endesa generación

ENVIRONMENTAL DECLARATION 2005

AS PONTES POWER STATION

CONTENTS

At Endesa we consider environmental excellence to be one of the key values of our business culture. Accordingly, we carry out our activities in a manner that is as environment-friendly as possible and in accordance with the principles of sustainable development, being firmly committed to conservation and the efficient use of resources.

The steps taken by Endesa in relation to this environmental commitment include the implementation and certification of environmental-management systems (EMSs) at our facilities.

An EMS has been in place at As Pontes since 2000, having been developed in accordance with the requirements of the international standard UNE-EN ISO 14001. This system is covered by the corresponding certification issued by AENOR (CGM-001152).

In a further move to improve the plant's environmental management and behaviour, the system was adapted in 2006 to the requirements set out in Regulation (CE) No. 761/2002 (19 March 2001), allowing organisations to adhere voluntarily to a European environmental management and auditing system (EMAS).

In response to a relevant requirement of the EMAS regulation, As Pontes power station has published this Environmental Declaration for 2005, containing information on the plant's environmental behaviour and the environmental impact of its activities.

Luis Fernández Sabugal
Manager, As Pontes Power Station

1 INTRODUCTION

As Pontes Power Station is one of the production plants owned by Endesa Generación S.A. in the Iberian Peninsula.

The power station was designed and built to make rational use of lignite from a nearby open-cast mine. This solid fuel is characterised by its high humidity and sulphur content and low calorific power. Together, the two facilities — mine and power station — make up the As Pontes Mining and Electricity Complex.

The plant was opened in 1976 when Unit I was commissioned. Today four electricity-generation units are operational, each functioning independently with a power rating of approximately 350 MWe.

In 1993 a transformation process began at the plant, with a view to using mixtures of local lignite with imported sub-bituminous coal — characterised by its low sulphur and ash content — with maximum efficiency. This transformation, which was completed in 1996, has enabled an overall reduction of over 40% in SO_2 emissions to be achieved and consequently commitments made previously with national and regional governments to be met. With this action the mining of lignite has been assured until the end of the seam, thereby lengthening its working life.

The units at As Pontes Power Station are grouped into two stages:

- Stage I, consisting of Units I and II.
- Stage II, consisting of Units III and IV.

The current gross and net electric power ratings of the four generator units are as follows:

	Gross power (MWe)	Net power (MWe)
Group I	369.9	351.1
Group II	366.4	351.1
Group III	366.2	350.3
Group IV	367.0	350.9
Total plant	1468.5	1403.4

Endesa Generación S.A. recently began to adapt As Pontes power station to use imported sub-bituminous coal as the main fuel consumed.

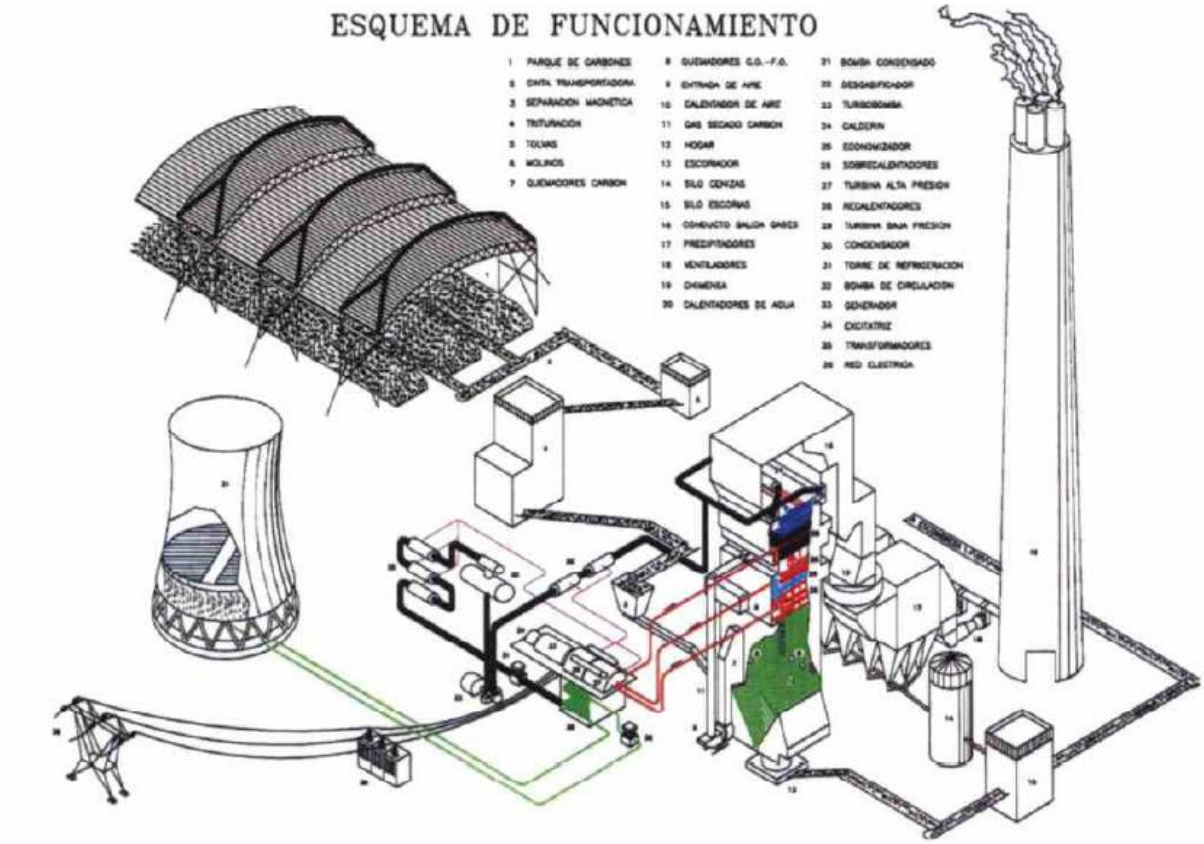
This action is being carried out successfully four all four generator units over the 1005–2008 period.

The main aims of this adaptation process are as follows:

- Comply with the requirements imposed under Directive 2001/80/CE of the European Parliament and Council (23 October 2001) on limitation of atmospheric emissions of certain pollutants by major combustion facilities.

- Prolong the working life of the power station beyond the exhaustion and closure of the local lignite mine, scheduled to occur on 1 January 2008.

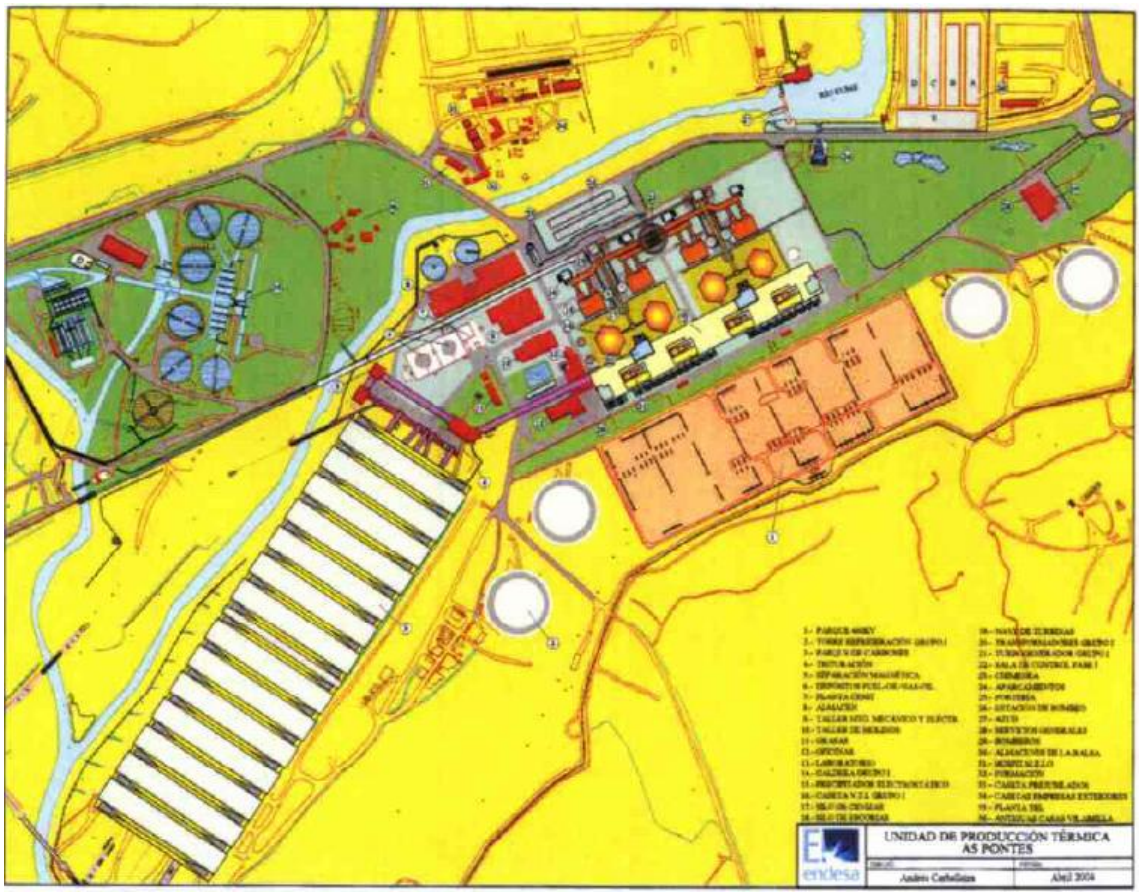
The functioning of the power station is summarised in the following diagram.



2 DESCRIPTION OF AS PONTES POWER STATION

2.1 OVERVIEW

The general implementation of the power station is shown in the following figure.



The basic components of each of the four units at the plant are described below.

Steam generator

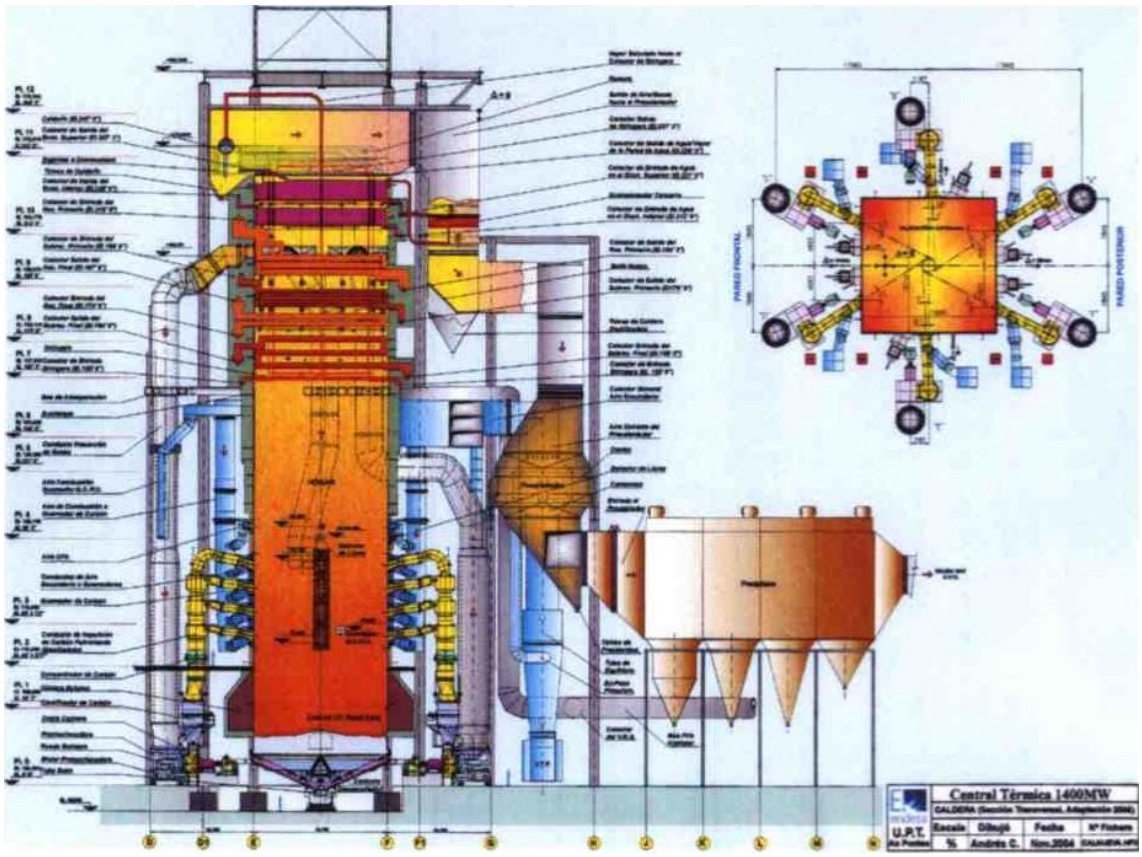
The natural-circulation tower-type boiler is characteristic of designs for lignite, with a square cross-section, 90 m high, with a dual line forced- and induced-draught fans, functioning with balanced draught.

Combustion is arranged tangentially with six columns of burners, each column having four levels. Each burner column is powered by a beater-wheel mill, which also allows the coal to be dried by re-circulating hot gases extracted from the top of the furnace.

The convection area at the top of the combustion chamber consists of a final over-heater, final re-heater, primary re-heater and economisers.

The boiler is lit by 6 heating/diesel-oil burners.

The following figures show, first, a diagram of the boiler set up for the regular consumption of mixtures of local lignite and imported coal, and, second , the current Unit IV setup, having been adapted to operated with 100% imported coal.



Turbo-alternator

The power station uses a Rankine regenerative heat cycle with six extractions. The condensation turbine is composed of two sections; the first houses the high-, intermediate/high- and intermediate/low-pressure cylinders, while the second (dual flow) houses the low-pressure cylinder. The turbine speed is 3,000 rpm, admitting steam at a rate of 162 kg/cm^2.

The high-pressure section has a Curtis stage and nine reaction stages. The intermediate-pressure section consists of two sections, each with five reaction stages, receiving the steam flow in opposite directions.

The low-pressure turbine is dual flow, with steam circulating outwards from the centre, consisting of two sections, each with six stages.

The turbine axis is coupled to the alternator rotor, which is hydrogen-cooled, as is the stator. The alternator has a power rating of 369 MVA.

Cycle equipment

The condensation of the steam at the outlet from the low-pressure turbine is carried out in the condenser by circulating cold water, followed by the beginning of the process to raise the temperature and pressure of the water in the low-pressure heaters, the gasification unit, the high-pressure heaters, the economiser and the water walls.

The condensate-pump system is composed of two submerged multiple-stage vertical-axis pumps with turbine-type drivers.

The water-supply system consists of a main pump driven by the steam turbine and two motor pumps driven by electric motors for emergency operation.

