

ElectroRayma applies a strategy of constant growth and expansion, which has led it to firmly support the use of renewable energy sources, as a part of the company's natural development.

Backed by its experience in the naval and industrial sectors, **ElectroRayma** implements a policy of specialisation and constant improvement, which together with investments in rese-

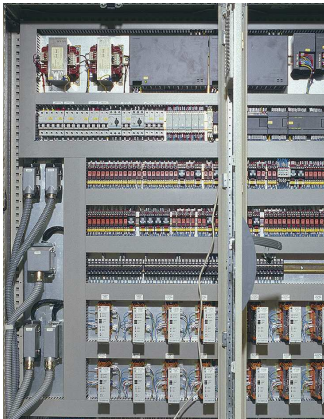
arch, development and innovation and the company's major technical capacity, has allowed it to consolidate its position in the renewable energy sector, with facilities throughout the whole of Spain.

ElectroRayma offers a complete service, from planning, design, installation and maintenance, through to management services when installing these types of systems.

MANUFACTURE AND INSTALLATION OF COMPONENTS

> 600 units.

- Construction of control equipment
- Supply and assembly of components
- Installation of transformation centres



WIND TURBINE ASSEMBLY

> 200 units.

- Assembly, connection and commissioning
- Specialised team of electrical mechanics
- Provision of own tools and control/measurement equipment
- General coordination of installation work (transportation/cranes)



MAINTENANCE AND OPERATION

> 140 Mw.

ElectroRayma offers a full service throughout the whole year that includes:

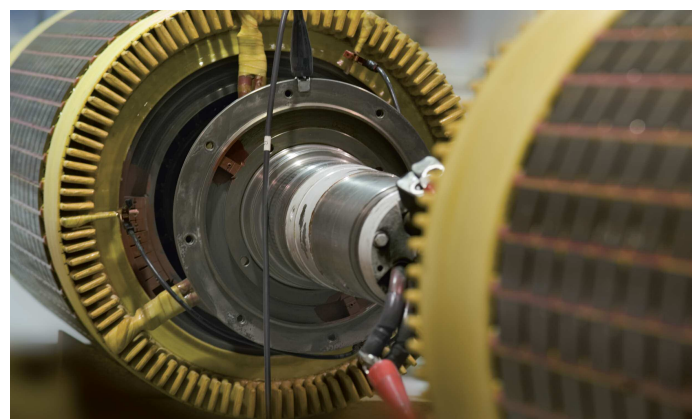
- predictive maintenance
- preventative maintenance
- corrective maintenance
- wind farm operation
- remote surveillance

GUARANTEED AVAILABILITY >99%



OTHER SERVICES

- Verification, control and activation of the substation
- Verification of transformation centres
- Communications and fibre optics
- Generator repairs (>200 units)
- Electronic card repair (>600 units)
- Blade repairs
- Warehouse and component supply management
- Thermographs (>160 units)
- Vibration measurements (>160 units)
- Endoscope (>160 units)



MAJOR CORRECTIVE ACTIONS

- Replacement of 15 wind turbines, 17 gearboxes and 6 bearing groups in 2010



- Various corrective actions: replacement of blades (3 sets), brake cable (5 units), replacement of crown wheel (4 units)



WIND POWER PRODUCTION

- 1 - Maintenance and operation of transformation centres
- 2 - Replacement of electronic cards
- 3 - Maintenance and repair of blades
- 4 - Maintenance and repair of generators
- 5 - Maintenance and repair of gearboxes

- 6 - Manufacture and maintenance of electrical panels
- 7 - Verification, installation and repair of fibre optics
- 8 - Control and management of spare parts warehouse
- 9 - Maintenance and operation of substation
- 10 - Maintenance of medium voltage line

