

GENERAL DESCRIPTION OF THE CENTRE

The complex consists of three main buildings, known as the Incubator Building, Main Building and Pilot Plant, dedicated to energy storage research. Although they will carry out independent activities, the general management of all three will be centralised in the Main Building, and the facilities will be centralised in a specific building located in a central position.



Total surface area of the project: 116,638.68 m²

RECINTO	SUPERFICIE ÚTIL	SUPERFICIE CONSTRUÍDA
E01 EDIFICIO INCUBADORA	1.634,58 m ²	1.850,22 m ²
E02 EDIFICIO PRINCIPAL	6.643,44 m ²	7.208,72 m ²
E03 EDIFICIO PLANTA PILOTO	2.972,47 m ²	3.176,20 m ²
E04 EDIFICIO DE INSTALACIONES	416,04 m ²	458,76 m ²
TOTAL	11.666,536 m²	12.693,90 m²

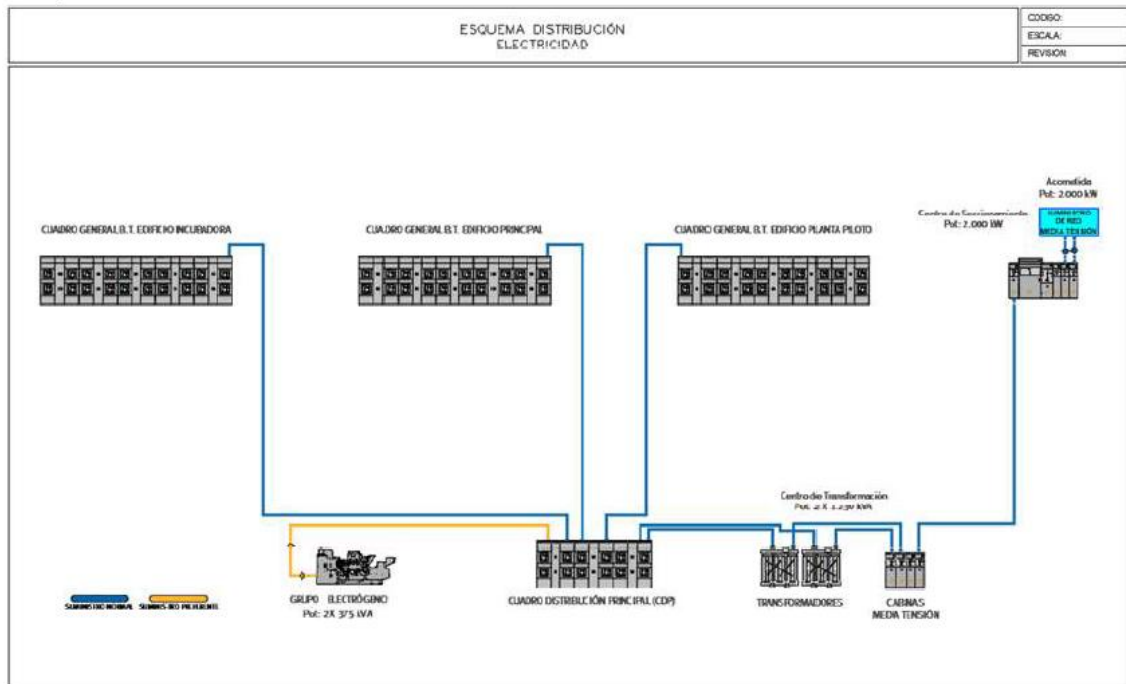
GENERAL FEATURES OF THE FACILITIES

Below is a detailed description of the actions to be implemented in the main facilities, as well as the location of equipment and the route of the main pipelines.

ELECTRICAL SUPPLY

For the connection and electricity supply of the entire CIIAE, a medium-voltage connection is planned, with a centralised transformer station located in a separate building, specifically for the production centre and facilities planned next to the main building. A switching centre is planned for the connection from the supplier's distribution network, located on the north-western edge of the plot, opposite the main building. The switching centre will house the input and output cells of the company's medium-voltage loop, the subscriber delivery cell, with remote control, as well as the metering cells for contracting at this voltage level, for the entire complex of buildings, with a total power forecast of 2 MW.