Air supply and evacuation of gases

The boiler is a balanced-type structure with a dual line of forced-draught fans (FDFs) and induced-draught fans (IDFs), with the corresponding pre-heaters and electrostatic precipitator. The air flow is regulated by the position of the gates (FDFs) and revolution speed (IDF)s. Two gas-circulation fans (GSFs) are also used to control the outlet temperature from the mills.

The gases generated during the combustion of the coal in the furnace pass through the air pre-heater and arrive at the electrostatic precipitator, which retains the solid particles transported by the combustion gases with 99.75% efficiency.

The electrostatic precipitator is fitted with trap plates with emitting wires between them that create a high-voltage direct electrostatic field. It is divided into two halves, each with an array of three or four sections. Finally, the gases are driven by two IDFs up a vertical pipe and released into the atmosphere. The pipes, one per unit, are housed inside a conical chimney 356 m high, with a lower base diameter of 36.5 m and 18.9 m at the top.

Extraction of ash and slag

Coal waste gives rise to the presence of both slag at the bottom of the furnace and fly ash recovered from the electrostatic precipitators.

The slag is removed continuously be unloading into a container composed of a water pond, which also serves to seal the furnace hydraulically. The slag is removed from the container by a slag extractor and then taken by conveyor belt to a silo (one per stage) for subsequent evacuation to the slag heap.

The fly ash is taken to a silo (one per group) by an air-current extraction system. The silos are emptied by means of humidifiers, unloading the waste onto conveyor belts.

An emergency area (point k) is available for the storage of slag and ash, to be used whenever the mine belt that transports the waste to the slag heap is non-operational.

Cooling circuit

The cooling system operates with a closed cycle, with one natural-draught hyperbolic tower for each unit. At the outlet from the condenser, the water that has become heated is taken to the cooling towers, where it is cooled by falling like rain while exposed to the natural air current inside. The steam that is carried by the air current gives rise to the characteristic plume of these towers. The flow rate of cooling water per tower is 38,000 m^3/h with a temperature drop of approximately 11°C.

Control system

The power station's original control system has been improved by building in electronic regulators and programmable robot systems to make up the current system of coordinated turbine–boiler–bypass control. The main control links are:

- Coordinated turbine–boiler control, regulating the boiler pressure and alternator load.

- Combustion control, regulating the combustion agent–fuel ratio by means of analysers of oxygen in gases.
- Control of the water supply to the evaporation drum, maintaining its level.
- Control of the furnace pressure.
- Control of steam tempering to adjust the over-heated and re-heated steam temperatures to the rated conditions.
- Boiler bypass and turbine control, with a capacity of 25% of the total steam flow.

2.1 COMMON SYSTEMS

The plant has a number of installations that are shared by all four units, mostly associated with the storage and supply of fuel and the evacuation of ash and gases:

Coal yard for storage and homogenisation

In the main area separate storage areas are located for lignite and sub-bituminous imported coal, enabling either mixtures or 100% imported coal to be supplied to the power station.

The coal is carried on a conveyor belt from the mine area to the coal yard at the power station. This yard, which is also used for homogenisation purposes, occupies an area of approximately 10 hectares (160 m wide by 592 m long).

The yard is equipped with two combined machines (piling and digging) and a digger to pile the coal into four long rows, and a bucket wheel then picks up and deposits the coal into the power station's coal hoppers.

To avoid coal-handling problems resulting from rain, a roof was built suspended from 16 arches with a span of 160 m and 30 m in height. This height, plus the further 30 m provided by the piers on which they rest, gives the yard sufficient headroom to allow the machinery to work unrestrictedly.

Coal-screening and crushing area

This facility allows coal with a grain size of under 80 mm to be obtained. The coal from the rows is carried by conveyor belt to magnetic separating drums and then along a closed gallery to the crushing and screening building where it is screened and crushed.

This process is carried out using a dual conveyor-belt circuit to reduce the risk of lack of supplies.

Coal-distribution system for hopper-filling

This system consists of two lines that enable coal to be supplied continuously to the 24 hoppers at the power station (six per unit).

Water-supply treatment plant

The water-treatment plant supplies demineralised water to the water–steam cycle and drinking water for general purposes. The main characteristics of this plant are:

- Clarification system with a capacity of 200 m^3/h.
- Ozonisation system to remove organic matter.
- Filtration system.
- Four demineralisation chains, composed of strong anion, strong cation and mixed bed, with a capacity of 35 m^3/h on three of the chains and 50 m^3/h on the other. Two of the anion–cation chains work with counter-current regeneration.
- High level of automation.

Gas-evacuation chimney

The chimney allows the combustion gases to be evacuated. It is 356.5 m high and contains tour vertical metal pipes, each with a diameter of 6.34 m.

Storage tanks for fuel oil and backup diesel oil

The power station has two tanks for the storage of fuel oil, with a unit capacity of 4,000 m^3, and four diesel tanks, each with a capacity of 100 m^3. These liquid fuels are used in the process to start up the facility.

400-kV substation

The substation consists of:

- Two sets of bars, Bar I and Bar II, plus transfer bars for units and lines.
- Four generation positions (corresponding to the four turbine units at the power station).
- Four power transformers for the unit outputs, each consisting of three single-phase units, 18/410 kV and 369 MVA.
- Six 400-kV output positions (Mesón, Montearenas, Compostilla, Aluminiums I, Aluminiums II and Mourela).
- Two positions for 400/132 kV interconnections.

- Two auto-transformers with a ratio of 400/132 kV and 100 MVA, with two 132-kV output lines (interconnections with Tesauro substation).

- Two interconnection positions for units and lines.

River Eume water intake

The water intake pumps water from the river Eume to be used to cool the turbine units, for demineralisation, drinking-water treatment and general services.

3 ENVIRONMENTAL POLICY

3.1 Introduction

Endesa is a company that is committed to the environment. Our environmental management is incorporated into our corporate strategy and built into the decision-making process, via an approach that is in line with the precaution principle, with a view to assuring the protection of natural resources and minimising the impact of our activities on the environment.

Endesa's environmental policy for the power-generation division includes and supplements the company's general environmental policy, which is applicable to all group companies and divisions, strengthening the original commitments with new ones called *Principles for Action by the Production Division*.

The management of As Pontes power station accepts the environmental policy established and undertakes to enforce compliance with it.

3.2 Endesa's environmental policy

Endesa considers environmental excellence to be one of the key values of its business culture. Accordingly, the company carries out its activities in a manner that is as environment-friendly as possible and in accordance with the principles of sustainable development, being firmly committed to conservation and the efficient use of resources.

To comply with its environmental commitments, Endesa applies the following basic principles, which together form the basis of the company's environmental policy:

Integrate environmental management and the concept of sustainable development into the company's corporate strategy, using proven environmental criteria for planning and decision-making processes.

Use resources rationally and minimise environmental impact and the generation of waste, emissions and effluents by applying continuous-improvement programmes and setting environmental goals and targets to make Endesa's facilities increasingly environment-friendly.

Maintain permanent control of compliance with the relevant legislation at all plants and regularly review their environmental behaviour and safety, reporting on the results obtained.

Preserve the natural environment of facilities by taking steps to protect plant and animal species and their habitats.

Apply the cleanest, most efficient and most economically viable technologies available at our facilities, and foster technological research and the development of renewable energy sources.

Promote the building of awareness of the importance of environmental protection by organising in-house and external training with local authorities, institutions and citizens' associations in the areas where we operate.

Require contractors and suppliers to implement environmental policies that are based on these same principles.

Foster among our clients and within society at large energy saving and the rational, balanced use of all types of energy sources.

This commitment and these basic environmental-policy principles cover and bring together all the actions undertaken at Endesa's various facilities.

3.3 Production Division's environmental policy

The Production Division fully accepts and incorporates all the applicable parts of Endesa's general environmental policy.

Furthermore, the Production Division completes the definition of its specific environmental policy by strengthening the original commitments with the following principles for action:

Develop the environmental policy by applying the EMS and providing the necessary human, material and organisational resources to enforce it.

Comply with the applicable environmental legislation and regulations and any other requirements that are binding upon the company.

Prevent environmental impact caused by operations at plants.

Communicate the environmental policy to all personnel, together with the commitments and principles that it contains, and make this information available to the general public.

Regularly check the effectiveness and suitability of the EMS, updating it whenever necessary update it to assure continuous improvement.

4 ENVIRONMENTAL MANAGEMENT

As Pontes power station has implemented and regularly updates an EMS in accordance with the models proposed in the standard UNE-EN ISO 14001:2004 "Environmental Management Systems. Requirements with guidelines for use" and Regulation CE No. 761/2001 of the European Parliament and Council, allowing organisations to voluntarily adhere to community environmental management and auditing system (EMAS).

This system is covered by the corresponding environmental-management certificate, issued by AENOR under number CGM-00/152, whereby this duly accredited independent organisation declares that the EMS meets the requirements of the international standard.

The main aims of the EMS are:

- Facilitate and demonstrate compliance with the relevant legal and regulatory requirements.
- Foster continuous improvement at the power station in environment-related matters by setting up management policies and programmes with quantifiable goals and targets.
- Regularly assess any activities at the power station that involve environmental issues, by arranging independent audits.
- Disseminate information on the organisation's environmental behaviour and encourage open dialogue with the public and other stakeholders.

The EMS at As Pontes power station is included in the environmental management system for the Production Division of Endesa Generación S. A. and fixes specific management activities for the power station, including:

- Organisational structure.
- Planning of activities that have or could have significant environmental repercussions.
- Responsibilities.
- Practices, processes and procedures.
- Necessary resources.

Documentation at As Pontes power station is organised at five levels:

- **Environmental policy:** Declaration of intentions and principles with regard to general environmental behaviour, providing a framework for action and the fixing of environmental goals and targets.

- **Environmental manual:** basic document of the EMS that gives an overview of how the requirements of the relevant standards are to be met.

- **Environmental procedures:** documents that regulate such general environmental-management activities as document control, training, monitoring of legislation, audits, etc.

- **Environmental instructions:** documents that describe activities that are directly related to environmental control, such as the control of atmospheric emissions, effluents, noise, waste, hazardous substances, etc.

- **Technical instructions:** documents that are prepared with a view to standardising specific technical tasks related to the operation and maintenance of the facilities, testing and calculation methods, the calibration of measuring equipment, information management, etc.

The EMS also includes other relevant documents:

- **Environmental specifications:** documents that summarises, for a specific field of application, the requirements to which certain tasks are subject, according to the applicable environmental regulations or acquired commitments, as the case may be.

- **Environmental management programme:** document prepared annually that compiles all the actions defined in order for the power station to reach its environmental goals and targets, fixing the resources to be allocated and the schedule to be followed.

- **Interior emergency plan:** covers such matters as the action to be taken to minimise the environmental consequences of accidents and incidents.

- **Training plan:** Gives details of the environment-related training planned annually for the power station's personnel.

- **Records:** Documents that demonstrate that the specified requirements have been met and provide objective evidence of the functioning of the EMS.

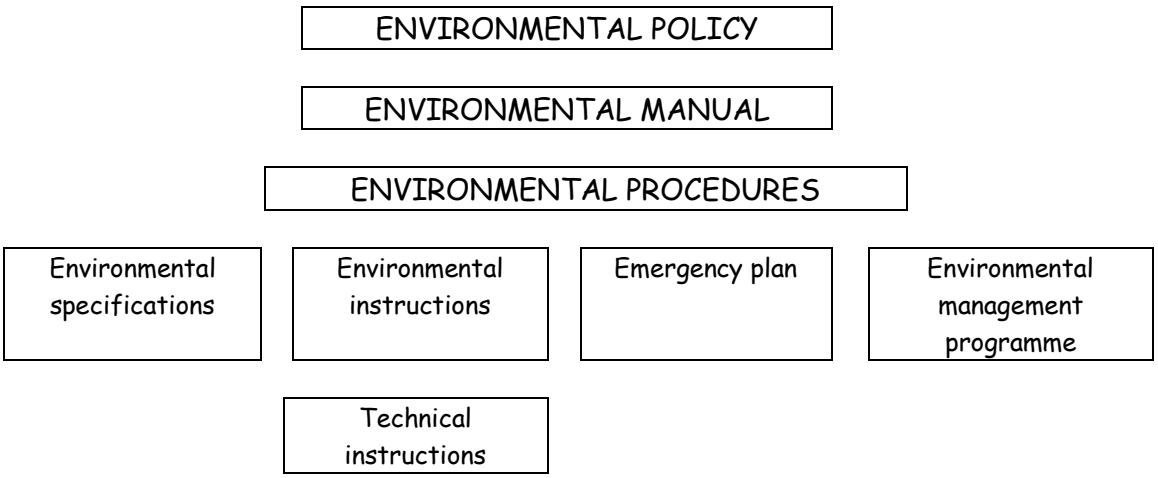
The environmental issues and impact addressed and controlled by means of the EMS cover all activities at the power station, including:

- Atmospheric emissions.

- Air quality.

- Effluents.
- Aquatic-environment quality.
- Waste.
- Hazardous substances.
- Noise.
- Consumption of raw materials, water and energy.
- Visual impact.
- Legionnaire's disease.

EMS DOCUMENTS



5 ENVIRONMENTAL INFRASTRUCTURE

Atmospheric emissions

The gases generated by burning coal, once they have passed through the heat-recovery areas, pass through the electrostatic precipitators, retaining all the ash particles with approximately 99.75%, efficiency. The remaining gases are then driven by induced-draught fans, via a chimney and released into the atmosphere.

To determine the quality of the gases emitted, the power station uses an emission-control system consisting of automatic analysers of sulphur dioxide, nitrogen oxides, particles in suspension and oxygen. The real-time date transmitted by these analysers provides the information necessary to keep the gases within the legally established limits at all times.

Air quality

Although the release of combustion gases is carried out by a chimney 356.5 metres high, in adverse conditions for the dispersal of the plume, episodes of immission de sulphur dioxide may occur, characterised by sudden changes in the concentrations measured at ground level.

In order to control the intensity of these immission episodes an additional atmospheric-quality control system has been implemented, including the real-time acquisition of air-quality data, its processing and the execution of specific operations to reduce emissions, including the alteration or replacement of the coal mixes consumed by the turbines.

