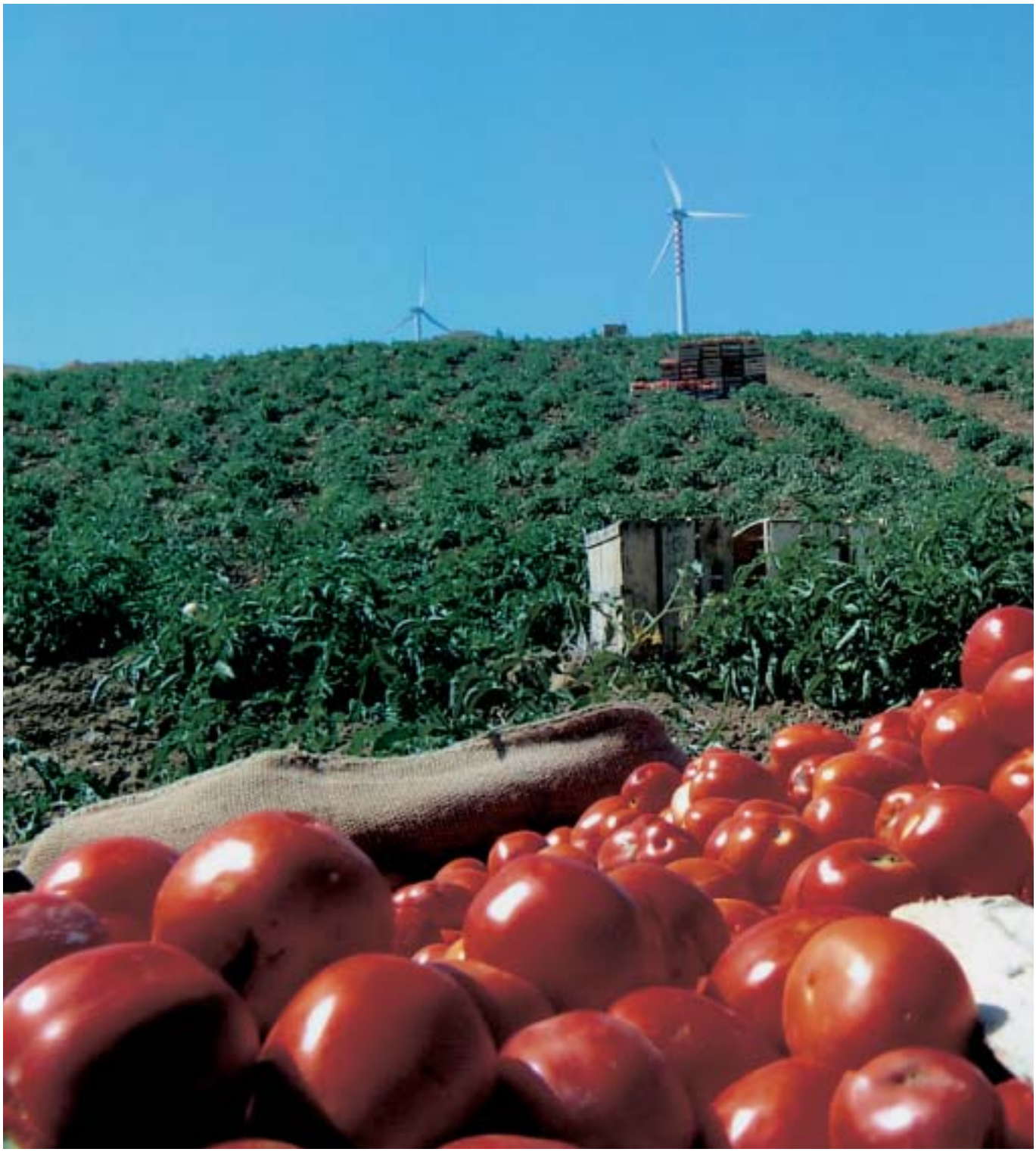
Total delivery to recovery operators: 2 t

Hazardous special waste only.

Emissions into the atmosphere

CO_2 (t)	7

The emissions of carbon dioxide are produced by the combustion of the gas-oil used in generating sets.



