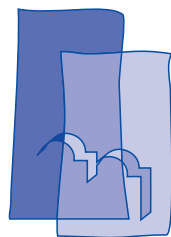


ENVIRONMENTAL REPORT

2015



ALMARAZ
TRILLO

NUCLEAR POWER PLANTS
ALMARAZ - TRILLO



NUCLEAR POWER PLANTS
ALMARAZ - TRILLO

ENVIRONMENTAL REPORT
— 2015 —



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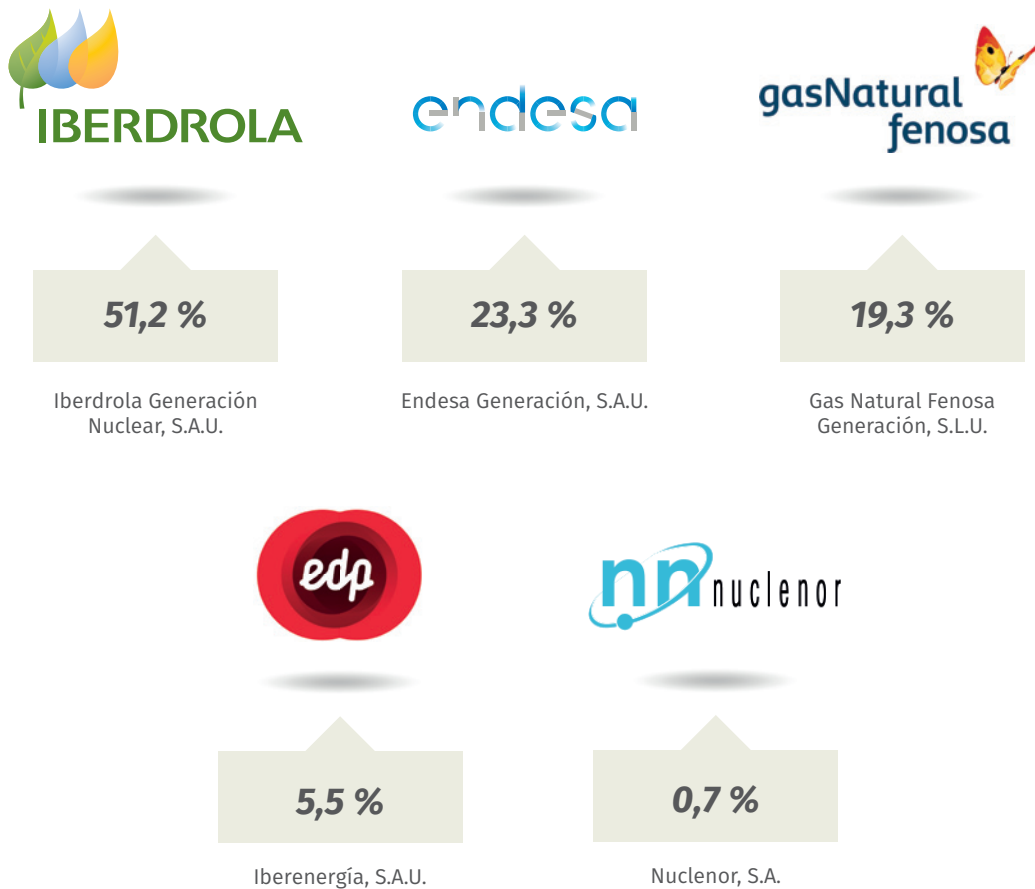
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1. ALMARAZ AND TRILLO NUCLEAR POWER PLANTS

OWNER COMPANIES

The owner companies of the Almaraz and Trillo Nuclear Power Plants formed the Economic Interest Grouping in November 1999, called Centrales Nucleares Almaraz-Trillo, A.I.E., for the integrated operation, management and administration of both plants, and their shares in the assets of each have remained unchanged. Currently, pursuant to Royal Decree Law 13/2014, Almaraz-Trillo Nuclear Power Plant IA.I.E. also holds the operating permits for the installations.

Accordingly, the shares of the owner companies in the installed capacity, at both plants, is as follows:

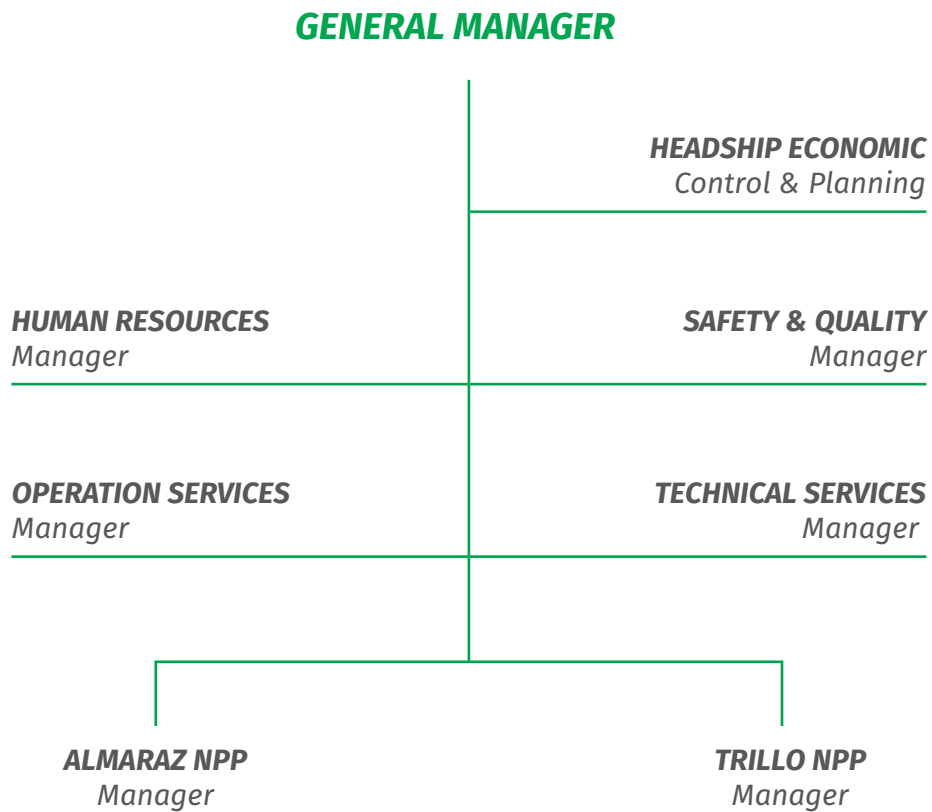


ORGANISATION STRUCTURE

A.I.E. structure The structure of Centrales Nucleares Almaraz-Trillo is based on the development of a single organisation, with clearly defined unitary control, and the unambiguous assignment of functions and responsibilities.

The organisation's governing body is the General Meeting of Members, which brings together the owner companies, and the Management Board, and contains representatives of both.

The basic organisational chart for A.I.E. Centrales Nucleares Almaraz-Trillo is detailed below:



KEY FEATURES OF THE ALMARAZ NPP PLANTS

ALMARAZ NPP (UI-UII)

Almaraz Nuclear Power Plant is located in the Extremadura community, in the region of Campo Arañuelo (Caceres) on a site delimited by the Tajo and Tiétar rivers.

The climate in the area is continental, with low and erratic rainfall, making the environment an area with more pastures than crops, and pasturelands and irrigated lands are the two most common forms of land use. The proximity to large numbers of environmental protection areas is notable, including the Monfragüe National Park LIC (Site of Community Importance) and its ZEPA (Special Protection Area) and the Environment Pastures alongside the Arrocampo.

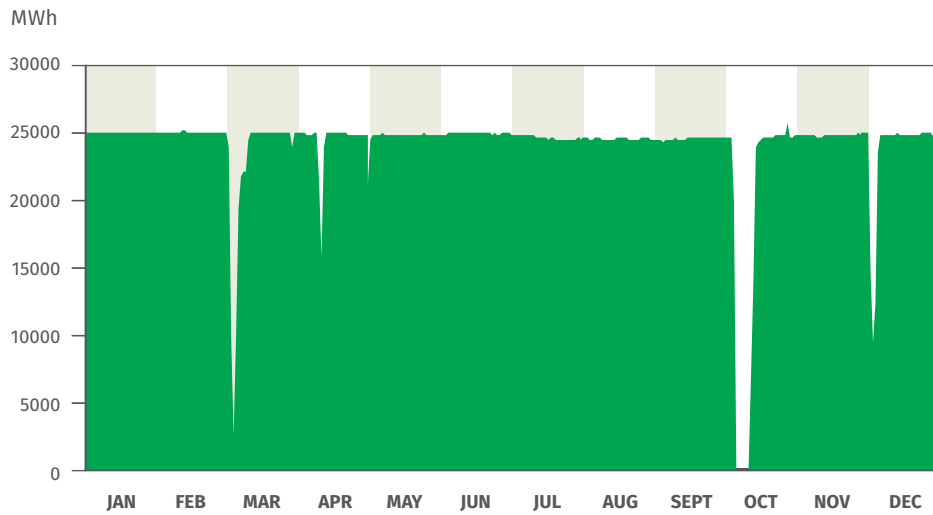
The main technical features of the Plant are listed in the following table:

Almaraz NPP (UI-UII)	
OWNERS:	<i>Iberdrola Generación Nuclear S.A.U. (52.687%) Endesa Generación, S.A. (36.021%) Gas Natural Fenosa Generación, S.L.U. (11,292%)</i>
LOCATION:	<i>Almaraz (Cáceres)</i>
TECHNICAL SPECIFICATION:	<i>Reactor type: Pressurized Water Reactor (PWR) Supplier: Westinghouse Thermal Power: 2,947 MWt (U-I), 2,947 MWt (U-II) Fuel Enriched Uranium Dioxide (UO₂) No. of fuel elements 157 Gross Electrical Output: 1,049.43 MWt (U-I), 1,044.45 MWt (U-II) Net Electrical Output 1,011.30 MWt (U-I), 1,005.83 MWt (U-II) Cooling: Open Circuit. Arrocampo Lake</i>
COMMENCEMENT OF COMMERCIAL OPERATIONS	<i>1 september, 1983 (UI) - 1 july, 1984 (U-II)</i>
CURRENT OPERATIONAL AUTHORIZATION	<i>08/06/2010 for a period of 10 years</i>
CYCLE DURATION	<i>18 months both units</i>

