

Customer-tailored
Projects

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The Remote Management System

By now, the [Remote Management System](#) is a reality in the Italian distribution network. In effect, the installation of smart meters has been completed and the supporting IT infrastructure has gone into operation.

[The 32 million meters are remote-managed with computerized transactions that enable the Company to serve its customers more rapidly and effectively.](#)

Thanks to the Remote Management System, it was possible to also introduce a new rate system characterized by flexibility and thus adaptable to all requirements. Launched in 2005, Time-Differentiated Rates have enabled Italian families, for the first time, to establish a veritable rate plan based on their different consumption habits, with an opportunity to save significantly.

This system is an advantage for the entire electric system, because it improves the efficiency of the services supplied to customers and, through differentiated rates, gives them an incentive to shift their energy consumption to hours when there is less load, while at the same time providing Enel with the instruments for optimizing its own processes.

The remote, rather than on-site, management of the great majority of commercial transactions and the main meter activities also contributes to the reduction of CO₂ emissions.

Thanks to the success of the Remote Management System in Italy, Enel will extend its application to its distribution networks in other countries. In particular, a project is in progress to adapt the system and its equipment to the regulatory obligations of Spain. In 2010 Endesa will begin to install the system in its distribution network, with plans to install 13 million meters by 2015.

These are the numbers and the schedule of [Cervantes](#), the Enel-Endesa project for bringing remote management to Spain.

"Cervantes" was presented officially on July 14, 2009 in Madrid at the headquarters of the Unesa, the association of Spanish electricity companies, during a press conference with the participation of representatives of the national government, local institutions, the media, and other Spanish utilities.

[Endesa will be the first electricity company to install a remote management system in Spain](#) and the entire process will be completed three years early with respect to the provisions of Spanish legislation.

For this solution, Endesa was given the "European Utility Award" in the Business Performance category during the "Metering Europe 2009" event.

Smart Info

The "Smart Info" project stems from the provisions of the Electricity and Gas Authority's resolution ARG/com 56/09, which applied the provisions of article 17, paragraph 1, letter c) of Legislative Decree n. 115 of May 30, 2008. According to the latter, "electricity companies ... shall find ways for end customers to check in a simple, clear, and understandable way the readings of their meters, both through special displays that are visible and easy to get to and through access to the same data via

other IT or electronic instruments the end customer already has.”

Thus these provisions regard demand-side management and the promotion of efficient energy use.

The project provides for the development of a device that communicates with the electronic meter from household and enables customers to access the information in the meter more easily via a number of visual supports (personal computers, entertainment equipment, electrical appliances, mobile devices, and dedicated displays) or to have a more precise idea of their consumption and how to optimize it by organizing their use of appliances and lighting more efficiently. The device will transmit the information on consumption collected from the meter inside the residential network through a standard and open communication protocol.

Smart Grids

Electricity networks were originally constructed to collect large quantities of energy from power stations and distribute them to a large number of customer-consumers: in short, centralized control, power flows in one direction, and passive networks.

Now the classic idea of the electricity network is on its way to obsolescence. Not only are there more lines, switches, and transformers, but now there are electronics, computers, and communication.

One of the main drivers of this change is the European Union’s “20-20-20” goals, which include, by 2020, a 20% reduction in greenhouse gas emission with respect to the 1990 levels, a 20% increase in energy efficiency, and 20% of total electricity production from renewable sources. These goals are then translated into national goals, which for Italy means producing 17% of its energy from renewable sources by 2020 compared to 5.2% in 2005.

With the spread of distributed generation from renewable sources, even in households, an additional network is coming into being that has to be integrated with the traditional one: thus, no longer centralized, but rather dispersed, control, two-way flows of power, and active networks.

Thus distributors are faced with a transformation necessary for them to be able to manage both the flows of energy produced by large power stations (thermal, hydro, etc.) and those produced by small and medium-sized plants from renewable sources (photovoltaic, wind, etc.). Consequently, it will no longer be sufficient to control national production, but it will be necessary to monitor, manage, and integrate – even at the local – level the distribution of electricity produced in low and medium voltage from renewable sources.