Occupational Health & Safety

Protection of workers' health and improvement of workplace safety

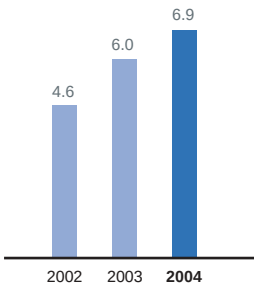
"I invite all of you to regard safety in your working environment as a priority target. We must strictly comply with procedures that ensure safe ways of working to all workers, especially those working in power plants and on the power grid".
This is how the Chief Executive Officer reiterated Enel's commitment to health & safety in workplaces. This commitment, which is included in the corporate Code of Ethics, is an integral part of Enel's culture and industrial policy and its fulfillment actively involves all workers, as well as their representatives. Occupational health & safety are enshrined in the tenets of Enel's environmental policy, whose strategic targets include the application of international safety management systems in the various activities. Enel's commitment translates into various actions:

> organization of activities and awareness efforts;
> employees' training & education;
> health surveillance;
> constant updating of risk assessment documents;
> application of occupational health & safety management systems conforming to the international OHSAS 18001 standards;
> in-depth analysis of occupational injuries.

Organization

The "Corporate" Personnel & Organization includes the Health & Safety, Regulations and Industrial Relations unit, having the mission of formulating policies for a homogenous application of occupational health & safety regulations throughout Enel.
The corporate guidelines issued in February 2004 (and superseding previous documents) regulate the organization of these activities. The guidelines are used as a reference tool by all the units of Enel that are responsible for health & safety.
In all of Enel's sites, the so-called "Production Units" as well as their hierarchical and functional organization (employer, manager, controller) have been identified since 1997. At the same time, within each Production Unit, Enel also created the Prevention and Protection Service, appointing its Manager and the Physician in charge of workers' health surveillance.
Enel's Italian and foreign human resources dedicated to health & safety in workplaces amounted to over 400 equivalent full-time units (about 7 workers out of 1,000) as of December 31, 2004. The number of human resources involved in support activities (emergency or first-aid teams) is much higher (6,500).

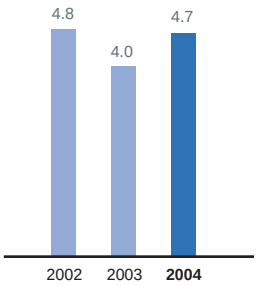
Occupational health & safety personnel
(full-time equivalent units per 1,000 workers)



Awareness, training & education

In 2004, both in and outside Italy, Enel delivered over 280,000 man-hours (about 5 hours per person) of training & education on health & safety at work.
The courses were centered on cross-cutting health & safety themes (risk assessment, individual prevention practices, safety organization systems, etc.), on risks typical of specific activities, as well as on particular aspects, such as first aid.

Training & education hours per person



In accordance with Ministerial Decree no. 388 of 2003 (concerning first aid in workplaces and implementing Legislative Decree no. 626/94), Enel launched a training program for newly appointed first-aid teams, especially those working on construction sites.
Enel also delivered courses for the positions of responsibility and representation specified in Legislative Decree no. 626/94 and for the safety coordinators referred to in Legislative Decree no. 494/96.

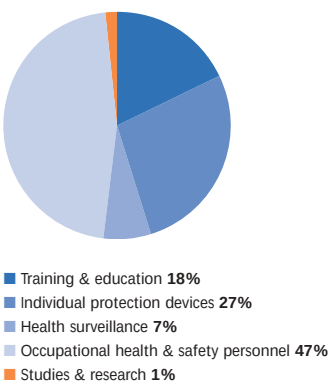
As regards office work, employees participate in periodical programs aimed at making them aware of risks associated with the use of working equipment, as well as of emergency plan procedures applicable to the individual sites.

Expenditure

In addition to the cost of the health & safety personnel, the most significant items of current expenditure include:

> awareness, training & education;
> individual protection systems;
> health surveillance (appointment of the Physician in charge, creation of health facilities, periodical medical examinations, etc.);
> specialist studies and research (participation in national and international projects concerning health & safety, epidemiological studies, analysis of the trend of injuries).

Main items of current expenditure
Total: 25 million euro

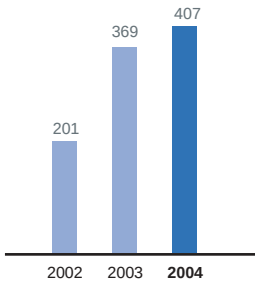


In 2004, in and outside Italy, Enel spent about 25 million euro, i.e. over 400 euro per person.

The overall expenditure rises to 43 million euro, if the cost of the support personnel is included.