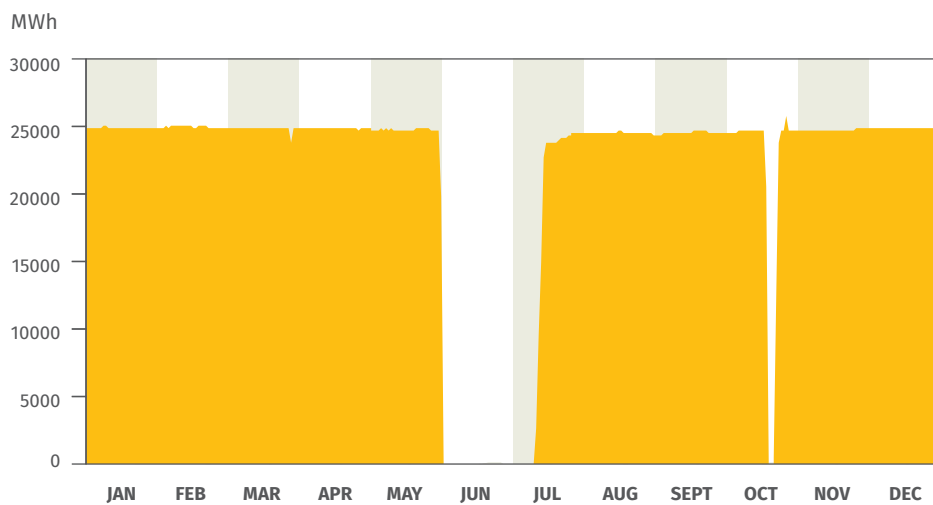
During 2015, gross production of electrical energy generated by the Almaraz nuclear power plant was 16,705.13 MWh, and net production was 16,074.54 MWh.

Gross electricity production for Unit I was 8,777.46 MWh, and 7,927.67 MWh for Unit II. The following graphs reflect the daily gross production of both units during 2015.

GROSS PRODUCTION DAILY 2015
Unit I



GROSS PRODUCTION DAILY 2015
Unit II



TRILLO NPP

Trillo Nuclear Power Plant is located in Castilla La Mancha, in the Alcarria region (Guadalajara), alongside the course of the Tagus River.

The Alcarria has a continental Mediterranean climate, typical of inland areas of the Iberian Peninsula, with strong thermal oscillations, very hot summers and very cold winters and little rain or frost presence. The plant site is located in the vicinity of the LIC and ZEPA in the Alto Tajo Natural Park.

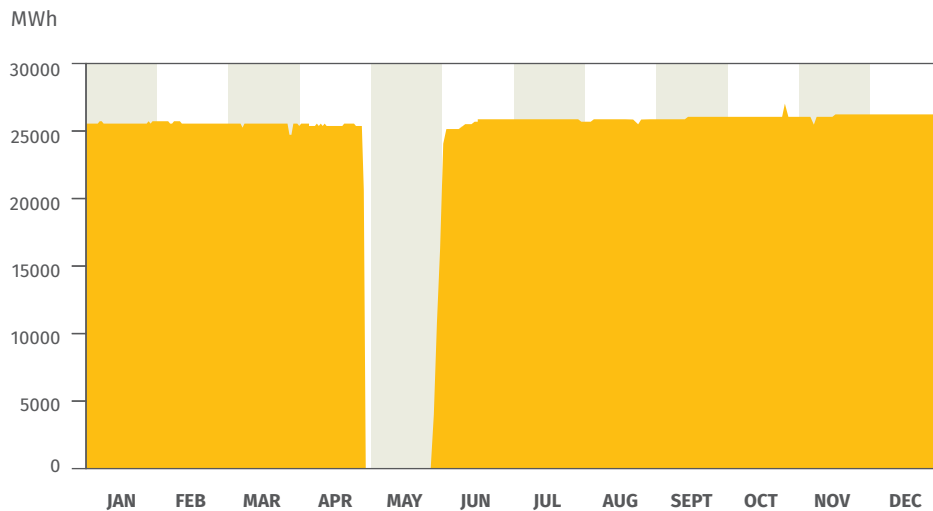
The main technical features of the Plant are listed in the following table:

Trillo NPP	
OWNERS	<i>Iberdrola Generación Nuclear, S.A.U. (48%) Gas Natural Fenosa Generación, S.L.U. (11.292%) Iberenergía, S.A.U. (15.5%) Nuclenor, S.A. (2%)</i>
LOCATION	<i>Trillo (Guadalajara)</i>
TECHNICAL SPECIFICATIONS	<i>Reactor Type: Pressurized Water Reactor (PWR) Supplier: KWU Thermal power: 3,010 MWt Fuel Enriched Uranium Dioxide: (UO₂) Nº of fuel elements: 177 Gross Electrical Output: 1,066 MWe Net Electrical Output: 1,003 MWe Cooling: Natural Draft Towers (River Tajo)</i>
COMMENCEMENT OF COMMERCIAL OPERATIONS	<i>6 August, 1988</i>
CURRENT OPERATIONAL AUTHORISATION	<i>17/11/2014 for a period of 10 years</i>
CYCLE DURATION	<i>12 months</i>

Gross production by the Trillo NPP from 1 January to 31 December 2015 totalled 8,463.39 million kWh, and net production in that period was 7,926.99 million kWh.

The following graph shows the gross production trend during 2015.

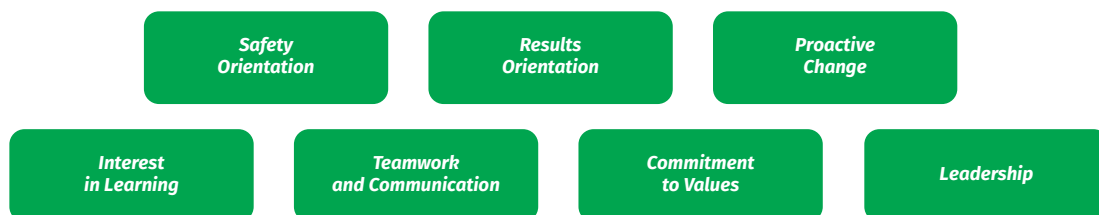
GROSS PRODUCTION DAILY 2015



MISSION, VISION, VALUES, POLICIES

The mission of Almaraz-Trillo Nuclear Power Plants is to produce electricity in a manner which is safe, economic, respectful to the environment and guaranteeing long-term production by optimum operation of the Almaraz and Trillo plants. Our vision is to position the Almaraz and Trillo nuclear power plants amongst the best in terms of safety, quality and costs.

The mission and vision are complemented by a series of shared values, which shall always guide the actions of the people in the organisation and their contribution in undertaking the mission. These values are the cornerstone of social responsibility at CNAT and are based on ethical principles, respect for people, professionalism and attention to safety and the environment.



2. ENVIRONMENTAL QUALITY MANAGEMENT

To fulfil the mission within a socially responsible framework, Almaraz-Trillo Nuclear Power Plants have different corporate policies that establish work patterns throughout the whole organisation.

The commitment to respect the Environment by A.I.E. Almaraz-Trillo Nuclear Plants is reflected in the organisation's Environmental Policy.

The Environmental Policy drives the application of the Environmental Management System and its continuous improvement, reflecting the Board's commitment and constituting the starting principles on which the programme of annual objectives is based, and in more general terms, the activities of the company in relation to the Environment.

ENVIRONMENTAL POLICY

Detailed below is the policy established by the organisation, with the associated Code of Conduct:

ENVIRONMENTAL POLICY

A.I.E. The mission of A.I.E. CENTRALES NUCLEARES ALMARAZ-TRILLO is to produce electricity in a manner which is safe, reliable, economic, respectful of the environment and which guarantees production over the long term, by optimum operation of the Almaraz and Trillo nuclear power plants, and an Environmental Policy has been defined appropriate to its nature, magnitude and environmental impact, which serves as a reference for the establishment and review of objectives and environmental aims, and based on this, it commits to:

- Guarantee compliance with the environmental legislation in force and other voluntarily accepted requirements, maintaining an attitude of ongoing adherence.
- Operate the installations with respect for the environment, identifying, preventing, controlling and minimizing, as far as possible, the environmental impact of its activities.
- Continually making improvements to all processes which could have environmental repercussions.
- Controlling and reducing, as far as reasonably possible, leakages, and conventional and nuclear waste.
- Motivating and training staff in respect to the environment, stimulating development of an environmental culture and communicating the Environmental Policy within and outside the Organisation.
- Introducing and maintaining updated a Standard Environmental Management System.

ENVIRONMENTAL CODE OF CONDUCT

- **TO INTEGRATE** environmental management in all design, supply, operation and maintenance activities at the installations.
- **USE** raw materials and energy rationally, and minimize the generation of waste and effluents.
- **AVOID** inadequate waste collection and disposal of effluents, on unauthorized sites
- **TRANSLATE** and require contractors and employees to comply with this Code of Conduct.
- **COLLABORATE** in the development of new technologies to improve the efficiency of the nuclear generation of electrical power, and in researching environmental issues and the development of energy savings.
- **MAINTAIN** external communication channels, facilitating access to environmental information.

AENOR has certified the Environmental Management System at Centrales Nucleares Almaraz-Trillo A.I.E. in accordance with UNE-EN-ISO 14001: 2004 since 2005. This triennial certificate was last renewed in 2014, and remains effective until 2017.

3. ACTION PLANS

Almaraz-Trillo Nuclear Plants continued to develop important activities in relation to environmental issues during 2015, which are incorporated in the Environmental Management Programme, the most significant of which are detailed below:

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

It should be noted in relation to HLW constituted by the extracted spent fuel from the reactor, Almaraz NPP has initiated the design and administrative procedures to provide an Independent Spent Fuel Storage Installation (ISFSI) unit, on its own land within the facility. Other Spanish nuclear power plants, including Trillo NPP are already equipped with a working ITS. Currently the project is in the MAGRAMA impact assessment.

REPLACEMENT OF GASSES AFFECTING THE OZONE LAYER

Engineering and assembly work has been implemented to replace fluorinated gases to protect the ozone layer. Since this programme began, about 130 items of equipment have been replaced. The aim is to eliminate the risk of emissions of such gases to the atmosphere.

IMPROVEMENTS IN THE TREATMENT OF LEGIONELLA

Improvements have been made in the treatment of Legionella in cooling towers, consisting of the implementation of a new biocide-based system in the generation of chlorine dioxide for Trillo NPP tower systems, and the installation of supplementary biocide dosers for the Almaraz NPP systems.

