

STEEL TECHNOLOGY PLATFORM

"Materials for Energy: recent achievements
and next steps of the European steel
Technology platform ESTEP"

Dr. P. Gimondo

EWEC Wind Conference
Marseille – 17 March 2009



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ESTEP's main characteristics

- Among the first ETPs (first contacts in 2002) created in Europe
- Financially supported by the EU steel industry (no support from the EU Commission)
- Focused on topics of general interest for Europe (CO₂, energy, sustainable use of resources)
- Living SRA
- On its way to its first general approach (ULCOS project)



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The SRA of ESTEP answers these challenges

- Reducing CO₂ emissions directly in steelmaking and indirectly by offering light steel solutions
- Development of safe, clean, energy-efficient and cost-effective technologies
- **Contributing to the development of energy sources for the future**
- Promoting conservation of resources, recovery of wastes and societal value of materials





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Organisation



Mirror Group
Member States

J.C Charbonnier
Secretary General

Organisational
&
Management
Support

Steering Committee
M. Wurth (Arcelor Mittal)
P. Erkkilä (Outokumpu)
E. Gibellieri (EMF/CCMI)

Decision-making level of
the Stakeholders

Support Group
P.Schwab (VoestAlpine)
K. P Imlau (TKS)

Management-level
working body

Working Groups

Expert-level
working groups

Implementation group/Communication
J.C Charbonnier/W. Moonen(**Corus**)

Profit
Innovation

Partners
Automotive

Partners
Construction

Partners
Energy

Planet

People

Ch.Marique
(**CRM**)

C.Wuppermann
(**Stahl Zentrum**)

T. Hurd
(**Corus**)

P. Gimondo
(**CSM**)

J.P Birat
(**ArcelorMittal**)

R.C Meiler
(**TKS**)





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ESTEP vs WIND Platform

- Mr. Charbonnier (ESTEP Secretary General) is invited at level of Steering Committee of the Wind Platform
- Mr Dias Lopes is member also of the Wind platform - *Working Group 2: Wind Power Systems*