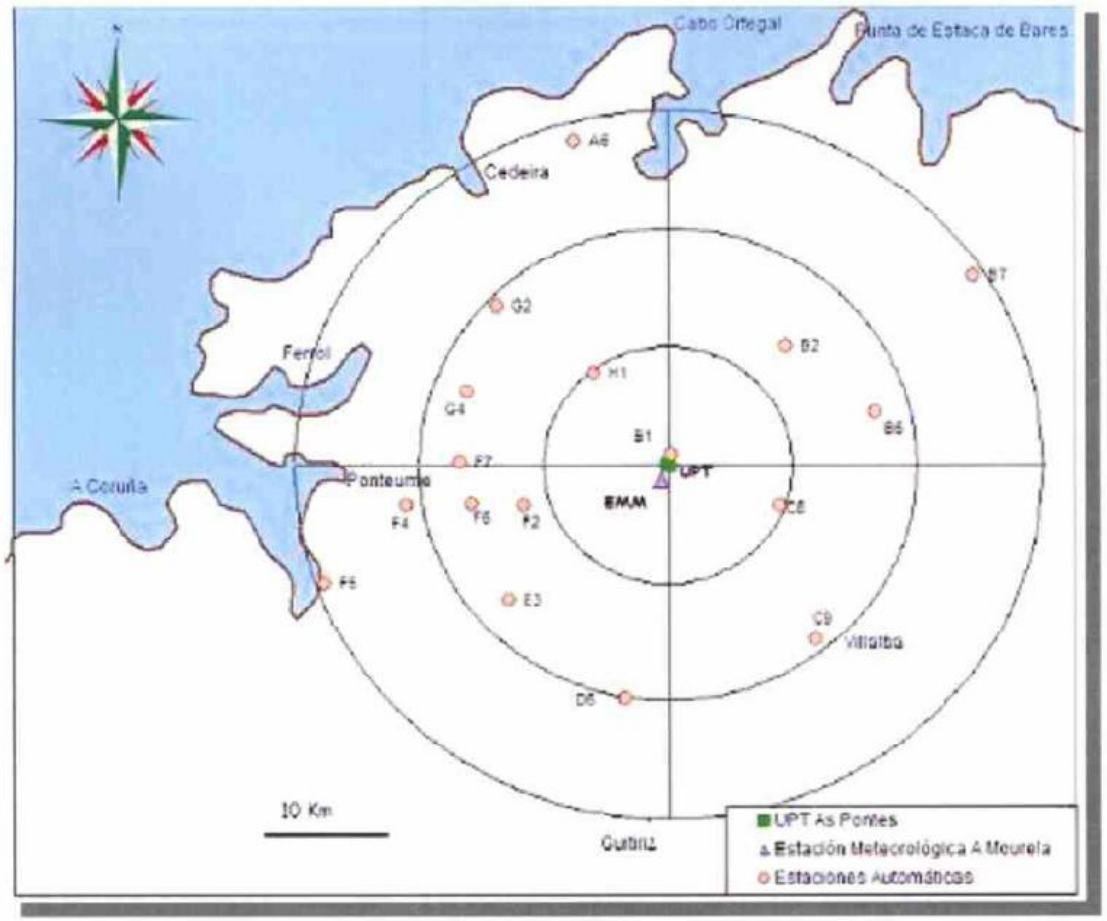
This is achieved by means of an atmospheric-quality surveillance and control network composed of 17 automated stations distributed within a 30-kilometre radius and connected to the power station by radio in real time. This network is one of the largest in the world designed to control industrial sources.

The automated stations provide continuous measurement of the concentrations of sulphur dioxide, nitrogen oxides, particles in suspension and, in some cases, also ozone and meteorological parameters.

The atmospheric-quality surveillance and control network is complemented by a central weather station, equipped with an 80-metre mast housing wind-speed, -direction and temperature sensors at different heights, plus solar-radiation, relative-humidity, atmospheric pressure and rainfall sensors at ground level.

All the information from the systems to monitor emissions, immission and meteorology is received and manager by a central computer, with add-ons in the offices of the Environment department and control rooms.

The following figure shows the current array of the surveillance and control network.



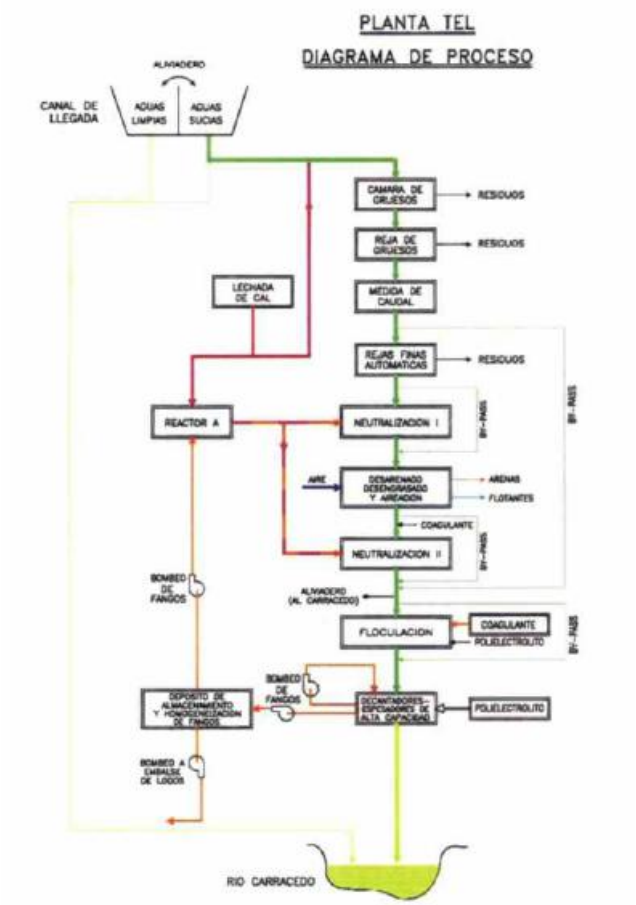
Effluents

The power station has its own liquid-effluent-treatment (LET) plant, the inlet of which receives all the effluents from the power station, the coal yard, the slag heap and the mine.

This plant has been designed to treat flow rates of 0.45 to 30 m^3/s and reduce the solids-in-suspension content, acidity and heavy metals, to assure compliance with the legal limits set in the authorisation to release effluents.

The basic feature of the plant is its flexibility in being able to handle a wide range of flow rates, since most of the annual intake comes from the mine and slag heap, which vary considerably according to the season, being directly associated with the amount of rainfall, and a direct relation between the flow rate to be treated and the quantity of solids in suspension present in the water.

The following figure shows the basic operating scheme at the plant.



The LET plant is divided into three stages:

- Pre-screening, where solids larger than 200 mm in size are extracted.
- Measuring channel, which measures the flow rate entering the plant at any given time.
- Screening, which blocks the passage of particles larger than 12 mm in size.

- Reactor “A”. During this stage, a mixture of milk of lime and re-circulated silt from the decanters is used to improve the neutralisation performance.

- Neutralisation I. The acidity of the waters is compensated for.

- Sand and fat removal. During this stage floating oil and grease and decanted sand are eliminated.

- Neutralisation II. The acidity of the waters is compensated for once more, precisely adjusting the pH value.

- Flocculation. A flocculation agent is added to form clumps of the small particles in suspension so that they are easy to decant.

- Decanters. Here the clumps sink to the bottom while the clarified water passes towards the outlet channels.

- Decanted-water channel. Collects the clarified water from the outlet of the decanters before it is released into the river.

- Reagent room. Where the reagents used during the treatment process are prepared and measured.

- Homogenisation tank. Where the sludge extracted from the decanters is deposited.

- Sludge pumping. The sludge is carried along a pipe from the homogenisation tank to the sludge tank, which, thanks to its capacity of 1.75 hm^3, has been designed to be used for the duration of operations at the plant.

Aquatic-environment quality

Although under no legal control obligations, As Pontes power station has a station to measure the quality of the aquatic environment of the river Eume. Campaigns are also carried out to measure the water quality of the river at various points along its length.

This station is located at the outlet of the Eume reservoir, downstream from the effluent outlet of As Pontes power station’s LET plant.

The station is equipped with continuous gauges and automatic sampling equipment supplying data for subsequent laboratory analysis.

Noise

As Pontes power station is a source of noise emitted into the exterior, since it contains numerous pieces of equipment and other items that generate noise.

In order to minimise the amount of noise emitted beyond the perimeter of the power station as a result of operations at the plant, a number of corrective measures have been taken for the passive control of noise emissions.

Although under no legal obligation to do so, the power station regularly assesses the noise level beyond the perimeter of the plant, selecting the measuring points according to their closeness to the fenced perimeter of the power station, the prevailing wind directions and closeness to inhabited areas.

Waste

The waste produced by As Pontes power station can be classified into the following types, in terms of the relevant legislation and the type of treatment appropriate in each case:

- Non hazardous industrial waste (mostly fly ash and slag produced by coal burning, and sludge from the LET plant).
- Hazardous waste.
- Urban/municipal waste.

As Pontes has implemented documented mechanisms to control the management of each type of waste produced, in order to minimise its impact on the environment.

Since the Production Division, in accordance with the applicable legislation, carries out activities with a certain soil-pollutant potential, mechanisms have also been implemented to monitor this.

Storage of hazardous substances

As Pontes power station has special storage areas for substances that may be considered to be hazardous for the environment owing to their potential to pollute the soil, the atmosphere or waters.

The substances present at As Pontes power station can be classified into the following groups:

- Compressed, liquefied and dissolved gases under pressure stored in large and small cylinders.
- Corrosive liquids: sulphuric acid, sodium hydroxide, sodium hypochlorite.
- Toxic liquids: hydrazine, ammonia.
- Oil products: fuel oil, diesel oil, lubricants and grease.

- Other non-corrosive, non-toxic chemical products: aluminium sulphate, calcium oxide, polyelectrolite (LET plant), etc.

Safety measures are in force at the current storage facilities to reduce the risk of accidents with adverse consequences for the environment, while operational and maintenance control operations assure that these facilities are adequately monitored.

Water, fuel and energy consumption

The following raw materials and natural resources are used at Pontes power station:

- Water: captured from the river Eume for the cooling of the turbine units, demineralisation, drinking-water treatment, fire-fighting systems and miscellaneous services

- Fuel: lignite, imported sub-bituminous lignite, fuel oil and diesel oil.

- Energy: consumption for auxiliary services and transformation losses.

The design and functioning of the plant are oriented towards the optimal use of natural resources, raw materials and energy, with mechanisms in place to monitor their consumption.

Visual impact

Owing to their size, the facilities at As Pontes power station have altered the aesthetic quality of the local landscape.

In order to reduce their visual impact, particularly from local roads and nearby urban areas, a number of maintenance operations are carried out on the plant's exterior areas.

Legionnaire's disease

Several installations at As Pontes power station are prone to the proliferation and dispersion of legionnaire's disease, with the highest risk occurring in the cooling towers.

Action is taken to prevent and monitor legionnaire's disease by adopting hygienic and sanitary measures at the installations where there is a risk of the disease being transmitted.

6 ENVIRONMENTAL ISSUES AND IMPACT

Every year, As Pontes power station identifies and assesses the environmental issues involved, i.e. those activities, products or services that are subject to interaction with the environment.

During the identification process both direct and indirect issues are considered, together with issues associated with both normal operations and emergency situations.

The criteria used for the assessment of each environmental issue include:

- Comparison with applicable legal limits.
- Magnitude.
- Frequency.
- Degree of hazardousness and toxicity.
- Risk.
- Comparison with limits applicable to associated impact.

As a result of the assessment process, environmental issues are classified into the following categories:

- Significant: Issues that have or could have significant environmental impact.
- Insignificant but monitored: Issues that are monitored under the Environmental Management System.
- Negligible: Issues whose environmental impact is not considered to be relevant and for which no specific control or monitoring action is taken.

When environmental issues are assessed, aspects of environmental impact are also identified and assessed at the same time, taking into account the information available on the local air quality and the quality of the water in the river Eume (the watercourse that receives the effluents from the plant's industrial activities).

Significant issues are considered when the environmental goals and targets are being set.

Based on the environmental data obtained in 2005 the annual assessment of environmental issues and impact was carried out, applying the implemented methodology. The following direct issues proved to be significant:

AREA	DIRECT ENVIRONMENTAL ISSUE	POSSIBLE ASSOCIATED IMPACT
Atmospheric emissions	Sulphur dioxide	Alteration of air quality around the facility
	Nitrogen oxides	
	Particles	
	Carbon dioxide	Intensification of the greenhouse effect
Effluents	Solids in suspension	Alteration of water quality in the river Eume, as the watercourse receiving effluents from the plant
	pH	
	Turbidity	
	Aluminium	
	Iron	
	Manganese	
	Pumping station for waters from the power station to the LET plant	
Management of non-hazardous waste	Fly ash	Occupation of land, water and soil pollution
	Slag	
	Sludge, LET plant	
Management of hazardous waste	Used oil	Pollution of soil and surface and underground waters
	Insulation containing asbestos	
	Transformers containing PCBs	
	Sludge from chemical cleaning of boilers	
Consumption	Water	Reduction in water resources
	Fuel	Reduction in energy resources
	Electricity	
Storage of chemical products	Sodium hydroxide	Soil and water pollution associated with environmental incidents or accidents
	Sodium hypochlorite	
	Sulphuric acid	
Storage of oil products	Fuel oil	Soil and water pollution associated with incidents or accidents
	Diesel oil	
Legionnaire's disease	Control in cooling towers	Propagation of legionnaire's disease

In 2005 the following indirect environmental issues were assessed and classified as negligible in accordance with the methodology established under the EMS.

	INDIRECT ENVIRONMENTAL ISSUE	POSSIBLE ASSOCIATED IMPACT
Contracted tasks	Effluents	Alteration of water quality
	Waste	Soil and water pollution
	Atmospheric emissions	Alteration of air quality
Outsourced waste management	Hazardous waste delivered to end manager	Soil and water pollution
	Non-hazardous waste delivered to end manager	
Vehicle transport of raw materials	Effluents	Alteration of water quality
	Atmospheric emissions	Alteration of air quality

The following types of impact were found to be significant:

AREA	ENVIRONMENTAL IMPACT
Air quality	Sulphur dioxide Nitrogen oxides Particles in suspension PM10
Quality of river Eume aquatic environment	Solids in suspension pH Turbidity Aluminium Iron Manganese

7 ENVIRONMENTAL BEHAVIOUR

7.1 Atmospheric emissions

The power station operates under emission limits for sulphur dioxide and particles that were fixed in the authorisation to open the plant (10,800 mg/m^{3}N and 350 mg/m^{3}N, respectively). Also, additional commitments to reduce atmospheric emissions of sulphur dioxide have been made under a partnership agreement with the Galician Regional Government , equivalent to a mean annual concentration of 8,420 mg/m^{3}N, dry, standardised to 6% oxygen.

In 2005 not only the emission limits but also the voluntarily acquired commitments were complied with. The mean annual concentrations and specific emissions were as follows:

Parameter	Concentration (mg/m^{3}N, s/s, O2=6%)	Specific emission (g/kWhb)
Sulphur dioxide	8,270	30.49
Nitrogen oxides	493	1.81
Particles	75	0.26
Carbon dioxide		968.7

In 2005 Unit IV was adapted for the regular consumption of 100% imported coal, one of the key objectives of which was to assure compliance with the requirements for atmospheric emissions set out in Directive 30/2001. The results obtained for December 2005 — the first month of stable, continuous operation of the unit — were as follows:

Parameter	Concentration (mg/m^{3}N, s/s, O2=6%)	Specific emission (g/kWhb)
Sulphur dioxide	222	0.74
Nitrogen oxides	383	1.27
Particles	9	0.03
Carbon dioxide		901.7

Total carbon dioxide emissions in 2005 were 9,324,833 t, compared with an assigned quota of 8,058,215 t - i.e. a deficit of 1,266,618 t.

