



# EXPERTS IN FOUNDATION DESIGN FOR WIND TURBINES

Anchor cage design | CTE-Sandwich™
Gravity Foundation | SOFT-SPOT™ Solution
Rock Anchor | High Pedestall Piles design
CAT III Verification | Geotechnical Consultancy



Reliable - Efficient - Responsive - Worldwide

















#### **FOUNDATION DESIGN SERVICES**

- Preliminary and detailed designs following international standards
- Bill of quantities for tender phases
- Respecting specific wind guidelines and local country regulations
- · Resource-saving foundation design
- Time and cost reductions thanks to inventive design solutions
- · Participation on standardization committees



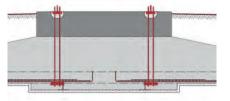
#### **INVENTIVE DESIGN SOLUTIONS**



High Pedestal / Plinth



SOFT-SPOT® Solution



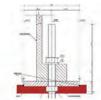
CTE-Sandwich™ Solution



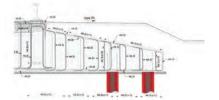
**Rock Anchor Foundation** 



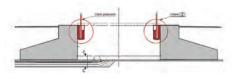
Optimzed Gravity Foundation



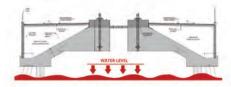
Anchor Cage Design



Piles Design



Concrete Tower Foundation



**Near-Shore Foundation** 

## CTE WIND IN FIGURES

27 500+
Wind Turbines

**75** Countries

8 Local Offices

16 Languages Spoken

40+ Engineers

**50%** Female Staff

80% Senior-Level Know-How

### 5 REASONS WHY CTE WIND

01.

Design experts since 2003

#### 02.

Certified Design Method by DNV

#### 03.

Trusted relationship with OEMs

#### 04.

No failures and 100% customer satisfaction

#### 05.

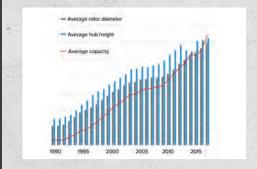
Worldwide insurance liability



#### **GEOTECHNICAL CONSULTANCY SERVICES**

- Design of geotechnical campaigns
- Drafting of geotechnical studies
- Subcontractor management
- Geotechnical report execution
- Synthesis of soil values to choose the best foundation
- Verification of third party reports





## REPOWERING & LIFETIME EXTENSION

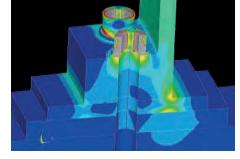
#### For all WTG-foundation types:

- · Fatigue verification
- · Lifetime extension
- Repowering



## FORENSIC ENGINEERING

- Fact finding on site
- Root cause analysis assessments
- Establishing repair concept
- Site inspections to verify satisfactory repair



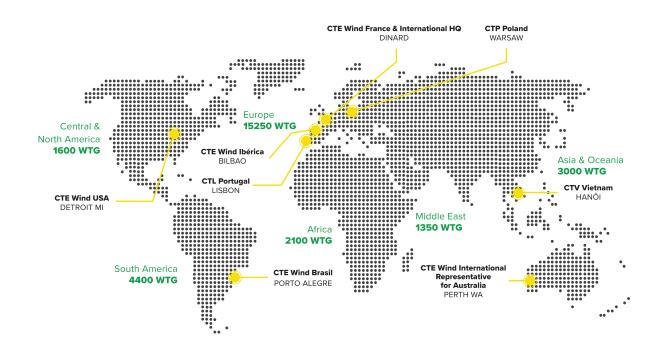
#### OUTSTANDING SKILLS

- Independent design verification / Category III check
- Reinforcement verification and on-site construction QA / QC
- R&D Engineering / Design solutions for prototypes
- FEM-Analysis for new design and trouble shooting



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