

LOOKING AFTER OFFSHORE WIND TURBINE INVESTMENTS

EXPERTS IN HUMIDITY MANAGEMENT

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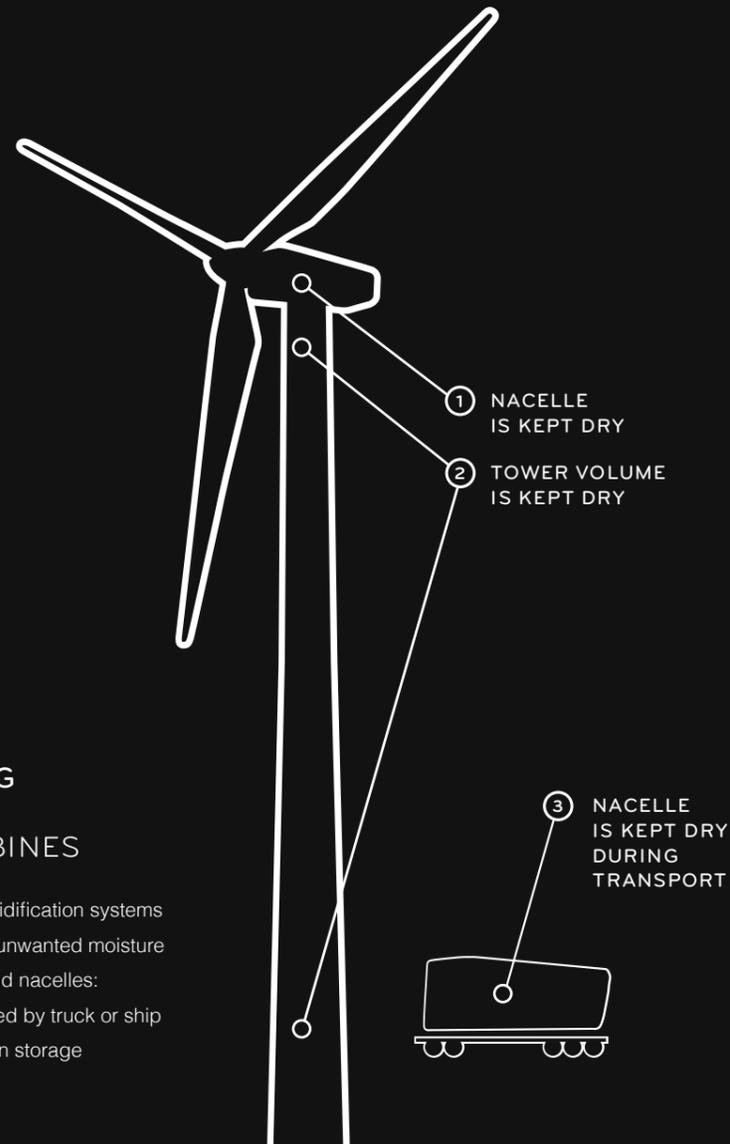
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+45 5167 2903 / jbe@cotes.com
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CONTROLLING HUMIDITY IN WIND TURBINES

Cotes adsorption dehumidification systems effectively do away with unwanted moisture in wind turbine towers and nacelles:

- > while being transported by truck or ship
- > while in pre-installation storage
- > while in operation



“There is no sign of corrosion, condensation or any problems of that kind. Inside, our wind turbines and the electrical installations are pretty much in as good a state as the day they were commissioned”

JESPER NIELSEN
DONG ENERGY MANAGER
FOR THE NYSTED OFFSHORE
WIND FARM



EXPERTS IN HUMIDITY MANAGEMENT

THE NYSTED OFFSHORE WIND FARM

LOOKING AFTER OFFSHORE WIND TURBINE INVESTMENTS

Adsorption dehumidification keeps offshore wind turbines in good shape

The Nysted Offshore Wind Farm (*Nysted Havmøllepark*) lies about 10 km out to sea off the southeastern tip of Denmark. It is one of the world's largest wind farms, and consists of eight rows of nine Siemens Wind Power 2.3CS MW turbines.

The Nysted wind farm began commercial operations in December 2003, and is operated by DONG Energy, one of the leading energy groups in Northern Europe.

THE CUSTOMER'S PROBLEM

Corrosion prevention

If not tackled effectively, the high levels of moisture in sea air – often saturated with corrosive salts due to the offshore environment – can have serious effects on the structures, operating uptime and maintenance budgets of offshore wind turbines.

DONG Energy is responsible for the operation and maintenance of the Nysted facility, and therefore has a special interest in the reliability and durability of these wind turbines. Sending technicians out by boat to undertake service and repairs is time-consuming and can be dangerous – and always involves substantial costs.

THE COTES SOLUTION

Looking after valuable assets

The basic laws of physics mean that corrosion in a wind turbine's metal structures can only take place if both oxygen and moisture are present – the salt just serves as a catalyst. Using modern dehumidifiers to remove the moisture from the air therefore eliminates both corrosion and condensation.

This is why Siemens Wind Power installed two Cotes CR80B dehumidifiers in each of these 72 wind turbines (one unit each in the tower and the nacelle), supplementing standard Siemens corrosion-protection measures.

Their purpose is to remove the moisture from the flow of air around the turbine machinery and transformer unit, and from the electrical cabinets containing sensitive electrical and electronic equipment.

HOW THE CUSTOMER BENEFITED

Low-maintenance reliability

Despite now having been in non-stop service for 7 years, less than half of the dehumidifier units have ever shown faults. According to Jesper Nielsen, the DONG Energy manager responsible for maintenance of the Nysted wind turbines, “They're strongly built and service-friendly. They just keep on working as intended, and we rarely see anything wrong.”

The only maintenance the Cotes dehumidifiers normally require is the changing of the filters once a year, in conjunction with the annual maintenance visit. If anything is wrong, technicians simply replace the whole dehumidifier with a spare and take the one needing attention back to the workshop on land. This helps DONG Energy keep its maintenance costs to a bare minimum.

Better return on investment

The combination of low service and maintenance costs on the one hand, and extended service life for both the sensitive installations and the actual structures of the wind turbines in the Nysted facility on the other, add up to a measurably better return on investment for DONG Energy.

“There's no doubt that the Cotes dehumidifiers have proved to be a really good equipment choice. They're straightforward and functional, and we can rely on them to get the job done, and extend the service life of DONG Energy's investment in this facility,” states Jesper Nielsen.

TALK TO US ABOUT WHAT'S POSSIBLE

COTES A/S

DENMARK

+45 5819 6322

INFO@COTES.COM

COTES.COM