Investments in safety & health – most of which are part of programs of reorganization, renovation or alignment of offices and/or plant sites with the applicable legislation – are not reported, owing to the difficulty of identifying them among overall investments.
Nevertheless, it is worth emphasizing that such investments always result into an improvement of the general conditions of health & safety in workplaces.

Current expenditure per person
(euro)



Initiatives

Smoking in workplaces

The central initiative of the year was protection of workers from passive smoking and introduction of the smoking ban in indoor workplaces (Enel's offices and plant sites in Italy). All workers accepted the initiative without particular difficulties.

Health surveillance and first aid

In 2004, Enel went on with its health surveillance program: over one third of Enel's workforce underwent medical examinations.
Enel applied the provisions of the Ministerial Decree on first aid (no. 388/03) in a systematic and integrated way (e.g. by installing first-aid boxes in all offices and plant sites and by organizing training courses for first-aid teams working in its production units).

Health & safety management systems

In 2004, in and outside Italy, Enel continued the introduction of management systems conforming to the international OHSAS 18000 standards into its Divisions and Companies.
With the extension to the Generation and Energy Management Division (scheduled in 2005), the system will be operational for about 90% of Enel's workforce.

Adoption of the new safety and coordination plan model for large construction sites

In 2004, Enel adopted the new reference model for drafting safety and coordination plans, as set forth in Legislative Decree no. 494/96. This action obviously involved also the construction site for conversion of the Torrevaldaliga Nord power plant to coal firing.

Upon the adoption of the new safety and coordination plan model, Enel also updated its procedure of management and supervision of construction sites, emphasizing contractors' health & safety monitoring aspects.

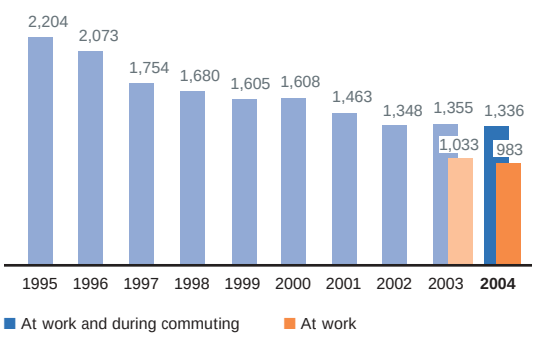
Industrial hygiene and radon monitoring

As part of the extension of the program of industrial hygiene monitoring in Enel's workplaces and in compliance with Decree no. 241/2001, a survey was started in 2004 for determining radon concentrations in potentially exposed environments.

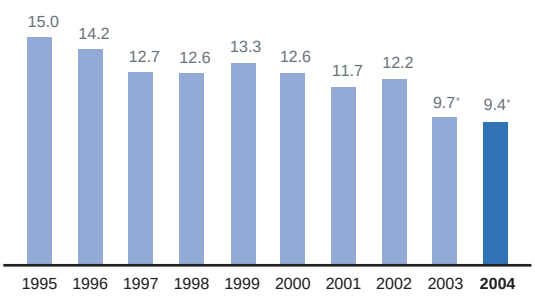
Injuries

Also in 2004, the total number of occupational injuries (involving at least one day of absence from work), in and outside Italy, continued to drop significantly (983 from 1,033 in 2003). The frequency rate (number of injuries per million hours of work) thus fell to 9.4, with a corresponding severity rate (number of lost workdays owing to injuries per thousand hours of work) equal to 0.3.

Injuries
(no.)



Frequency of injuries
(number per million hours of work)



* Value not including injuries during commuting.

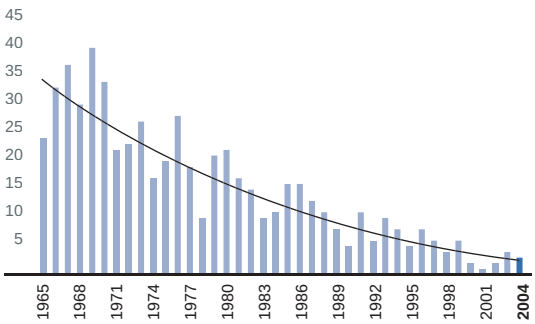
In the period considered, Enel's personnel progressively decreased.

Monitoring of serious and fatal injuries

In 2004, 10 serious injuries (prognosis of more than 31 days) vs. 6 in 2003 and 3 fatal injuries vs. 4 in 2003 were recorded among Enel's employees. Out of the 3 fatal injuries, one was due to a road accident occurred during working hours and two to electrical causes.