The electricity network is thus no longer only a channel for transmitting and distributing electric power for large power stations to end customers, but a “Smart” grid: a common network that can enable producers and consumers interact, determine demand in advance, and flexibly adapt the production and consumption of electricity. This will be a network consisting of many small networks connected with each other and able to communicate and exchange information on energy flows, thus managing demand peaks more efficiently by avoiding supply interruptions and reducing the load if necessary.

There is a similarity with the Internet, where all the users are interconnected and can both send and receive information, thus breaking out of the from-one-to-many distribution scheme.

The smart grid automates recovery processes and informs the electricity distributor if there are malfunctions at any point on the network, thus speeding up the repair work and restoral of supply. Likewise, it allows two-way interaction between the local producers and consumers in a synergetically integrated whole.

Thanks to its implementation of innovative projects such as the Remote Management System, automation, and remote control, Enel Distribuzione is already recognized as a benchmark at the international level in terms of overall performance.

Such projects constitute the essential framework for the development of smart grids. In effect, thanks to the Remote management System, customers can find out minute by minute how much energy they have withdrawn, how much they have produced and injected into the network, the rate currently applied, and to what time of day it is most advantageous to shift their consumption. Furthermore, as the coordinator of European research, development, and demonstration projects on Smart Grids, Enel Distribuzione consolidating its leadership in this field to ensure the greatest benefits for the Italian electricity system, end customers, and electric power companies. These benefits lead to:

- > the efficiency of the energy system;
- > better management of energy demand and supply;
- > a reduction of energy losses due to theft or technical failures;
- > the possibility of planning consumption at different times of the day;
- > the possibility of activating value-added services;
- > increasing use of electric vehicles with related recharge stations interconnected with the electricity network;
- > increasing involvement of small and medium consumers for electricity production from renewable sources;
- > the reduction of CO₂ emissions.

Essentially, the electricity network of the future must satisfy four fundamental requirements. It must be:

- > **accessible**, ensuring access to the renewable sources of production;
- > **reliable**, ensuring the supply of electricity;
- > **efficient**, in order to be lower-cost and reduce greenhouse-gas emissions; and
- > **flexible**, in order to satisfy the new requirements of consumers, such as to actively participate in the production of electricity and to recharge their electric cars without impediments of time or space.

Thanks to the infrastructure already in place and to the initiatives and projects in progress on Smart Grids, Enel Distribuzione is proactively working to ensure the utmost overall benefit for all the stakeholders involved.

ADDRESS

ADDRESS is a research project coordinated by Enel Distribuzione and co-financed by the European Union. It aims to develop technical and commercial solutions that enable even small and medium consumers to participate actively in the energy market by offering to modulate their consumption and sell the energy they produce. The ADDRESS consortium consists of 25 partners in 11 European countries: universities, research institutes, and companies engaged in the supply, distribution, and sale of electricity and the production of electrical appliances and equipment for the electric power network. In the ADDRESS vision, consumers participate in the market through an intermediary, the aggregator. This is a new figure in the energy industry, who will have the task of collecting the requests of the market and trying to satisfy them by exploiting and aggregating the potential of his customers in terms of consumption modulation and energy generation.

ADDRESS is working on a device, the Energy Box, which, once installed in the consumer's home, will be able to receive the requests of the aggregator and regulate the use of electrical appliances and generating systems accordingly. This situation should be advantageous for both the aggregator and its customers. At the same time, the participation of consumers in mechanisms for regulating consumption and in distributed generation could make the system more sustainable, efficient, and reliable, thanks to a more intelligent management of the peaks of consumption, which constitute a risk for the system and otherwise would require the construction of costly power stations.

