

ROTOR BLADE REPAIRS IN WINTER CONDITIONS

BLADEFENCE OY - VILLE KARKKOLAINEN

WINTERWIND 2015

PITEÅ 4.2.2015

BLADEFENCE[®]

BLADEFENCE IN SHORT

- ESTABLISHED IN 2010
- PART OF JANNENISKA GROUP, THE LEADING PROVIDER OF SKYLIFT SERVICES IN NORTHERN EUROPE
- GROUP TURNOVER IN 2014 ~ 12M €
- TOTAL PERSONNEL ~ 70



BLADEFENCE IN SHORT

PROJECT SERVICES:

- VISUAL AND NDT INSPECTIONS
- BLADE REPAIRS
- BLADE RETROFITS (PROTECTIVE TAPE OR AERODYNAMIC DEVICES)
- BLADE CLEANING AND ANTI-/DE-ICING OPERATIONS
SYÖPAIKKOJEN SÄILYMINEN

SPINDURANCE BLADE MAINTENANCE AGREEMENT

- LONG-TERM CONTRACT (3 OR MORE YEARS)
- PRE-EMPTIVE MAINTENANCE
- REDUCED TURBINE DOWNTIME AND INCREASED PRODUCTION



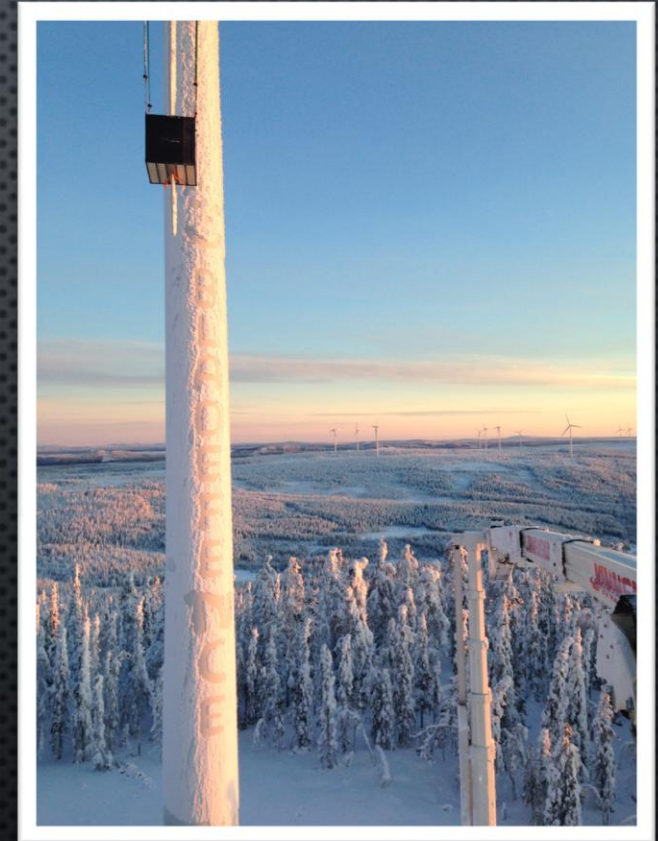
BLADE REPAIRS IN WINTER CONDITIONS

- RELATIVELY SHORT REPAIR SEASON
- WEATHER INDUCED MATERIAL RESTRICTIONS
- PREVENTIVE MAINTENANCE APPROACH TO COMBAT SECONDARY DAMAGES
- ACCESS TO THE SITE AND H&S ISSUES
- WEATHER DOWNTIME AND WORK ROTATION
- LOWER PRICES FOR LATE OR EARLY SEASON WORK



BLADE REPAIRS IN WINTER CONDITIONS

- UNPLANNED MAINTENANCE IN WINTER SEASON
- CENTERED ON “SHOW-STOPPERS”
- LIMITS PRODUCTION LOSSES
- UP-TOWER REPAIRS POSSIBLE AND SIGNIFICANTLY MORE COST-EFFECTIVE THAN TAKING THE BLADE DOWN WITH HEAVY CRANE
- REDUCES ICE INDUCED BLADE LOADS DURING NON-OPERATION