ESQUEMA DE DISTRIBUCION ELECTRICIDAD



There are 3 20kV - 400 V CTs:

- Incubator Building: 1 250 kVA transformer
- Main Building and Pilot Building: 2 1250 kVA transformers
- Pilot Building (Power Equipment): 2 1250 kVA transformers

ALTERNATIVE ELECTRICAL SUPPLY

In the event of a failure of the main supply, a generator with an installed capacity of 665 kVA is available.

WATER SUPPLY AND IRRIGATION

Similar to the installations described above, the water supply installation is centralised, with two different connections to the company's distribution network to guarantee supply. The connections for the entire complex are buried and laid on the plot and reinforced in case of vehicle traffic. A centralised cistern consisting of two independent and interconnected tanks has been planned to facilitate cleaning and maintenance work. A single pressure group with variable flow pumps, adjustable to demand, and a water distribution network to the three buildings made of high-density polyethylene, with the same installation criteria as described above, has been planned. This distribution network is divided into sectors by means of shut-off valves and pressure regulating valves, which are accessible and can be inspected, to allow flexible use of the network and also the possibility of taking the required area out of service based on operational needs.

SANITATION

The water collection network is generally separate for rainwater, sewage and a third network for collecting toxic water from laboratories and industrial use, all of which are channelled underground on the plot through trenches and reinforced with concrete where necessary under roads with vehicular traffic. Sanitation collection starts from the collection or discharge points to the connection to the public network or waste treatment, as in the case of the toxic water discharge network.

COMPRESSED AIR AND OTHERS

The gas plant (nitrogen, oxygen, carbon dioxide, hydrogen, helium, argon and compressed air) is located in a separate area within the facilities building, distributed throughout the space provided for this purpose. The outside air intake is located away from sources of pollution. From the gas plant, an underground pipe is laid for each type of gas, which runs through the plot to the laboratory area, transitioning to an above-ground installation via the ceiling and wall until it reaches the points of use.

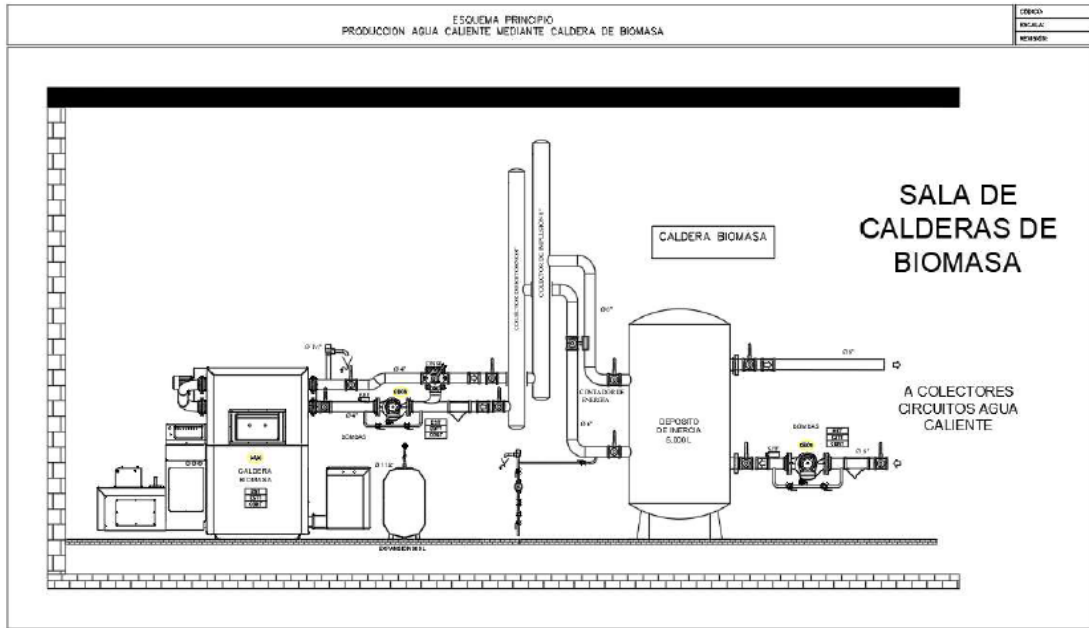
For compressed air, the installation consists of two operational compression-filtration chains. Each chain is sized to ensure the required peak flow, one being for normal operation and the other for reserve. The compressed air production plant consists of:

- Main supply source: oil-free compressor, high-efficiency filtration equipment, regulator tank and breathable air treatment unit.
- Secondary supply source with the same characteristics as the main supply source.
- Backup supply source with double cylinder battery

