

**ms enertech**

Engineering and Consulting specialized in wind power

**CORPORATE PRESENTATION**

A black and white photograph of a wind farm. Several white wind turbines are visible, stretching across a landscape of rolling hills and fields under a cloudy sky. The turbines are arranged in a line, with some in the foreground and others receding into the distance.

**WE ARE MOVING FORWARD**



ABOUT US  
MS ENERTECH IN THE WORLD  
OUR CUSTOMERS  
R&D  
CONTACT



# ABOUT US



**MS EnerTech** is an independent consultancy, specialized in providing engineering services for the wind industry since **2006**, with subsidiary in Mexico and Colombia and local partners in Argentine and Brazil.

We are a Spanish company with a **high international presence**, accumulating more than 500 engineering projects related to energy generation, developed in 52 countries **for the most relevant enterprises of the sector** (manufacturers, EPC contractors, owners).

**54**

**520**

**50**

**15.000**

**COUNTRIES**

**PROJECTS**

**CUSTOMERS**

**WIND MWs**

**Our distinguishing features** are: flexibility to understand and adapt to the needs of our clients and our proven experience and high specialization in the Wind Industry.



# MS ENERTECH IN THE WORLD

## EUROPE

SPAIN  
FRANCE  
ITALY  
POLAND  
ROMANIA  
UK  
GREECE  
IRELAND  
GERMANY  
PORTUGAL  
SWEDEN  
SERBIA  
BULGARIA  
NORWAY  
UKRAINE

## AFRICA

MOROCCO  
EGYPT  
KENYA  
SENEGAL  
SOUTH AFRICA  
MAURITANIA  
DJIBOUTI

## MIDDLE EAST AND ASIA CENTRAL

TURKEY  
OMAN  
JORDAN  
LIBANO

## SOUTHEAST ASIA AND THE PACIFIC

CHINA  
TAILAND  
INDIA  
AUSTRALIA  
PHILIPPINES  
VIETNAN  
INDONESIAN  
SRI LANKA

## SOUTH AMERICA

ARGENTINE  
BRAZIL  
CHILE  
URUGUAY  
BOLIVIA  
ECUADOR  
PERU  
COLOMBIA

## NORTH AMERICA AND CARIBBEAN

MEXICO  
COSTA RICA  
DOMINICAN REPUBLIC  
PANAMA  
HONDURAS  
USA  
EL SALVADOR  
JAMAICA  
NICARAGUA  
GUATEMALA



# SOME OF OUR CLIENTS

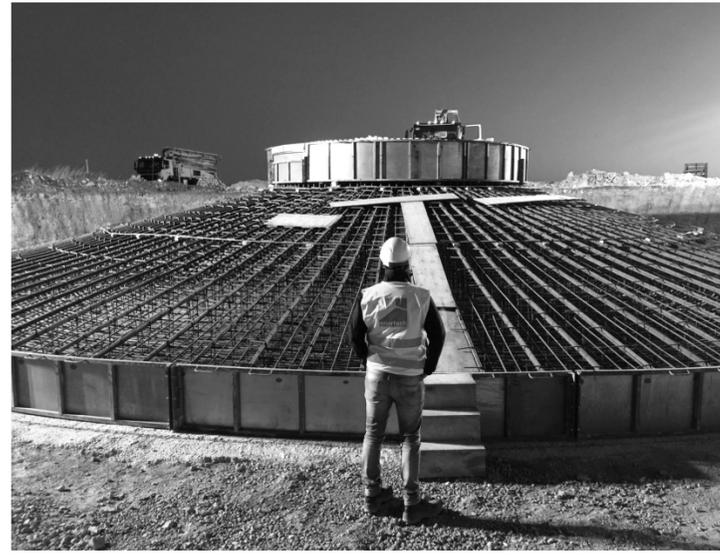


# OUR SERVICES



## GEOTECHNICAL/ GEOPHYSICAL STUDIES

- GEOTECHNICAL ENGINEERING
- DESIGN, MANAGEMENT AND SITE GEOTECHNICAL AND GEOPHYSICAL SUPERVISION
- GEOTECHNICAL REPORTS VALIDATION



## CIVIL ENGINEERING

- WIND TURBINE FOUNDATIONS
- CIVIL INFRASTRUCTURE (ROADS, PAVEMENTS, PLATFORMS...)
- STRUCTURAL PATHOLOGIES ANALYSIS



## ELECTRICAL ENGINEERING

- MEDIUM VOLTAGE SYSTEM
- EARTHING SYSTEM FOUNDATION
- BASIC DESIGN OF SUBSTATION & HV OHL



## CONSTRUCTION MANAGEMENT

- EXECUTION SUPERVISION OF WIND TURBINE FOUNDATIONS, CIVIL ENGINEERING AND MEDIUM VOLTAGE SYSTEM
- BOLTS CAGE ASSEMBLY AND LEVELLING
- WIND TURBINES ASSEMBLY

# GEOTECHNICAL AND GEOPHYSICAL STUDIES



## GEOTECHNICAL SURVEY

- Design, Execution and Management of Geotechnical Surveys adapted to obtain the specific geotechnical parameters for the civil engineering of the WF

## GEOTECHNICAL REPORTS

- Geotechnical report drafting
- Geotechnical report review & validation.

