

# **CASTILLA Y LEÓN (SPAIN)**

## **Coal Regions in Transition Working Groups Meetings**

**Brussels, 12-07-2018**



1. Economic dynamization plan for coal mining municipalities in Castilla y León
2. Ecological and Natural Capital Restoration after decommissioning a coal power plant located in a Natura 2000 Network area
3. Proposal for the reactivation of activities in CIUDAD DE LA ENERGÍA (CIUDEN) installations

# 1. ECONOMIC DYNAMIZATION PLAN FOR COAL MINING MUNICIPALITIES IN CASTILLA Y LEÓN

# BACKGROUND

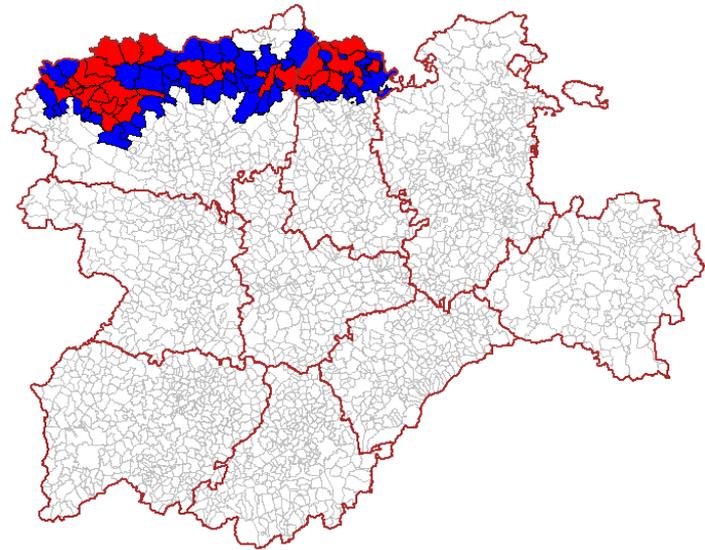
- Forum for the future of coal mining and its municipalities in Castilla y León.
  - 2 December, 2015



- Agreement in Castilla y León Regional Parliament
  - Law 7/2015: obligation to present the plan in the Regional Parliament in 2016, with the agreement of the socioeconomic agents and the municipalities.

# STARTING POINT

- The Economic Dynamization Plan for Coal Mining Municipalities in Castilla y León was approved in the Regional Parliament on June 8<sup>th</sup>, 2016.
- 83 municipalities



# DIAGNOSIS (1)

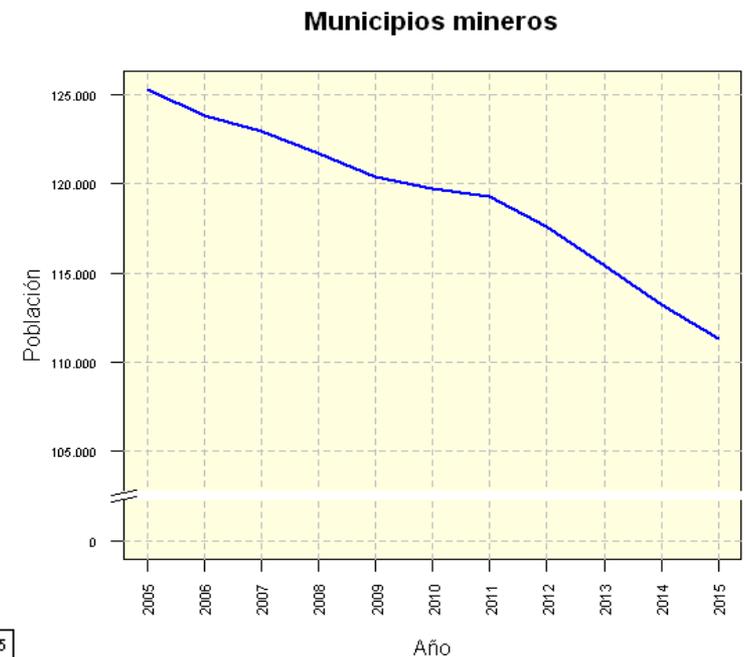
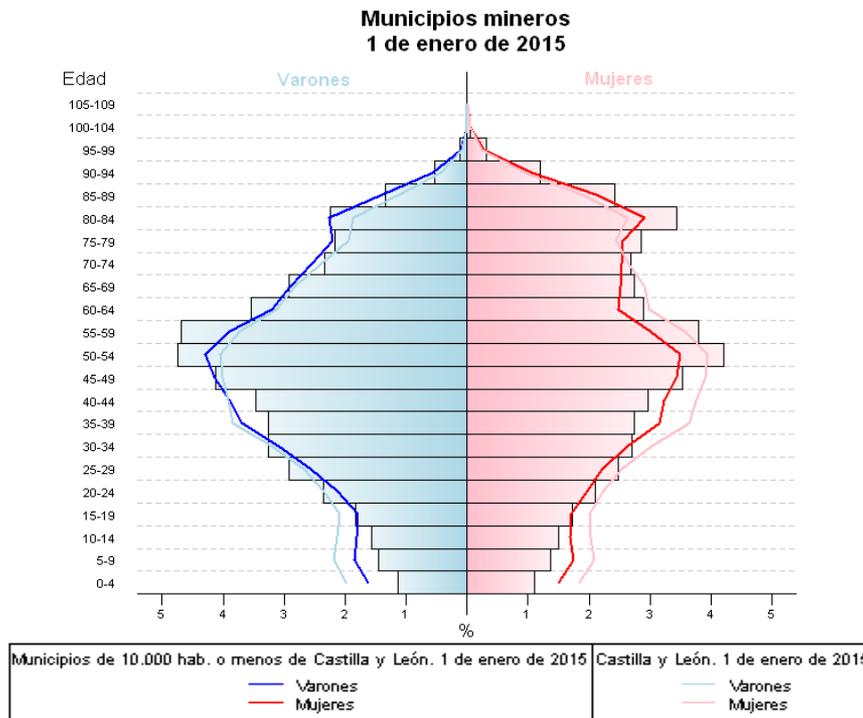
- Scarcely populated municipalities (-500 inhabitants) with very low density of population (12,8 inhab/Km<sup>2</sup>), except 5 municipalities with more than 5.000 inhabitants that concentrate 34% of the population.

