



OPTIMAT BLADES
Workshop

Introduction to OPTIMAT BLADES

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General information

- Full project title
 - Reliable Optimal Use of Materials for Wind Turbines Rotor Blades

- Acronym:

OPTIMAT BLADES

- Co-ordination:
 - Financial/administrative: ECN
 - Scientific/technical: KC-WMC



General Information

- Project duration: 52 months
01-01-2002 until 30-04-2005

- Budget

- Total budget: 4.4 M€
- EU-contribution: 2.4 M€

- Number of partners

At the start of project: 18, now 17.

- R&D institutes: 10
- Industries: 6, now 5
- Certification bodies: 2



Objective

- Objective
 - Accurate design recommendations for optimised use of materials for rotor blades with an improved reliability.
 - Based on a consistent set of material data including:
 - Variable amplitude loading
 - Complex stress states
 - Residual stresses/life
 - Extreme conditions
 - Thick laminates and
 - Repair techniques



Partners

■ R&D institutes

- ECN



- KC-WMC



- CCLRC



- RISØ



- CRES



- VUB



- UP



- VTT



- DEWI



- DLR



■ Industries

- LM



- Vestas



- GE-Wind



- Nordex



- Gamesa



■ Certification Bodies

- GL-Wind

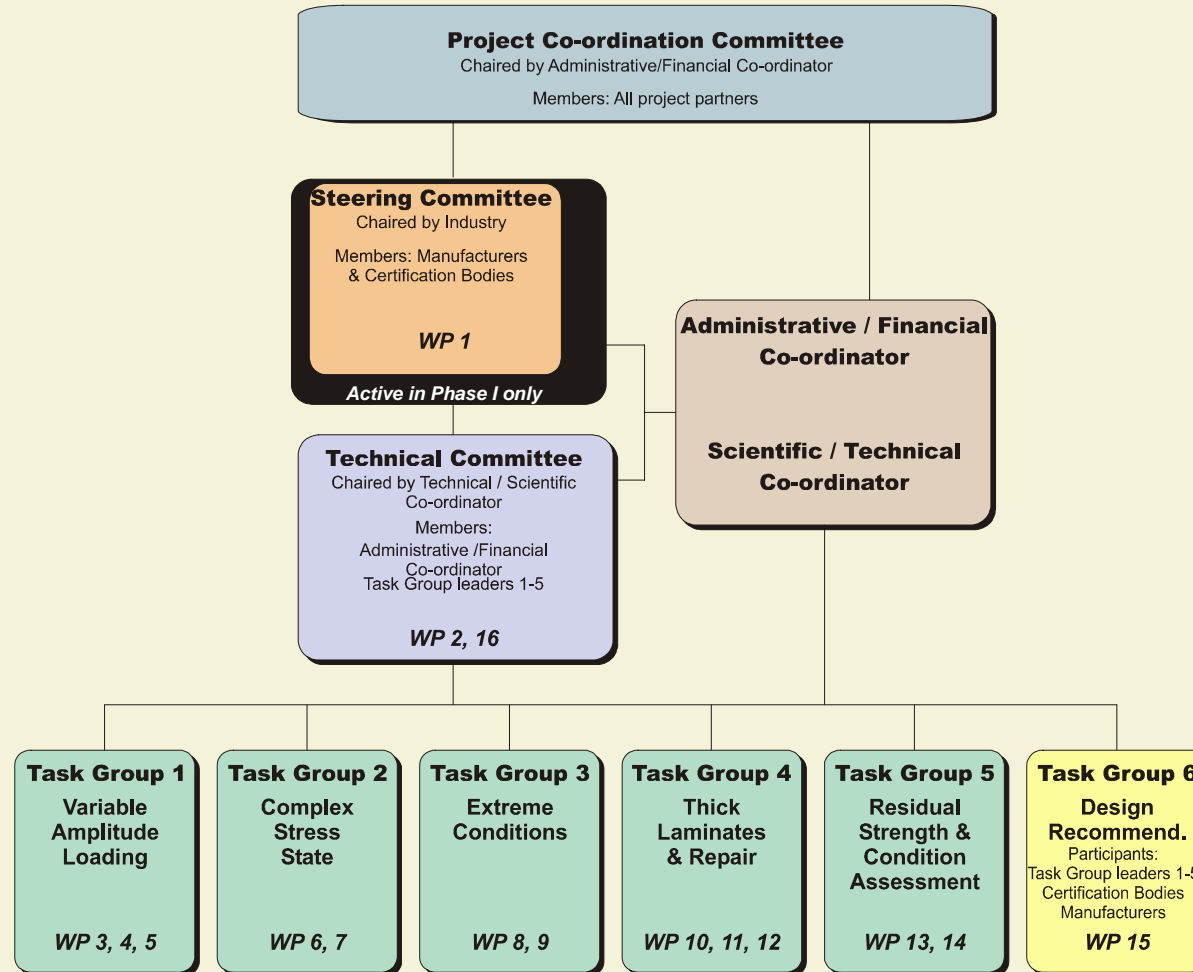


- DNV





Project structure





Some numbers on Optimat

- Number of
 - Person months ~500
 - Specimens tested ~2300*
 - Fatigue cycles ~600 Milj*
 - Machine hours ~30.000*
 - Reports ~150*
 - Publications ~25*

* Need to be updated



Objectives of Workshop

- Disseminate the knowledge gained to the European industry
- Discuss the proposed Design Recommendations
- Get feed back from the European industry on the proposed Design Recommendations.



Agenda for the Workshop (1)

- Introduction to Optimat Blades
- Recommendations of material tests
- Determination of S-N lines
- Fatigue life prediction
- Biaxial stress state in blades
- Biaxial Tests
- Extreme conditions

Break



Agenda for the Workshop (2)

- Repair techniques & thick laminates
- Residual strength models
- OPTIDAT, the database of OPTIMAT
- Implementation of Technical Standards
- Panel discussion & input from industry
 - A new implementation of CLD

Finish: Workshop

- **Presentation of UPWIND**
(6th framework Wind Project)