The project is tackling a number of different aspects through dedicated work groups, including:

- > **Network operation:** all the aspects connected with the operation of the network are dealt with by a dedicated work group led by Enel Distribuzione. Together with consumers and the aggregator, the companies that distribute electricity are involved, since they will have to ensure the functioning of the electric network in the new scenario.
- > **Social and economic aspects:** understanding the requirements of consumers and seeking more appropriate, comfortable, and advantageous solutions is crucial for the success of the ADDRESS vision. Therefore, one of the project's work groups is dedicated to investigating these matters. There will be no lack of recommendations from the parties concerned, such as the regulatory bodies of the electricity industry or those who could be aggregators in the future.
- > **Telecommunications:** to investigate and devise a communication architecture that makes possible real-time interaction among customers and the different players in the market, the systems for metering and managing smart electrical appliances, and the household accumulation and generation systems.

A group of experts, consumer representing consumers and other stakeholders assists the ADDRESS consortium in understanding as well as possible the requirements, roles, and responsibilities of the different parties concerned.

In 2011, the prototypes developed will be tested for the first time, followed by real demonstrations, with the participation of consumers, in Spain, Italy, and part of France. The first international workshop, at which the first results will be presented, will take place in 2010.

The ADDRESS website provides up-to-date information on project developments and public events.

Archilede

Street lighting is an ideal starting point for a policy of energy conservation, which, as prescribed by the related EU directives, must aim to limit waste and eliminate products that consume excessively from the market and replace them with more efficient ones. [The Archilede project will allow more than 40% of the energy used in street lighting to be saved with respect to the best traditional technologies](#) (high-pressure sodium-vapor and metal-halogen lights) and up to 60% with respect to less efficient traditional technologies (mercury-vapor lights), with a substantial reduction of energy costs and a light environmental impact.

From this point of view, Enel Sole's pilot project, which will be launched first in Lodi, Alessandria, and Piacenza, with an initial total of about 400 light sources, will lead not only to a sharp reduction in consumption, but also to a significant reduction in the municipalities' energy costs and an annual avoidance of about 11 tons of CO₂.

In practice, light will be concentrated where it is needed, mainly on streets and at intersections. In time, [Enel Sole plans to extend the project to the national level, applying the new system to all of its 2 million light sources](#) – which constitute 22% of the Italian market and are distributed over 4,000 municipalities – by replacing at least 100,000 a year. The company also intends to propose the new system abroad, too, where it is convinced it will find considerable interest, as it has for its innovative electronic meters, which it has already exported to Russia, Spain, the Netherlands, and Australia.

Electric Cars

Enel Distribuzione's Electric Car project is an original undertaking for implementing and managing innovative infrastructure for recharging electric vehicles. It was designed with cutting-edge technology that ensures the required safety standards and an advanced recharging service based on the electronic-meter technology.

Enel's active participation on the International Standardization Committees – which are engaged in standardizing the connector and the communication protocol – makes the Electric Car project even more distinctive, thus contributing to the realization of both a public and a private [recharge network for latest-generation electric vehicles](#) that is also capable of supporting existing vehicles. The objective of this activity is to devise technologies and procedures that enable customers to recharge their electric cars in the same way throughout Europe.

The technologies adopted and the solutions implemented for customer recognition and authorization, as well as for the related debit of the energy consumed also allow customers to enjoy any future dedicated rates that the Authority may assign to the recharging of electric vehicles and to have a single supply contract that includes both public and private recharging.

This project is in line with Enel's general objective to acquire concrete experience in projects on Smart Grids. In particular, the infrastructure will have to overcome the economic and functional barriers for the large-scale development of electric mobility and enable services and functions consistent with the objectives of the future Smart Grids, such as load management and storage.

The first important implementation for trying out the innovative functions of the Electric Car project in the field will be an important pilot test in 2010 provided for by the agreement signed by Enel SpA and Daimler, the "E-mobility Italy" project, which will involve the three Italian cities of Rome, Milan, and Pisa (among other things, where the Enel Research Center is located) until 2013. These three cities represent the different life styles and housing models in Italy.