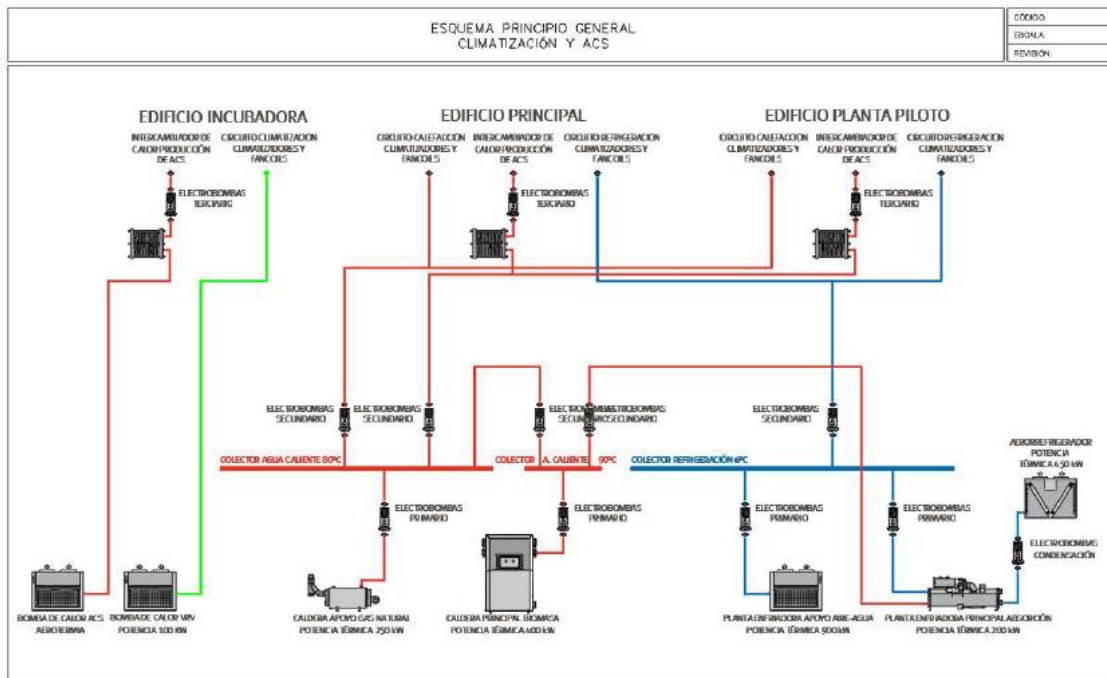
NATURAL GAS

To supply natural gas to the hot water boilers and centralised generator sets, a connection is made from the public distribution network and an underground polyethylene network directly on the site to the production plant in the facilities building.