## GEOPHYSICS

- Seismic refraction & MASW (Own equipment)
- Dynamic parameters interpretation and analysis
- Electric Tomography & SEV

## GEOTECHNICAL ENGINEERING

- Seismic Studies
- Liquefaction phenomena, collapse, expansion...
- Ground improvement solutions: stone columns,, rigid inclusions...

# CIVIL ENGINEERING

## Wind Turbine Foundations



- **Constructive and Preliminary Design:**
  - Conventional: gravity, depth foundation
  - Special Conditions: annular foundation, rock anchor, micropiles
  - Own solutions: wall foundation, C3 foundation
- **Analysis of optimizations and improvements, comparative studies**
- **Specific dynamic and fatigue analysis**
- **Calculation models; type «solid» and «shell» in each case**
- **Tower- Foundation connection system design**
  - Cable interface (patent WO 2013/156632)
  - Bolts cage design and streamlining
  - Embedded steel can FEM analysis
- **Bolts failure analysis tools**
- **Precast solutions analysis and design**

**CIVIL ENGINEERING.** Civil infrastructure

**ROADS &  
PLATFORMS DESIGN  
AND CALCULATION**

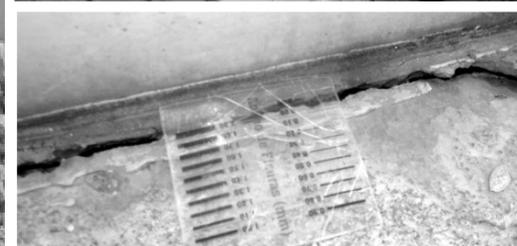
**HYDROLOGICAL AND  
DRAINAGE STUDY**

**BRIDGE DESIGN AND  
CALCULATION**

**LOGISTICS ANALYSIS  
AND SPECIAL  
VEHICLES TRANSIT**

# CIVIL ENGINEERING

## Pathologies Analysis



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## FOUNDATION DESIGN VERIFICATION

Foundation design verification with particular attention to the tower-foundation connection area.

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## FOUNDATION INSPECTION

Inspection visit, displacements measurement, crack mapping, sample collection...

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## REPAIR MANAGEMENT

Repair and injection constructive projects. Technical assistance and construction management during repair works.



# ELECTRICAL ENGINEERING



## ● MEDIUM VOLTAGE SYSTEM DESIGN

- Definition and design of circuits and cabling.
- Short circuit, electrical losses and load flow calculation and external reactive power compensation study.
- Fiber optic wind farm system
- Grounding Network

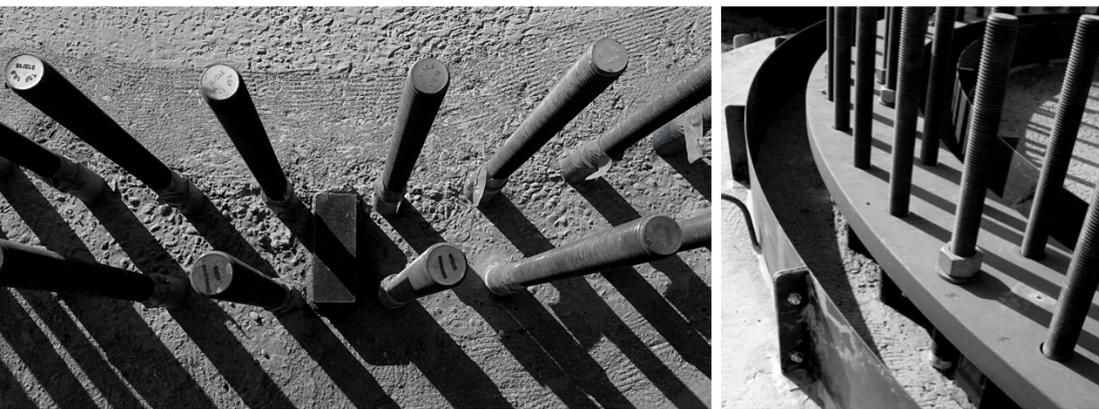
## ● EARTHING SYSTEM FOUNDATION

## ● BASIC DESIGN OF SUBSTATION AND HV OHL





# ASSISTANCE /CONSTRUCTION MANAGEMENT



## WIND TURBINES FOUNDATION, CIVIL ENGINEERING AND MEDIUM VOLTAGE SYSTEM

Construction supervision of wind turbines foundations, civil works and medium voltage system.

## CONSTRUCTION MANAGEMENT

## BOLTS CAGE LEVELLING AND ASSEMBLY

## ON SITE SOLUTIONS AND OPTIMIZATION

Providing effective solutions to possible deviations and improving the resource and materials optimization.



# R&D

**MS Enertech** is committed to invest in R&D to lead a field under constant evolution. We regularly collaborate with universities and Research Centres to drive innovation in our services:

**NEW SOLUTIONS FOR WIND FOUNDATIONS**

**NEW SOLUTIONS FOR ANCHOR SYSTEMS BETWEEN TOWER AND FOUNDATION (INTERFACE)**

**ADVANCED FINITE ELEMENT MODELS (FEM)**

**ANALYSIS SOIL-FOUNDATION INTERACTION**

**FATIGUE BEHAVIOUR ANALYSIS (GROUT)**

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# CONTACT

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## SOCIAL MEDIA



TWITTER



LINKEDIN

**THANK YOU**

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