Enel will be responsible for the development, creation, and functioning of public and private infrastructure with over 400 recharging stations and the related central control system, while Daimler will supply more than 100 electric Smarts to private customers and will take care of their maintenance.

The energy provided by Enel SpA for the electric cars will be certified RECS (Renewable Energy Certificate System), an international system that involves 25 European countries, which was instituted to finance the development of renewable energy sources such as water, the sun, wind, and the heat of the earth.

Listening to customers

As far as listening to customers is concerned, the "Close to You" service was introduced on the web channel, through which customers have an additional way of letting the Company know what they think.

Special attention was also given to the aspects of communication by a project that revised the form and content of all the correspondence sent to our customers. Further initiatives begun in this direction in 2009 will be carried out in 2010. Particular mention should be made of the extension of the network of branches equipped with all the instruments for "customer management", with the aim of making Enel's local presence ever more widespread.

Passion for Quality

In 2009, the Company's organization focused its energy on the dissemination of the culture of quality and through the "Passion for Quality" program acted simultaneously in several spheres: measuring quality, listening to customers, and communication. The project aims not only to achieve excellence in conducting the classic stages of personal contact and listening to customers, but also includes a specific program for each of the activities carried out by the Sales Division: from *commitment* to the development of new products to relations with suppliers.

Beginning with the question of measurement, the “[Passion for Quality](#)” project has established a control system that correlates the indexes of Customer Satisfaction, Complaining, Churn Rate, and Net Promoter Score with operating performance indicators which can be acted on to improve them.

This instrument furnishes monthly a precise picture of the extent to which the objectives are achieved by single employee involved and by single goal assigned. Furthermore, it allows reports to be made summarizing the data on progress by goal category, incentive type, and by business and technical area.

The strategic importance of this project is that it enables managers to have the complete and timely information that is necessary for taking action and providing systematic feedback to all of the employees involved. This also facilitates full agreement on corporate objectives, as well as taking responsibility for achieving the assigned targets.

Checking commercial activities

Enel continues to avail itself of a team specialized in checking the consistency of the Company’s commercial activities and operating practices with its corporate procedures, as well as the provisions of the law and the regulatory Authorities.

The checks are carried out at the units that manage the contact with customers – both internal (physical locations, contact center) and external (contact center, physical locations, remote sellers, agencies) – and through mystery calls. Their purpose is to monitor the fairness of commercial practices in their entirety.

The same people contribute to ensuring compliance with antitrust regulations by participating in the planning of training and professional refresher courses, as well as seeing to the updating of the behavior codes.

In 2009 more than 15,000 checks were performed.

The information collected was analyzed by contact/sales channel and in greater detail for each of the components of the different channels. The direct observation of the personnel at work highlighted the single non-complying actions, thus allowing the causes to be determined and enabling the Company to target measures to the specific situations.

These checks contributed to finding out about behavior that was previous perceived only indirectly through the reports of customers, making it possible to take swift and effective action.

“If attention rhymes with conciliation”

In 2007, when the [equal-terms Alternative dispute resolution procedure adopted together with the consumer associations](#) was launched at the national level, the slogan adopted was: “When attention rhymes with conciliation”.

Three years later, this procedure, which takes place entirely on line, now allows more than 20 million customers to resolve any financial dispute connected with their contract for the supply of electricity or gas quickly, simply, and free of charge.

This instrument is available to all household customers of Enel Servizio Elettrico, the company that supplies electricity in the enhanced-protection service, and Enel Energia,

the company that sells electricity and gas in the free market. By the end of 2010, this instrument will be extended to more customers. In effect, Enel has started discussions that will lead to the signing of a protocol of understanding with the six most important national associations representing small and medium-sized businesses – Cna, Confartigianato, Confcommercio, Confapi, Confesercenti, and Confagricoltura – which will allow this procedure to be extended to the entrepreneurial world.