Fatal injuries

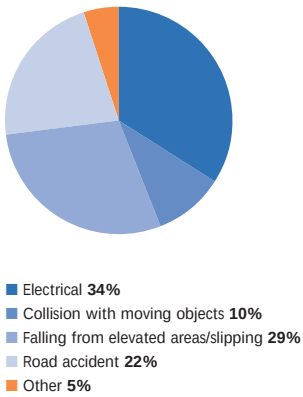
(no.)



In the period considered, Enel's personnel progressively decreased.

Serious and fatal injuries from 2002 to 2004

Total: 41



Conversely, the total number of serious and fatal injuries of contractors' personnel remained steady (38 vs. 37 in 2003).

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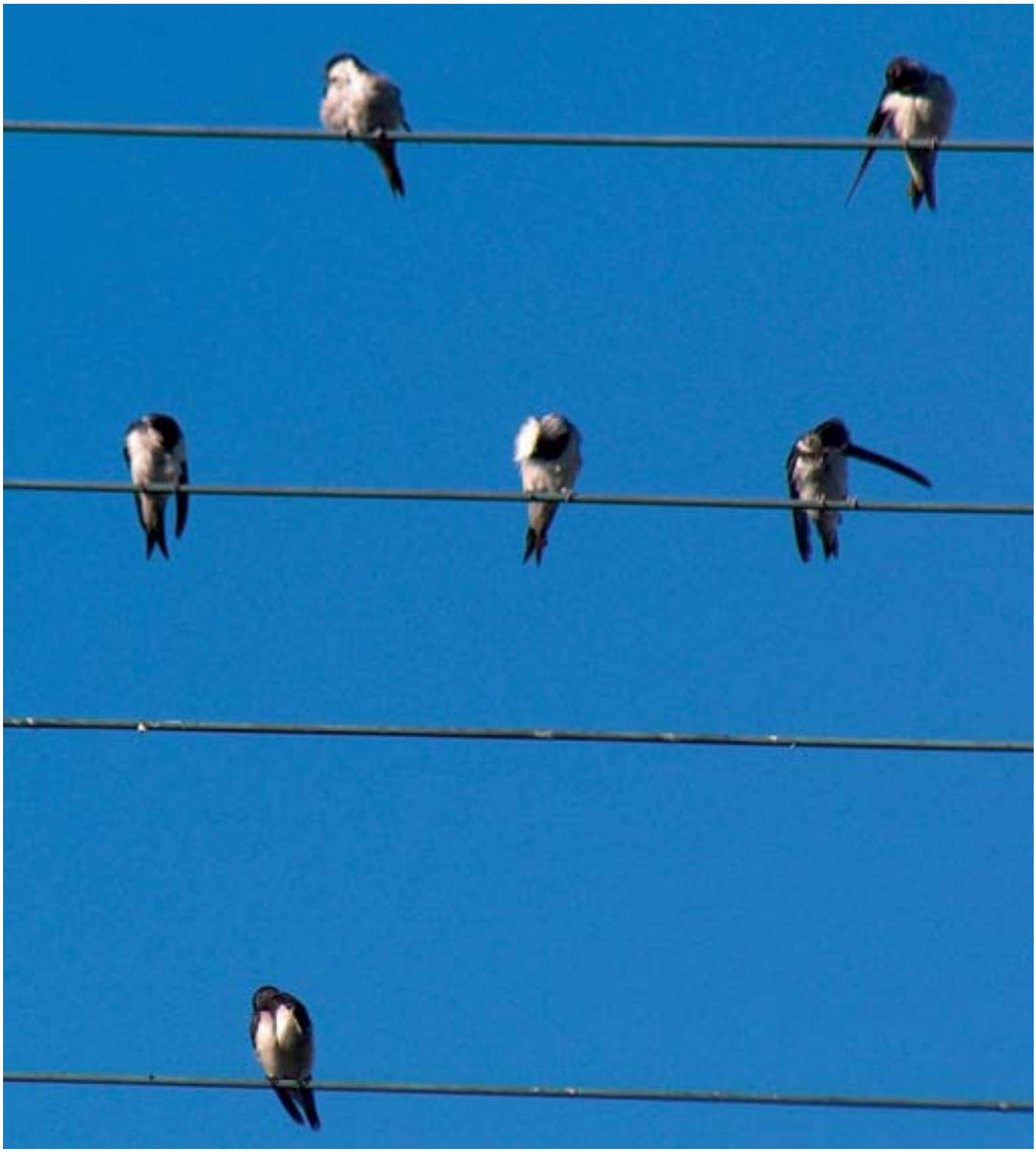

Certification Report

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Milan, May 20, 2005

Verification of Enel SpA's Environmental Report 2004

Enel SpA asked The IT Group Infrastructure & Environmental Italia Srl to verify its Environmental Report 2004. The following statement provides the reader with the results of our verification.