REDUCING PAPER CONSUMPTION IN THE ORGANISATION

Starting in 2013 and until the present day, various activities have been carried out with the aim of reducing paper consumption throughout the organisation. In 2015, milestones were established aimed at the suppression of paper controlled distribution, replacing it with electronic distribution, and this is being consolidated throughout 2016.

OTHER ACTIONS

New material has also been provided for storage and management of hazardous waste at Almaraz NPP, and improvements have been made in the E.D.A.R. installations.

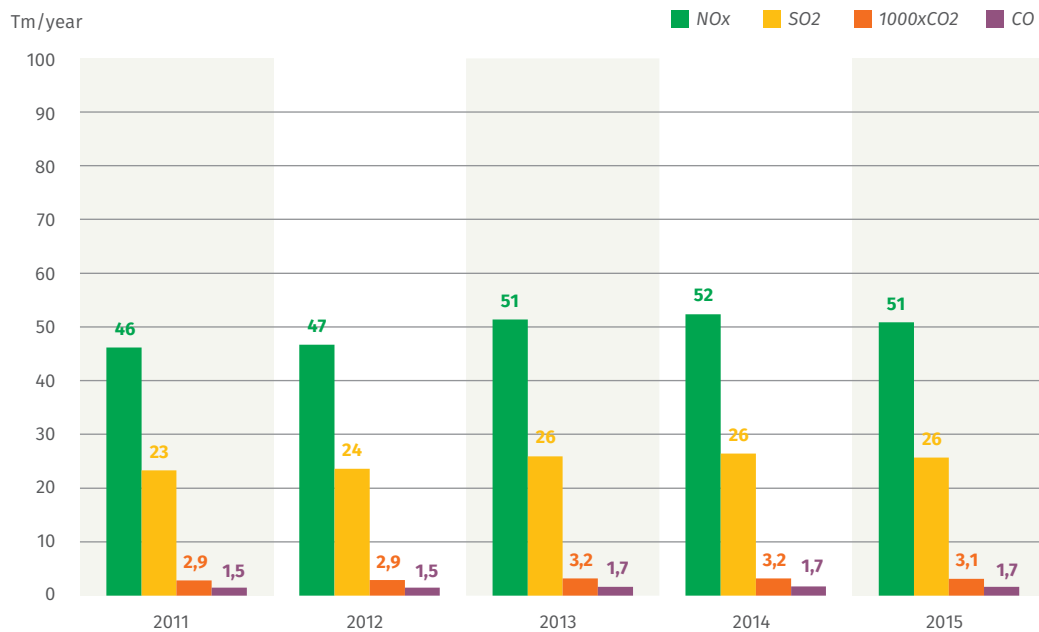
4. ENVIRONMENTAL MANAGEMENT RESULTS

Environmental Issues are defined by the applicable international regulations as “types of activity which interact or may interact with the environment”. Those identified at the Almaraz and Trillo plants can be grouped under the following categories:

ATMOSPHERIC EMISSIONS

Given the little relevance this category has in terms of environmental impact by our installations, this section groups together everything resulting from the emission of gases by auxiliary combustion and emergency equipment, together with that emitted by the vehicle fleet, and that associated with fire-fighting training.

ATMOSPHERIC EMISSIONS
(Almaraz- Trillo)



GENERATION OF RADIOACTIVE WASTE MATERIAL

For the purpose of management and subsequent storage, and taking into account the clearly differentiated characteristics, radioactive waste products generated in the nuclear power plants can be categorised as “Medium and Low Activity” waste and “High Activity” waste, which corresponds essentially to spent fuel.

HIGH ACTIVITY WASTE

In 2015 a total of 104 spent fuel elements were removed, 64 from Almaraz NPP Unit II, and 40 from Trillo NPP, which were then replaced with new elements. The volume occupied by the recovered elements from both plants is 20.7 m³.

The fuel removed from Almaraz NPP Unit II (64 elements) has generated approximately 12,500 net GWh of electricity over its lifetime in the reactor (three and a half years), and those recovered from Trillo NPP (40 elements) around 9,000 GWh net (in approximately four years).

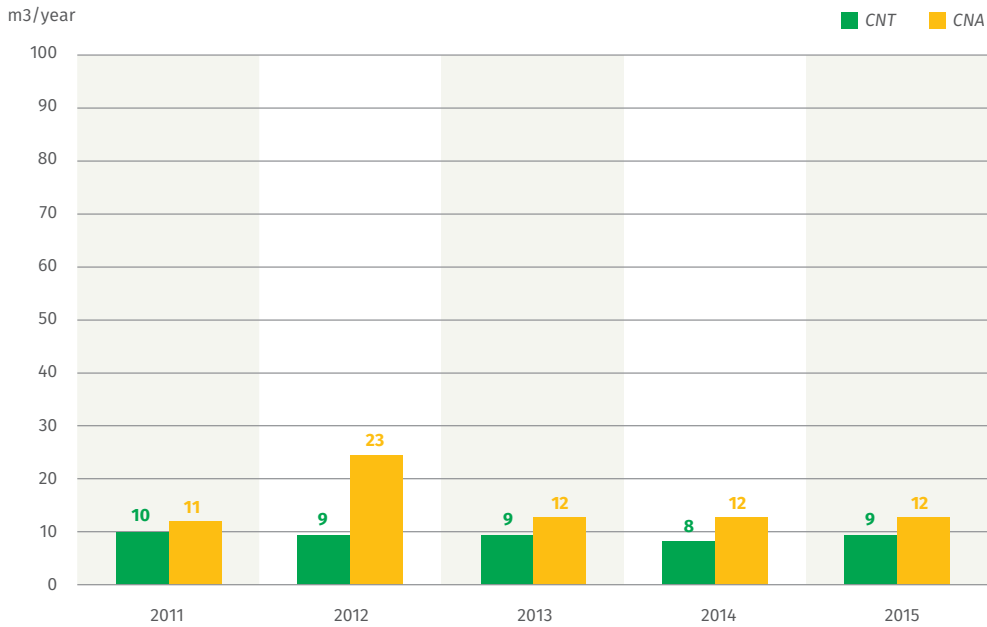
The spent fuel is stored inside the installations, in the corresponding pools located in the controlled area. At 31 December, there were 1,392 spent fuel elements stored corresponding to Unit I of Almaraz NPP, 1380 from Unit II and 506 at Trillo NPP. In addition, the Trillo Plant has an Individual Temporary Storage unit, which enables dry storage inside dual usage storage-transportation containers. At the end of 2015, a total of 630 elements were stored in 30 containers.

As detailed in the section on action plans, Almaraz NPP is planning the construction of an ITS on its own land, and plans to commence usage from 2018.

The graph shows the generation of spent fuel over time at both plants. The highest values for Almaraz NPP correspond to the period when the refuelling of the two units coincides in the same year.

Regarding HLW, Almaraz NPP has initiated the design and administrative procedures to construct an Individual Temporary Storage (ITS) unit for this type of waste. Other Spanish nuclear power plants, including Trillo NPP are already equipped with a working ITS.

**HIGH LEVEL ACTIVITY WASTE
(Spent Fuel)**



MEDIUM AND LOW ACTIVITY WASTE

This type of waste is originated as a result of plant operations and maintenance, through activities carried out in the controlled zone. This also applies with regard to the spent outputs from filtration and purification of coolant and from other systems, materials resulting from installation maintenance work, and protective clothing.

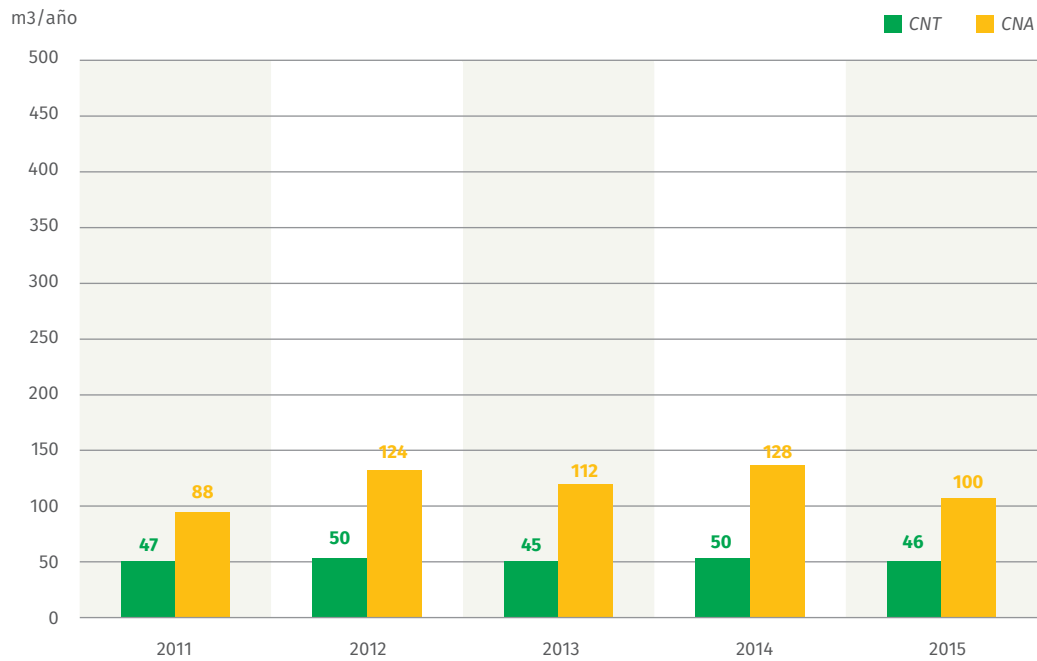
Medium and Low Activity Waste is processed within the power plants themselves, with the objective of preparing it for final storage. There is a specific treatment process for each type of waste material, depending on its origin:

- Heterogeneous solids
- Drainage, from evaporator concentrate
- Pressed solids
- Spent ionic exchange resins
- Used filters
- Evaporator concentrates

During 2015, the Almaraz Plant generated a total of 29.0 m3 of waste of medium and high activity, and 70.5 m3 of low activity. In the case of the Trillo Plant, it was 36.6 m3 and 10.8 m3 respectively. The graph shows the joint trend for the production of these wastes.