The annual greenhouse-gas-emission report has been prepared, verified by AENOR and submitted to the Galician Regional Government for validation.

7.2 Air quality

The parameters measured by the atmospheric-quality surveillance and control network include quantitative legal limits for sulphur dioxide, particles in suspension, dioxide, nitrogen oxides and ozone.

The new limits for sulphur dioxide, PM 10 particles and nitrogen oxides under Royal Decree 1073/2002 were complied with at every one of the stations in the network.

Unlike in previous years, in 2005 the hour levels for ozone were not passed for public information. The ozone levels reached cannot be attributed directly to operations at the power station, since the time series coincide at the five measuring points available, which are facing different directions and cannot therefore be affected simultaneously

The power station has implemented an additional atmospheric-pollution control system, under a voluntary agreement with the Galician Regional Government. The purpose of this system is to monitor episodes of changes in the air quality detected at the stations making up the atmospheric-quality surveillance and control network.

Whenever immission episodes occur, As Pontes power station takes specific action to reduce emissions, including changing or replacing the coal mixtures used by the turbine units.

The operation of this system in 2005 was satisfactory, enabling the legally fixed values to be complied with.

AUTOMATED ATMOSPHERIC-QUALITY SURVEILLANCE AND CONTROL NETWORK
SO_2 IMMISSION
YEAR 2005

STATION	ANNUAL MEAN (mg/m^3)	No. daily means >125 mg/m^3	No. hours > 350 mg/m^3	No. episodes 3 hours > 500 mg/m^3
A6	5	0	0	0
B1	6	0	4	0
B2	9	0	2	0
B6	11	1	17	0
B7	10	0	5	0
C8	5	0	3	0
C9	6	0	7	0
D6	6	0	2	0
E3	10	0	10	0
F2	9	0	7	0
F4	11	1	14	0
F5	11	0	1	0
F6	11	0	9	0
F7	7	1	6	0
G2	6	0	0	0
G4	6	0	0	0
H1	5	0	1	0
Legal limit	20	3	24	Alert

AUTOMATED ATMOSPHERIC-QUALITY SURVEILLANCE AND CONTROL NETWORK NO_2 y NO_x IMMISSION YEAR 2005

STATION	ANNUAL MEAN (mg/m^3)		No. hours			No. NO_2 episodes
	NO_2	NO_x	>250 (mg/m^3) NO_2	>200 mg/m^3 NO_2	>200 mg/m^3 NO_x	3 hours > 400 mg/m^3
A6	3	4	0	0	0	0
B1	7	9	0	0	0	0
B2	3	4	0	0	0	0
B6	3	4	0	0	0	0
B7	3	6	0	0	0	0
C8	5	7	0	0	0	0
C9	5	7	0	0	0	0
D6	3	3	0	0	0	0
E3	3	4	0	0	0	0
F2	3	4	0	0	0	0
F4	5	6	0	0	0	0
F5	8	9	0	0	1	0
F6	4	5	0	0	0	0
F7	5	7	0	0	0	0
G2	7	9	0	0	9	0
G4	4	9	0	0	1	0
H1	3	5	0	0	0	0
Legal limit	50 40 (year 2010)	30	18	15 (year 2010)		Alert

AUTOMATED ATMOSPHERIC-QUALITY SURVEILLANCE AND CONTROL NETWORK IMMISSION OF PM_{10} PARTICLES YEAR 2005

STATION	ANNUAL MEAN (mg/m^3)	No. DAILY MEANS > 50 (mg/m^3)
B1	20	7
B2	13	2
B6	10	1
B7	15	2
C8	15	2
C9	16	2
D6	15	2
F2	16	2
F4	16	2
F5	20	6
F7	19	3
G2	17	2
Legal limit PM_{10}	40 20 (year 2010)	35

AUTOMATED ATMOSPHERIC-QUALITY SURVEILLANCE AND CONTROL NETWORK OZONE IMMISSION YEAR 2005				
	No. Days with 8-hour average > 120 mg/m^3	No. hours > 180 mg/m^3	No. hours > 240 mg/m^3	AOT 40 (mg/m^3)·h May–July
B1	6	0	0	4525
B2	18	0	0	9579
C9	14	0	0	8409
F2	12	0	0	4180
G2	11	0	0	6847
Legal limit	25 (year 2010)	Information	Alert	18000 (year 2010)

7.3 Effluents

The LET plant's effluent authorisation fixes quantitative limits under normal operating conditions for several parameters (pH, DRO_5, DQO, material in suspension, phosphorus, nitrogen, iron and manganese), further defining the sampling frequencies in order to verify compliance.

This authorisation also status that for all other parameters the applicable limit values are as set out in Table 3 of Royal Decree 849/1986.

The legal effluent limits have been complied with satisfactorily for all the parameters under consideration. The annual-mean figures and range of values measured for the most significant parameters were as follows:

	Limits under normal operating conditions	Effluent from LET plant Data for 2005		
		Mean	Min	Max
pH	6–9	7.53	6.47	8.76
DBO_5 (mg/L)	<15	1	<1	2
DQO (mg/L)	<30	6.31	<3.00	10.5
M.E.S. (mg/L) (0 < Q < 15 m^3/s)	<30	4.17	0.8	27.4
M.E.S. (mg/L) (15 < Q < 30 m^3/s)	<80			
Total phosphorus (mg/L)	<2	0.03	<0.02	0.07
Total nitrogen (mg/L)	<15	0.20	<0.10	0.50
Iron (mg/L)	<1	0.05	<0.05	0.67
Manganese (mg/L)	<2	0.94	<0.10	1.94

The mean flow rate treated at the LET plant in 2005 was 1.40 m^3/s, which is significantly lower than in previous years as a result of the rainfall recorded. The mean values obtained for the parameters covered under the effluent authorisation were similar to those in previous years.

In 2005, Aguas de Galicia accepted the environmental surveillance plan proposed by Endesa, with a view to monitoring several aspects of effluents from the LET plant and into the river Eume, as well as forwarding information to Aguas de Galicia on a monthly basis. This plan has been applied successfully since it was approved.

7.4 Aquatic-environment quality

Under the relevant legislation, water authorities are the bodies responsible for monitoring the quality of continental waters intended for the production of drinking water.

Nevertheless, the power station carries out a number of regular internal and external controls of the quality of the river Eume, at several points both upstream and downstream from the LET plant's effluent outlet.

Another station monitors the quality of the river waters at the outlet of the Eume hydroelectric plant downstream from the LET plant's effluent outlet.

The data obtained in 2005 indicates that the quality of the water downstream from the Eume reservoir meets the quality targets defined for surface waters intended for the production of drinking water.

For the key parameters the mean annual figures and range of values obtained were as follows:

	Eume Station Data for 2005		
	Mean	Min	Max
pH	6.51	5.94	6.79
Turbidity (NTU)	0.8	0.3	10.1
M.E.S. (mg/L)	0.6	<0.4	6.0
Iron (mg/L)	<0.06	<0.06	<0.06
Aluminium (mg/L)	<0.30	<0.30	<0.30
Manganese (mg/L)	0.10	0.05	0.21

7.5 Waste

The waste produced at the power station can be classified into the following types under the applicable legislation and according to the type of treatment appropriate in each case:

- Non-hazardous industrial waste.
- Municipal or urban waste.
- Hazardous waste.

In order for each type of waste to receive the most appropriate treatment according to its characteristics, the power station operates a selective waste-collection system. In the case of hazardous waste, this involves delivery to an authorised management firm for treatment, recovery or elimination.

The following quantities of hazardous waste were managed in 2005:

Hazardous waste	Qty 2005 (Kg)
Used oil	18,392
Non-halogenated solvents	1,586
Contaminated containers	1,856
Used batteries	94
Contaminated rags	5,495
Fluorescent tubes	1,193
Used grease	5,114
Waste containing asbestos	25,260
Lead batteries	757
Solid waste containing hydrocarbons	344
Transformers contaminated with PCBs	30,500
Waste containing mercury	50
Discarded electrical and electronic equipment	1,677
Sludge and chemical-cleaning wastewaters	243,960

With isolated exceptions, non-hazardous waste is deposited at one of the two elimination facilities available at the mining/electricity complex: the mine slag heap and sludge reservoir, for which the corresponding official authorisation was obtained. The following quantities of the most relevant non-hazardous waste were managed in 2005:

Non-hazardous waste	Qty 2005 (t)
Fly ash	1,214,186
Slag	214,268
Sludge, LET plant	14,405
Pre-screening and screening, LET plant	2,875
Sand-removal waste, LET plant	1,105
Scrap	2,263

The amount of hazardous waste generated and manager in 2005 was considerable higher than in previous years as a result of the works to adapt Unit IV to function regularly with 100% imported coal. Although this generated an exceptional quantity of waste, in some cases — including waste containing asbestos, transformers with PCBs and sludge from chemical boiler cleaning — it will avoid waste being generated in the future.

7.6 Hazardous substances

The applicable legislation includes several environmental requirements that are associated with safety measures to reduce the risk of accidents involving hazardous substances with adverse consequences for the environment.

In 2005 there was a leak of sodium hypochlorite from the measuring line to the Unit II cooling tower. The interior emergency plan was activated, classifying the situation as level II, for which own resources would be sufficient to control the situation. The leak was contained satisfactorily and the resulting environmental impact was determined to have been zero.

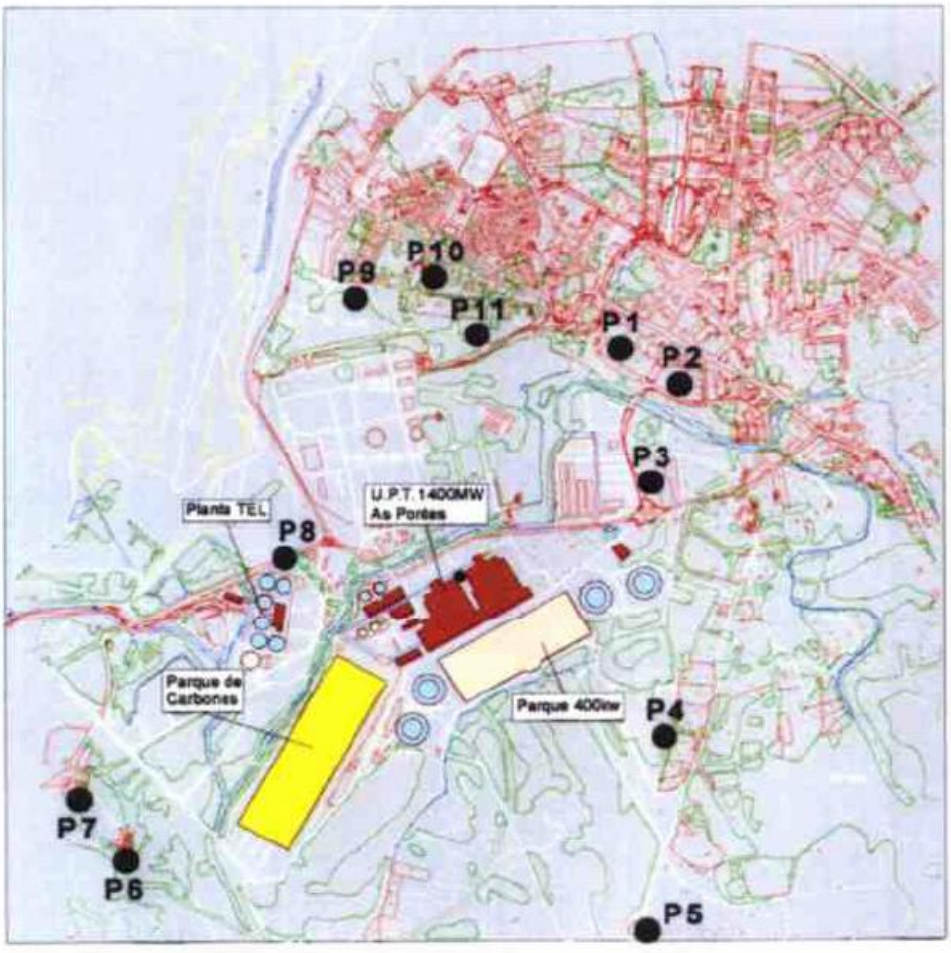
No other environment-related accidents or incidents occurred in 2005 involving the storage or handling of hazardous substances.

7.7 Noise

Although the power station is under no direct legal obligation to do so, in order to assess the noise level beyond the perimeter of the power station a measuring campaign was undertaken in 2005 at the following points.

LOCATION OF NOISE-MEASUREMENT POINTS
OUTSIDE AS PONTES POWER STATION

● NOISE MEASUREMENT POINT



The 11 measurement points were selected according to the following criteria:

- Proximity to the perimeter fence around the power station.
- Prevailing wind directions.
- Proximity to urban areas.

The noise levels measured were between 40.4 dBA and 52.6 dBA, thereby complying with the levels required for areas of moderate and low noise sensitivity, in accordance with the limits fixed by the regional government by means of the Noise Pollution Protection (Galicia) Act 1997 (No. 7/1997), i.e. an equivalent level of 55 dBA in areas of moderate noise sensitivity and 60 dBA in areas of low sensitivity at night time.

7.8 Consumption

Although no legal limits are applicable to consumption, it is controlled voluntarily within the framework of implementation of the EMS, taking into consideration certain environmental issues in accordance with the guidelines set out in the standard UNE-EN ISO 14001.

Water consumption in 2005, captured from the river Eume, was 20,222,229 m^3, distributed as follows:

	Consumption 2005 (m^3)
Cooling of generator units	17,611,275
Demineralisation and drinking-water treatment	677,967
Misc. services (cleaning, irrigation, fire-fighting systems)	1,932,987

Consumption of the most relevant raw and auxiliary materials in 2005 was as follows:

	Consumption 2005 (m^3)
Lignite (t)	4,742,377
Imported sub-bituminous coal (t)	2,829,637
Fuel oil (t)	10,029
Diesel oil (m^3)	4,027
Calcium oxide, LET plant (kg)	2,091,308
Sulphuric acid (kg)	60,540
Sodium hydroxide (kg)	175,678
Sodium hypochlorite (kg)	605,559
Aluminium sulphate, LET plant (kg)	278,792
Polyelectrolite, LET plant. (kg)	26,540
Hydrazine (kg)	2,400
Ammonia (kg)	1,687

7.9 Legionnaire's disease

At As Pontes power station the following facilities are subject to Royal Decree 865/2003:

- Facilities with the highest probability of the proliferation and dispersion of legionnaire's disease: cooling towers.

