

Industrial Motors
Commercial &
Appliance Motors
Automation
**Digital &
Systems**
Energy
Transmission &
Distribution
Coatings

BESS Battery Energy Storage Systems

Storage and **stability**
for the evolving grid



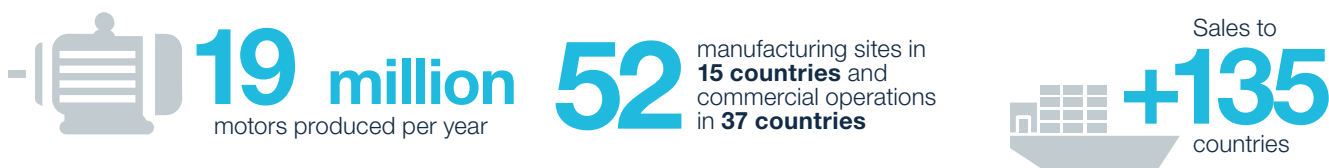
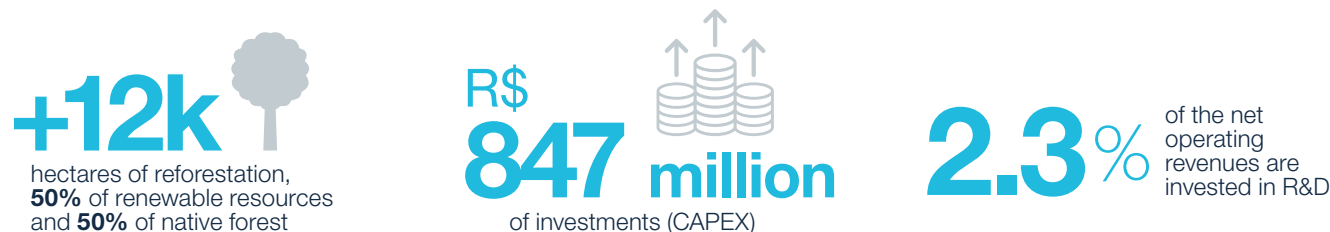
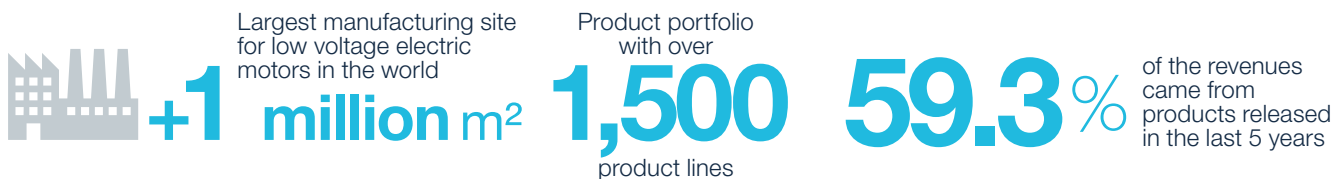
Driving efficiency and sustainability



This is WEG

WEG is a global company and is regarded as one of the world's leading manufacturers of energy efficient electric motors, automation, power transmission, renewable resource technologies, solar, biomass and wind power generation, distribution equipment, and industrial coatings and varnishes. Doing business in over 135 countries, WEG is one of the top global players with background expertise to provide full turnkey systems for a wide variety of industrial applications.