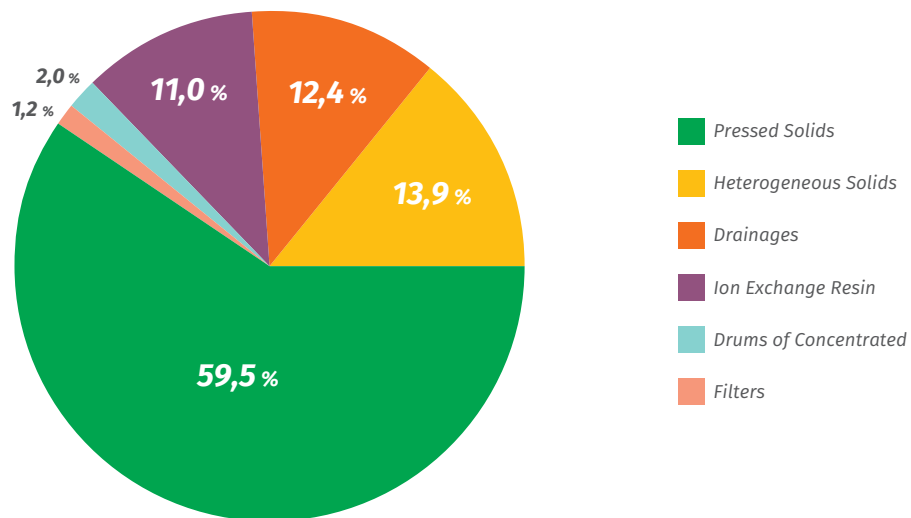


MEDIUM & LOW, AND VERY LOW ACTIVITY WASTE



The diagram shows the proportional distribution of the different categories.

MEDIUM & LOW, AND VERY LOW ACTIVITY WASTE CATEGORIES 2015 (Almaraz - Trillo)



Medium and Low Activity Waste Material, after it has been conditioned for the purpose of preparing it for final storage, is stored temporarily inside the plants, and is routinely removed by the National Radioactive Waste Company (Empresa Nacional de Residuos Radiactivos - ENRESA) to sites within installations provided for storage in El Cabril (Córdoba).

During 2015, several dispatches were made to these installations, totalling 25.08 m3 from Almaraz and 36.96 m3 from Trillo.

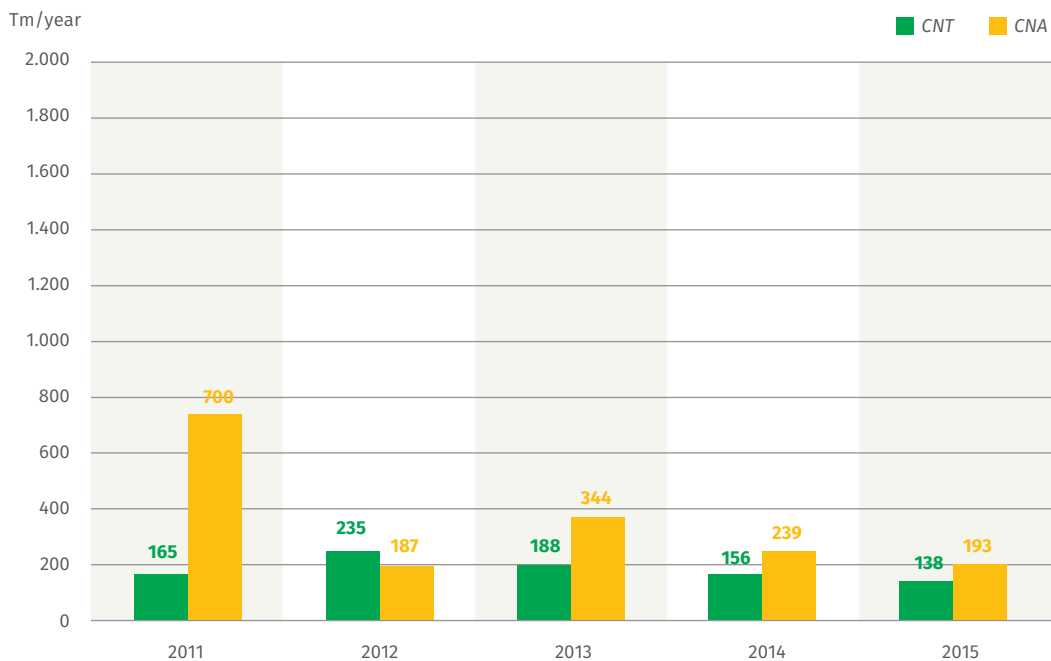
PRODUCTION OF DANGEROUS AND NON-DANGEROUS WASTE MATERIALS

Like any other power plant, nuclear power plants routinely generate, industrial-type waste, non-radioactive, due largely as a result of preventive maintenance of machines and conventional equipment: replacement of oils, equipment sludge cleaning, filters, containers, etc. All these activities result in the generation of different categories of Hazardous and Non-Hazardous wastes.

Exceptionally, waste may also be generated as the result of work and design modifications, and unusual corrective maintenance activities, which cause fluctuations in the time series.

The **hazardous waste** trend is shown below:

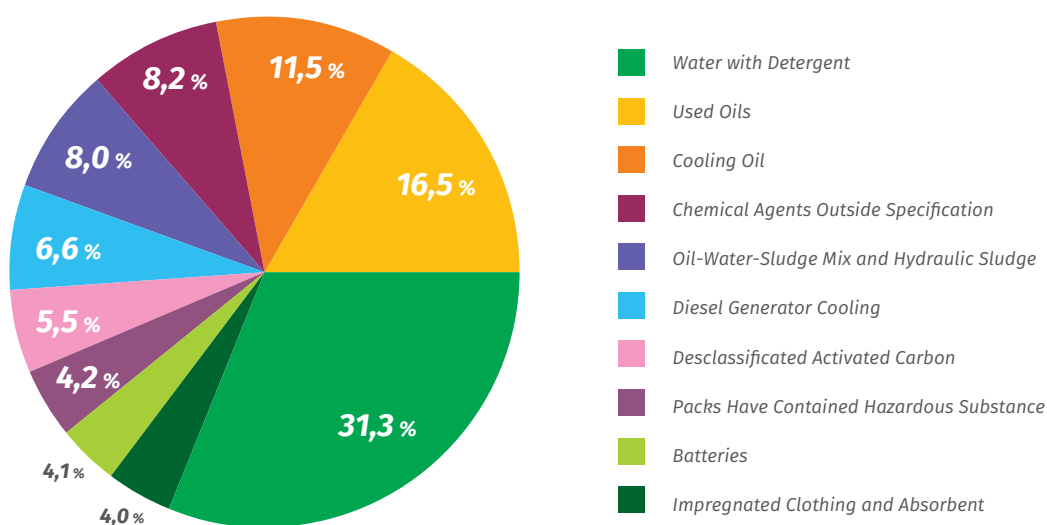
HAZARDOUS WASTE



As discussed above, the series highlights the extraordinary activities carried out in 2011, replacing turbine oil and cleaning components at Almaraz NPP.

The following graph shows the relative proportions of different types of hazardous waste in 2015.

HAZARDOUS WASTE MAIN CATEGORIES 2015
(Almaraz - Trillo)

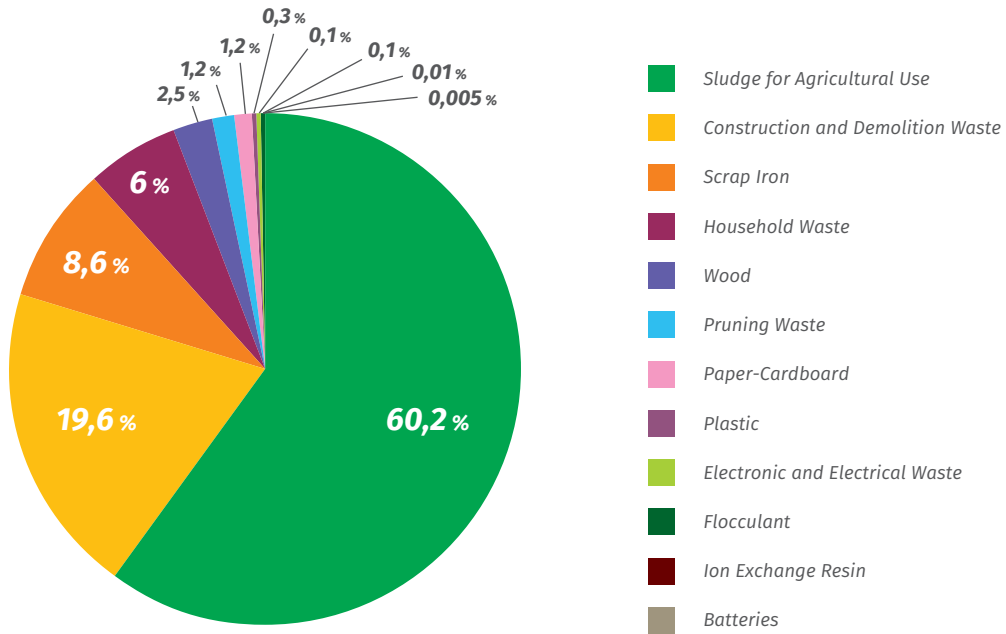


(Including waste categories generated up to 5 tonnes)

It is noteworthy that regarding **Non-Hazardous Waste**, the most sensitive category in relation to extraordinary activities carried out at the plant, is the generation of debris and construction and demolition waste (CDW), as a result of design modification work which occurred during the year.

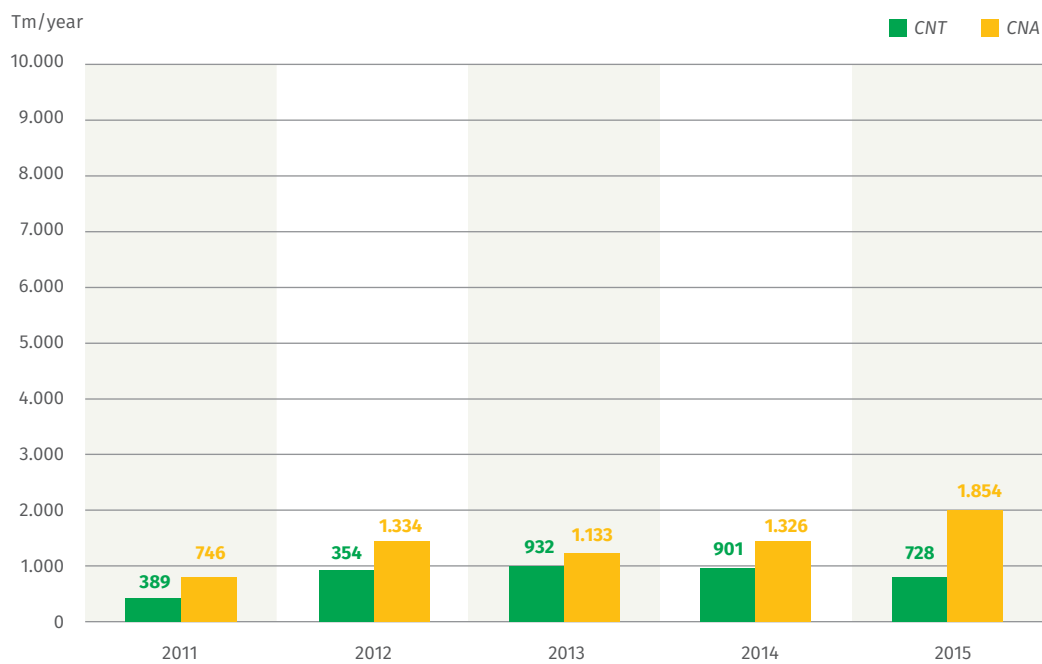
Another important contribution is the generation of sludge from water pretreatment at both plants, which has become a routine source of non-hazardous waste generation, following the commissioning of new pretreatment plants at Almaraz and Trillo NPPs in 2012, as the following graph shows proportionally compared to other categories.