- Facilities with the lowest probability of the proliferation and dispersion of legionnaire's disease: interior cold-water supply for human consumption and sanitary hot-water system with no return circuit; fire-fighting water supply.

The legally required maintenance, control, monitoring and measurement actions were carried out without incident. The presence of legionnaire's disease was not detected in any of the analytical controls carried out. The cooling systems were purged whenever the turbidity level exceeded 15 UNF.

8 ENVIRONMENTAL INDICATORS

A selection of basic environmental indicators have been determined, with a view to creating a tool to monitor the commitment towards continuous improvement made under Endesa's environmental policy.

The indicators chosen for each area of activity at As Pontes Power Station are as follows:

- *Atmospheric emissions*

  Specific annual emissions of sulphur dioxide, nitrogen oxides, particles and carbon dioxide (total for power station, g/kWhb).

- *Air quality*

  Mean annual concentrations of sulphur dioxide, nitrogen oxides, nitrogen dioxide, particles in suspension and ozone (overall total from all the stations in the surveillance and control network).

  Annual excesses of hourly reference level of 350 mg/m^3 for sulphur dioxide (overall mean by season and year).

  Annual excesses of daily reference level of 50 mg/m^3 for particles en suspension PM 10 (overall mean by season and year).

  Annual excesses of hourly reference levels of 180 mg/m^3 for ozone (overall mean by season and year).

- *Effluents*

  Mean annual values for flow rate, pH, solids in suspension, turbidity, manganese and aluminium at the LET-plant outlet.

- *Water quality*

  Mean annual values for pH, solids in suspension, turbidity and manganese obtained at the outlet of Eume hydroelectric plant, downstream from the outlet from the LET plant.

- *Waste*

  Annual ash production (kg/kWhb, sum of fly ash and slag).

  Hazardous waste managed annually (t).

  Sludge from the LET plant (g/m^3)

Other inert waste (waste from pre-screening, screening and sand removal) from the LET plant (g/m^3).

- *Energy efficiency*

  Specific annual consumption (kcal PCI/kWhn)

  Annual consumption of auxiliaries and transformation losses (%)

- *Consumption of chemical products*

  Annual consumption of sulphuric acid and sodium hydroxide at the water-supply treatment plant (mg/kWhb).

  Annual consumption of sodium hypochlorite for conditioning of cooling systems (mglkWhb).

  Annual consumption of hydrazine for conditioning of the water–steam cycle (mglkWhb).

  Annual consumption of calcium hydroxide at the LET plant (g/m^3).

  Annual consumption of other chemical products (coagulation and flocculation agents) at the LET plant (g/m^3).

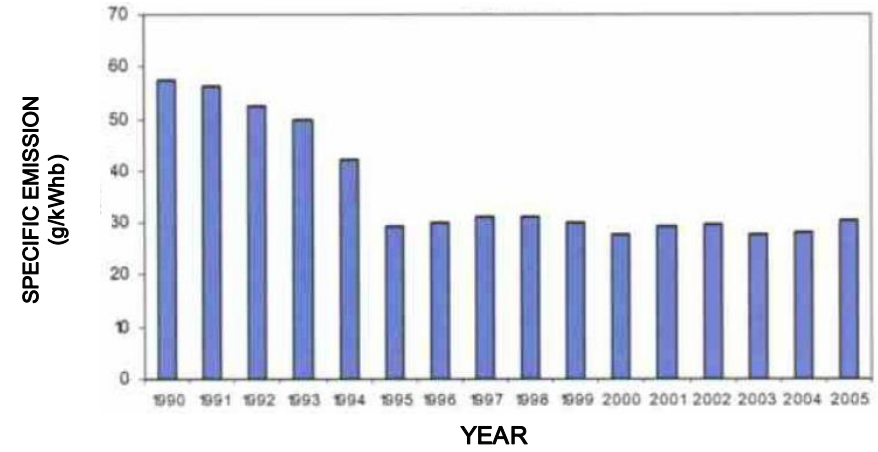
- *Water consumption*

  Annual consumption of water for cooling (m^3/kWhb), drinking-water and demineralisation treatment (m^3) and miscellaneous services (m^3).

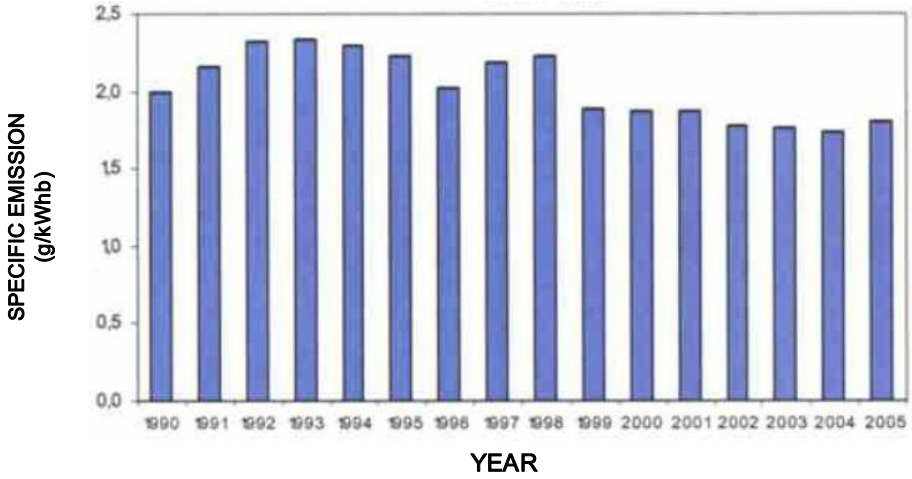
The following graphs show the evolution of these indicators over recent years (except for water consumption, for which only quantitative data corresponding to the 2002–2005 period is available).

8.1 ATMOSPHERIC EMISSIONS

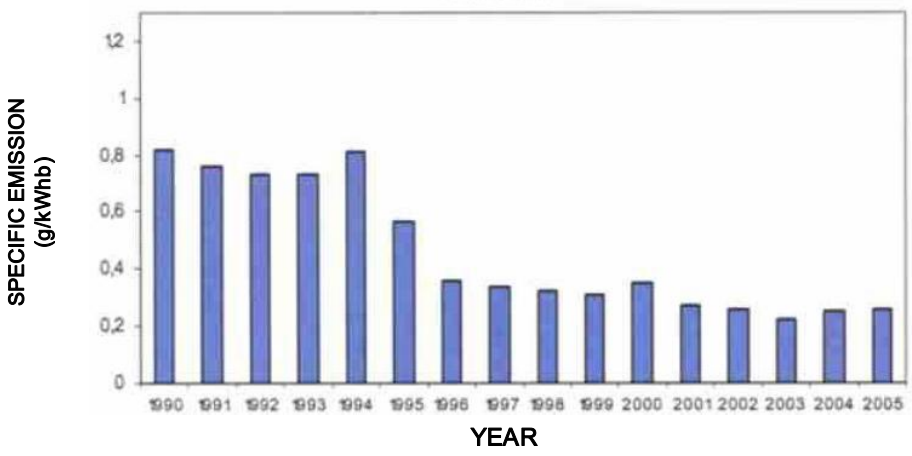
EVOLUTION OF SPECIFIC SO_2 EMISSIONS
1990-2005



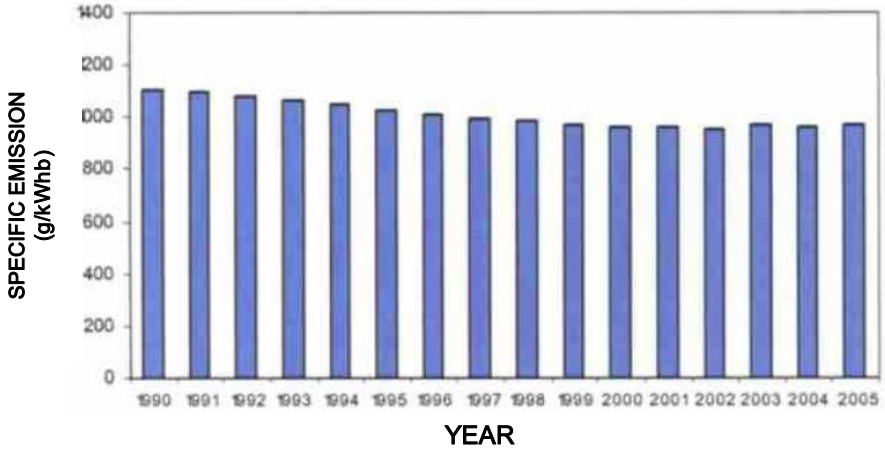
EVOLUTION OF SPECIFIC NO_x EMISSIONS
1990-2005



EVOLUTION OF SPECIFIC PARTICLE EMISSIONS
1990-2005

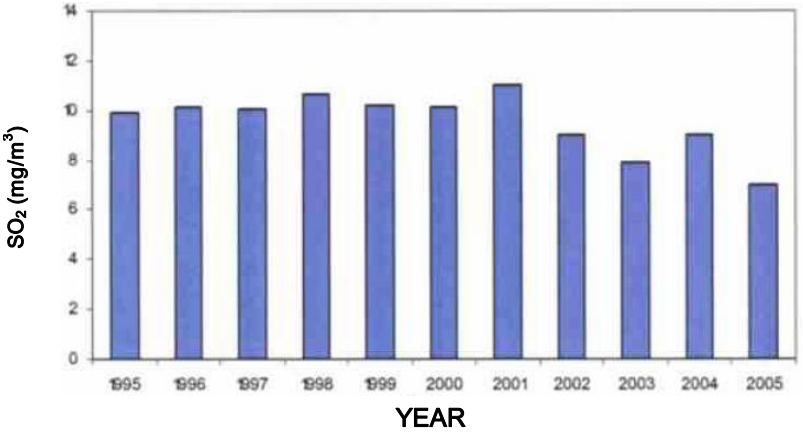


EVOLUTION OF SPECIFIC CO_2 EMISSIONS
1990-2005

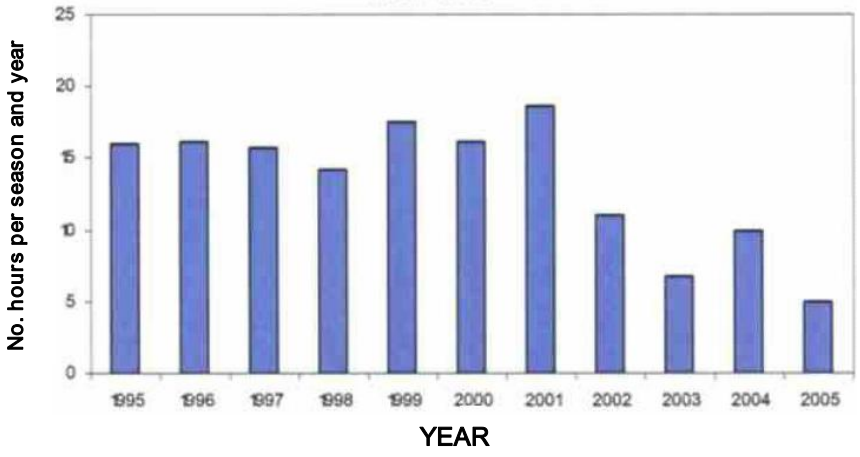


8.2 AIR QUALITY

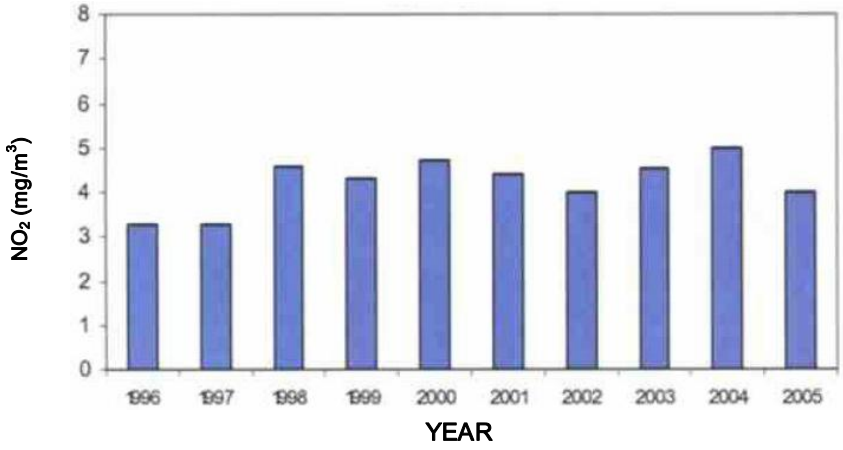
Average mean values for SO_2 immission
1995-2005



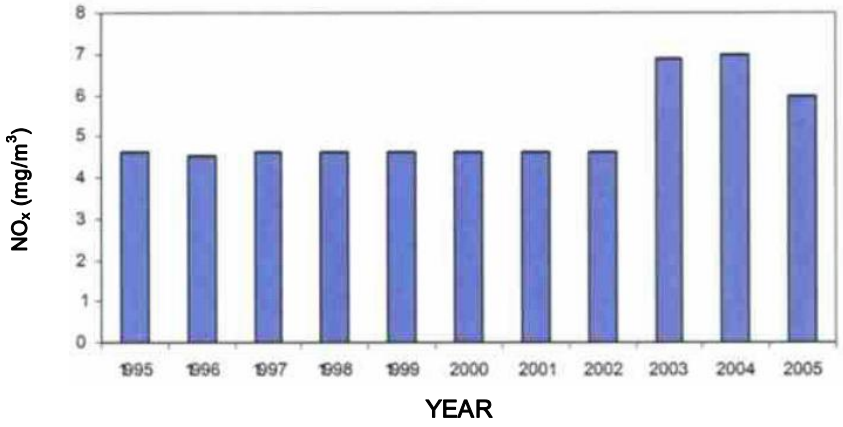
Excesses of hourly values for SO_2 > 350 mg/m^3
1995-2005



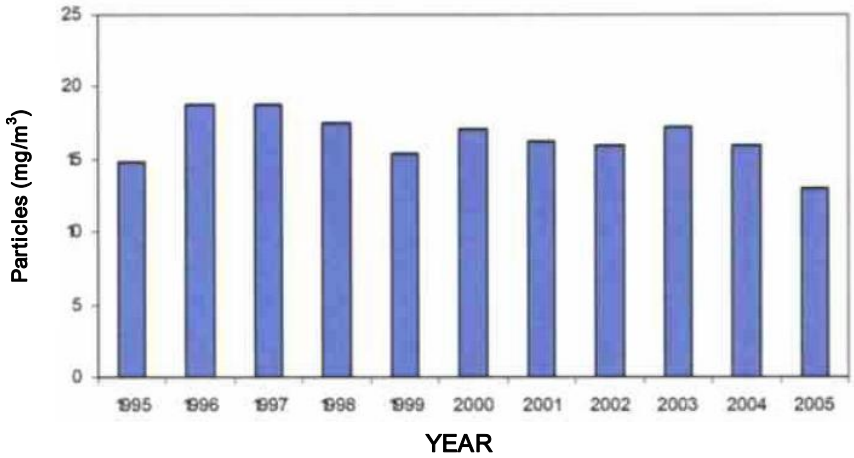
Mean annual values for NO_2 immission
1996-2005



