A reliable and sustainable electricity system should be based on diversified sources of primary energy and supply, diversified technologies and a balanced geographical mix of generation sites. The lines of action being followed to mitigate the impact of climate change include increasing the use of renewable energies, improving energy efficiency and developing and implementing CO_2 capture and storage (CCS).

By 2030, coal is expected to account for a significant part of total fossil fuel generation due to the existing deposits in Spain and overseas, stable prices and consolidated international markets with few geo-political drivers.

Spain's coal-fired plants will be 40 years old in 2020 which means that new facilities will need to be built. However, these will require stricter emission controls and more efficient technology. Along these lines, Endesa has launched the Oxy CFB 300 project at its Compostilla plant.

The main attraction of oxy-fuel technologies is that they use of oxygen as a fuel, and in the combustion process gases containing high levels of CO_2 are generated directly together with water vapour (H_2O) which is easily separated by condensation and recovered during the process.

The EEPR Consortium
To guarantee the success of the project phase I, a consortium has been formalized:

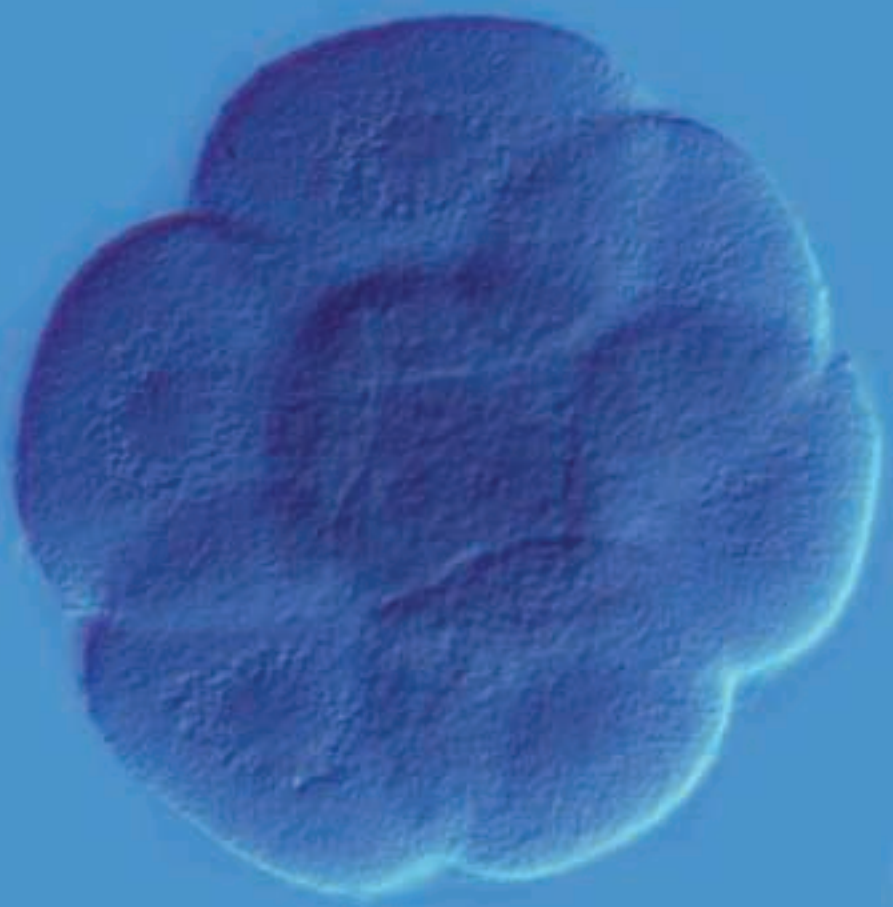
ENDESA
Fossil fuel CCS project activities, including power plant, transportation and storage.

FOSTER WHEELER
Oxy-CFB technology provider.