NON - HAZARDOUS WASTE CATEGORIES 2015
(Almaraz - Trillo)



The inter-annual evolution of non-hazardous waste (excluding CDW due to its sensitivity to extraordinary variations as previously discussed) is shown below.

NON - HAZARDOUS WASTE

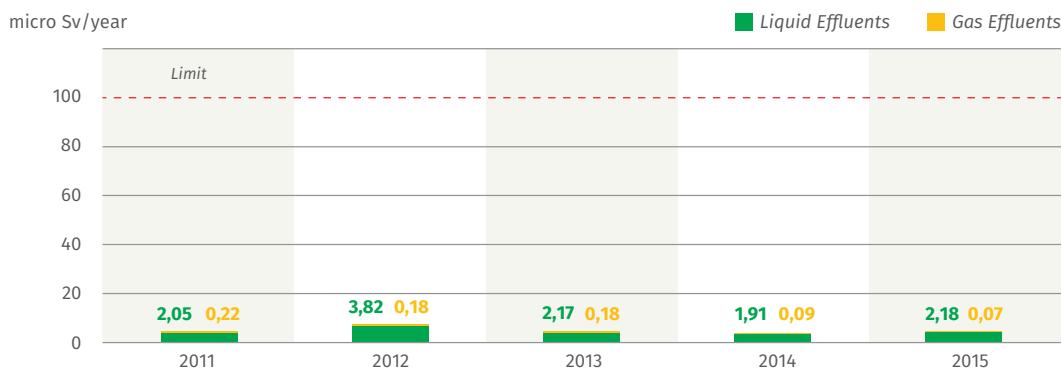


CALCULATED EFFLUENT DOSES

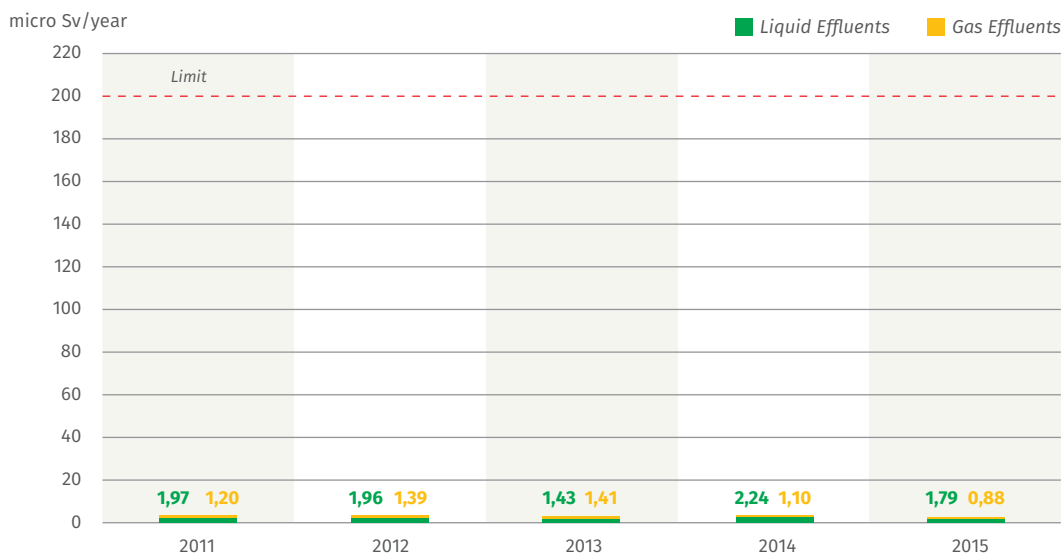
External doses resulting from effluents from both plants, either as liquids or to the atmosphere, remain at very low levels, demonstrably less than the limits established by the Nuclear Safety Council, and they reflect the corresponding External Doses Calculation Manuals - EDCMs. These doses are insignificant compared to those originated by natural background radiation, and the associated graphs show the year-on-year changes.

Natural background radiation is of the order of 700 to 1200 $\mu\text{Sv}/\text{year}$ in areas surrounding the sites, while radiation from doses resulting from operation of the plants lies in the range 50 – 100 times lower, in the most unfavourable situation. The true calculation of doses, taking into consideration human geography and the actual activities taking place close by, results in values even less than those referred to, which means the contribution to environmental radiation from operation of the Power Plants is insignificant.

EXTERNAL DOSE FROM EFFLUENTS Trillo NPP



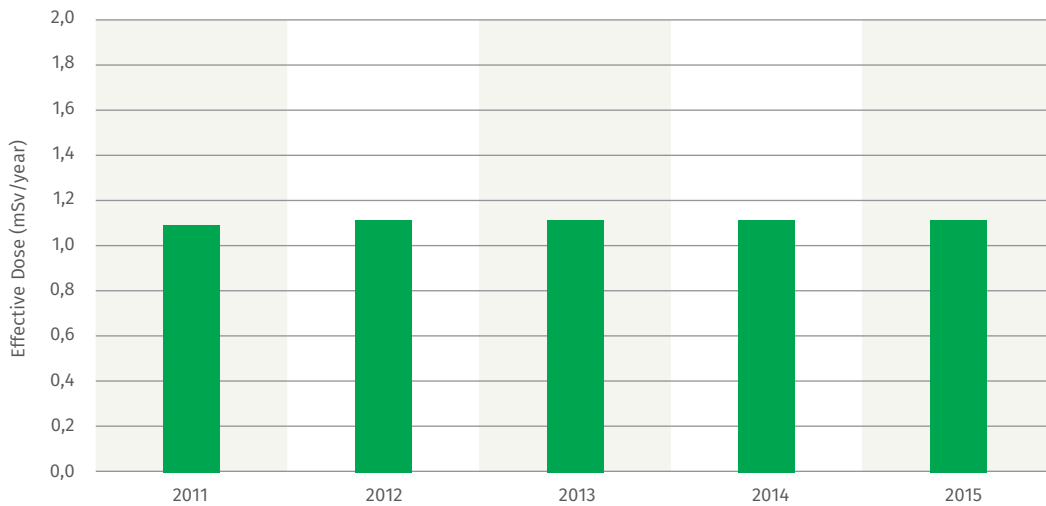
EXTERNAL DOSE FROM EFFLUENTS Almaraz NPP



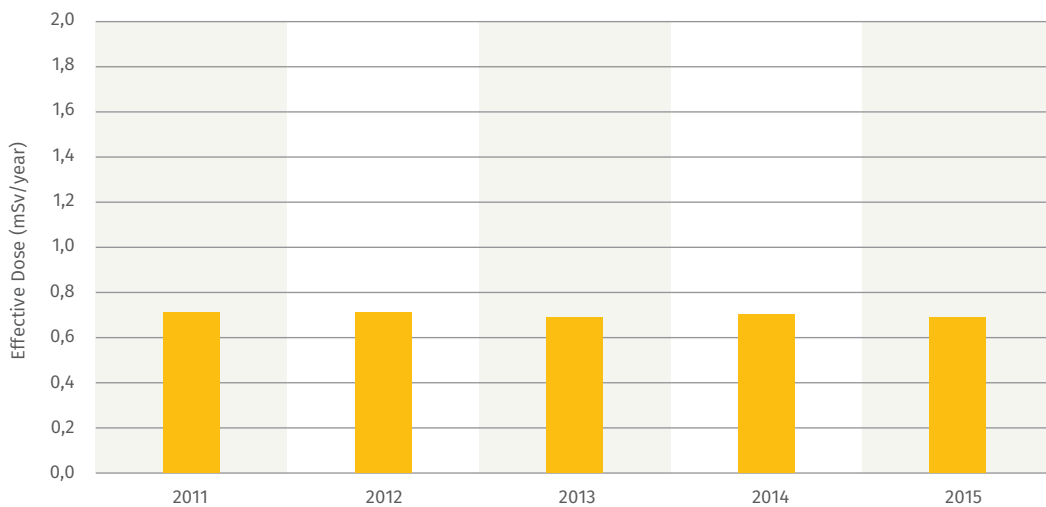
DOSES MEASURED DURING ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE

The evolution of dose values, measured in the vicinity of both plants, in the relevant environmental monitoring programmes, and a comparison is provided of the measurements in 2015 for the Almaraz and Trillo Plants with values from the Nuclear Safety Council REVIRA programme, which indicates that the levels for our sites are even less those found in the natural surroundings in several places.