CASE STUDY

- CUSTOMER: JÄMTKRAFT
- SITE: HORNBERGET
- TURBINE: VESTAS V90
- TIME: JANUARY 2014
- AVERAGE TEMPERATURE: -10 TO -25
- TYPE: SIGNIFICANT DELAMINATION OF APPROX. 2000MM * 300MM IN SIZE
- THE REPAIR ENABLED THE TURBINE TO RETURN FULL PRODUCTION MONTHS EARLIER THAN WHAT WOULD HAVE BEEN POSSIBLE OTHERWISE.

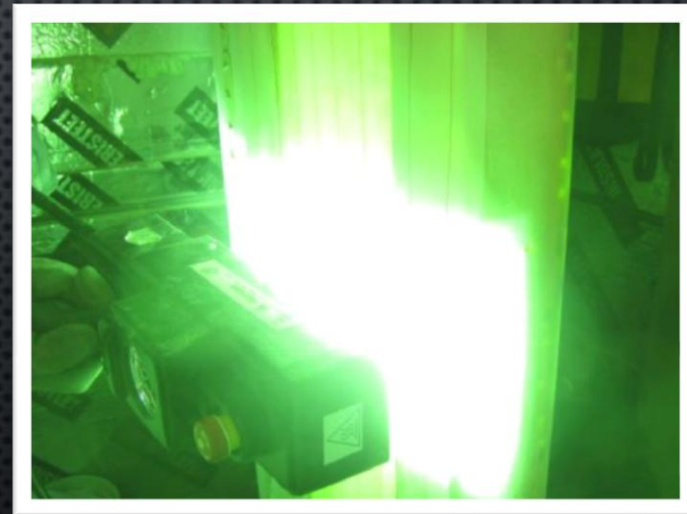
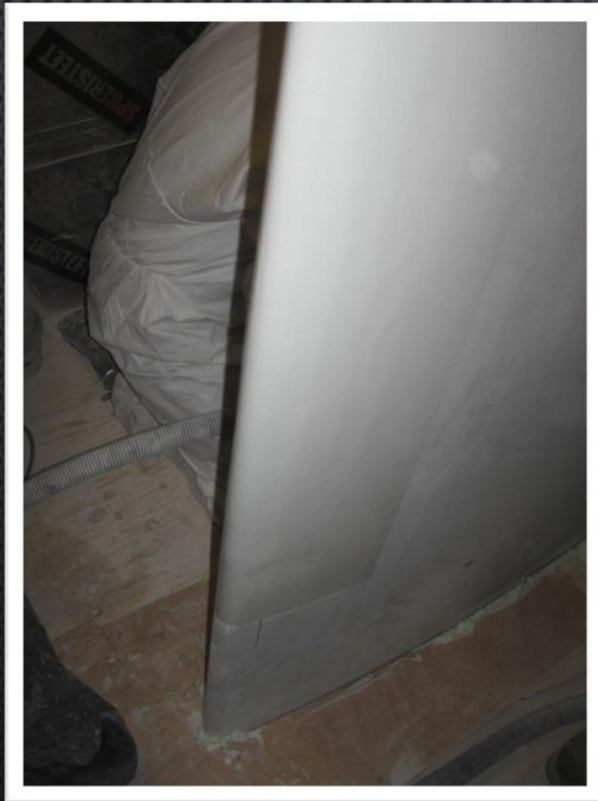


CASE STUDY



CREATING SUITABLE WORK ENVIRONMENT WITH BLADE
REPAIR MODULE

CASE STUDY



REPAIRING THE DAMAGE IN NEAR FACTORY CONDITIONS

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TACK!



VILLE.KARKKOLAINEN@BLADEFENCE.COM

+358 40 554 0409

WWW.BLADEFENCE.COM

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