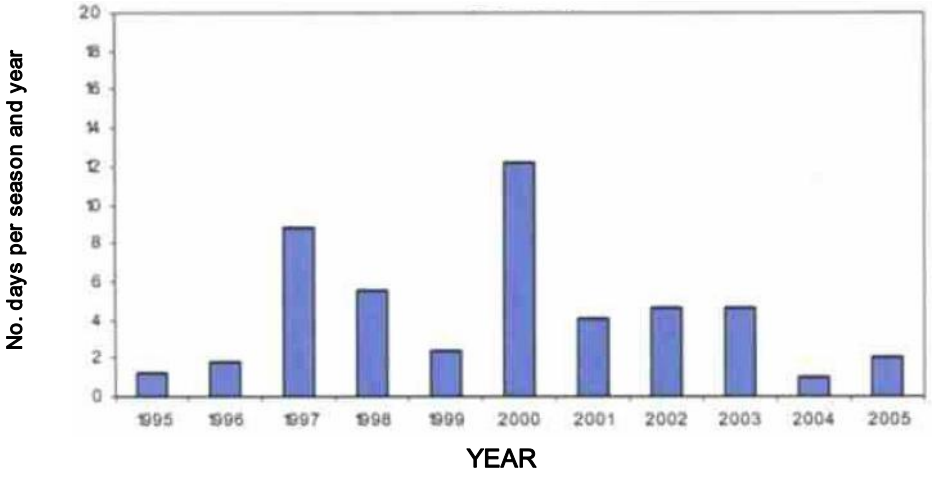
Mean annual values for NO_x immission
1995-2005



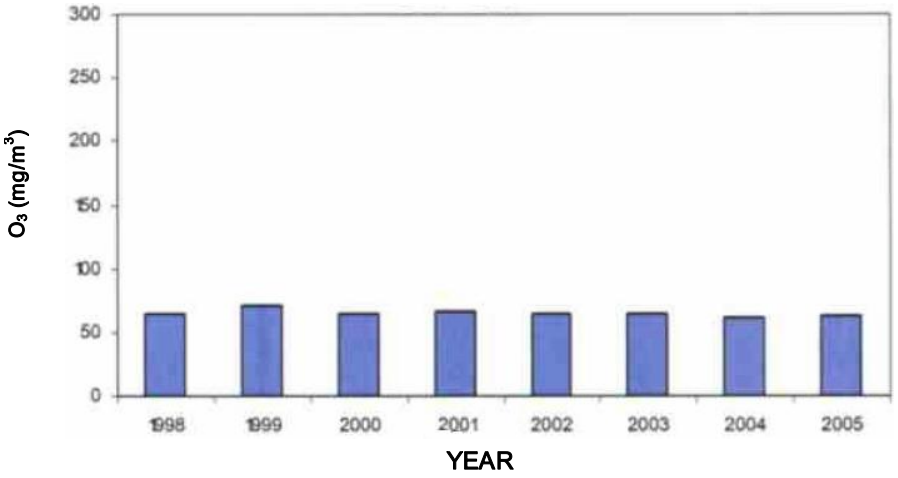
Mean annual values for particle immission
1995-2005



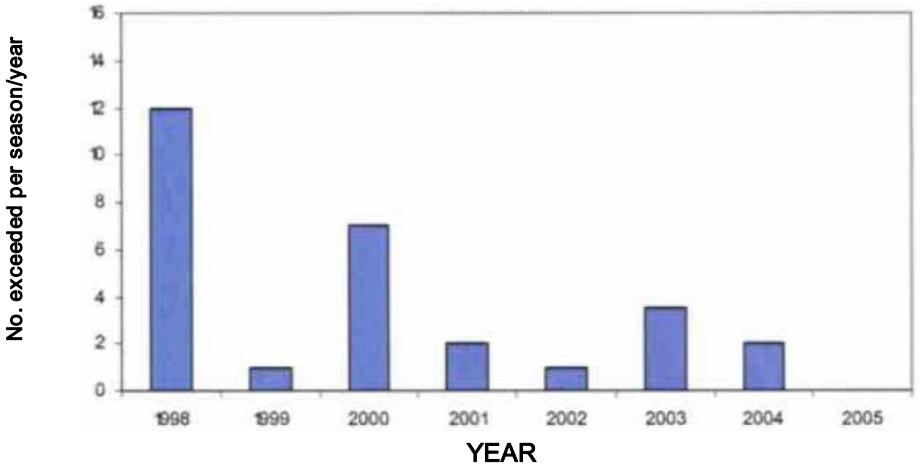
Excesses of daily values for particles > 50 mg/m^3
1995-2005



Mean annual values for O_3 immission
1998-2005

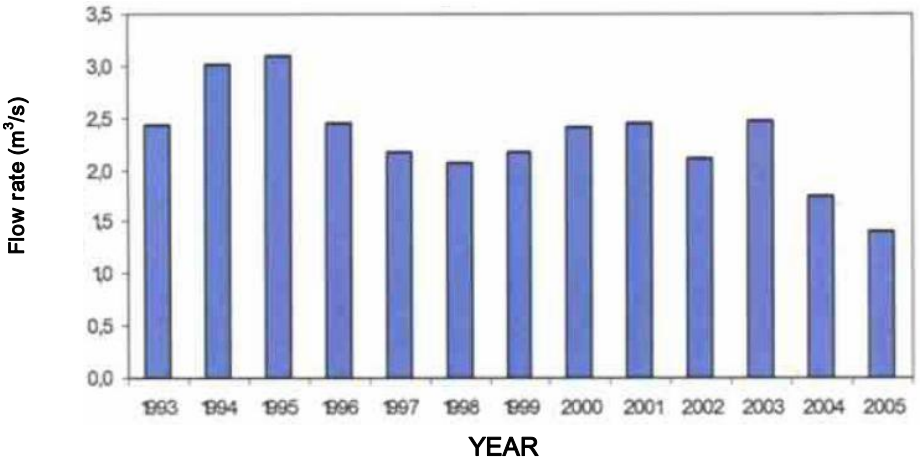


Excesses of hourly values for O_3> 180 mg/m^3
1998-2005

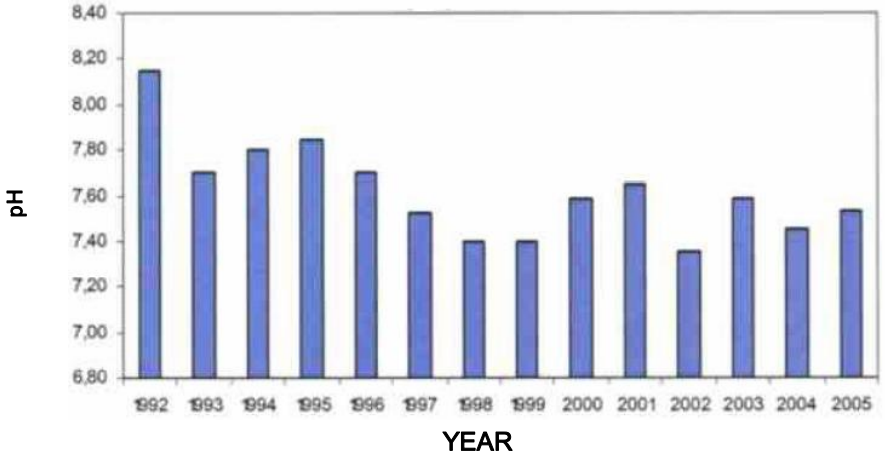


8.3 EFFLUENTS

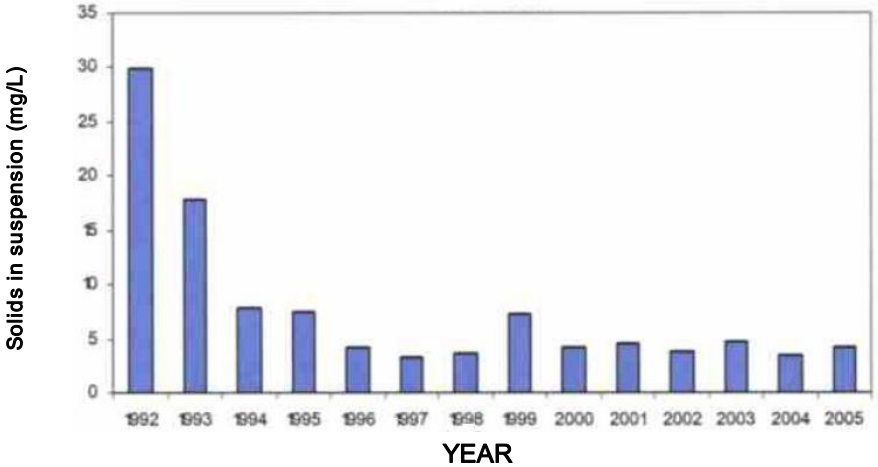
Mean annual flow rate, LET plant
1993-2005



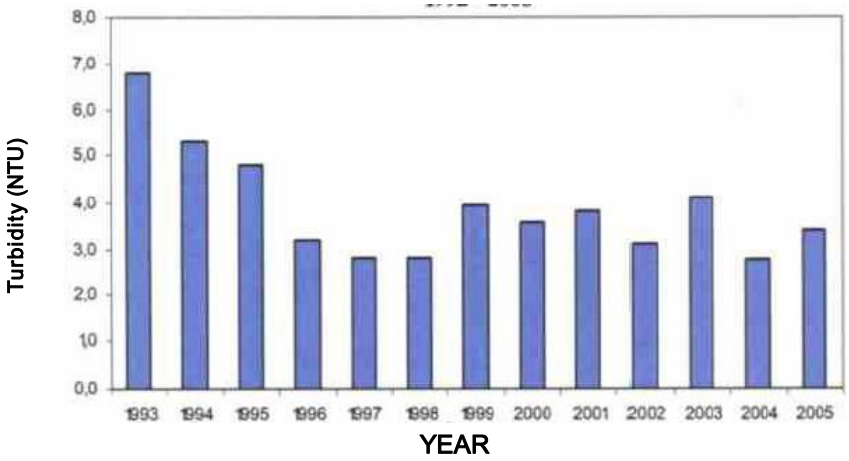
Mean annual pH, LET plant
1992-2005



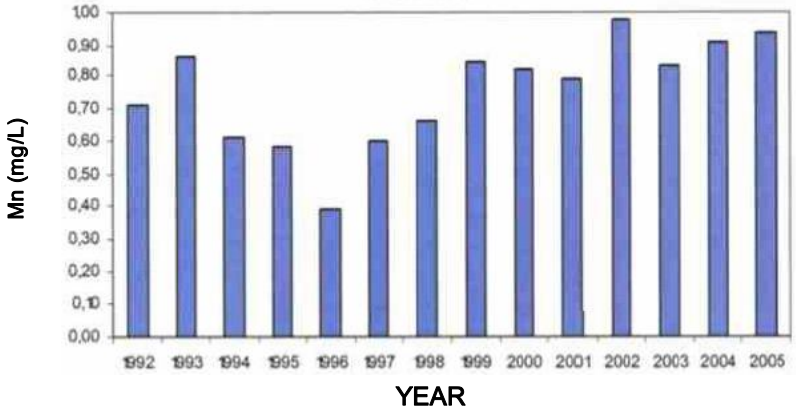
Mean annual solids in suspension, LET plant
1992-2005



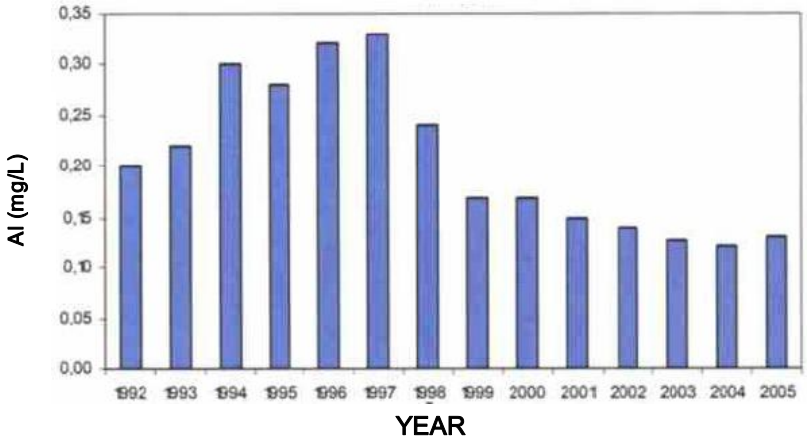
Mean annual turbidity, LET plant
1992-2005