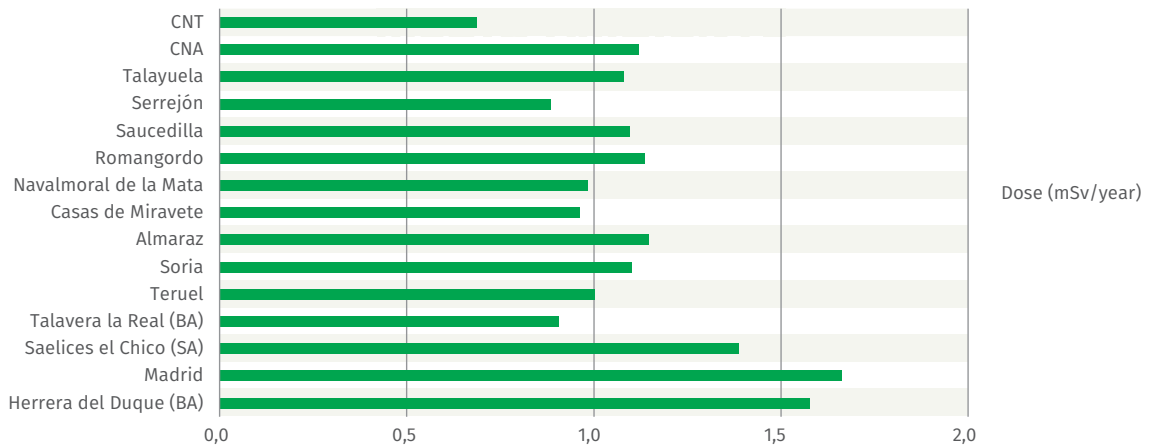
ENVIRONMENTAL RADIOLOGICAL MONITORING. ENVIRONMENTAL DOSE.
Almaraz NPP



ENVIRONMENTAL RADIOLOGICAL MONITORING. ENVIRONMENTAL DOSE.
Trillo NPP



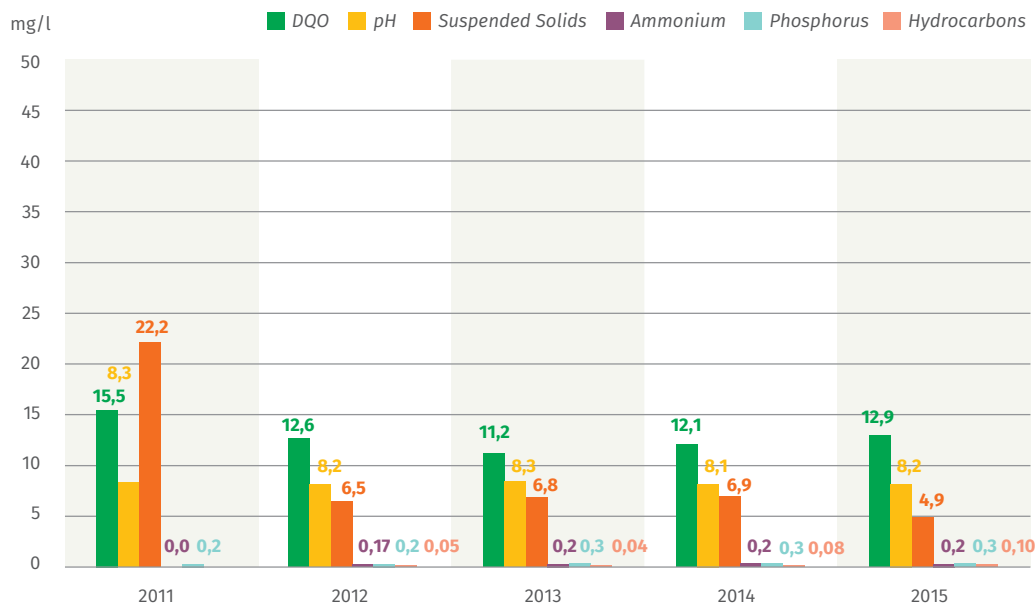
ENVIRONMENTAL DOSIMETRY: ALMARAZ - TRILLO COMPARISON WITH REVIRA-CSN STATION



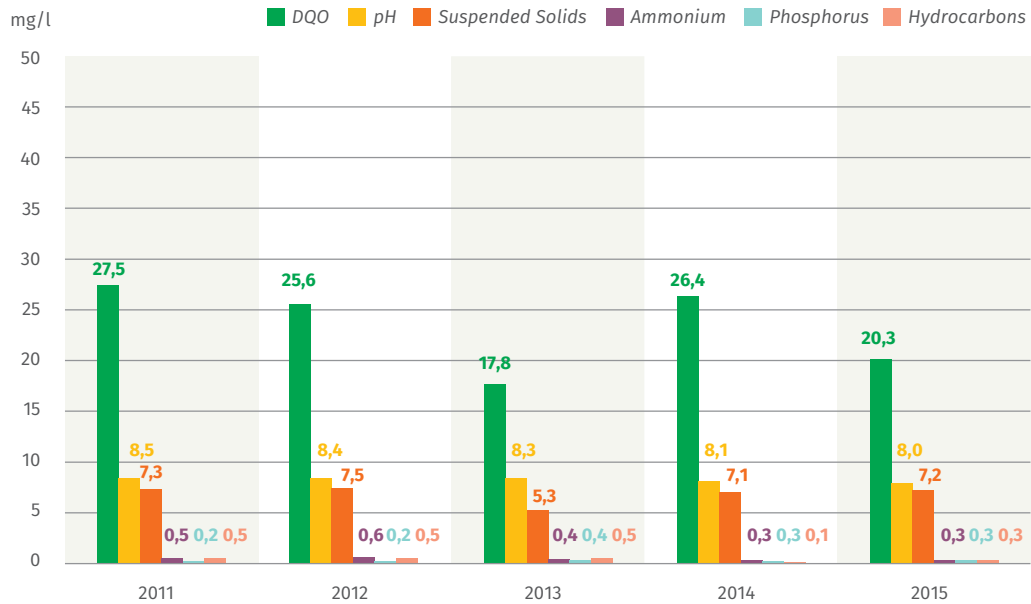
PHYSICO-CHEMICAL DISCHARGES

Effluents from plants are treated prior to discharge to the receiving environment, and the physico-chemical parameters are exhaustively monitored. The following graphs show the evolution of the main parameters limited by their discharge authorisations, which are sent monthly to the Tagus River Basin Confederation.

PHYSICO - CHEMICAL DISCHARGES Trillo NPP



PHYSICO - CHEMICAL DISCHARGES
Almaraz NPP



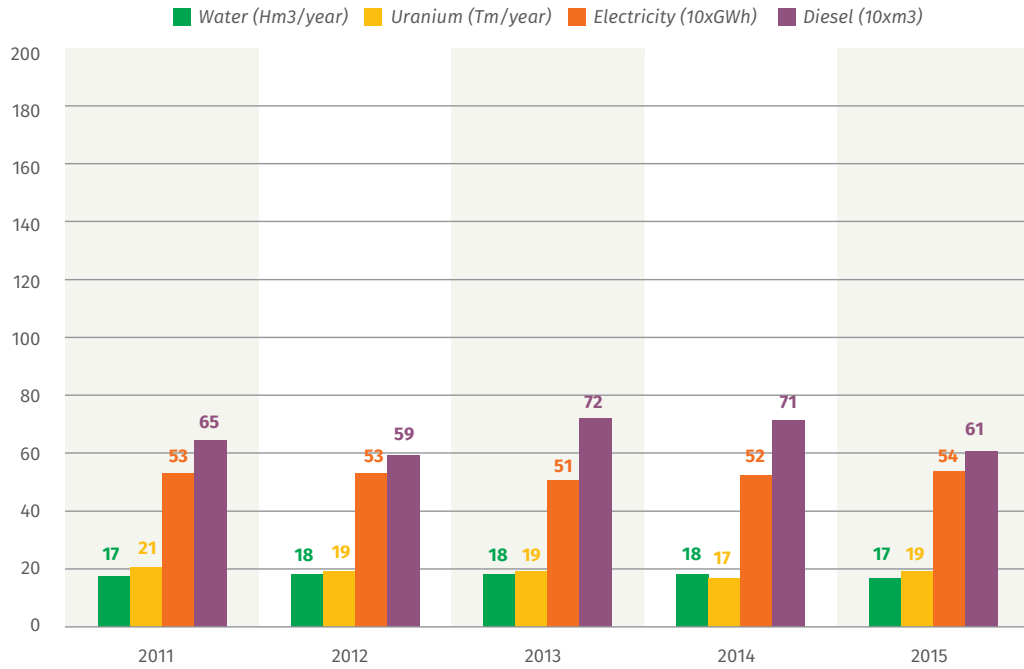
RESOURCE CONSUMPTION

This category of Environmental Issues refers to the use of abiotic resources, whether by the main power generation production process, or by auxiliary services.

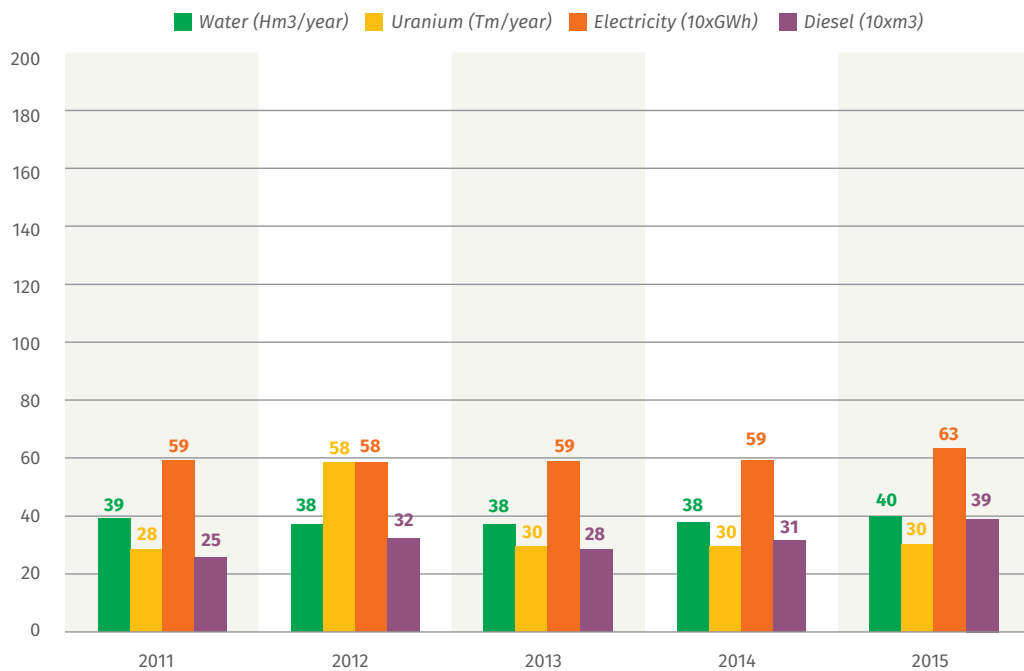
The main consumption consists of:

- Enriched uranium
- Water
- Electricity (own consumption)
- Diesel (Emergency Electricity Generation Systems, auxiliary steam on shutdowns, LCI and vehicles).

