

# Icing detection monitoring and visualisation

Ruggedized embedded sensors and computer systems  
for harsh environment

Icing of wind turbine blades poses a significant challenge in cold climate regions around the world, as it increases the economic risk thereby reducing the profitability of wind energy projects in affected areas.

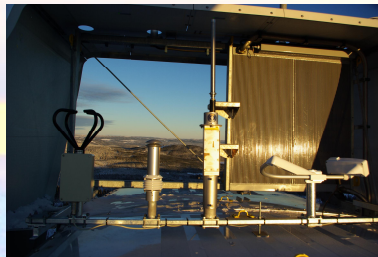
Combitech has extensive knowledge of monitoring systems and acts as a partner for integrating customer solutions.

## Ruggedized

- High grade components
- Operates at -40 – 50C without heating/cooling
- Handles any communication method

## Integration platform

- Ice sensors
- Camera systems
- Weather sensors
- Wind power system

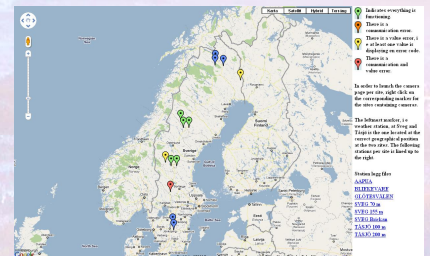


## Unique sensors

- Combitech has a unique ice load detector IceMonitor™
- Any 3rd party sensor can be integrated

## Icing portal

- Web interface
- Secure access
- SQL Database
- Easy data retrieval to Excel



## Reference projects

- "Storskalig ekonomisk vindkraft i fjällmiljö"
  - Bliekevare (wind turbine)
  - Aapua (wind turbine)
  - Glötesvålen (mast)
  - Tåsjö (2 masts)
  - Sveg (2 masts)
  - Röberg (wind turbine)
- Wind turbine system integration
  - 5 sites
- Sensors and system integration
  - 30 pcs IceMonitor and equipment

## Highlights 2011

- Next generation high performance field computer, tests spring 2011
- Research on IR icing detection and sensors

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