Regional Strategy towards Coal Transition in the Spanish region of Aragón

COAL REGIONS IN TRANSITION PLATFORM
Working Group Meetings.
Brussels 5-6 November 2018

GOBIERNO DE ARAGON

Economy, Industry and Employment Regional Ministry

European Commission

Regional Strategy towards coal transition process in the Spanish Self-governing Region of Aragón

- Location and Coal basins:

Asturias

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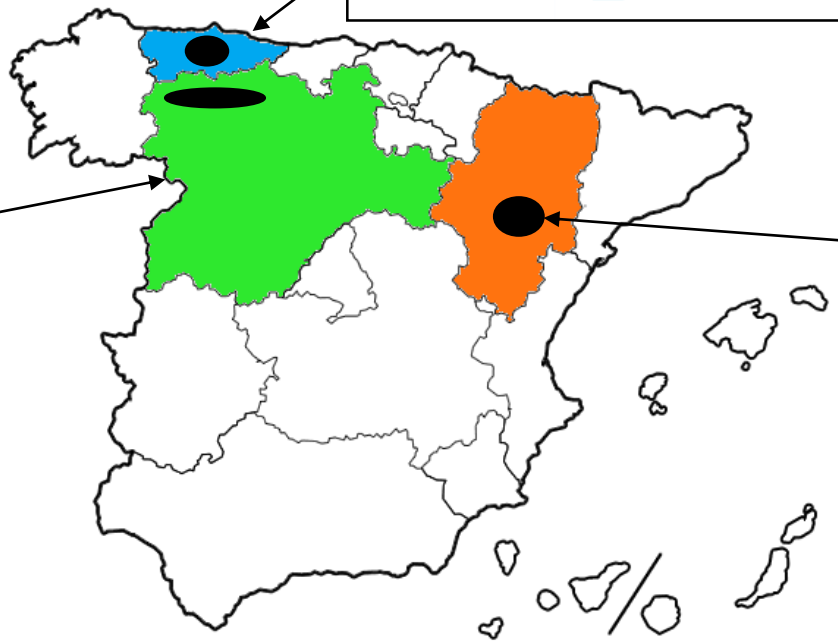
www.asturias.es

Asturian Central basin (Anthracite and Steam coal (Hulla))



Castilla y León

Junta de Castilla y León

Leon and Palencia coal mining basins (Anthracite and Steam coal (Hulla))

Aragón

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Teruel coal mining basins (Black Lignite)

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Aragón regional profile

- Area: 47.720 km^2
- Number of Municipalities: 731
- Population (2018): 1.313.460
- Population density: 28,27 inhab/km^2

- GDP (Gross Domestic Product) per capita: 25.920 €
- Unemployment rate: 11,58 %

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Aragón mining profile

- **Coal mining sector.**

  Teruel mining basins.

  - Workers: 1.015 (2000) → 260 (2017)
  - Production (Ton): 3.280.000 (2000) → 730.000 (2017)

  - Andorra-Teruel Coal Power Plant (1981)

    1.100 MW 200 Workers

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COAL FOR BIOECONOMY

Main Objectives:

- Promote the transit from a fossil economy to a bioeconomy
- Use of Coal to boost flows of renewable resources
- Promote a 'Just' Energy Transition for Aragon Mining Region

Fossil Economy → Bioeconomy

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COAL FOR BIOECONOMY

Use of Coal to boost flows of renewable resources.

Main Projects:

- Coal to enhance **soil metabolism**

- Coal as a raw material to **increase the value of organic waste**

- Coal as a raw material for the production of **aviation fuels**

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USE OF COAL FOR RENEWABLE RESOURCES

1. Coal to enhance soil metabolism

Coal → Leonardite → Humic acids for fertilizers

- SAMCA

  Manufacturing of 100.000 tons per year of organomineral fertilizer
  Samca is the largest Spanish mining company

- TÉRVALIS

  Fertinagro is Spain's number one fertilizer manufacturer. Agricultural Supply division for plant nutrients (fertilizers)

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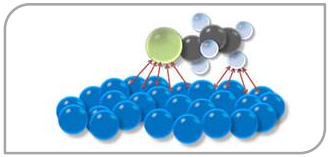
USE OF COAL FOR RENEWABLE RESOURCES

2. Coal to increase the value of organic material

- **PRODUCTION OF SURFACE POLYMERS**
  to favor soil moisture retention

- **ADSORPTION MATRICES** of xenobiotic compounds.



- **PRODUCTION OF POLYMERS** for retention and exchange of fertilizer elements avoiding leaching and accumulation of heavy metals

- **PRODUCTION OF PREBIOTIC SUBSTANCES** for soils.