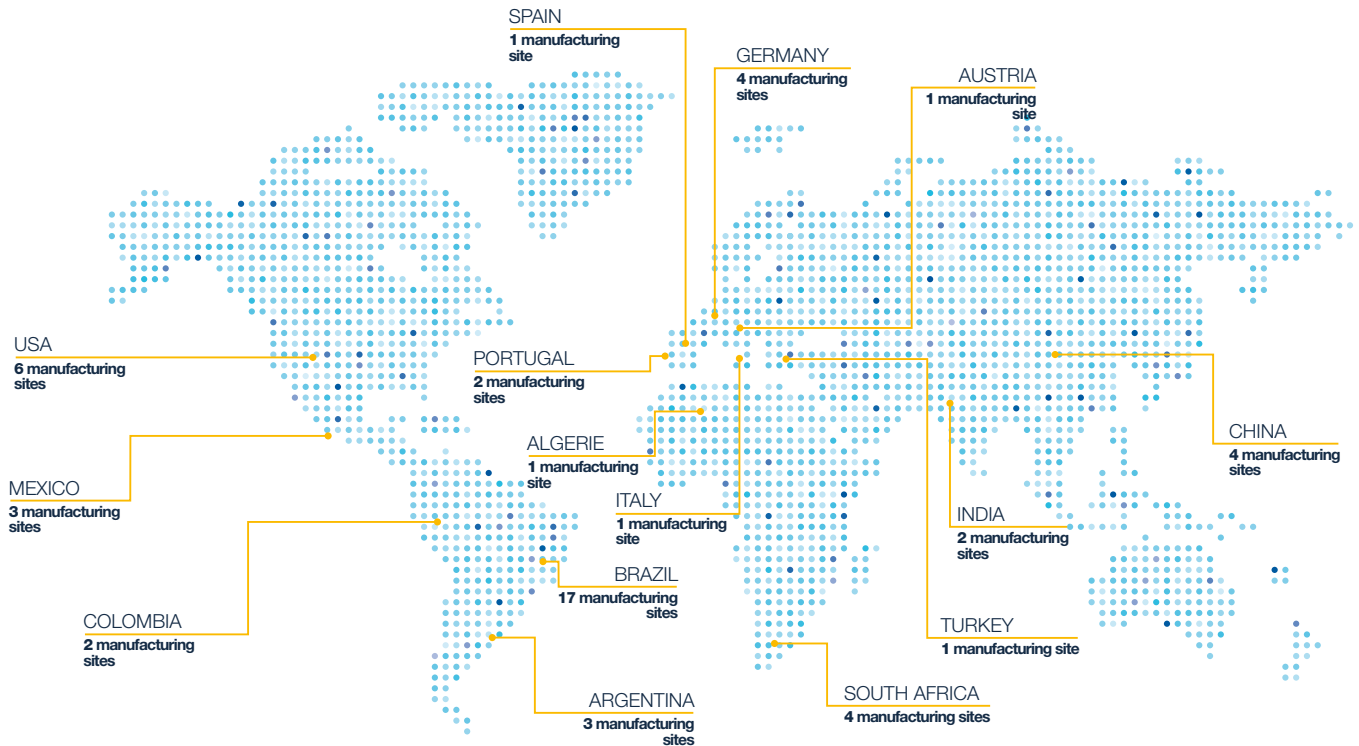
WEG initially started to produce electric motors and in the 80's the company expanded its business activities with the manufacture of electric and electronic components, industrial automation technologies, power and distribution transformers, liquid and powder coatings and insulating varnishes.



A new way to allow interaction of people, companies and smart products.

For many years, we have been developing solutions to allow efficiency to be present in the industry in different ways. The connectivity era has opened up an universe of opportunities to collect and analyze multiple data. With that, giving the start of a new chapter in our history.