The experience is derived from the telephony industry. More than ten years ago, the consumer associations started to pursue this way as an alternative to that of ordinary justice for solving disputes with the major companies. Seeing that the results were extremely positive, they decided to use it in other markets, too, including the energy market, at a particularly sensitive time: that of the complete and definitive liberalization of the industry.

[Enel is now the only company in Italy and all of Europe to have a Alternative dispute resolution procedure in fully in place at the national level.](#) Considering the international dimension attained by the Company in the last few years, the model will be exported abroad to repeat the positive experience of joint planning with the Italian consumer associations. Cooperation constitutes a best practice when it comes to the relations between a large company and its stakeholders. The project was born in 2004 and became a concrete reality two years later with the signing of a protocol and rules for its implementation by Enel's Chief Executive Officer, Fulvio Conti, and the heads of all the consumers associations of the CNCU (National Council of Consumers and Users, a organization founded in 1998 at the Ministry of Economic Development).

The procedure was tested for about a year in Piemonte and subsequently extended to all of Italy. The extension took place after a series of 28 training courses for the conciliators and local representatives of the consumer associations, which were organized at Enel office in nine cities by Consumers' Forum, with financial support from the Electricity and Gas Authority.

Projects in Romania

During 2009 Enel Energie and Enel Energie Muntenia introduced a number of new services and changes in their billing system to improve the quality level for customers. For example, now all customers can report their meter reading free of charge by dialing a toll-free number, as well as pay their bill in different ways.

All these changes were implemented after consultation with consumer associations and customers received information presenting the new services and explaining how to use them.

EU25

Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements, and pending legal cases of diseases.

Enel is concerned about the safety and health not only of its employees and those of its contractors, but of all the people who live in contact with the Group's operations.

Injuries of third parties are monitored constantly and are used to improve infrastructure safety systems.

In 2009, 35 outsiders were seriously injured and 32 died, almost all of which were due to electric causes (63%) or traffic accidents (36%).

It should be noted that many electric injuries (33%) involve construction work near power lines and all of 26% occur during attempts to steal electricity.

No legal proceedings against third parties were resolved or pending either in Italy or abroad in 2009.

EU26

Percentage of population unserved in licensed distribution or service areas.

In all the countries where Enel is a distributor of energy, the percentage of the population that is not served is 0%.

In **Italy**, the Infrastructure and Networks Division operates in an industry - gas and electricity distribution - that is regulated by the Electricity and Gas Authority. Whoever the network infrastructure in concession must ensure equal conditions for accessing and using the same to all parties that so request.

The objective is to support the liberalization for the benefit of end customers and healthy competition among the different companies that operate in the free market, such as the producers and vendors of energy.

Among the most important responsibilities that Endesa assumes in **Spain** is to ensure that electricity is accessible to as many people as possible and at the same time to supply it safely, efficiently, and with quality service.

The distribution network covers the entire country. In the few specifically individual cases in which the service is not provided, this does not depend on the distributor, but has other causes, such as the service has not been requested, for example, if the municipality does not allow it.

EU27

Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime.

For this indicator, in **Italy** the Sales Division currently monitors the time from disconnection to reconnection.

Thanks to the adoption of electronic meters, in most cases customers are not completely disconnected, but the available power is reduced to 15% of the power contracted. This allows customers to still have enough power for the essentials (lighting, refrigerator) until they pay their arrears.

For 2009, the data for Italy are available.

Enel undertakes in the medium term to report this indicator for all the Countries in which it operates.