RESOURCE CONSUMPTION Trillo NPP



RESOURCE CONSUMPTION Almaraz NPP



5. LEGISLATION

The Environmental Management System defines a procedure to ensure identification and compliance with environmental legislative requirements applicable to the installations. It uses a software program and legislative database, updated monthly, which includes all conventional legal or voluntary provisions classified according to the scope of applicability to the Almaraz-Trillo Nuclear Plants, with the corresponding detailed requirements extracted.

Every six months the legislative compliance verification process takes place, which is discussed by the A.I.E. Board in the Environmental Committees and during the Annual Review of Environmental Management by the Board.

With regard to legislation, the development of the following legislation had particular relevance for our activities in 2015:

- **Regulation (EU) No. 1357/2014** of 18 December, which replaced Annex III of Directive 2008/98 on waste and which repealed certain Directives.
- **Royal Decree 110/2015**, of 20 February, on waste electrical and electronic equipment.
- **Royal Decree 180/2015** of 13 March, regulating the shipment of waste within the territory of the State.
- **Royal Decree 183/2015**, of 13 March, modifying the Regulations for the partial implementation of Law 26/2007, 23 October, about Environmental Responsibilities, approved by Royal Decree 2090/2008 of 22 December.
- **Law 16/2015**, 23 April, on environmental protection for the Autonomous Community of Extremadura.
- **Decree 49/2015**, of 30 March, which establishes the legal framework for contaminated soils in the Autonomous Community of Extremadura.
- **Decree 109/2015**, of 19 May, which regulates the production and management of public health waste in the Autonomous Community of Extremadura.
- **Order 20 May 2015** establishing the season of high danger of forest fires for the INFOEX Plan and regulating the use of fire and activities that can cause fires during that period in 2015.
- **Municipal ordinance regulating waste from construction and demolition** in the town of Almaraz.
- **Royal Decree 710/2015** of 24 July, amending Royal Decree 106/2008 of 1 February, regarding batteries and accumulators and environmental management of their waste.
- Amendments to Annexes A and B of the European agreement on transport of dangerous goods by road (**ADR 2015**), adopted in Geneva on 1 July 2014.
- **Decree 260/2014**, of 2 December, which regulates the Prevention of Forest Fires in the Autonomous Community of Extremadura.
- **Law 33/2015**, of 21 September, amending Law 42/2007 of 13 December on Natural Heritage and Biodiversity.
- **Royal Decree 840/2015**, of 21 September, approving measures to control risks inherent to major accidents involving dangerous substances.

6. ENVIRONMENTAL AUDITS

From 28 September to 2 October 2015, the third-cycle Audit of the Environmental Management System (ISO 14001) was carried out by the Spanish Association for Standardisation and Certification (Asociación Española de Normalización y Certificación - AENOR), after the Certificate had been in force for ten years, and was found to be compliant.

The auditors inspected the Almaraz and Trillo plants and the activities at the Power Plant Offices. Previously, in April, an internal System audit was implemented, which forms an obligatory part of the verification process.



There were several inspections by the Nuclear Safety Council on subjects related to the environment at both plants.

7. ENVIRONMENTAL MONITORING PROGRAMMES

Almaraz and Trillo plants have historically operated several environmental monitoring programmes, with the aim of verifying the absence of significant environmental impacts as a consequence of their activities, whether of a radiological or conventional type.

The content of these programmes are detailed below:

STUDIES OF THE ALMARAZ NUCLEAR POWER PLANT SURROUNDINGS

Two environmental studies of the surrounding areas of the Almaraz plant were carried out incorporating the Arrocampo and Torrejón reservoirs.

- Ecological Study of the aquatic ecosystem.
- Thermal study of the reservoirs.

These monitoring studies are far-reaching because the Arrocampo reservoir can also be considered to be another Plant system as it was built exclusively for the industrial cooling of Almaraz NPP, and therefore it is used for final heat dissipation requiring the most accurate knowledge possible about the characteristics relating to its capability to fulfil the cooling function in both the short and the long-term. This requires intensive monitoring and surveillance of both physical and chemical parameters, especially temperature, as well as biological factors.

The main characteristics of the Arrocampo reservoir are as follows:

- Capacity 35.5 hm³.
- Very elongated form, with a length greater than 10 Km and a surface area of 7.73 Km², with a predominance of shallow water.
- Divided into two parts with a thermal separation screen which requires the cooling water to execute a path approximately 25 km along the reservoir facilitating cooling prior to returning to the cooling intake.
- The natural hydric supply to the Arrocampo reservoir is much reduced, and is fed mainly by water from the river Tajo, through pumping.
- The water added to the Arrocampo reservoir from the Torrejón reservoir has a high nutrient level, particularly phosphorous and nitrogen.
- The contribution of these nutrients, combined with the effect of the water temperature causes the development of a significant biomass of planktonic organisms in Arrocampo, whose metabolic processes influence the quality of the water, and which must therefore be controlled and monitored.

ECOLOGICAL STUDY OF THE ARROCAMPO AND TORREJÓN RESERVOIRS

Two studies carried out in an independent and coordinated manner are used to monitor the aquatic ecosystems of both reservoirs:

- Limnological study
- Ichthyological study.

The limnological study sampling and analysis programme consists of sampling and measurement points and is carried out with the frequency detailed in the following table:

RESERVOIR	NUMBER OF SAMPLING POINTS	
	LIMNOLOGICAL STUDY	ICHTHYOLOGICAL STUDY
ARROCAMPO	7	7
TORREJÓN	8	10
VALDECAÑAS	1	-
ESSENTIALS	3	-
MEASUREMENT/SAMPLING FREQUENCY	MONTHLY/SEASONAL	BIMONTHLY/QUARTERLY

These studies are used to determine the state of the ichthyofauna, and the diversity and abundance of species, paying attention to their evolution over time. From a limnological viewpoint, the plankton state is monitored in detail, as well as the wide variety of physico-chemical variables.

The results obtained from both studies, which are sent to the Administration, indicate the existence of a dynamic equilibrium in the ecosystem consisting of the Arrocampo reservoir, which is observed to be affected fundamentally by the plant's power level, the physico-chemical characteristics and the volume of water provided from Torrejón, and the meteorological conditions in the area. This state of equilibrium has not experienced any significant modification during recent years. The Torrejón reservoir shows conditional zoning, in the initial stretch as a result of the channelled flow from the deep water of the Valdecañas reservoir, in the middle stretch a result of the recirculated flow from the Arrocampo reservoir, and in the final stretch as a consequence of the pumped flow from Tiétar.

THERMAL STUDY OF THE ARROCAMPO AND TORREJÓN RESERVOIRS

Exhaustive monitoring of the temperature trends in the water in the Arrocampo and Torrejón reservoirs has been carried out, and an evaluation of the values measured with the objective of understanding the thermal impact which plant operations have on the water mass.

The thermal study measurement programme employs measurement points and is carried out with the frequency detailed in the following table:

RESERVOIR	NUMBER OF SAMPLING POINTS	
	AUTOMATIC	MANUAL
ARROCAMPO	3	16
TORREJÓN	2	6
ESSENTIALS	1	-
MEASUREMENT FREQUENCY	Continuous.	Daily to monthly depending on the point

Continual measurement and recording systems are also provided to measure temperature, the pH value, dissolved oxygen and water flow in the Arrocampo overflow, with the objective of verifying the basic characteristics of the discharge from Arrocampo.

In order to comply with the conditions of the water exploitation concession, the most relevant information about the thermal state of the reservoirs is sent monthly to the Tajo Hydrographic Confederation as the responsible management body, so that it is kept constantly updated about this condition.

STUDY OF THE TRILLO NUCLEAR POWER PLANT SURROUNDING AREAS

The environmental study of the aquatic ecosystems carried out in the vicinity of the Trillo plant consist currently of monitoring the river Tajo, where the thermal surplus discharge is made after cooling in the towers, and the general physico-chemical condition of the Plant, and the Entrepeñas reservoir, located downstream in the proximity of the Plant.

This study covers evaluation of the water quality from the physico-chemical viewpoint, and its content of metals and other undesirable substances, as well as the characteristics of other elements of the aquatic ecosystem such as sed-

iments, benthic algae, phyto and zoo plankton and ichthyofauna.

The capture of water from the river Tajo is taken from the water held by the Ermita dam, constructed to guarantee a constant level to enable the functioning of the pumps supplying the Plant, which is subsequently discharged to the river again after fulfilling its cooling function, immediately into the water downstream of the dam through a diffuser system which facilitates complete mixing with the flow in the river.

The Plant is situated at the extreme end of the

zone of upper Tajo, where the river experiences significant flow variations due to the non-existence of water regulation from the higher reaches causing flooding, although minor, with a particular frequency, coinciding with episodes of intense rainfall, which have a bearing on water quality as a result of the debris picked up at such times.

Generally, the waters of the Tajo in the area of the Plant are of good quality, and can be characterized as oligotrophic.

The Entrepeñas reservoir is located downstream close to the Plant and its principal characteristic is the low level experienced in recent years, and the significant variations in levels experienced throughout the year. The basic use made of the water stored in the Entrepeñas reservoir

is for hydroelectric production and irrigation, as, together with the Buendía reservoir, they constitute the reserve for the Tajo-Segura transfer.

The sampling and analysis programme consists of 4 sampling points situated upstream and downstream of the Ermita weir, including a point located in the Entrepeñas reservoir, capturing samples of water with a monthly frequency, and sediments, benthic algae, phyto and zoo plankton and ichthyofauna, with a quarterly frequency.

All samples are analysed for the content of different metals and those from the water are also analysed for various physico-chemical parameters, which could be affected by the operation of the Plant. Samples of benthic algae, plankton and fish are also submitted to biological analysis (species identification, abundance, biomass, primary production, etc.).

ENVIRONMENTAL RADIOLOGICAL MONITORING

The Almaraz and Trillo Plants exercise continuous strict control and monitoring of their own radioactive effluent emissions. Nonetheless, with the objective of verifying experimentally the impact radioactive elements might have on the environment, the plants have implemented an Environmental Radiological Monitoring Programme (ERMP) through direct measurement of radiation levels in the surroundings near to the installations, and of the content of radioactive substances from a series of types of environmental samples which are collected from a set of sampling points.

Comprehensive monitoring is carried out on all abiotic elements and living organisms represented in the ecosystems associated with all the natural resources of the surroundings of the plants (air, land and water).

Over a thousand samples are taken at each plant and between 1,500 and 2,000 different types of analyses are carried out (gamma spectrometric, beta activity, environmental doses, strontium, tritium and radioiodine), clearly demonstrating the magnitude of the surveillance implemented.