WEG global presence



Manufacturing sites related to BESS

Batteries

 **Jaraguá do Sul – SC Brazil**
Building area 6,000 m² 64,584 ft²
140 employees


 **Gravatá – RS Brazil**
Building area 162,414 m² 1,748,210 ft²
352 employees

 **Betim – MG Brazil**
Building area 32,500 m² 349,827 ft²
321 employees

E-houses

 **Betim – MG Brazil**
Building area 5,000 m² 53,819 ft²
33 employees

Panels

 **Jaraguá do Sul – SC Brazil**
Building area 944,231 m² 10,163,620 ft²
14,155 employees


 **Itajubá – MG Brazil**
Building area 11,800 m² 127,014 ft²
350 employees

 **Cota – Colombia**
Building area 15,069 m² 162,201 ft²
282 employees

 **Sabaneta – Colombia**
Building area 6,864 m² 73,883 ft²
195 employees

 **Johannesburg (Robertsham) – South Africa**
Building area 10,000 m² 107,639 ft²
112 employees

 **Washington – MO USA**
Building area 6,628 m² 71,343 ft²
132 employees

 **Cape Town – South Africa**
Building area 8,102 m² 87,209 ft²
32 employees

 **Washington – MO USA**
Building area 16,343 m² 175,914 ft²
227 employees

 **Washington – MO USA**
Building area 14,700 m² 158,229 ft²
115 employees


Panels and Transformers

 **Huehuetoca – México**
Building area 219,536 m² 2,363,066 ft²
2,313 employees

Transformers

 **Blumenau – SC Brazil**
Building area 264,611 m² 2,848,249 ft²
1,440 employees

 **Tizayuca – Mexico**
Building area 29,099 m² 313,219 ft²
583 employees

 **Johannesburg (Wadeville) – South Africa**
Building area 45,000 m² 484,376 ft²
95 employees

Panels, Transformers and E-Houses

 **Itajaí – SC Brazil**
Building area 222,971 m² 2,400,040 ft²
1,054 employees

 **Heidelberg – South Africa**
Building area 39,816 m² 428,575 ft²
90 employees

Stepping towards sustainability

Aware that renewable sources of energy will cover a much larger share of the global energy demands, WEG has been doing major efforts to meet world's sustainability requirements. The outlines of a sustainable energy system are already becoming apparent at WEG since the company set itself ambitious goals for a clean energy supply from renewable resources and high efficiency electric products.

To make this possible, WEG keeps encouraging major technological advances and innovations onto its business strategy with the design, manufacturing and provision of energy efficient and eco-friendly solutions for a sustainable planet.

Renewable is in our DNA

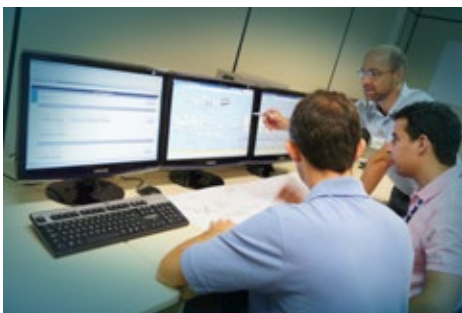
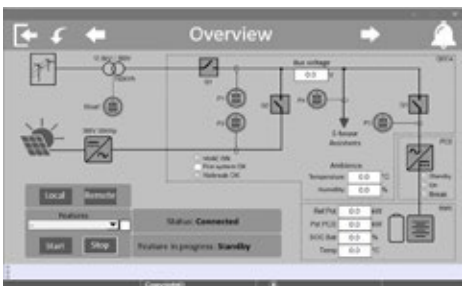
WEG has a strong presence in renewable power supply around the world, contributing to the increase use of Solar and Wind power generation. More than 4 GW in solar power plant and 1.5 GW wind power plants supplied and installed worldwide. More than 4 GW in solar power plants, 1.5 GW wind power plants and 8.5 GW in hydro generator supplied and installed worldwide.



WEG's develop and manufacturing capabilities

WEG Software and Automation

With 30 years of experience as a system integrator, developing software for PLCs and SCADA system, we rely on a solid team of engineers and specialists in industrial automation. The systems supplied by WEG fit a wide range of industrial activities, including: mining, energy, solar power plants, wind power plants, Sugar & Ethanol plants, chemical plants, steel, shipbuilding, machinery, Pulp & Paper. Modern and optimized solutions for a perfect integration at all levels of automation. There are more than 1,600 projects developed and commissioned throughout the world.



WEG Eletronics and Panels

Complete range of low and medium voltage electric & electronic products and automation solutions for several segments. Manufacturing of automation solutions to meet the demand of several industrial and building segments such as Drives, Controls, Electrical panels, Automation systems, Machine safety, Building technologies, etc.

- Own electronic board assembling line to develop and manufacturing drivers to the Bidirectional Power Converter WEG



- Latin America's largest electric panels manufacturer





WEG's E-House

The WEG's E-Houses are an integrated solution with a customized design and manufacture to meet each customer's specific needs. Assembled in a single platform, they may integrate the electrical and automation systems, such as transformers, medium voltage control gear and switchgear, medium voltage and low voltage MCCs, PLCs and auxiliary equipment. The units are delivered assembled, interconnected, and tested at the factory. They represent a customized solution, eliminating the need of masonry works and different suppliers. In addition, since there are no size limitations, they can be used in small and large installations, in many different environments, even aggressive ones, and industrial activities.

WEG's transformers

Since 1981, the transmission and distribution area has been developing the best transformers in the market. WEG is the largest transformer manufacturer in Latin America and the leader in the Brazilian market for mobile solutions. We have a wide variety of products that will meet all market segments. The transformers are certified for Quality and Environmental Management System.



WEG's support and engineering team

With global supply capacity of equipment and engineered solutions, WEG has the engineering team for the development of new products, in addition to dedicated teams for analysis of electrical systems. The number of engineers is above 10% of the total number of WEG employees in the world. For Energy Storage there are three centralized offices: Jaraguá do Sul/ SC in Brazil, Barre/VT and Duluth/GA in United States. Since day one, we support the customer assisting him to select the battery solution that best meet his project requirements. WEG has experience with multiple batteries chemistries and different energy storage technologies.