CIUDEN
Technology development plant facilities, and public perception

OxyCFB300

INTEGRATED CO_2 CAPTURE, TRANSPORT AND STORAGE PROJECT



endesa

CO_2 Emissions Global Trends

Inertial scenario and potential for CO_2 mitigation

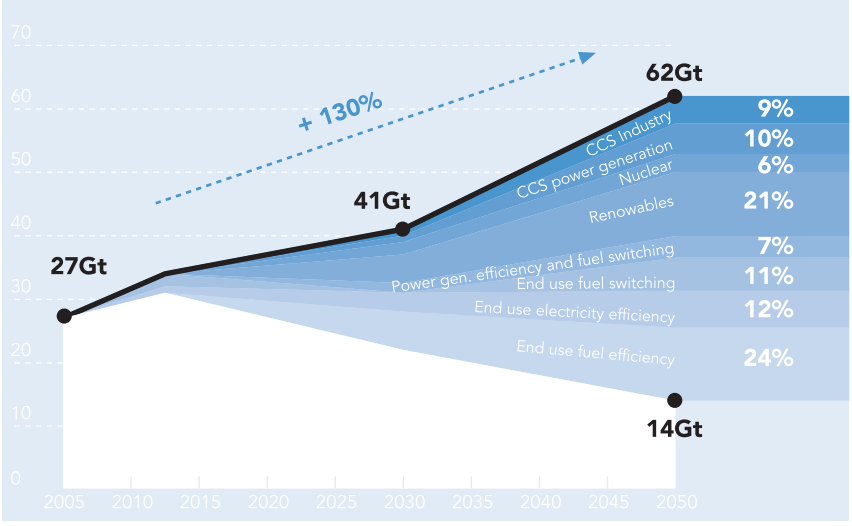
CO_2 emissions could grow by 130% in 2050. The only way to avoid this scenario is to leverage on all possible solutions to de-carbonize our world.

All sectors, from industry to transports, must be involved.

The electricity generation sector will only be able to help mitigate the effects of climate change if players work together to:

- Increase the use of renewable energies.
- Improve efficiency.
- Develop and implement CO_2 capture and storage (CCS).

CONTRIBUTION OF DIFFERENT TECHNOLOGIES IN CO_2 SAVING (IEA)



Carbon Capture and Storage – CCS

What does CCS mean?

- Smokestacks will no longer perform their traditional role.
- CO_2 will be separated from exhaust-gases, compressed and liquefied.
- Pipelines will allow CO_2 transportation from power plants to deep-geological formations where CO_2 will be stored permanently.

How does CCS work?

There are three different solutions:

1. Post-combustion CO_2 capture

- CO_2 is removed from the exhaust gas through absorption by selective solvents.
- Applicable to the existing generation fleet as it is.

2. CO_2 capture through oxy-combustion

- The fuel is burned with oxygen instead of air, producing a flue stream of CO_2 and water vapour without nitrogen. From this stream the CO_2 is relatively easily removed.
- Not applicable as is to the existing pulverized carbon generation fleet (new type of boiler).

3. Pre-combustion CO_2 capture

- The fuel is pre-treated and converted into a mix of CO_2 and hydrogen, from which CO_2 is separated.
- The hydrogen is then burned into a turbogas to produce electricity or fuel.
- Not applicable to standard turbogas because of high level of NO_x produced.

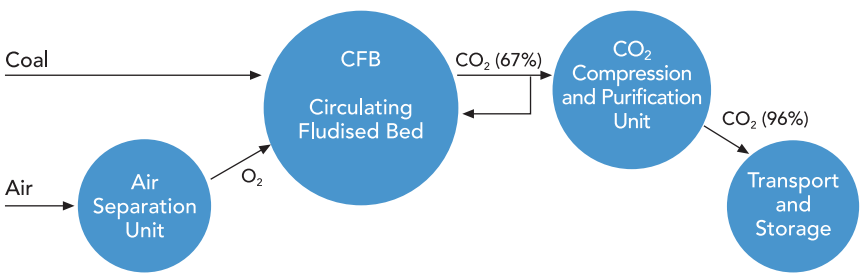
Oxy CFB 300

Endesa, jointly with other national partners, are in the initial stages that could allow the future promoting of a CCS integral commercial size Demonstration Project, including CO_2 capture, transport and storage based on a circa 323 MWe gross Circulating Fluidised Bed (CFB) supercritical Oxy-Combustion plant, with CO_2 storage in a saline aquifer. The main target of this project is to validate, at commercial plant size by 2016, a CCS technology that will allow the renovation of the existing aging fossil thermal plants from 2020, using a wide range of domestic coals, as well as imported fuels (coals, pet coke...), and biomass. The foreseen plant's location is existing Endesa's Compostilla Power Plant, in the northwest of Spain.

CO_2 Capture - Oxy-Combustion Technology

The basic principle of oxy-combustion is to replace the traditional oxidant (Air: 21% Oxygen, 79% Nitrogen) with a mixture of pure oxygen and recycled CO_2- rich gas from the flue gas stream. Due to absence of air nitrogen, the flue gas produced is for the most part CO_2 and H_2O. The exit flue gas is led out to a water condenser stage, the outlet CO_2 stream is purified and compressed to liquid-dense phase ready for transport. Eliminating the nitrogen component of air and recirculation of flue gases back to the combustor reduce NO_x emissions, and SO_2 is captured with limestone in the furnace similar to conventional CFB boilers.