	Municipios Mineros	Castilla y León	Porcentaje de los Municipios Mineros en CyL
Población	111.342	2.472.052	4,5%
Superficie	8.696	94.230	9,2%
Densidad (Hab/Km <sup>2</sup> )	12,8	26,2	48,9%
Varones	56.307	1.219.616	4,6%
Mujeres	55.035	1.252.436	4,4%
Mujeres en edad fértil (15-49)	21.525	515.136	4,2%
Extranjeros	4.238	135.136	3,1%
Porcentaje de Extranjeros	3,8%	5,5%	

Fuente: D.G. de Presupuestos y Estadística con datos del INE y del IGN

# DIAGNOSIS (2)

- During the last 10 years, coal mining municipalities have experienced a decrease in population of 11%, much more pronounced than the decrease in the whole region (1,5%).



# DIAGNOSIS (3)

- Business fabric → In the last 10 years, the number of establishments has decreased by 35%, showing the drastic effects of coal mining restructuring.
- Employment → Meaningful reduction.
  - In the last 10 years, affiliations to the social security scheme have decreased by 10,4% doubling the decrease in the whole Region (5,8%) and the decrease in Spain (5,4%).
- Affiliations to the coal mining special regime have decreased by 85,3%.
  - Today: 4 operating mines (2 open cast, 2 underground), 400 miners

# TARGETS

- **Defense and strengthening of coal mining:** very important resources, remaining competitive mines.
- **Promotion of new activities related to mining**
- **Strengthening of economic activity in other sectors:** process of economic diversification
- **Encouragement of entrepreneurship**
- **Improvement of education and qualification of the human resources**
- **Employment plan and social protection actions.**
- **Improving of the economic, social and environmental surroundings:** both to favour investments and new companies establishment, and to attract workers and population to the coal mining municipalities.

# Institutional support

- Administrative structure of the Regional Government
- Supplemented with 3 new economic development agency offices to cover the whole area
- Monitoring committee with indicators for execution and results of the plan



## 2. Ecological and Natural Capital Restoration after decommissioning a coal power plant located in a Natura 2000 Network area