+
40,000

employees worldwide

+
4,300

engineers

52

manufacturing sites

in

15

countries

in

4

continents

Distributors in **120 countries**

WEG BESS projects

With the knowledge and experience of supplying and implementing solutions for various industrial and energy markets, WEG complements its portfolio with Battery Energy Storage Systems by providing its own or third-party integrated equipment and solutions matching with the requirements of the projects.

300 kW / 600 kWh



2,000 kW / 5,300 kWh



1,000 kW / 1,000 kWh



5,000 kW / 18,000 kWh

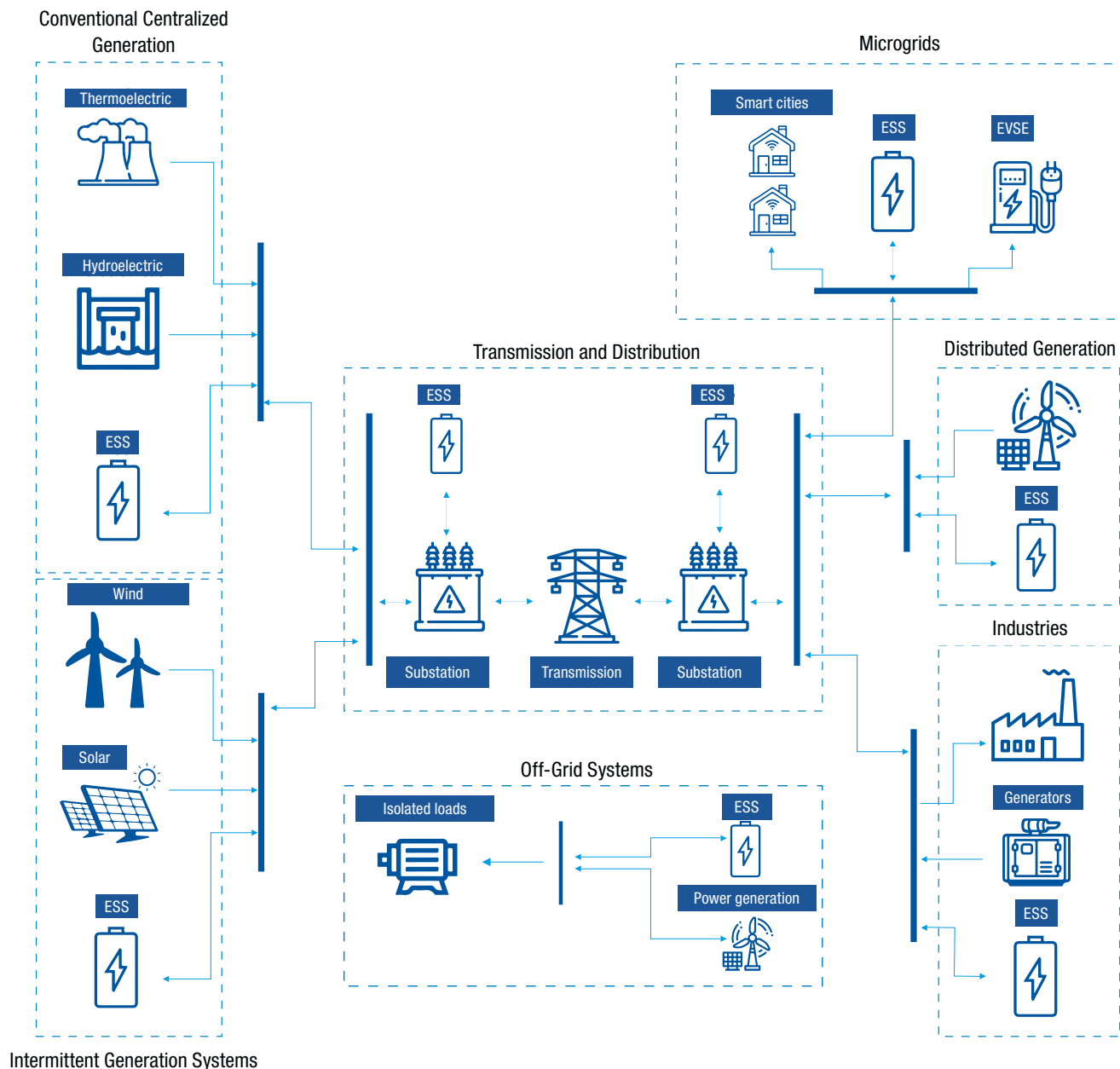


Energy available and under control from generation to consumption

The BESS is a **complete electrical energy storage and management system** that can be configured to perform numerous functions – from reducing the intermittency of renewable generation sources to performing ancillary services in power substations.