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USE OF COAL FOR RENEWABLE RESOURCES

2. Coal to increase the value of organic material

- FERTINAGRO BIOTECH (Térvalis Group)

Coal → Genetic Engineering techniques → Obtaining **enzymes and proteins** with for use in different applications:

- Pharmacy
- Nutrients
- Products improvement

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USE OF COAL FOR RENEWABLE RESOURCES

3. Coal for the production of aviation fuels

- **Production of Liquid Fuels**
- **Reduction of the energetic dependence of Petroleum**
- **High added value Activities development**
- **Adecuate location**, availability of raw materials (coal and renewables), knowledge about combustion as well as chemical industry and access to infrastructure in the sector.
- **Teruel Airport.**

  Largest Airport for aircraft maintenance, parking and recycling in Europe

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USE OF COAL FOR RENEWABLE RESOURCES

3. Coal for the production of aviation fuels

- **CIRCE**
  - **Research Centre for the Energy Efficiency and the deployment of Renewable Energies**

  - Founded in 1993 to create and develop innovative solutions and scientific/technical knowledge and transfer them to the business sector in the field of energy
  - CIRCE is founded by the University of Zaragoza and the Government of Aragon, together with the companies Endesa, SAMCA, TAIM-WESER and Térvalis

  - Headquarters in Zaragoza and permanent delegation in Brussels.

OTHERS PROJECTS FOR RENEWABLE RESOURCES

Carbochemistry Institute

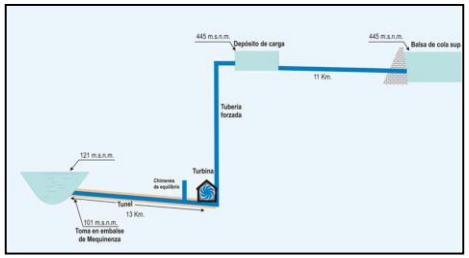
Biomass-CLC (Chemical Looping Combustion) is a cost-effective technology for production of heat and high purity CO2 stream at low cost. Biomass based on forestry, agricultural residues and dedicated energy crops can help to fix population in rural areas and reduce risk on fires.

Biomass-CLG (Chemical Looping Gasification) A cost-effective technology for clean biofuel production with enabling negative CO2 emissions.

PYROCRACK process consists of the combination of a conventional pyrolysis process and a thermal cracking reaction suitable to **convert the organic fraction obtained from municipal solid waste (MSW)** into a carbonaceous solid material with an homogeneous composition and a high-calorific value syngas useful for power generation or the synthesis of other chemical products.

OTHERS PROJECTS FOR RENEWABLE RESOURCES

WATER PROJECT FOR ARAGON MINING REGION



The project develops the Hydrological Plan of the Demarcation of the Ebro

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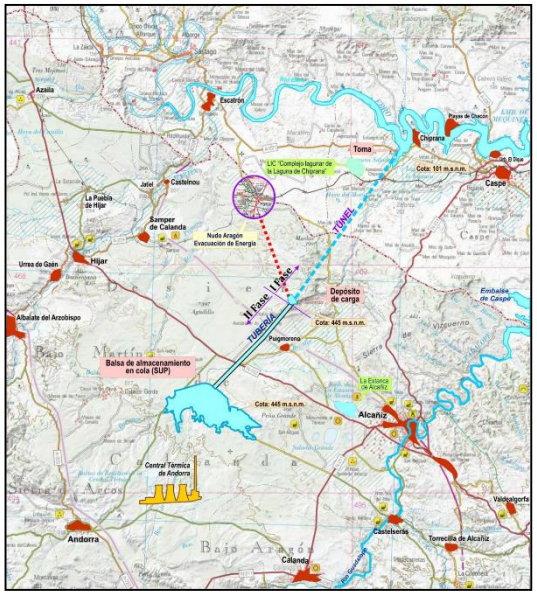

Objectives:

- Large-scale energy storage in the Ebro basin to facilitate the manageability of the Renewable Energy transition in Aragon.
- To alleviate the structural water deficit of the right margin of the Ebro river
- Supply to new irrigations: 22,866 hectares
- More than 3.400 jobs

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THANK YOU FOR YOUR ATTENTION

Alfonso Gómez Gámez
Energy and Mining General Director
Economy, Industry and Employment Regional Ministry
Aragón Goverment
dgenergiayminas@aragon.es

Pedro Silva Rodríguez
Energy and Mining General Director Advisor
Economy, Industry and Employment Regional Ministry
Aragón Goverment
psilva@aragon.es

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