Our approach to the verification activity was largely based on the guidelines issued by the "*Forum on Certification of Environmental Reports*", which was held at Fondazione Eni Enrico Mattei.
We reviewed the Report, as well as the activities and procedures for collection and aggregation of the reported data, in order to determine whether:

- the Report was complete and included all the aspects and significant impacts of Enel's activities;
- the Report was understandable and clear;
- the system used for data collection and aggregation was adequate and reliable;
- appropriate evidence was available that Enel's individual Companies and Divisions had gathered, processed and reported the data in homogeneous and correct ways.

Our verification covered all the parts and contents of the Report, as well as the modes of collection and aggregation of the data, from their provision by Enel's individual Companies and Divisions (and by their peripheral sites) to final presentation in the Report.
We also audited one of Enel's foreign subsidiaries, which was selected among the ones with the most significant production performance. Our audit at EnelViesgo's headquarters in Madrid and at its Puente Nuevo thermal power plant site indicated that the company was pursuing its HSE policy, applying the Environmental Management System model and fulfilling its reporting requirements in accordance with Enel SpA's guidelines.

We sample-checked the reported data by conducting audits at:

A – Generation and Energy Management Division

Headquarters (Rome)

Thermal Generation Business Area

- BARI Business Unit;
- BRINDISI Business Unit;
- PORTO TOLLE Business Unit;
- PIOMBINO Business Unit;
- AUGUSTA Business Unit;
- PRIOLO GARGALLO Business Unit;
- PORTO EMPEDOCLE Business Unit;
- TERMINI IMERESE Business Unit;

Renewables Business Area

- MONTORIO Business Unit
- ASCOLI Business Unit
- SICILIA Business Unit
- NOVARA Business Unit
- TORINO Business Unit

International operations

- EnelViesgo Generación - Headquarters (Madrid)
- EnelViesgo Generación - Puente Nuevo thermal power plant

B – Infrastructure and Networks Division

Power Grid Business Area
- Headquarters (Rome)
- Toscana & Umbria Regional Unit

Gas Grid Business Area
- Headquarters (Milan)

International Operations
- EnelViesgo Distribución - Headquarters

C – Terna SpA
- Headquarters (Rome)
- Torino Transmission Field Unit

At Enel SpA's Public and Regulatory Affairs / Environmental Policies Unit, which is responsible for the preparation of the Report, we carried out general verifications on data management, assessing the reliability of the data collection system. We also sample-checked the reliability and consistency of the reported data.

At the peripheral sites of the various Divisions and Companies, we conducted our audits in accordance with ASTM (E 1527 – 00) standards, involving document analyses, interviews with the personnel in charge of the various activities and collection of visual evidence.

The data were gathered in a uniform way throughout Enel according to standard formats for presentation of the data in the Report.

Enel's system of data collection and management proved to be reliable and accurate in consolidating the data, enabling us to check their consistency and facilitating our work as in previous years.
We feel that the introduction of the automated data collection systems that are currently under testing will further improve the reliability of the entire system.

For the future, we reiterate our previous recommendation, i.e. to rapidly complete the introduction of certified Environmental Management Systems in all of Enel's field sites. Indeed, it is largely demonstrated that the use of systems undergoing periodical certifications can ease the day-to-day management of environmental issues, making the implementation of corporate policies more effective.

The format of the Report is reader-friendly and we can state that it is in line with the most advanced and innovative international standards.

The Report is complete, clear and understandable. The performance indicators and the data are correctly reported.

In our opinion, Enel SpA's Environmental Report 2004 is complete, understandable and reliable.

The IT Group Italia S.r.l.
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Manager Italian Operations

The IT Group Italia S.r.l.
Gianfranco Zanoni
Senior Consultant

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The volume contains some photos
taken from the employees' contest
called "Energy in a snapshot".
Nicola Caracciolo (cover);
Sergio Botti (2nd page of cover);
Antonella Grassi (3rd page of cover);
Carmine Leone (page 16);
Danilo Tanara (page 40);
Pier Giorgio Bertoncello (page 72);
Antonino Cirrincione (page 84);
Carlo Meazzi (page 92).

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