The system consists of an **energy control and management solution** which coordinates the operating modes and optimizes their performance, ensuring higher efficiency and better use of energy resources, in addition to providing operational flexibility and energy supply reliability.

Connection points



Type of services



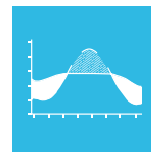
Black start



Power stabilization



Energy management



Load leveling



Microgrids



Peak shaving



Power factor regulation



Voltage and frequency regulation



Peak shifting



Energy backup

Note: the operating modes for each system will be defined according to the specific needs of each application.

Main applications







Power Generation

For use in parallel with intermittent generation sources (wind and solar)

- Voltage regulation
- Power stabilization
- Frequency regulation
- Reliability in power supply





Transmission and Distribution (Utility)

- Reduction in peak demand
- Elimination of network overloads
- Postponement of investments
- Load balancing





Industry Commercial and Industrial (C&I)

- Microgrids and isolated systems
- Energy backup
- Transportation sector (in parallel with electric vehicle charging stations)
- Reduction in consumption
- Response to passive demand
- Distributed storage
- Energy management

One stop shop for energy storage systems

We can handle the entire process from design to commissioning. Since day one we support the customer assisting him to select the battery solution that best meet his project requirements. WEG has experience with multiple batteries chemistries and different energy storage technologies.

Main equipments

- Power Converter Systems
- Battery System (Rack, Container or Cluster)
- Power Transformers (Dry Type or Oil Type)
- High and Low Voltage Panels and Switchgears
- Energy Management System

Main services

- Engineering services (site layout, single line diagrams, electrical studies, interconnection drawings, automation, drawings, system concept and design)
- Project & Site Management
- Civil work & Installation
- Commissioning

Special services

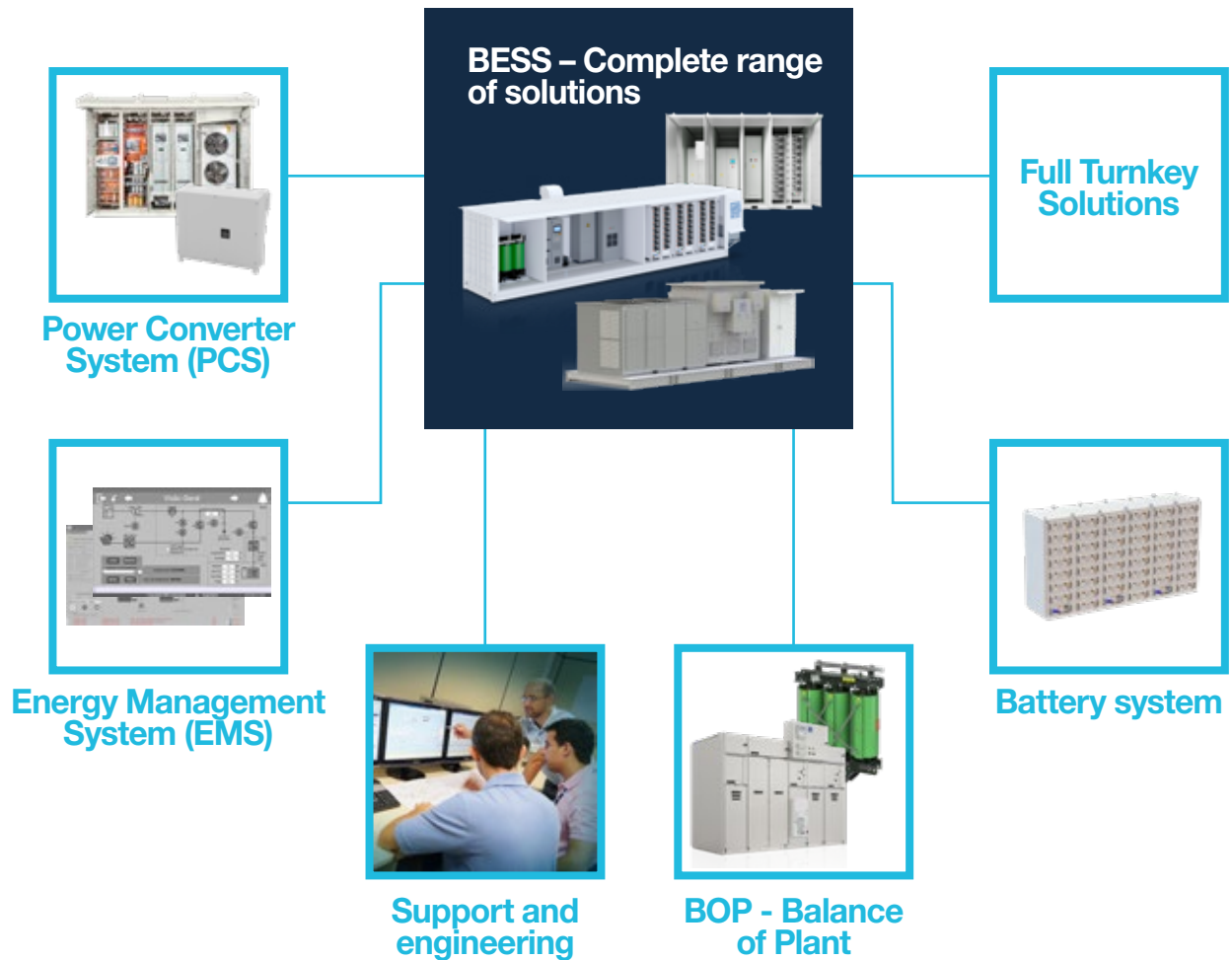
- Customer BESS design support
- Site Development support
- Permitting support
- Site Preparation support
- O&M Agreement & Warranty Management