KPI	UM						% Boundary
		2009	2008	2007	2009-2008	2009-2008	
Disconnected customers by time from disconnection to reconnection:	(n.)	59,596	-	-	-	-	Electricity Italy
< 48 h	(n.)	24,905	-	-	-	-	Electricity Italy
48 h - 1 week	(n.)	11,649	-	-	-	-	Electricity Italy
1 week - 1 month	(n.)	14,791	-	-	-	-	Electricity Italy
1 month - 1 year	(n.)	8,251	-	-	-	-	Electricity Italy
Customers disconnected by time from disconnection to reconnection:	(n.)	6,613	-	-	-	-	Gas Italy
< 48 h	(n.)	831	-	-	-	-	Gas Italy
48 h - 1 week	(n.)	2,243	-	-	-	-	Gas Italy
1 week - 1 month	(n.)	2,976	-	-	-	-	Gas Italy
1 month - 1 year	(n.)	563	-	-	-	-	Gas Italy

EU28

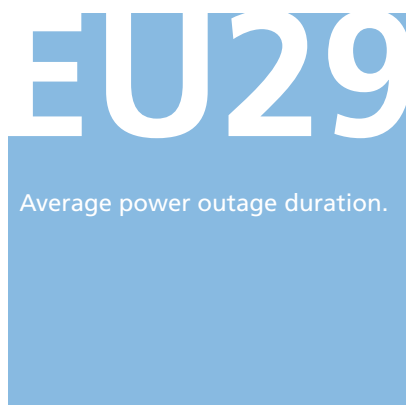
Power outage frequency.

The frequency of power outages is shown below.

Because of the difficulty in standardizing the data regarding the Latin American countries with respect to the European countries, the former are not reported in this document.

Enel undertakes in the medium term to report this indicator in all the countries in which it operates.

KPI	UM						% Boundary
		2009	2008	2007	2009-2008	2009-2008	
Outage frequency per customer (including external causes)	(n.)	4.9	5.3	5.1	-0.4	-7.0	Italy
Outage frequency per customer (excluding external causes)	(n.)	4.8	5.1	4.9	-0.3	-5.0	Italy
Outage frequency per customer	(n.)	6.7	-	-	-	-	Romania
Outage frequency per customer	(n.)	1.7	-	-	-	-	Iberia

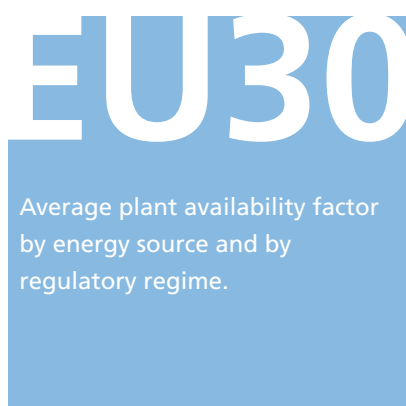


The indices regarding power outages are shown below.

Because of the difficulty of standardizing the data regarding the Latin American countries with respect to the European countries, the former are not reported in this document.

Enel undertakes in the medium period to report this indicator in all the countries in which it operates.

KPI	UM						% Boundary
		2009	2008	2007	2009-2008	2009-2008	
Service continuity index (excl. external causes)	(min.)	45	52	45	-7	-13.5	Italy
Service continuity index (incl. External causes)	(min.)	48	56	49	-8	-14.6	Italy
Service continuity index	(min.)	70	-	-	-	-	Romania
Service continuity index	(min.)	45	52	45	-7	-13.5	Iberia



Plant availability is shown below.

Because of the difficulty in standardizing the data regarding the Latin American countries with respect to the European countries, the former are not reported in this document.

Enel undertake in the medium term to report this indicator in all the countries in which it operates.

KPI	UM						% Boundary
		2009	2008	2007	2009-2008	2009-2008	
Availability of coal-fired plants	(%)	71.0	76.1	81.1	-5.1	-6.7	Italy
Availability of CCGT plants	(%)	86.0	89.1	91.5	-3.1	-3.5	Italy
Average availability of thermal plants	(%)	78.3	73.0	73.3	5.3	7.3	Italy
Average availability of thermal plants	(%)	87.2	96.8	-	-9.6	-9.9	Slovakia
Average availability of thermal plants	(%)	95.7	-	-	-	-	Iberia