The usefulness of the analytical results is assured through parallel implementation of a quality control programme by another, independent laboratory, and by the implementation of a programme of independent monitoring (PVRAIN) directly by the Nuclear Safety Council.

Also, in the case of the Almaraz Plant, a collaboration agreement is maintained with CEDEX to enable this official body, reporting to the Ministry of Public Works, to carry out independent surveillance of the aquatic resources in the proximity of the Plant. Extremadura Council also carries out independent radiological monitoring, with the help of the University of Extremadura.

The results obtained during 2015 at both plants indicate that the radiological state of the ecosystems of their surroundings have experienced no significant variations during the year, with natural background values remaining unchanged, confirming the absence of environmental effects due to the leakage of radioactive elements, rendering radiologically insignificant any leakages from both plants.

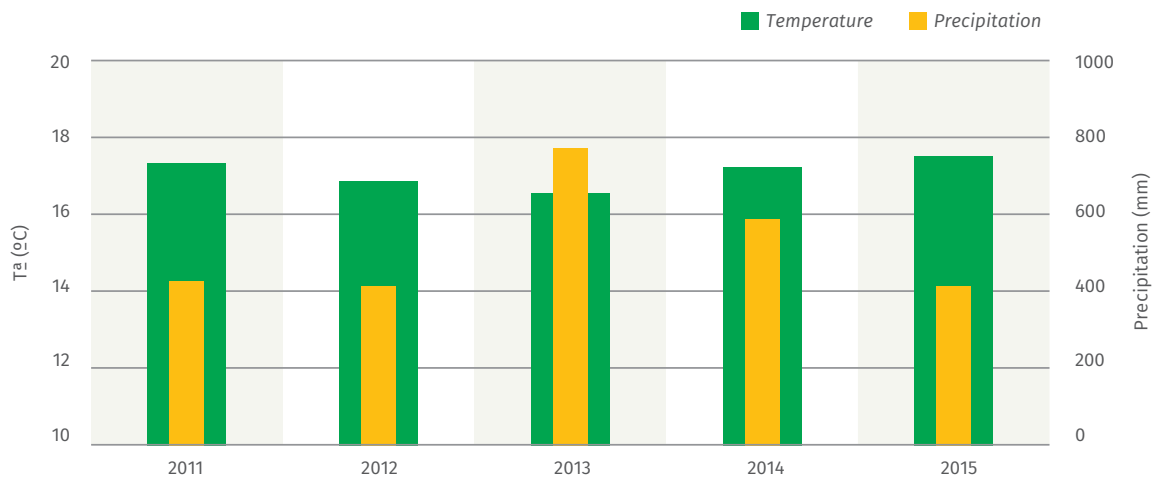
METEOROLOGICAL STUDIES

The Almaraz and Trillo plants have meteorological stations which are used continuously to measure and record the most significant parameters such as temperature, precipitation, wind direction and speed, humidity and solar radiation. The meteorological information is of particular relevance for various applications related to the environment, providing an excellent description of the climate at the site, after thirty years of monitoring.

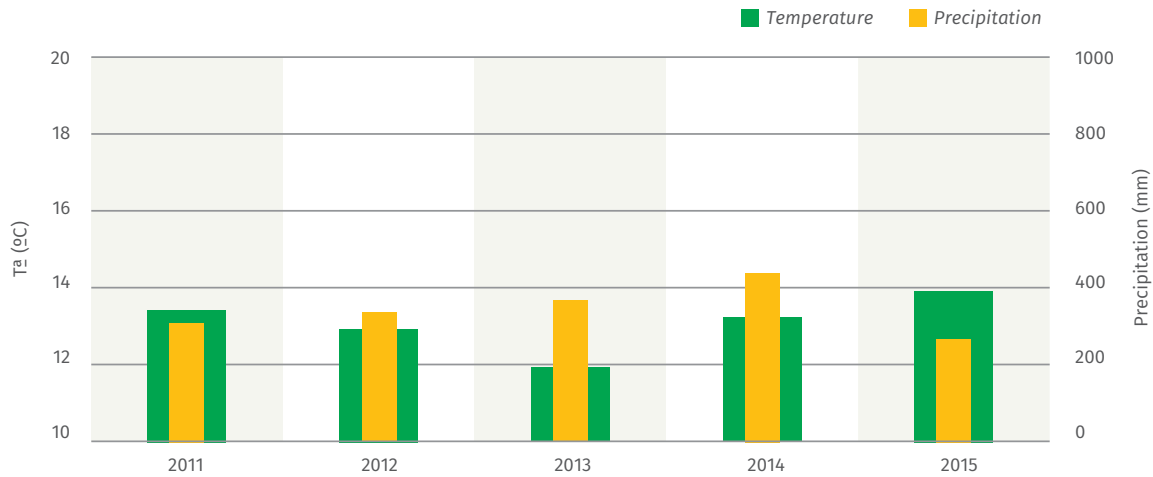
The stations provide the required redundancy to ensure continuous availability of meteorological information.

The average temperature readings and total precipitation registered during recent years at each plant are shown below, as well as the corresponding wind frequency rose diagrams for each direction.

METEOROLOGY AT THE SITE. AVERAGE TEMPERATURE AND TOTAL PRECIPITATION
Almaraz NPP

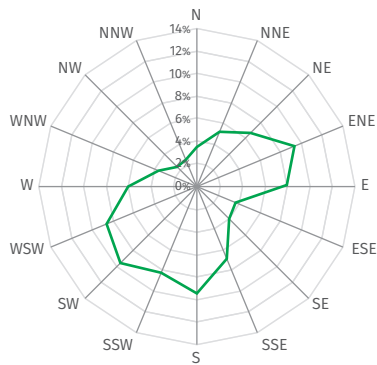


METEOROLOGY AT THE SITE. AVERAGE TEMPERATURE AND TOTAL PRECIPITATION Trillo NPP

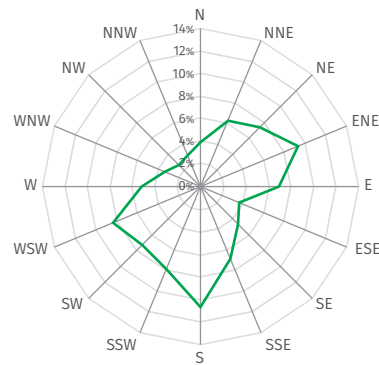


ALMARAZ NPP

Compass Rose. Period 1987-2015

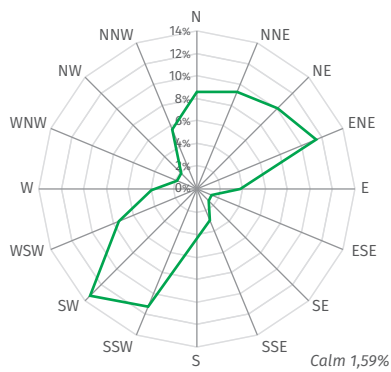


Compass Rose of the year 2015

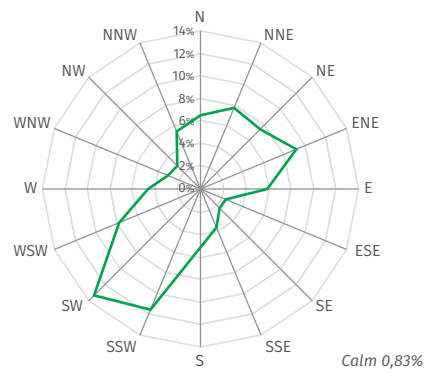


TRILLO NPP

Compass Rose 100 meters. 2015



Compass Rose. Period 1976-2015



8. RELATIONSHIP WITH STAKEHOLDERS

LOCAL AUTHORITIES

CNAT continues to maintain fluid and dynamic relationships with institutions with responsibilities in the field of power plant performance, and four biannual meetings were held on this matter in 2015, two at each plant, with the mayors of the municipalities in the areas of influence, and details of the operating results and future plans and projects were provided.

163 personalised meetings were also held with mayors of surrounding municipalities to study on a bilateral basis the relationships of the Plants with each municipality and potential collaboration channels. Local Information Commissions organised by the Ministry of Industry, Energy and Tourism (MINETUR) are being held annually.

MEDIA

An intense relationship with the media is maintained based on truth, transparency and our permanent availability to meet their information demands. During 2015 18 news updates were distributed, providing information about the most significant events at the installations related to various operational and maintenance issues at the plants (refuellings, drills etc., environmental issues and other information of general interest).

Additionally, and specifically, the managers responsible for both plants have held biannual meetings with the media in their surrounding area, and they have provided them with relevant information about the installations regarding operating results and future plans and projects.

PUBLIC

Over the years, the Information Centres at the Almaraz and Trillo NPPs have emerged as effective channels of communication with the public.

Thanks to the diversity of audio-visual and exhibition resources that they are equipped with, nuclear energy and in particular the characteristics of the nuclear installations and their relevant environmental aspects are much more well known to the general public.

CNAT continues to develop publications, both periodic and specialised. During 2015 several general interest publications have been made available, most of which can be found on the CNAT website (www.cnat.es).

In addition, the organisation has a corporate blog www.energiaymas.es to make the public aware of the activity that takes place in our installations and in the municipalities in their areas.

IMMEDIATE VICINITY

Almaraz and Trillo NPPs represent an important socio-economic reference, as they are an unquestionable source of employment and wealth in their areas of influence. The commitment of the Almaraz-Trillo Plants to their neighbouring communities materialises in the form of support for initiatives that impact on improving the quality of life and economic and social development of their regions. In 2015, there were several initiatives, of which the most significant undertaken in the environmental field were:

- Collaboration Agreement Framework with the University of Extremadura, to implement technical and scientific projects. In addition, the company also collaborates with the Department of Chemical and Energetics Engineering at UEX, for work relating to scientific and technical analysis of the retention of radioactive isotopes by activated carbons prepared from native residues, and the reuse of activated carbons present in Almaraz NPP filters for processing cooling circuit water.
- Agreement with the Department of Ecology, Faculty of Sciences at UEX, to carry out scientific and technical work relating to monitoring spatio-temporal structures and sequences of plant populations in the surrounding areas of Almaraz NPP, and the bird populations that use the Arrocampo reservoir.
- Collaboration Agreement with the Association for the Defence of Water Quality (ADECAGUA) to promote the introduction of school and secondary school teachers to water bodies in general.
- Invitation to the XIX edition of the photographic contest "Nature in Extremadura", with a travelling exhibition of the best photographs of the localities in the area.
- Agreement with the Riberas del Tajo Commonwealth.





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