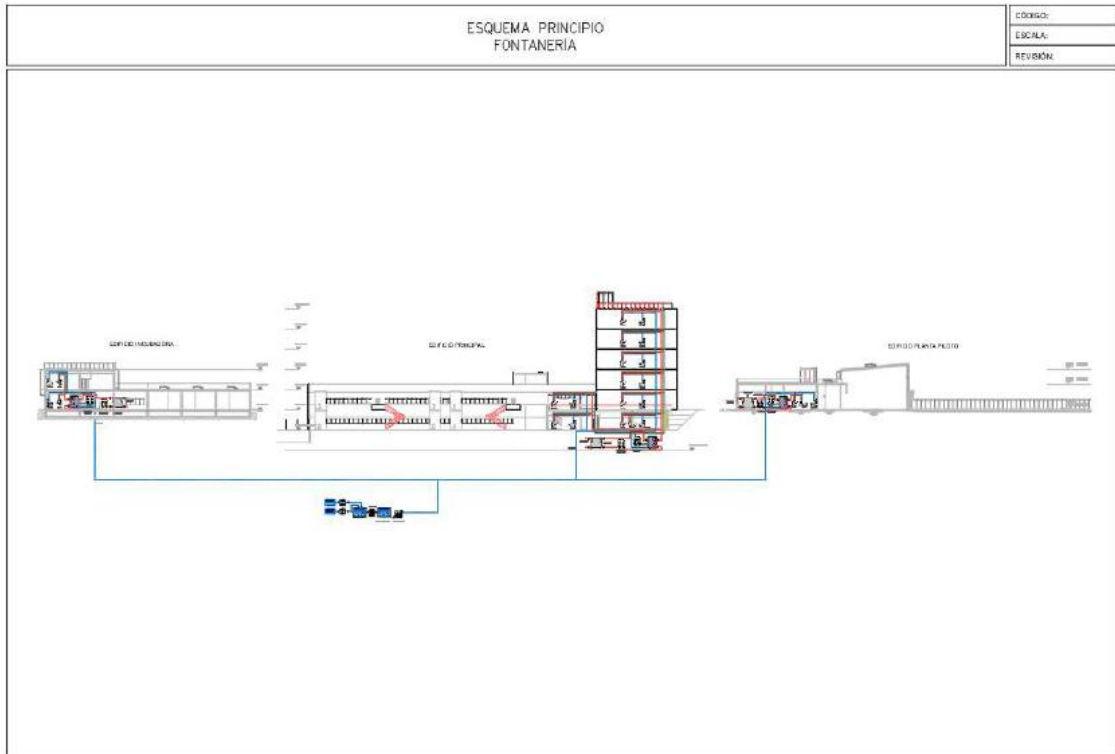
OTHER INSTALLATIONS



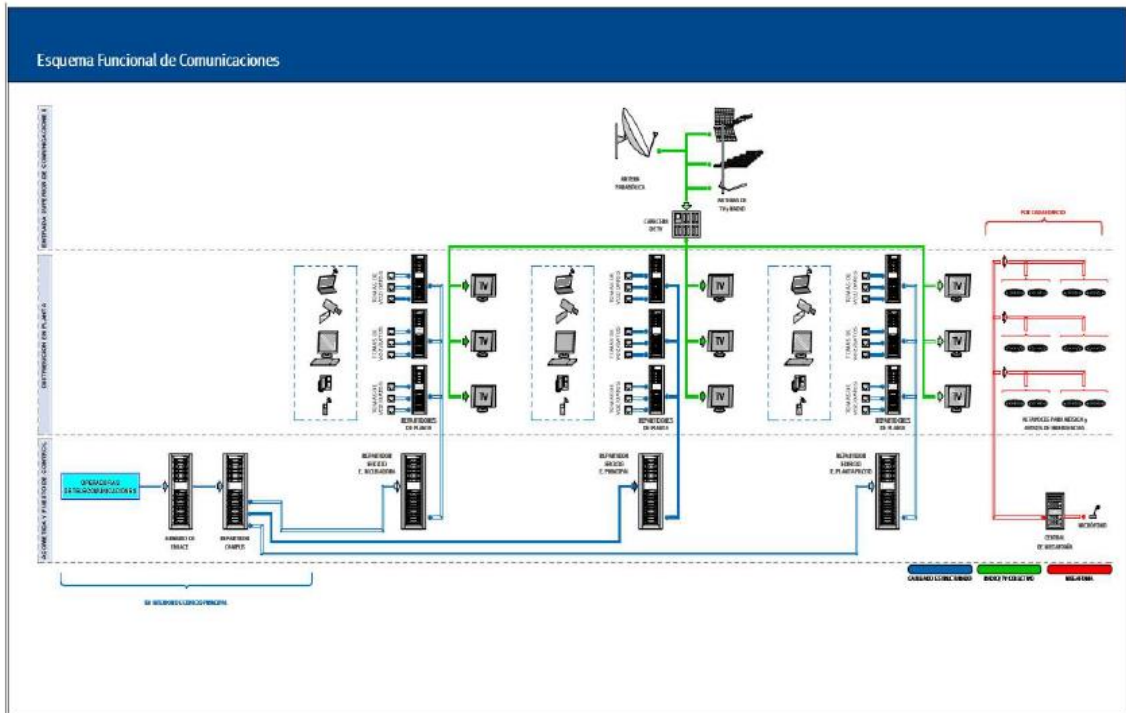
ESQUEMA DE PRINCIPIO DE SALA DE CALDERA DE BIOMASA



