



# CLIMATE CHANGE ADAPTATION

## ADAPTA INITIATIVE

Jorge Pina Perez

Iberia Environment Directorate

ENDESA



# CLIMATE CHANGE ADAPTATION

## Spanish Experience

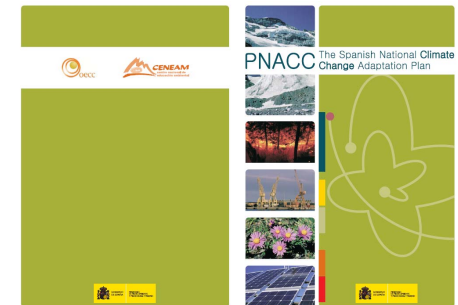
In **2006** the **National Climate Change Adaptation Plan** was adopted, providing the current framework for carrying out assessment actions to evaluate impacts, vulnerability and adaptation to climate change in Spain. The Plan's purpose is to **mainstream adaptation to climate change in the planning processes of all the relevant sectors** or systems. To achieve this, it is important that the development of the Plan becomes a major collective project with the participation of all institutions and key players.

The PNACC is **developed through work programs:**

- The First PNACC Work Program was approved in 2006, together with the Plan, in order to address the immediate priorities
- The Second Work Program was adopted in July 2009
- **The Third Work Program was adopted in December 2013 in force until 2020**, which aims to comprehensively address adaptation to climate change.

One of the objectives of the Third Work Program is to **involve the participation of the private sector.**

**The Ministry of Environment launched the “Adapta Initiative”** where Endesa was selected as representative of the energy sector because its expertise in Adaptation.



# CLIMATE CHANGE ADAPTATION

## Endesa Experience



Endesa's early work on adaptation aimed to define possible future risks to our business and to update and define policies in line with official approaches to adaptation. Endesa carried out several studies focusing on Climate Change Adaptation:

- **2011-2012: Towards a Strategy for Climate Change Adaptation**

A risk and opportunity analysis was conducted related to the adaptation policy approaches in each one of the countries in which we operated.

Within the project's framework, a specific climate change vulnerability analysis was carried out for each one of Endesa's facilities around the world.



- **2013-2016: Adapta Initiative**

- **Phase I (2013-2014).** Develop methodology
- **Phase II (2014- 2016).** Concrete measures

- **2016:** Manifestation of support for the LIFE-Shara 2015 Project

- **Next steps:** Monetization of climate impacts in the power distribution business



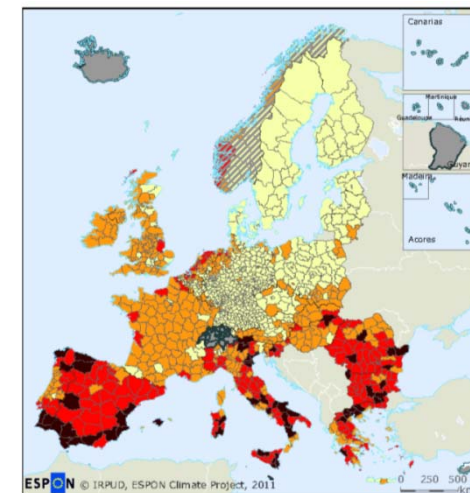
# CLIMATE CHANGE ADAPTATION

## Adapta Initiative

The OECC in collaboration with five pioneering national companies on adaptation, launched the Adapta Initiative its objective has been to develop tools that allow the incorporation of risk and vulnerability to climate change in business strategies. It was developed in two phases:

**The first part** included the participation of five pilot companies from the energy (Endesa), construction, food, tourism and transportation industries. With these companies, a methodology for analyzing their climate change vulnerability was developed and tested. The analysis was carried out following the steps below:

- 1. Identification of main potential impacts in each sector.** Through analysis of projected future climate scenarios for understand how climate change may alter the activity of each sector, identifying impacts that have a significant impact on each sector.
- 2. Identification of climate risks.** It analyzed the occurrence probability of climate impacts identified for each region of the Spanish geography and the consequences that may arise in the sector were assessed.
- 3. Adaptability Evaluation.** The organization adaptation ability is influenced by the operational response to a specific impact. The financial capacity to implement adaptive actions was evaluated.
- 4. Analysis of current and future vulnerability.** By analyzing organizational risk and its ability to act, the vulnerability to climate change was defined



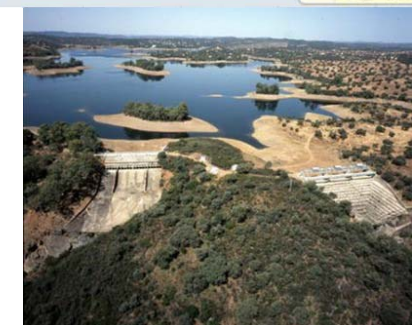
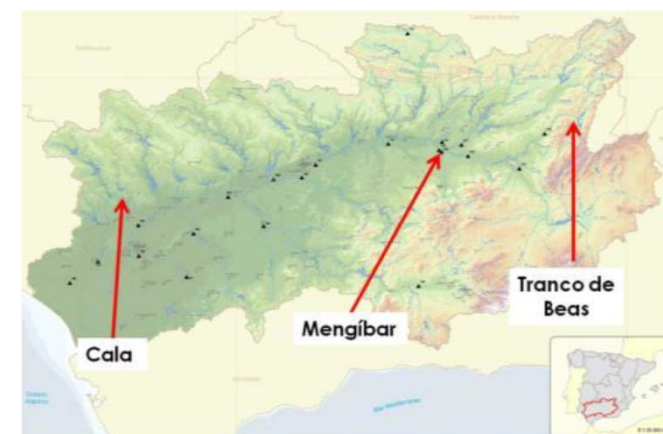
# CLIMATE CHANGE ADAPTATION

## Adapta Initiative

Endesa's study was focused on the analysis of vulnerability to Climate Change in three hydroelectric plants in the basin of the Guadalquivir, Cala, Tranco and Mengibar. The vulnerability analysis was developed through four scenarios with different climate projections of the State Meteorological Agency (AEMET). It was determined the conditions that may affect the plants as a result of climate changes until 2100.

### Main conclusions

- When crossing the information on risk analysis and adaptation ability of Endesa, it can be concluded that the greatest vulnerability is associated with the temperature increase. This risk would begin at a very low level today (level 1) , ending at a medium level in the fourth quarter of the century (level 3) , due to its impact on water yields, production, on the needs of water supply and irrigation downstream, and on the possibilities of electricity generation when the need for energy in the electricity market could be greater.
- In the case of the vulnerability of the rainfall decrease, it will begin at a very low current level or low depending on the plant (level 1 or 2), evolving to a medium level in the last period of the study (level 3).
- The lower level of vulnerability would be associated with extreme events, which would not exceed the low level (level 2).



Although Endesa has the capacity to deal with large investments, it should be considered that actions on water and hydropower requires coordination with other public agents (hydrographic confederations and irrigation communities), which do not always have the same priorities.

# CLIMATE CHANGE ADAPTATION

## Adapta Initiative

In the on going **Phase 2** of the project, with the participation of two companies from the energy (Endesa) and construction industries, more in-depth work is being done in the analysis of adaptation possibilities for reducing climate risk levels.

The objective of this second phase is to propose concrete measures for climate adaptation and to monetize their cost.

As a result, this will lead to a sound methodology for determining adaptation measures, the analysis, and prioritization. A guide will be created for the private sector to allow companies to identify actions to strengthen levels of resilience and reduce their vulnerability.

The logo for Endesa, featuring the word "endesa" in a lowercase, blue, sans-serif font.



# Thank you



endesa