

No. 1 in Modern Energy

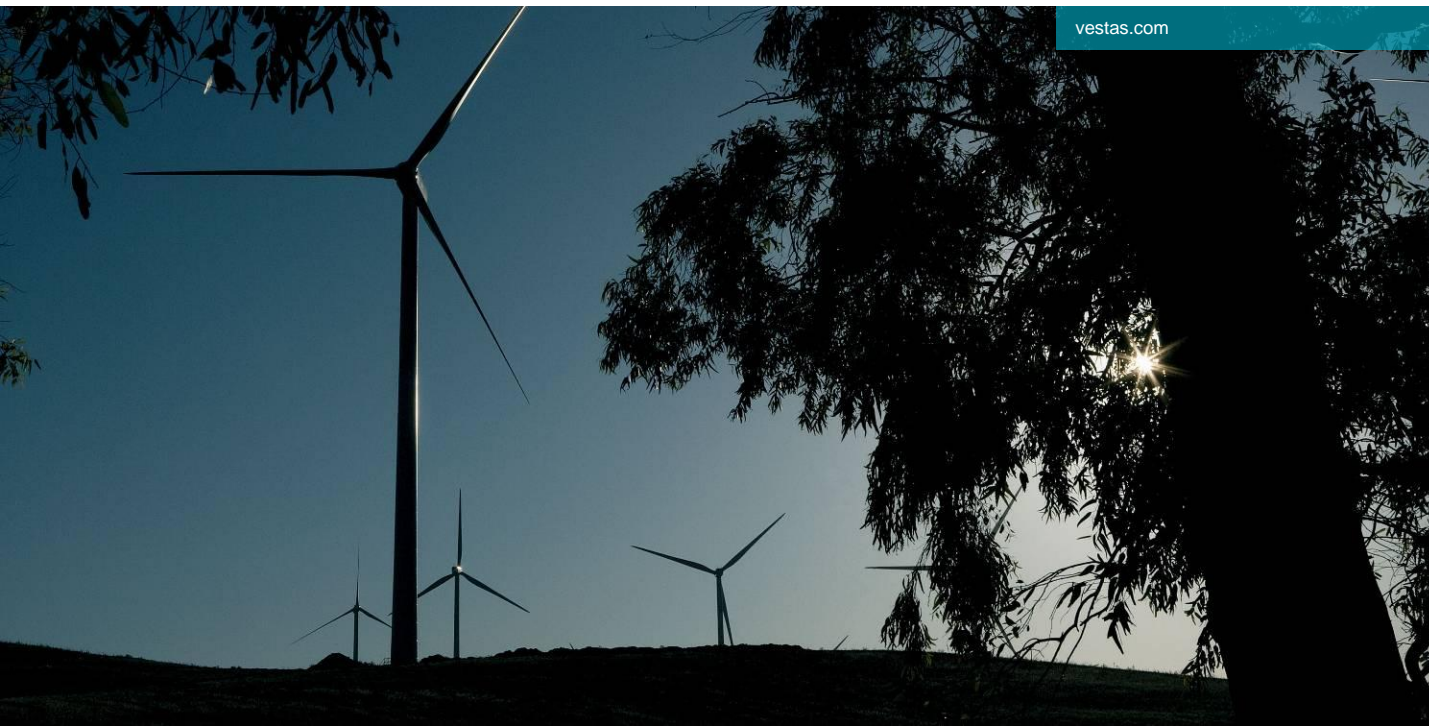


-Going Cold and Icy..

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Vestas[®]



Vestas 2008

- New Vestas Northern Europe headquarters in Malmö
 - Currently approx 300 employees in Sweden,
 - 20.000 globally
- 10.000 MW in production capacity by 2010
- Installs a new Wind Turbine globally every 4 hours.



Strategic approach to Winter Wind power Technology

- Priority

1. Health & Safety

- Personnel working on turbine
- Flying ice

2. Turbine loading

- Ice load on construction
- Type certificate for cold climate conditions

3. Turbine availability

- Removal of ice
- Prevent ice build up



Status December 2008

- Low Temperature (LT) turbines for operation down to -30 C.
 - In operation in:
 - Scandinavia
 - Mongolia
 - Canada
 - with good track record for +10 years.
- V90-3,0 MW LT prototype in operation in North America
- Turbines do throw ice..
 - Must be addressed in planning stage.



Ice detection systems

- Ice on leading edge of blade
- Various sensor systems have been tested over the years
 - Tests ongoing on new technology.
 - Conclusion expected spring 2009



Prevention of ice build up/ De-icing systems

- Not available today
- Several R&D projects in progress...
 - Will update the market when relevant news to report



Thank you for your attention