OXYCFB300 PROCESS DIAGRAM

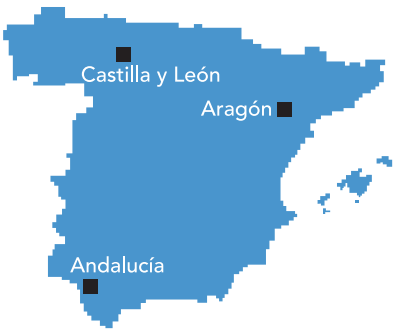


CO_2 Transport

The CO_2 captured and compressed is expected to be transported by an underground pipeline from the Compostilla Power Plant to the storage facility. From CO_2 capture and compression at the power plant, the CO_2 is in a liquid-like supercritical state.

Experience in hydrocarbon pipeline transportation can be transferred partially to CO_2 transport. Many standards for the CO_2 pipe transportation are directly transferable from the oil and gas industries.

CO_2 Storage



Since 2005 Endesa has been working to preselect safety CO_2 storage sites in Spain.

A screening and ranking framework has been developed on the basis on capacity, health, safety an environmental risk arising from CO_2 leakage to select saline aquifers to storage CO_2 from the OXY-CFB-300 plant.

The schedule of the project

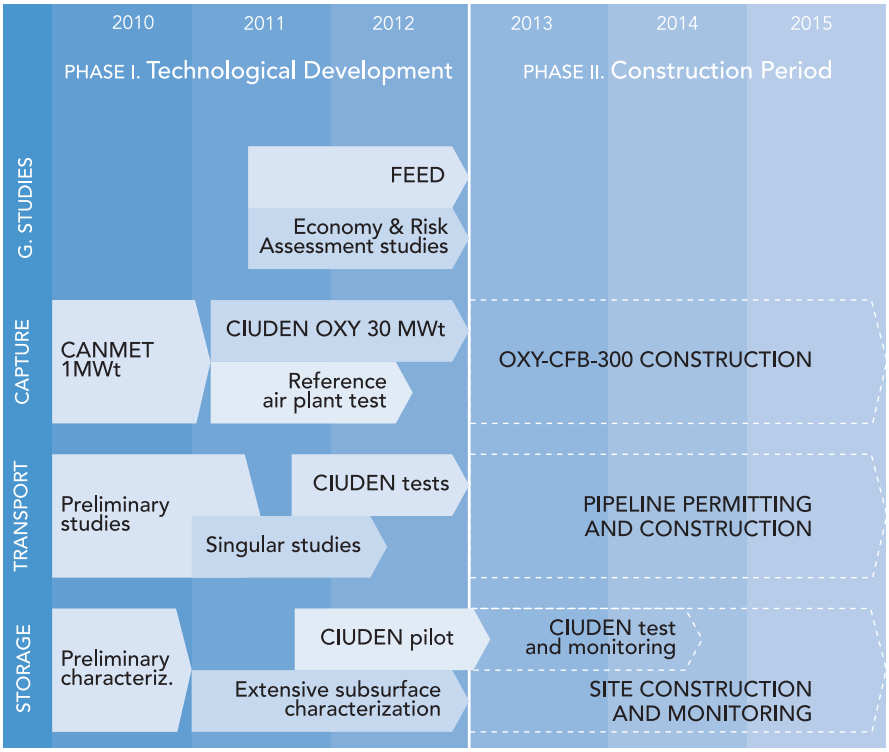
Two phases

The overall project schedule forecast has been divided in two phases:

- **Phase I:** Technology Development and FEED studies (2009-2012).
- **Phase II:** Construction of the Commercial Demo Project infrastructures, including capture transport and storage concepts (2012- 2015).

The Project (Phase I) has been selected in the European Energy Program for Recovery (EEPR), and has been funded with 180Meuros to complete the initial stages of the project.

By mid 2012 the Final Investment Decision (FID) of the integrated project will be taken.



The EEPR financed project overview

- Validation of Oxy-Combustion CFB technology for CO_2 by experimental stages scale-up: tests on pilot 1MWt plant, and in the CIUDEN's 30MWt new Technology Development Plant.
- Analysis of the process dynamics and operation flexibility of the complete integrated process.
- Analysis of conditions required and development basic engineering for CO_2 transport from oxy-combustion process.
- Survey and characterization of a safe and suitable geological CO_2 storage.
- Development of surface injection engineering and CO_2 storage dynamic performance models.
- Development of project FEED, and associated studies for its phase II FID.
- Knowledge sharing schedule.
- Public communication program.