**Anllares Coal Power Plant**

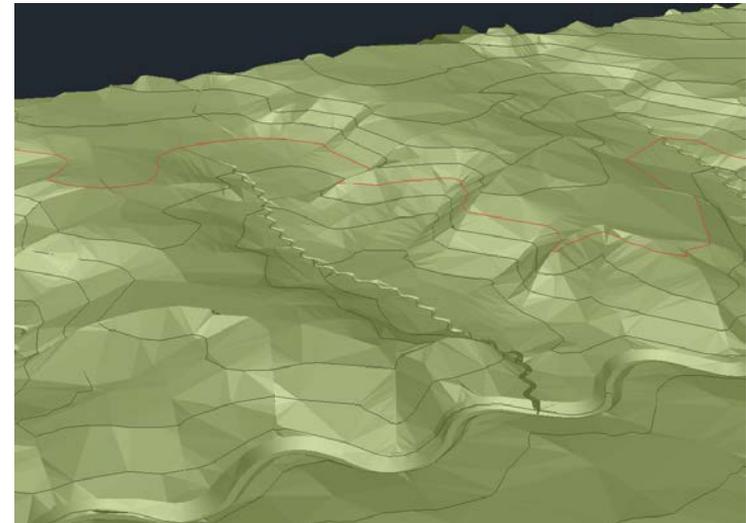
**Coal Regions in Transition Platform**

# Anlles Coal Power Plant Ecological Restoration

- **Anlles** coal power plant is in the process of being **decommissioned**. The company goal is to implement an **ecological and natural capital restoration project**.
- The plant is located within a **Natura 2000 site**, surrounded by a **highly valued landscape and biodiversity area** (Ancares Range).
- **Restoration project** includes rehabilitation of several components:
  - **Physical environment**, with special effort in restoring geomorphology and hydrology.
  - **Biodiversity**, including flora, fauna and ecosystem services.
  - **Social environment**, focusing efforts in recovering natural capital from the landscape perspective.
- Draft, tentative **budget** for restoration is **1.720.000 €**.

# Anllares Coal Power Plant Ecological Restoration

- **Geomorphological** design is the basis for a complete **physical environment rehabilitation**.
- Using **Geofluv-Natural Regrade** software, it is possible to design a new, stable and adapted **drainage pattern**, with a net of **micro water basins**.
- This method is included in the “**Best Available Techniques Reference Document** for the Management of Waste from the Extractive Industries” (Directive 2006/21/EC).



# Anllares Coal Power Plant Ecological Restoration

- **Biodiversity restoration** is based in the identification of **ecosystem references**.
- Final goal is rehabilitation of **main ecological processes and functions** rather than isolated items, and habitats rather than species.
- High diversity of flora species using **local genetic material** is a key element.
- Fauna **habitat diversification** actions will ease the rehabilitation of **connectivity**, critical process for endangered species living in the area.



# Anllares Coal Power Plant Ecological Restoration

- **Social environment** is also considered in the restoration project.
- Incremental of **natural capital** is sought by restoring **ecosystem services** traditionally used by **local stakeholders** (including provisioning, regulation and cultural services).
- This ecological restoration project will create interesting **environmental education and demonstration opportunities** for the entire region.



3. Proposal for the reactivation of  
activities in  
**CIUDAD DE LA ENERGÍA** installations

**CIUDEN**





*Cubillos del Sil. León*

**Energy City**



*Cubillos del Sil. León*

**PISCO2: CO2 Research plant in soils  
suelos con CO2**



Ene.

MUSEO  
NACIONAL  
DE LA  
ENERGÍA

*Ponferrada. León*

**National museum of energy**



*Igueña. León*

**CIUDEN vivarium**



*Hontomín. Burgos*

**Research installations  
investigación**

## CIUDEN Foundation

*since 2006*

### MISSION

Execute R&D&Innovation programmes related with energy and environment and contribute to the economic development of El Bierzo shire, in León