Mean annual manganese, LET plant
1992-2005

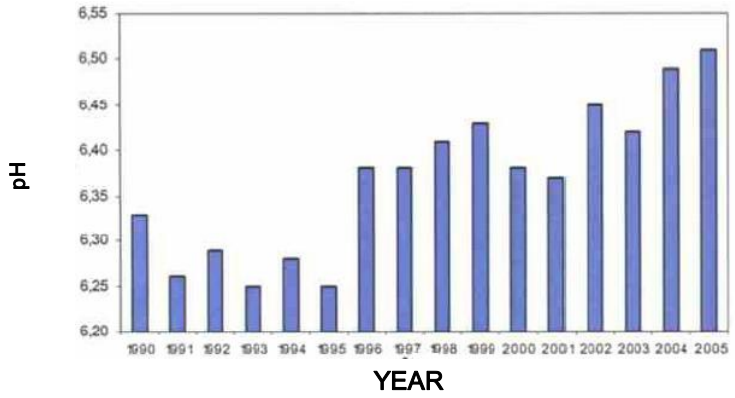


Mean annual aluminium, LET plant
1992-2005

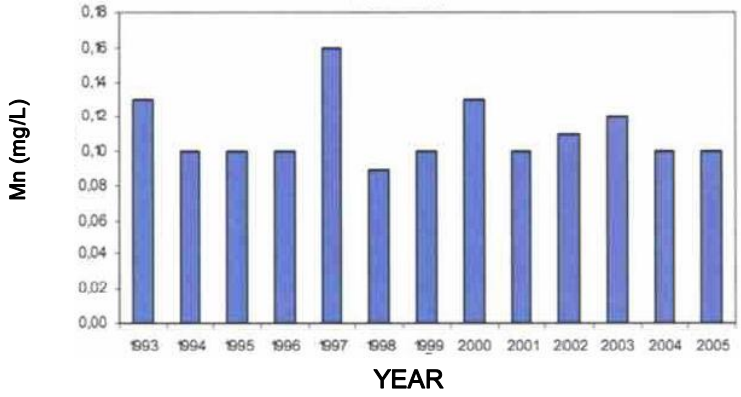


8.4 WATER QUALITY

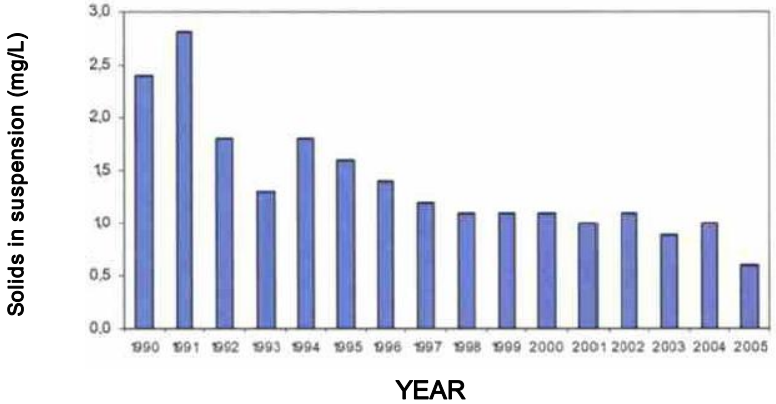
Mean annual pH, Eume
1990-2005



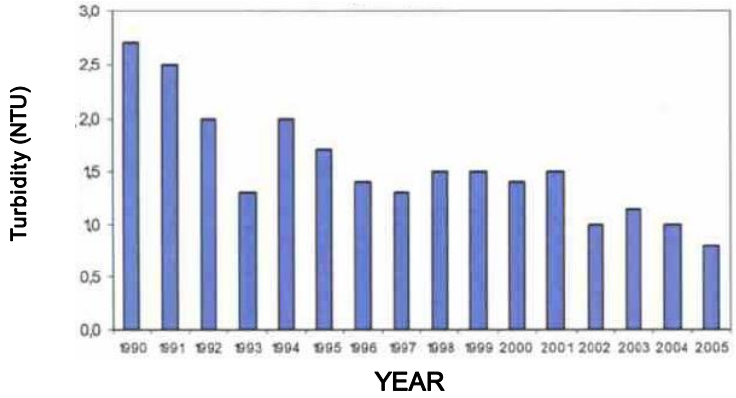
Mean annual manganese, Eume
1993-2005



Mean annual solids in suspension, Eume
1990-2005

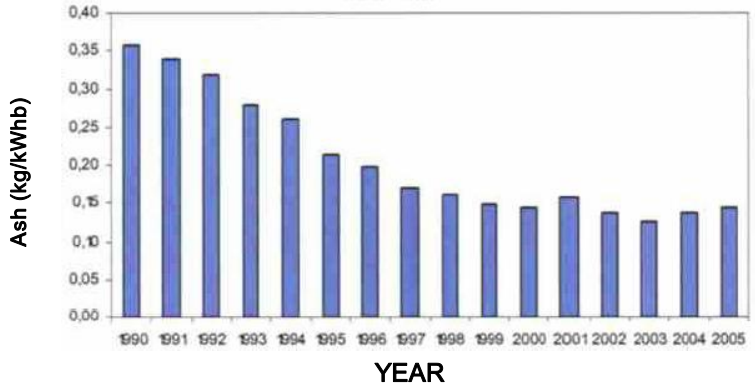


Mean annual turbidity, Eume
1990-2005

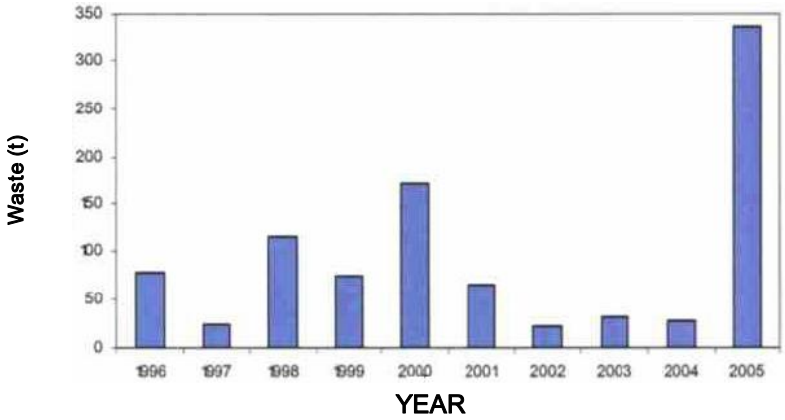


8.5 WASTE

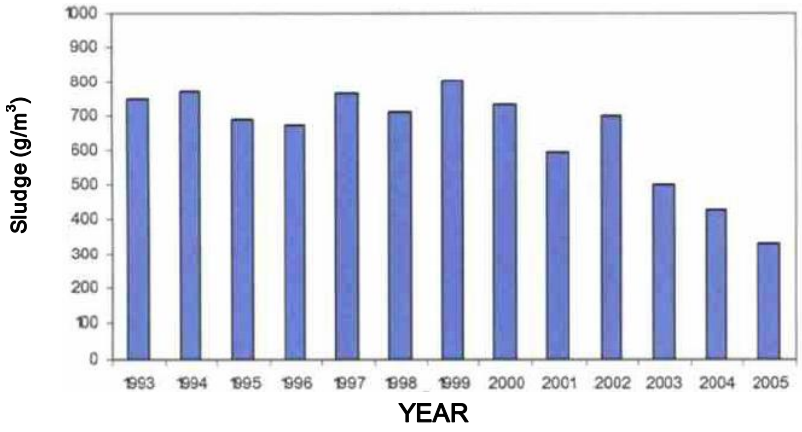
Annual ash production
1990-2005



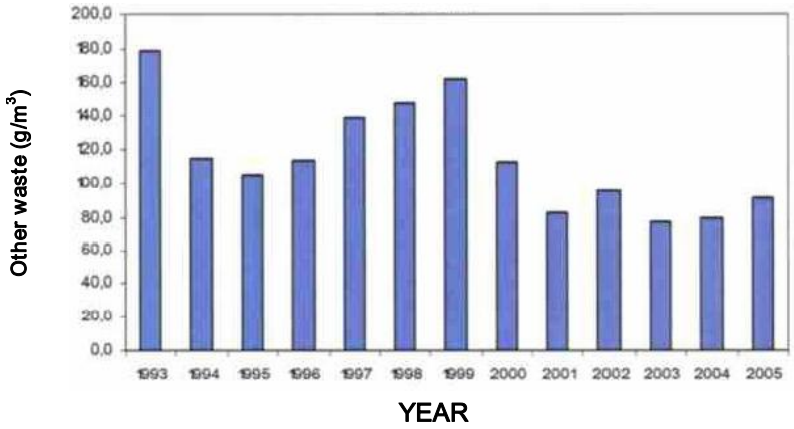
Annual hazardous-waste management
1996-2005



Annual sludge production, LET plant
1993-2005

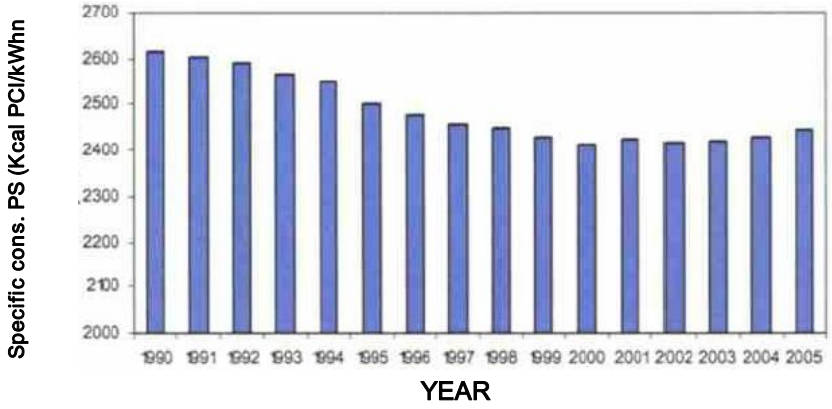


Annual production of other waste, LET plant
1993-2005

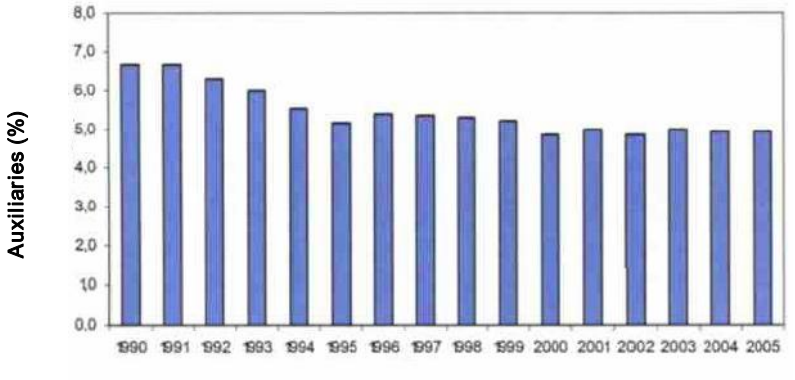


8.6 ENERGY EFFICIENCY

Specific annual consumption at power station
1990-2005

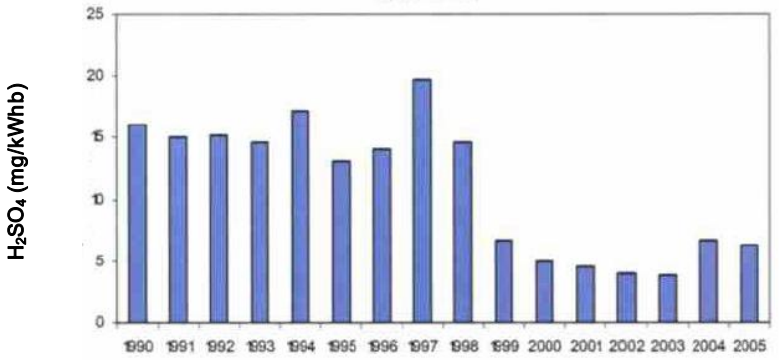


Auxiliary consumption at power station
1990-2005

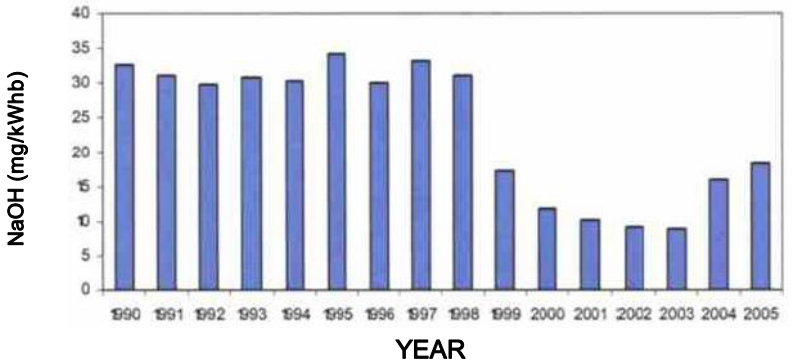


8.7 CONSUMPTION OF CHEMICAL PRODUCTS

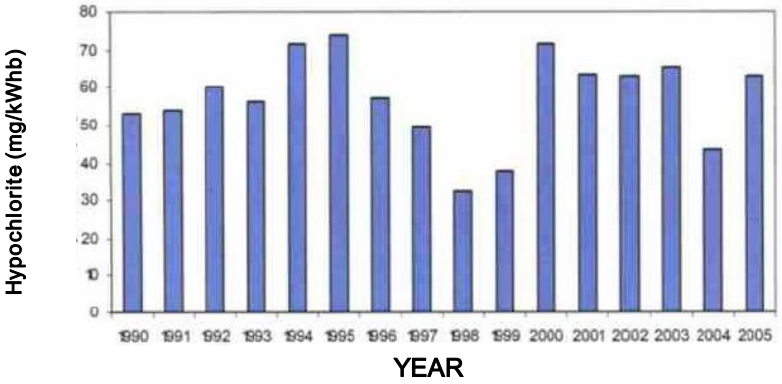
Annual consumption of sulphuric acid, water-supply treatment plant
1990-2005



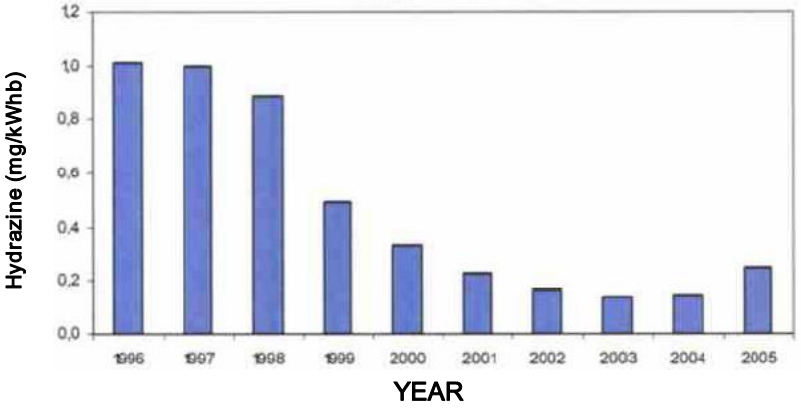
Annual consumption of sodium hydroxide, water-supply treatment plant
1990-2005



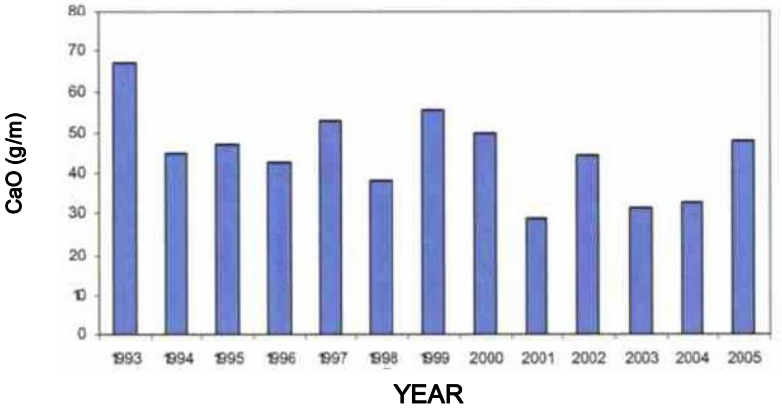
Annual consumption of sodium hypochlorite at power station
1990-2005



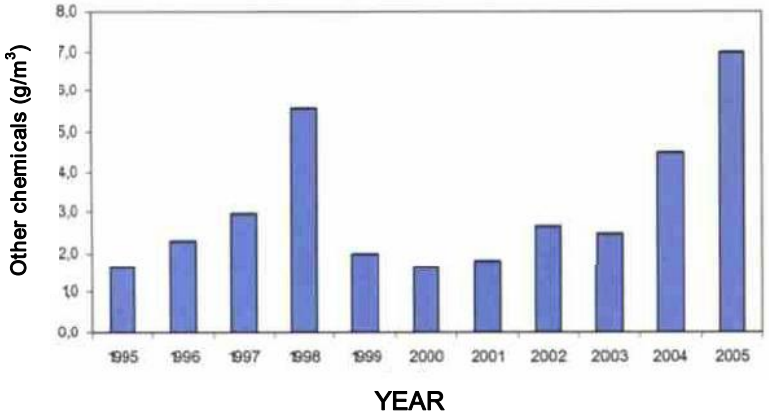
Annual consumption of hydrazine at power station
1996-2005



Annual consumption of CaO, LET plant
1993-2005



Annual consumption of other chemical products, LET plant
1995-2005



9 ENVIRONMENTAL GOALS AND TARGETS 2005

The environmental goals and targets for 2005 were formally fixed in the environmental- management programme, a document that includes all the actions scheduled, assigning responsibilities and establishing resources and target deadlines.

