

A Test Centre for wind turbines in cold/icy climate

Winterwind 2012

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Swedish Wind Power Technology
Centre

SWPTC

- is a research and development centre for wind turbine technology located at the Chalmers Technical University in Gothenburg (CTU).
- The centre is made up of nine industrial companies, such as ABB, SKF, GE Wind, Göteborg Energi, Semcon and others, representing 1/3, CTU 1/3 and the Swedish Energy Agency 1/3.
- The research budget is SEK 100 million over four years.

The idea

- SWPTC, Vindforsk and Power Circle produced a desk-top study in 2011 in order to get some answers to whether a test centre for testing wind turbines in cold/icy conditions in Sweden would be worthwhile pursuing further.
- The study can be downloaded from the web pages of SWPTC, Vindforsk and Power Circle.
- The conclusion of the study was to continue and go deeper into the subject.

Cold/Arctic/Icy climate ???

Primarely ICE
LOW TEMPERATURE
a bonus

Purpose of the Test Centre

- The purpose of creating a test centre for wind turbines in icy conditions is
 - For turbine manufacturers to test turbines, materials and systems for anti-icing or de-icing.
 - For turbine manufacturers to get certification for those turbine models that adhere to certain minimum criteria regarding their ability in icy conditions.
 - For technical universities to assist the industry with advanced research and development of materials and systems.

What will happen now?

- SWPTC has decided to carry out the next phase in this project. We call it Phase II. During this phase we will look at:
 - Ownership issues
 - Configuration of the test centre
 - Develop budgets for CAPEX and OPEX
 - Locate the right site
 - Good infrastructure
 - High mean wind speed
 - High certainty that icing will occur every year

What will happen now ?

- A positive municipality
- Positive permitting authorities
- Develop legal agreements
 - Test centre > users (turbine manufactures)
 - Test centre > Technical Universities
- Gather binding interest from users
- Develop basic knowledge regarding certification of wind turbines for icy conditions
- Secure financing for Phase III

Time line

Phase II	February 2012 – March 2013
Permitting	March – October 2013
Financing	September – October 2013
Construction	November – December 2015
Start of operation	January 2014

This is "best case scenario"!

It may take longer ...

Phase II

- Project owner Chalmers Industriteknik AB
- Consultant Scandinavian Wind AB

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Thank you for your attention!