2016/11

Indar

An *Ingeteam* brand

Milwaukee
(USA)

Beasain
(Spain)

Mexico
(Mexico D.F.)

- Manufacturing Units
- Commercial Agencies
- Service Centres
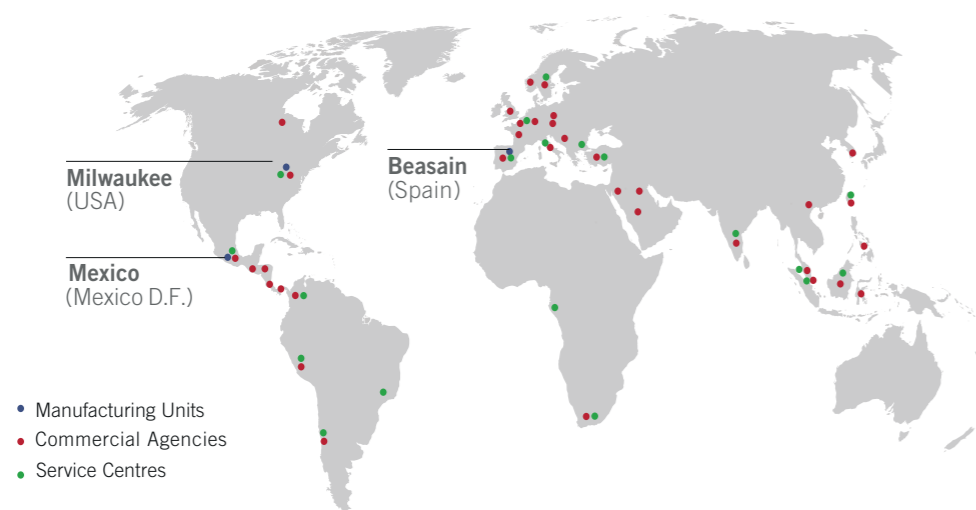
Your driving force

REHABILITATION AND REPOWERING OF
HYDROELECTRIC GENERATORS

Indar

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REHABILITATION AND REPOWERING OF HYDROELECTRIC GENERATORS

CRS 360° CUSTOMER RELATIONSHIP SERVICE
by **Indar**

INDAR has over 75 years' experience in the manufacturing of hydroelectric power generation equipment.

The knowledge acquired over this period of time is made available to our clients for the maximum optimization of their installations.

To this end, we provide **solutions** that are specifically studied for each particular case and we offer maximum **flexibility** so that the best solution may meet the client's requirements. The provision of top level technology, together with effective project management, ensures a high degree of satisfaction for all our clients whose downtimes are **minimized by our excellent execution periods.**

Rehabilitations up to 200 MVA

Reliability, availability, performance, productivity and life expectancy
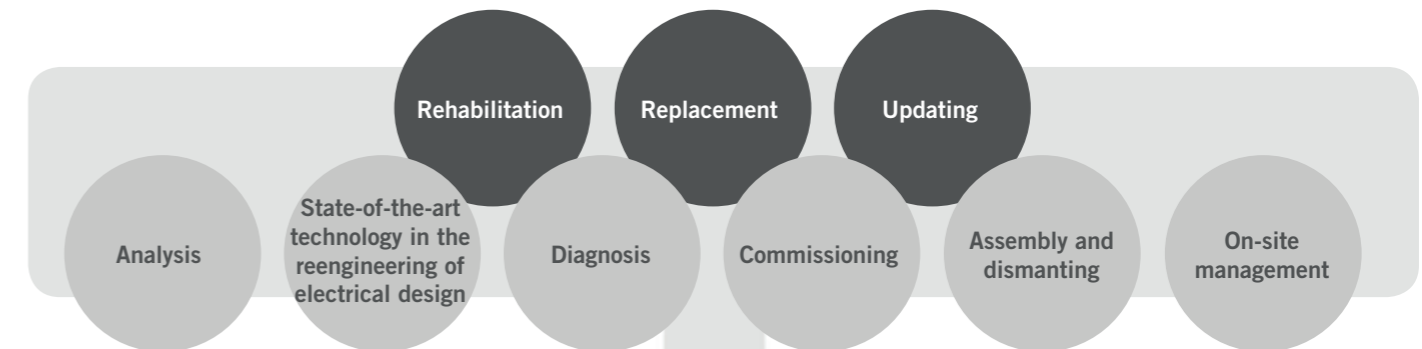
INDAR's technical and human resources have placed it at the edge of the technological ladder when it comes to tackling the demanding power generation sector. Its advanced laboratory with an electrical rotating machine, the most powerful and best equipped R+D+i test bench in Southern Europe, its powerful design equipment, its installations in Milwaukee (USA) and Beasain (Spain) as well as a clear focus towards tailor-made projects, make Indar the best choice in the market.

INDAR's HYDRO unit is one of the most active in the word's hydroelectric market today with over 7.5 GW installed Power on the 5 Continents.

The most important electrical companies in the world, IPPs, engineering firms, EPCs, manufacturers of turbines and consultants place their trust in Indar for its capacity to adapt to specific requirements of the projects in which they participate and for being a reflection of the essence of maximum **efficiency**, product **robustness** and **flexibility** in design.

SOLUTIONS + SERVICES

- Rehabilitation
- Replacement
- Updating
- Analysis
- State-of-the-art technology in the reengineering of electrical design
- Diagnosis
- Commissioning
- Assembly and dismanting
- On-site management

PARTS OR COMPONENTS TO BE REHABILITATED

- Stator winding
- New entire stator (stator core + windings)
- Rewinding of the rotor poles
- New entire rotor

- New entire poles (pole cores + windings)
- Rewedging the stator
- Restoration of generator bearings
- The entire machine

RESULTS

- Improvement in generator availability
- Improvement in operating reliability
- Increase in the power rating of the machine
- A higher level of efficiency, resulting in an increased production of electrical power in the same working conditions
- Increase in productivity
- Increase in the estimated useful life of the generator (reduction in investment)

- Reduction in maintenance requirements (preventive and/or predictive)
- Minimisation of losses and production costs

APROVED BY THE MAIN EUROPEAN UTILITIES

· ENEL	· EDF	· Verbund	· Iberdrola
· Endesa	· Edipower	· Vatenfall	· EON

THE INDAR HYDRO SERVICE DEPARTMENT CARRIES OUT REHABILITATIONS UP TO 200 MVA

- On-site Works
- Electrical Tests
- Manufacturing of Coils and Windings

CRS 360° CUSTOMER RELATIONSHIP SERVICE by **Indar**

ON-SITE ASSISTANCE GUARANTEE IN ANY PART OF THE WORLD

- Technical Advice
- Direct Technical Support
- Training
- Maintenance
- ON-SITE ASSISTANCE