

Substations Engineering Standard project



CIRCE is the engineering that expands and updates the corporate standard project of Endesa Distribución since 2008

The appropriate design of a Electrical Substation (ES) ensures the continuity and quality of supply as well as a safety operation with an attached investment. The optimal design of ES's includes from the control and protection systems to the power system and civil works.

In CIRCE we have specialized in the standardization of power engineering and civil works, control and protection, standard configurations of control and protection equipment, as well as all the documentation that involves a project of an electrical substation. CIRCE is **approved by Endesa Distribución and Red Eléctrica de España** for carrying out **projects and optimization studies of ES's**, and it is certified according to **ISO 9.001 standard**. In addition, we perform the **standardization of the control system of MV and HV cells**.

Benefits

- ① It allows reduction of costs in the equipment procurement, as well as the engineering execution.
- ② It guarantees homogeneity of the facilities, easing the maintenance of the same.
- ③ It minimizes project execution time of each substation, as well as the errors, allowing an agile and reliable commissioning.

*"CIRCE has, among others,
ISO 9.001 and 14.001
certification"*



Key Figures



Service Offer

- ✓ Optimal design of the control system, protection and remote control of power stations and substations.
- ✓ Optimal design of the power system and civil works of substations.
- ✓ Development, optimization and normalization of standard positions.
- ✓ Configuration of control and protection equipment.
- ✓ Automation of testing procedures and commissioning of protective equipment.
- ✓ Advice, monitoring, verification, inspection and technical assistance during the assembly and commissioning of the equipment on site.
- ✓ Development of software for the automation of the realization of electrical schemes.
- ✓ Technological adaptation of ES's to the IEC 61850 standard
 - ✓ Adaptation of control schemes
 - ✓ Analysis and configuration of communications between equipment and protocols
 - ✓ Specification of IEC 61850 ES's
 - ✓ Integration of IEC 61850 in the automation of protection and control equipment tests.
- ✓ Training in implementation and use of the IEC 61850 standard in electrical substations.

Focus to

System Operators, system generation manufacturers, engineering's, electric companies, promoters of power generation plants, etc..

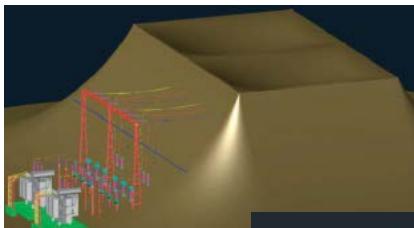
Available Tools

- ✓ I2SET laboratory, with protection models and current and voltage injection equipment.

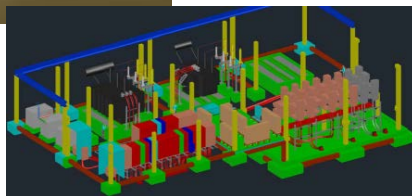
Most requested services

Standard Projects

- ✓ Basic projects for legalization
- ✓ Power engineering and civil engineering:
 - Structural calculations
 - 3D rendering
 - Space reduction study
 - MV mobile substations
- ✓ Control and protection Engineering.
 - Control and protection equipment configurations
 - Listings of telecontrol signals
- ✓ Standards and technical specifications of the company
- ✓ Switchgear approval:
 - Validation of control schemes
 - Check of technical specifications



Substation screening study software



Studio in 3D building of Arcosur Substation

Control engineering of HV and MV cabins

- Design and engineering of the HV and MV cab control drawer. CIRCE engineering is approved by MESA (Schneider Group) and Siemens Spain.
- Circe validates the control schemes of the new cabins approved by Endesa Distribución.
- In addition, CIRCE has carried out advisory and engineering services for ABB and Ormazábal.



HV Cabins of ES El Portillo

Other works

- MV mobile substations for Siemens and MESA.
- Study of new solutions for substations:
 - Y2 Hybrid Outdoor Modules
 - MV parks and control buildings in portable containers
- 3D developments to study solutions.
- Software development:
 - Screening study of ES
 - Engineering automation

Use Cases

CIRCE has extensive experience at national level in the engineering of substations and cabins, having collaborated with companies such as:



R&D Projects in the area:

- [IdEAS](#) – Development and demonstration of IEC 61850 standard to achieve interoperability and interchangeability of control and protection systems in substations.
- [Innovation technology in Electrical Substations](#) – Design and installation or update of control panels and communications equipment. Technological innovation for new substations. CIRCE carried out both the execution of projects and the drafting of technical documentation, financed by ENDESA Distribución.

CONTACT

CIRCE Foundation

Parque Empresarial Dinamiza
Avda. Ranillas, Edificio 3D.
50018 Zaragoza (Spain)

David Llobart: david.llobart@fcirce.es

Inés Villa: mercados@fcirce.es

(+34) 976 976 859