Of a total of 31 targets established under the programme, 27 were fully achieved and 3 partially achieved (the remaining one was postponed).

	TARGETS	TOTAL EXECUTION	PARTIAL EXECUTION	POSTPONED
EMISSIONS/AIR QUALITY	6	6	0	0
EFFLUENTS	4	2	1	1
HAZARDOUS WASTE/SUBSTANCES	5	3	2	0
ENERGY PERFORMANCE/SAVING	2	2	0	0
MINIMISATION OF RISKS	5	5	0	0
SURVEILLANCE AND CONTROL OF ISSUES AND IMPACT	5	5	0	0
IMPROVEMENTS IN ENVIRONMENTAL MANAGEMENT	4	4	0	0
TOTAL	31	27	3	1

The goals and targets included in the environmental-management programme are described below, together with brief reports of the results obtained.

9.1 Reduction of atmospheric emissions and their impact on the environment

- Adaptation of As Pontes power station to operate with 100% imported coal: The works to adapt and re-commission Unit IV was carried out between February and August 2005. The assessment of the environmental results based on data for December shows that reductions in specific emissions of 97.4% for SO2, 27% for NOx, 6% for CO_2 and del 93.5% for solid waste were obtained.

- Extension of electrostatic precipitators: The replacement of the emitting electrodes and the extension of the precipitator with a fourth field was carried out at the same time as the adaptation work. According to data obtained in December, the reduction in specific particle emissions stood at 88% compared with the previous situation.

- Adaptation of the additional atmospheric-pollution control system to the requirements of Royal Decree 1073/2002: Operations were adapted to the new requirements applicable in 2005, with the limit values being complied with at all stations in the surveillance network.

- Statistical immission forecasting (Sipei): Functional and probability models applied to the forecasting of sulphur dioxide. The forecasting is currently operational and the modifications suggested by the research project co-financed by the Galician Regional Government have now been implemented. This action will continue in 2006.

- Analysis of air-quality scenarios in Galicia: Qualitative analysis of episodic air-quality situations characterised by significant levels of tropospheric ozone have been carried out, with the final results report being prepared on schedule.

- Simulation of As Pontes power station furnace using computational fluid dynamics. Modelling of current and future situations continues as normal, with several reports already having been produced. Co-financing has been obtained from the Galician Regional Government for the future development of this project.

9.2 Reduction and improvement in the control of effluents

- Refurbishment of the electricity room in the wastewater pump shaft at the power station: The contracting process began in December, substantially later than originally scheduled. This target has therefore not been reached, so this action has been included in the EMP for 2006.

- Building a protective channel for the coal yard: The building Project has been designed, although somewhat later than scheduled, so this target has only partially been reached. This action has been included in the EMP for 2006.

- Installation of a new connection line between the pump shaft of the coal yard and that of the power station: The installation process has been completed and the new pipe is now in service, so this action can now be considered to have been concluded.

- Implementation of improvements at the LET plant: All the equipment acquired in 2005 and included in the programme (speed changers, oxygen analyser, inlet-level gauge, turbidity gauge, etc.) has now been received and installed.

9.3 Minimisation and improvement in the management of hazardous waste and substances

- Replacement of transformers containing PCBs. Seven Unit IV transformers have been replaced and manager as hazardous waste. The remaining three transformers included in the hazardous-waste minimisation plan and the plan to remove equipment containing PCBs remain pending, so they have been included in the EMP for 2006. Seven transformers are ready to be used to replaced those in Unit III in 2006. This target has therefore been partially reached.

- Preparation of environmental-impact assessment (EIA) and project for the tipping of non-hazardous waste. In December the application was submitted to the regional government for authorisation for the new tip site, including the building project, EIA and hydro-geological study, so this target has been fully reached.

- Characterisation of combustion products under Council Decision 2003/33/CE: In October ash and slag simples were taken by Interlab, following the adaptation of Unit IV to operate with 100% imported coal. The corresponding report has been received, indicating that the destination of the fly ash and slag should be tipping sites for non-hazardous waste.

- Elimination of insulation containing asbestos in Unit IV: The removal of asbestos from the turbine and downcomers, and its subsequent handover to authorised managers, was effected between February and March. This action is therefore now complete.

- Installation of oil sumps (coal-feeding transformer from the LET plant, Unit IV precipitator, turbine oil): The sumps were installed onto the Unit IV precipitator and turbine. The coal-feeding transformer from the LET plant remains pending and has been included in the EMP for 2006. This target has therefore been partially reached.

9.4 Minimisation of risks and environmental refurbishment of facilities

- Implementation of improvements to the Unit IV water–steam cycle: These modifications were carried out during the adaptation of Unit IV to 100% imported coal. The results obtained have been evaluated, showing a 1.54% improvement in the specific consumption of the cycle.

- Re-piping of the Unit IV condenser: This work was done during the shutdown to adapt the unit to imported coal. Evaluation of the results shows that an improvement of 0.31% in the specific consumption of the unit has been obtained, by reducing losses from the consumption of steam auxiliaries.

9.5 Minimisation of risks and environmental refurbishment of facilities

- Refurbishment of the chemical-cleaning pond: The works were completed in early 2005 and the pond was used for the chemical cleaning of Unit IV carried out in June and August. The waste generated was managed as hazardous.

- Installation of fire-extinguishing system for the coal-preparation facilities: The system was installed and commissioning tests were carried out in 2005 with satisfactory results.

- Renovation of the fire-fighting system: The planned actions to renew piping at Unit IV and in the over-silo area have been carried out.

- Replacement of Unit IV silencers: One remote main steam valve silencer has been replaced. The remaining silencers were inspected and found to be in good condition, so they have not been replaced.

- Renovation of the fire-extinguishing system for power transformers: The planned modifications were carried out at Unit IV during the adaptation to 100% imported coal.

9.6 Strengthening of surveillance and control of environmental issues and impact

- Characterisation of atmospheric emissions included in the EPER Register: The three scheduled sampling and analysis campaigns were carried out and the final report for 2005 was prepared.

- Characterisation of pollutant effluents included in the EPER Register: Between January and December the scheduled monthly campaigns were carried out to characterise EPER pollutants in the effluent from the LET plant. The final report corresponding to 2005 is now available.

- Meeting quality targets under the atmospheric-quality monitoring and control system: No significant deviations from the quality targets formally established under the system have been detected. The monitoring was audited by AENOR, with no cases of non-conformance being detected. The final assessment was therefore full compliance.

- Ecological characterisation study of the environment: The scheduled actions were carried out without incident. The study was presented to the Galician Regional Government in October, defining the scope for 2006.

- Biological characterisation of the river Eume: The two campaigns scheduled for 2005 were carried out in July and October. A final report is available summarising the results obtained.

9.7 Introduction of improvements in environmental management at the plant

- Integrated Environmental Authorisation: In December a joint Integrated Environmental Authorisation was applied for from the Galician Regional Government for both the power station and the new tipping site for non-hazardous waste. The preliminary study on soil condition was also included.

- Adaptation of the EMS to the requirements of the standard UNE EN ISO 14001:2004: The system has been adapted to the new standard, implementing the changes to the documentation in early May. The monitoring audit was carried out by AENOR in accordance with the requirements of the 2004 standard.

- SIGMA monitoring of greenhouse gases: Calculations and monitoring have been integrated into the corporate environmental information and monitoring system (SIGMA), applying the methodology set out in the authorisation for the emission of greenhouse gases.

10 ENVIRONMENTAL GOALS AND TARGETS 2006

The environmental-management programme for 2006 was approved in December 2005.

It was prepared taking into account the following factors:

- Endesa's environmental policy and commitment to prevent pollution.
- Basic environmental strategies and the environmental objectives of the Production Division.
- The environmental goals and targets of As Pontes power station for 2005 and the corresponding degree of compliance.
- Applicable legal requirements and any changes to the regulations expected.
- Significant environmental issues and impact.
- Identification of environmental risks.
- The power station's technological options.
- Financial, operational and business requirements.
- Stakeholders' opinions.
- Endesa's strategic environmental and sustainable-development plan for the 2003–2007 period.
- As Pontes power station's plan to minimise hazardous waste for the 2005–2008 period.
- The environmental agreement reached with the Regional Ministry of the Environment in 2005.

The following objectives — i.e. general environmental goals — and associated targets are included in the programme:

10.1 Reduction of atmospheric emissions and their impact on the environment

- Adaptation of Unit III at As Pontes power station to function with 100% imported coal: Forecast reductions in emissions are 95% for sulphur dioxide, 16% for nitrogen oxides and 9% for carbon dioxide.
- Replacement of electrodes and extension of the electrostatic precipitator at Unit III: the forecast reduction in particle emissions is 48%.

- Gradual adaptation of the additional atmospheric-pollution control system to the requirements of Royal Decree 1073/2002: Assure compliance with the legal limits applicable in 2006 with regard to environmental air quality.

- Statistical immission forecast: functional and probability models applied to sulphur-dioxide forecasting: Completion of research Project to optimise the forecasting tools available.

- Study of air-quality scenarios in Galicia: Identification of causes and modelling of situations in which the air quality is disturbed, characterised by high ozone levels.

- Simulation of As Pontes power station furnace using computational fluid dynamics: Continuation of the research project oriented towards forecasting the influence of operational parameters and coal consumption on nitrogen-oxide emissions and combustion efficiency.

10.2 Reduction and improvement in the control of effluents.

- Refurbishment of the electricity room of the power station's wastewater pump shaft: Action oriented towards preventing the entry of water and consolidating an environmentally critical installation.

- Building a protective channel for the coal yard: Segregation of clean waters towards the power station's perimeter canal.

- Optimisation of the functioning of the LET plant: Implementation of several improvements (flow gauges, oil detection, fire-fighting system, etc.)

- Adaptation of the LET plant to function with no mine-water supply: Beginning of study of alterations to be made to the facility to be functional by 2008.

10.3 Minimisation/improvements in the management of hazardous waste and substances

- Replacement of transformers containing PCBs: Application of the elimination plan, replacing transformers at Unit III.

- Elimination of insulation containing asbestos: To be replaced with asbestos-free insulation in pipe and boiler areas .

- Installation of oil sumps: Unit III electrostatic precipitator and coal-feeding transformer from the LET plant.

10.4 Improvement in energy performance and savings at the plant

- Implementation of improvements to the Unit III water–steam cycle: 0.6% improvement in the efficiency of the water–steam cycle compared with the current situation.

- Re-piping of Unit III condenser: 0.4% improvement in net specific consumption by the unit compared with the current situation.

10.5 Minimisation of environmental risks

- Renovation of the power station's fire-fighting system: Replacement of pipes in poor condition (Unit III) and closure and improvements to the exterior ring.

- Replacement of Unit III silencers: Inspection and replacement, if necessary, of main steam safety-valve silencers.

- On-site generation of gases for the laboratory: Connection of oxygen- and nitrogen-generation systems to the laboratory, in order to avoid the need for gases to be handled and transported.

- Installation of dust-minimisation systems for coal transfers: Reduction of risks of explosion or fire.

- Installation of centralised coal-dust vacuuming system: Reduction of risks of explosion or fire.

10.6 Strengthening surveillance and control of environmental issues and impact

- Redesign of the atmospheric-quality surveillance and control network: Preparation of proposal taking into account emission sources in 2008 (power station operating with 100% imported coal and combined cycle).

- Characterisation of atmospheric emissions of pollutants listed in the European Emissions Register (EPER): Continuation of the experimental study to determine trace elements and compounds.

- Quality objectives for the atmospheric-quality surveillance and monitoring system (SSCCA): Compliance with the targets set for the system under the standard UNE-EN ISO 9001:2000.

- Ecological environmental characterisation study: Continuation of the study oriented towards detecting alterations in vegetation, soils and waters, in partnership with Unión Fenosa and the Galician Regional Government.

- Automated fly-ash-sampling system: Instillation of automated system at Units III and IV to increase the representativity of samples analysed as part of the programme to monitor carbon-dioxide emissions.

- Characterisation of particles in the atmospheric-quality surveillance and control network: Implementation of methodology to determine heavy metals in the environmental air.

- Modernisation of SSCCA communications: Implementation of improvements to the system for real-time radio transmissions from the atmospheric-quality surveillance and monitoring system (SSCCA).

10.7 Introduction of improvements in environmental management at the plant

- Adaptation of the EMS to the requirements of the EMAS Regulation: Changes to documentation, preparation and verification of the annual declaration for 2005.

- Accreditation of the laboratory under the standard ISO 17025: Preparation and implementation of documentation to certify testing carried out as part of the monitoring of carbon-dioxide emissions.

- Calculation of uncertainty in carbon-dioxide emissions: Performance of tests to determine the uncertainty of activity data and emission and oxidation factors.

- Validation of date used for the calculation of carbon-dioxide emissions: Implementation of a documented validation procedure.

- Checking and calibration of measuring equipment for the calculation of operating results: Setting up a database for the management of maintenance, checking and calibration tasks.

11 DATE OF NEXT DECLARATION

The management of As Pontes Power Station undertakes to submit the next Environmental Declaration by July 2007.

This Declaration has been prepared by As Pontes Power Station, with the approval of the person in charge, Luis Fernández Sabugal.

ENDESA GENERACIÓN S.A.
As Pontes Power Station
[*Illegible signature*]
Luis Fernández Sabugal
Manager

ENVIRONMENTAL DECLARATION VALIDATED BY

AENOR

Spanish Standardisation and Certification Association

UNDER REGULATION No. 761/2001
DATED:

27 JUL. 2006

NATIONAL VERIFIER No. E-V 0001

Signature and stamp:

[*Ink stamp of AENOR, the Spanish Standardisation and Certification Association*]
[*Illegible signature*]
Ramón NAZ PAJARES
Director General, AENOR