ESQUEMA DE PRINCIPIO DE CLIMATIZACIÓN

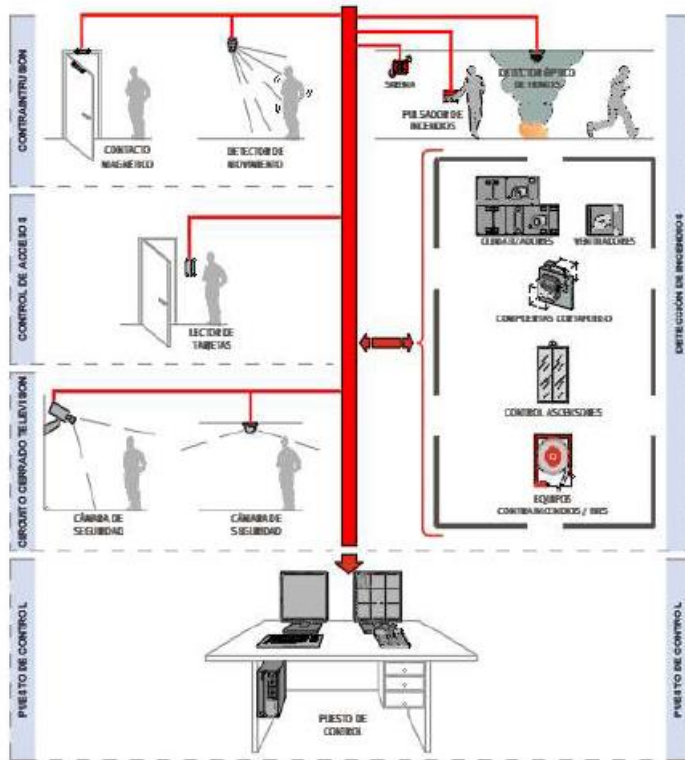


ESQUEMA DE PRINCIPIO DE FONTANERIA



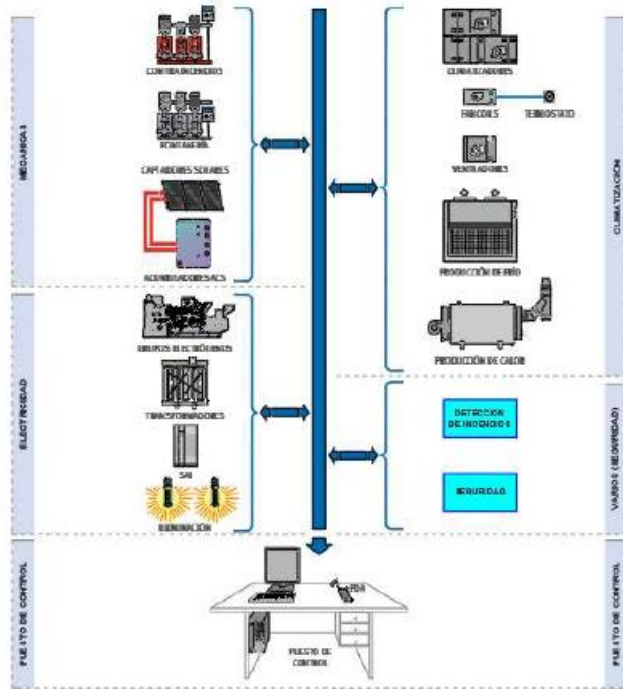
ESQUEMA FUNCIONAL DE COMUNICACIONES

Esquema Funcional de Seguridad



ESQUEMA FUNCIONAL DE SEGURIDAD

Esquema Funcional de Gestión Centralizada

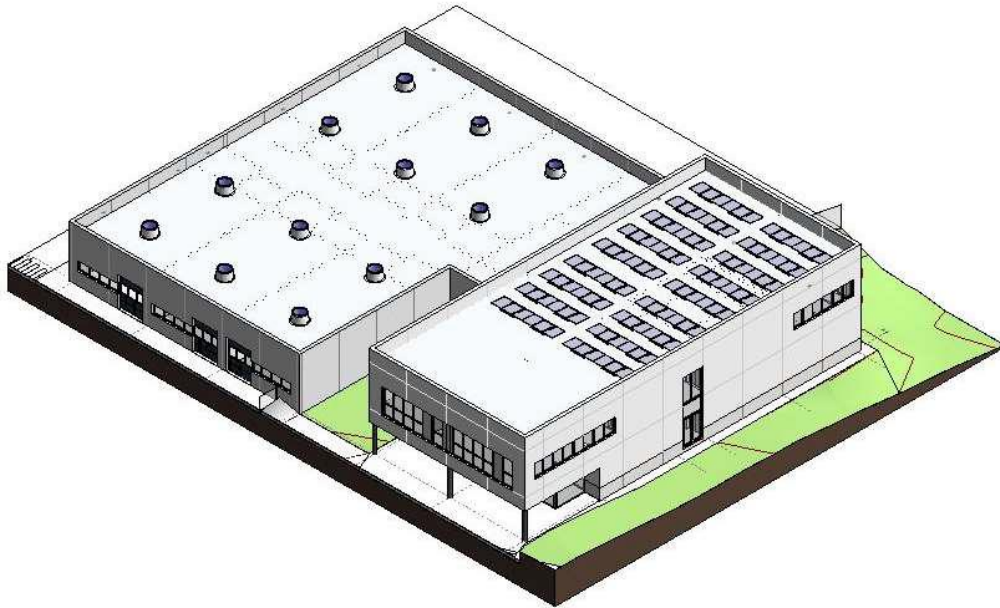


ESQUEMA GESTIÓN CENTRALIZADA

INCUBATOR BUILDING

The building is designed to house the R&D departments of leading companies and new technology-based companies linked to energy storage. It has a dual function, providing an optimal working environment for business initiatives that may arise and contributing to the generation of synergies and the activation and promotion of new knowledge and technological alliances.

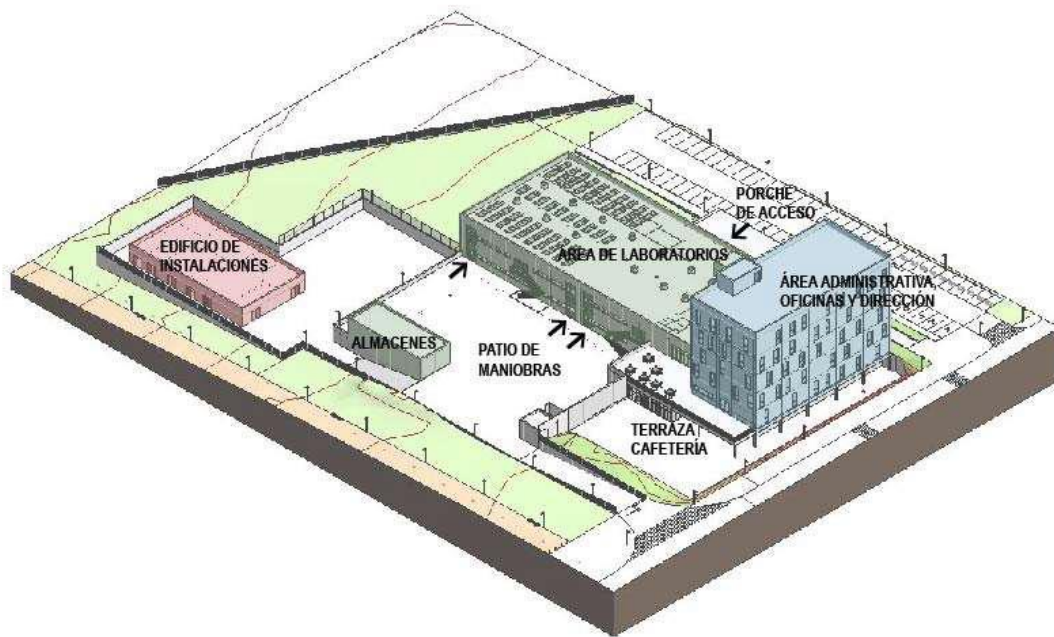
Furthermore, the close link with the CIAE Main Building is essential, as it houses greater resources and capabilities in research and development, which are made available to the incubated companies.



MAIN BUILDING

The main building houses the necessary spaces for laboratories, departments, administration, research support and technology transfer, IT, and technical and service spaces to enable the main activities.

The facilities in this building include indoor and outdoor spaces and are located in accordance with the accessibility needs of both pedestrians and the different types of vehicles that operate on the premises, with safe and efficient routes designed for the different users, allowing for smooth communication between the different areas, as explained graphically in the set of urbanisation plans.



PILOT PLANTS

This building is a unique element within the complex, as it will be where research projects on the different energy storage technologies developed at the CIAE or other research centres will be tested and demonstrated on an appropriate scale. It is designed with a clear focus on production process management and therefore has different spaces that accommodate various technologies and procedures in the field of energy storage. It is conceived in two closely linked parts A) Interior Area, developed in a large container that houses the different departments in which the energy storage processes are organised.

B) Outdoor Area, developed as a large open space, designed to house pilot-scale outdoor industrial facilities, support machinery, gas tanks, compressors and, in general, the necessary equipment for production processes that must be located outdoors.