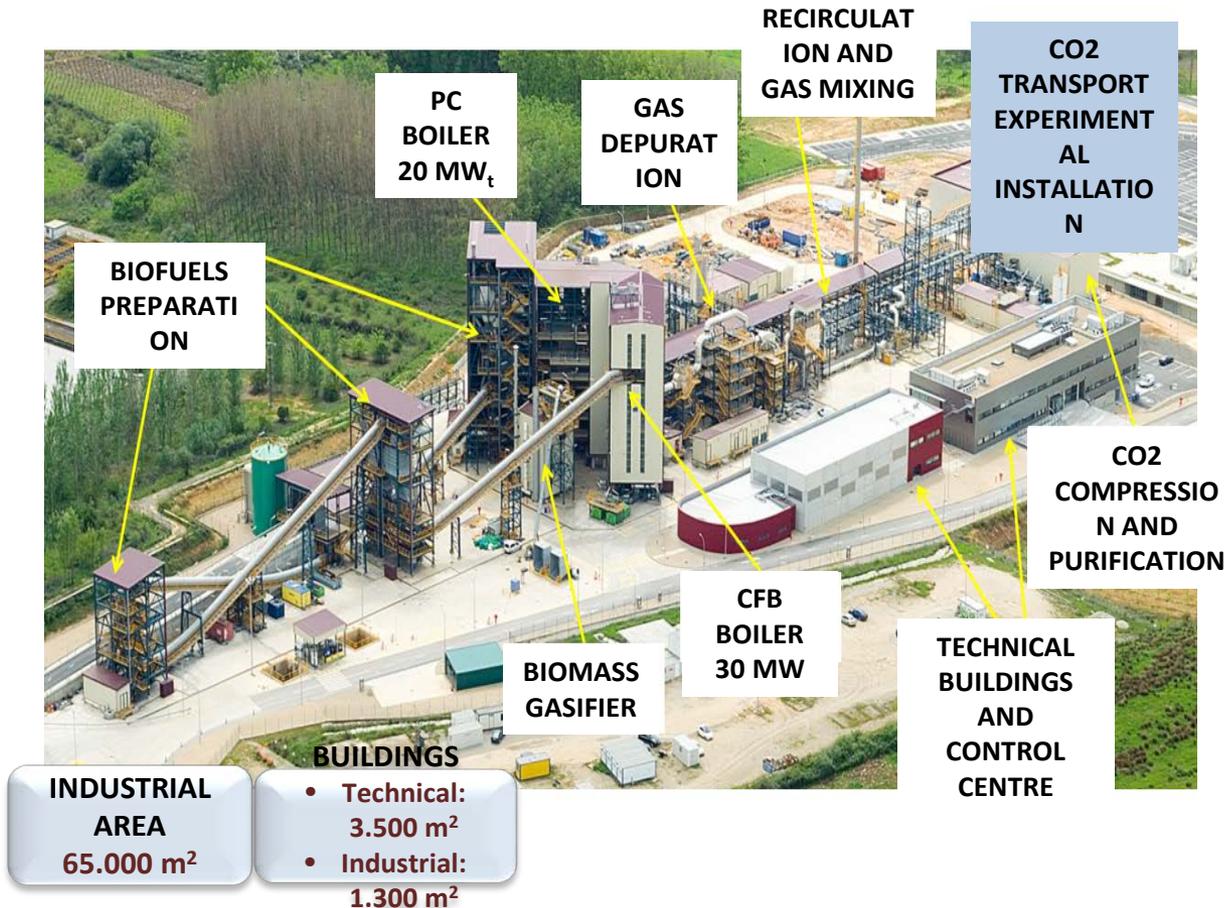
### Board of Trustees

- Ministry of Industry, Energy and Tourism
- Agriculture, Fisheries, and Food
- Economy and Business



[www.ciuden.es](http://www.ciuden.es)

## Main installations



### BOILERS

- CFB Boiler (biomass) 30 MWt
  - PC Boiler 20 MWt
  - Biomass gasifier 3 MWt:
- 1/3 Biochar  
2/3 Syngas

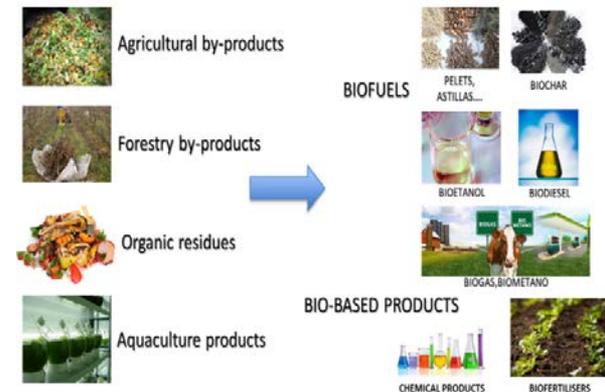
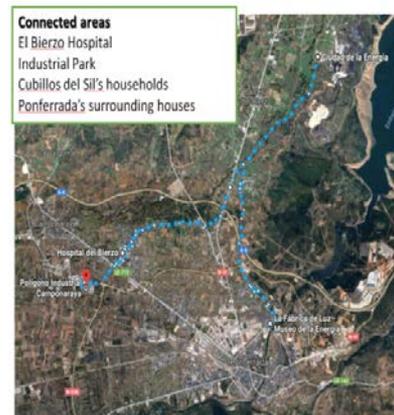
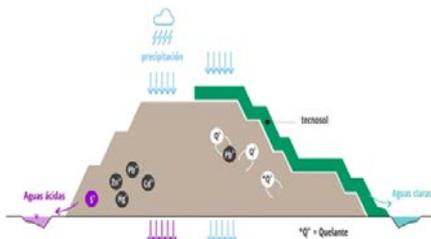
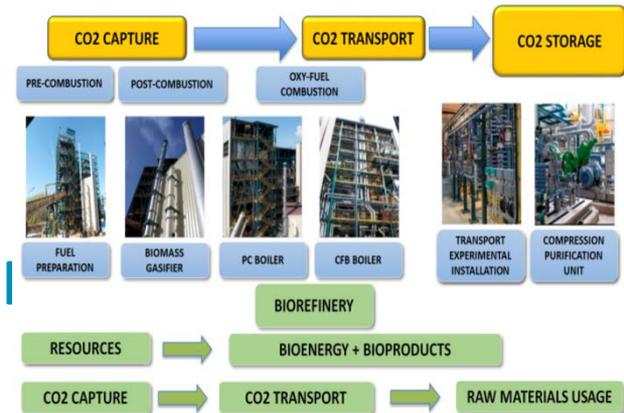
**Total: 50 MWt**