Note: the offer of products and services may vary by region. Consult your local representative.



BESS solutions

Providing solution from some kWh to hundred MWh focused to meet the customer requirements, WEG uses own or third-party products with the high level of quality procedure and qualification with options to attend the UL, IEC and CE market.

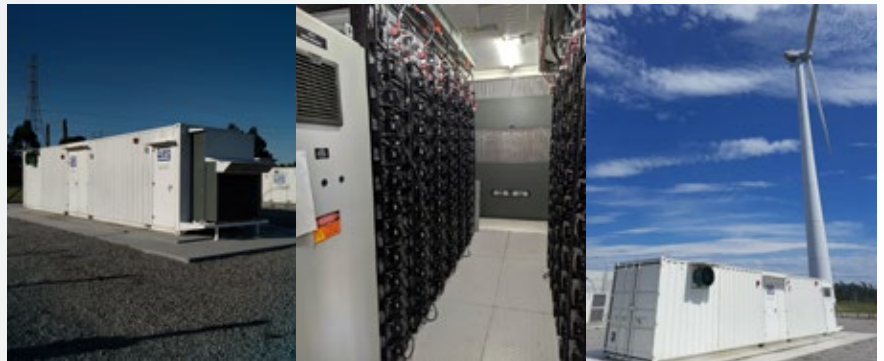


Our biggest motivation is meet the customer requirements.



Integrated battery solution

- Complete BESS integration or complete battery solution including battery enclosure, fire detection and suppression system, HVAC system and DC disconnect.
- From small projects with some kilowatt-hour to hundreds of kilowatt-hours.



Power converter system

- Integrated power converter system including PCS, transformer and/or High Voltage Switch Gear. Option to supply the equipment's individually.
- From small projects with some kilowatt to hundreds of kilowatts.



Transformers

- Large portfolio fitting all the possibilities to the project necessity.



Low voltage panel distribution systems

- Developing and manufacturing of low voltage auxiliary power panel according the standards and tests required.



Energy Management System - EMS

- Software team to develop the SCADA for the entire Energy Storage Plant, controlling since the battery communication to the cloud system.



Engineering and services

- Engineering to develop or support the customer BESS specification.
- Development of site layout, single line diagrams, electrical studies, interconnection drawings, automation drawings, system concept and design.
- Civil work, electrical installation, commissioning and O&M agreement.



The scope of WEG Group solutions is not limited to products and solutions presented in this catalogue.

To see our portfolio, contact us.

For WEG's worldwide operations visit our website



www.weg.net



 bess@weg.net

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The values shown are subject to change without prior notice.
The information contained is reference values.