

## Ras Ghareb Wind Energy Project

**Project:**

Ras Ghareb Wind Energy Project

**Location:**

Ras Ghareb, Egypt

**Project completed:**

June 2019

**Owner/s:**

Ras Ghareb Wind Energy S.A.E

**Contractor:**

Siemens Gamesa and Orascom Construction

**Applicator:**

ABuild

**Consultant:**

Lahmeyer International

**Market sector:**

On-shore wind farm

**Products used:**

-MasterFlow 9400  
-MasterSeal 6100 FX  
-MasterKure 101  
-MasterFinish 341 M  
-MasterSeal 622

**The background**

Ras Ghareb wind farm is a 262.5MW on-shore wind project being developed near the Gulf of Suez, approximately 30km north-west of Ras Ghareb, Egypt.

The project is being developed by Ras Ghareb Wind Energy, a special-purpose joint venture company established by Engie (40%), Toyota-Tsusho / Eurus Energy (40%) and Orascom Construction (20%) on a build-own-operate (BOO) basis. The estimated investment in the project is \$400m.

The project reached financial closure in December 2017 and the construction commenced in 2018. It was completed in 2019 and will supply power to approximately 500,000 households when fully operational.

The wind farm is expected to support the Egyptian Government's target to supply 20% of electricity from renewable sources by 2022.

**The challenge**

- The climate variations between summer, autumn, winter and spring
- Wind speed challenges during operations
- Tight schedule
- Finding innovative execution methods to improve the quality
- Initiate durable solutions to insure long durability for the wind turbine structure
- Reach high and early final strength for the grouting foundation
- Introducing smart solutions to speed the process of structure creation so that the wind farm can be fully operational
- Provide sustainable solutions for the whole-life performance of the wind turbine



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### Our solution

-MasterFlow 9400: innovative solution for the foundation grout, providing excellent, fatigue resistance, high and early final strength and ultra high modulus for exceptional stiffening properties. This product is the most suitable solution to be pumped into a complex area or area inaccessible to conventional grouting methods.

-MasterSeal 6100 FX: waterproofing solutions, that resists up to 5 bars with high resistance to carbon dioxide diffusion. Allows rapid curing, high durability, low consumption and time saving. It also reduces efflorescence appearance risk

-MasterKure 101: a curing compound solution for the casted concrete to enhance the hydration process for the casted concrete

-MasterFinish 341M: chemical release agent suitable for mold and shutter faces prior to casting concrete in order to achieve a clean release

-MasterSeal 622: a bitumen foundation protection solution that provides an excellent resistance to water, dilute acids and alkalis, chloride and sulphate ions

### The customer's benefit

- Finish the project on the scheduled time
- Wind turbines with strong structure to outlive conventional made ones
- Quality control from Master Builders Solutions team
- Full satisfaction with innovative solutions for their problems
- We introduced solutions that allowed cost and time saving

### Projects facts

- 262.5 MW – onshore wind farm
- 2 consecutive working year with more than 2.750.000 working hours without LTI
- Estimated investment is about 400.000.000 USD
- Supplying power to approximately 500.000 Households when fully operational
- 125 wind turbine
- The 2.1 MW turbine feature a 97 m long rotor, suitable for low wind sites, light weight eight blades, active yaw system and a preventive maintenance system

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