**High level research**  
promoted in European  
Framework  
Programmes

**INVESTMENT: 500 M€**  
**(National and  
European funds)**

# Opportunities

1. Biorefinery
2. CO2 Capture
3. District Heating
4. Usage of resources as raw material
5. Technological soils production



## Opportunities: R&D and Innovation projects

### MAIN RESEARCH LINES

- Development and demonstration installations for CO<sub>2</sub> capture, storage and usage projects
- Development projects of innovative technological solutions focused on bio-based industries. Innovations in the biorefinery concept.
- Projects for energy efficiency improvement in industrial processes
- Projects for development and validation of biofuels

### PROJECT FINANCING

- Fundraising opportunities in H2020, Bio-based JTI programmes, Energy programme and Climate programmes
- National R&D programme
- Regional funds
- Collaboration with regional Centres and European entities

## Proposal objectives

### General objective

To establish institutional agreements aimed to launch a plan for the **reactivation and consolidation of activities carried out by CIUDEN** in order to contribute to the socio-economic development of a significant territory of our region.

### Specific objectives

- Contribution to **emission reductions** and adverse effects of climate change
  - Development of landscape **regeneration** and restoration techniques
  - To weave a **network of public and private agents** that work towards territorial development
  - **Qualification level** increase of people in CIUDEN's specific working fields
- Restore the potential to develop **R&D&Innovation projects (European interest)** in the current research lines with structural support from CARTIF
  - Recover and manage **research-aimed installations** from CIUDEN
  - Create a **laboratory dependent on CARTIF** in CIUDEN
  - Continue with the technology services activity

## Expected benefits

### SOCIOECONOMIC

- Strengthening of rural areas through the creation of economic activities that **generate jobs and diversify the production system**
- **Services and infrastructures improvement** in rural areas
- **Revitalisation of agricultural and forestry activity**, as well as agricultural and rural development.

### ENVIRONMENTAL

- **Emissions reduction** associated to raw materials transportation (coming from the surroundings).
- **Residual biomass as raw material** for the biorefinery
- **Forest fire prevention**

### SCIENTIFIC AND TECHNOLOGICAL

- Recovery of CIUDEN as a **reference R&D&Innovation centre**
- Recovery and consolidation of a **research group in Carbon Capture Utilization and Storage (CCUS)**
- **Bio-based industry**

### OTHER BENEFITS

- Territorial branding
- Avoid loss of the initial investment

## Our experience



### Heritage, landscape and people

**40 years** of experience generating territorial development

**4 main offices:** Aguilar de Campoo, Valladolid, Madrid and Seville

**250** workers in 2017

More than 3.000 direct jobs since 1977

More than **45 prizes** and national and international awards

**2.400 partners** and **267** collaborating **entities**



### Main R&D&Innovation regional actor

**160 researchers** (84% master's degree and PhD)

Projects in energy, environment, industry, construction and infrastructures, agrofood, bioeconomy, ICT and health

Some **11,5 M€** per year **gathered from national and international competitive financing programmes for Castilla y León's entities** to perform R&D&Innovation projects since 2010

Around **3 M€** per year **returned from H2020** for our own R&D&Innovation projects since 2010