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Wind Energy

Basics providing better access to
wind energy resources

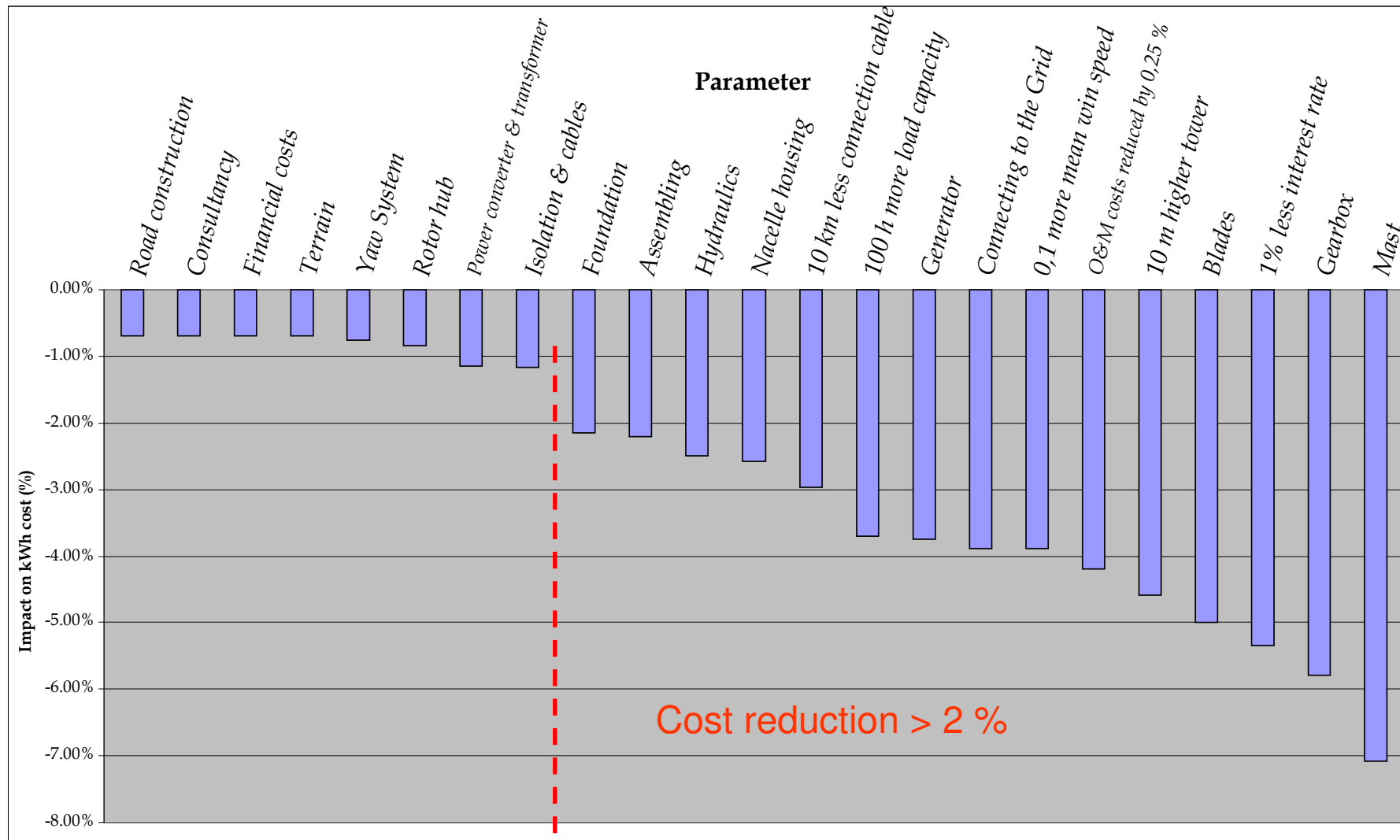


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Cost impact of R&D developments



ARMINES, "Bilan et prospective de la filière éolienne française", study co-funded by ADEME, 2006. Online.

To tackle two main aspects

- 1 – gear box life and maintenance
- 2 – wind farm height



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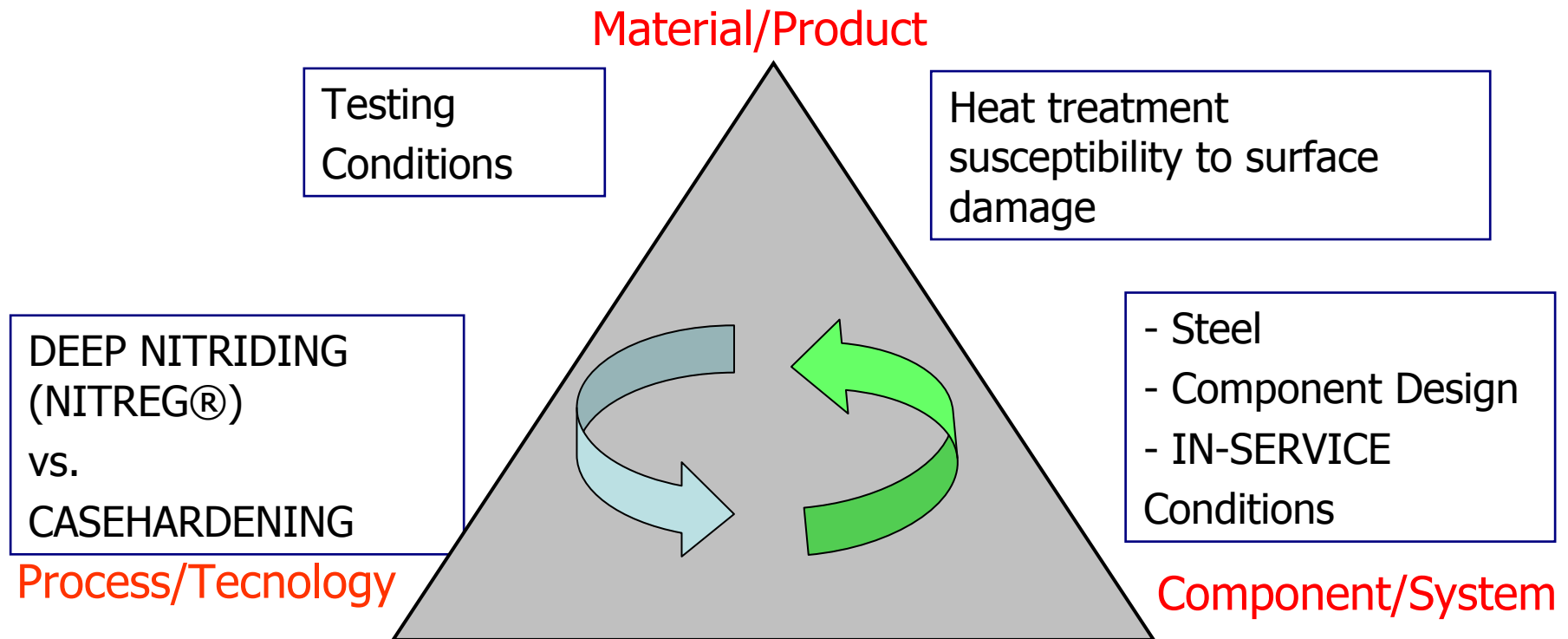
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Gears: integrated approach



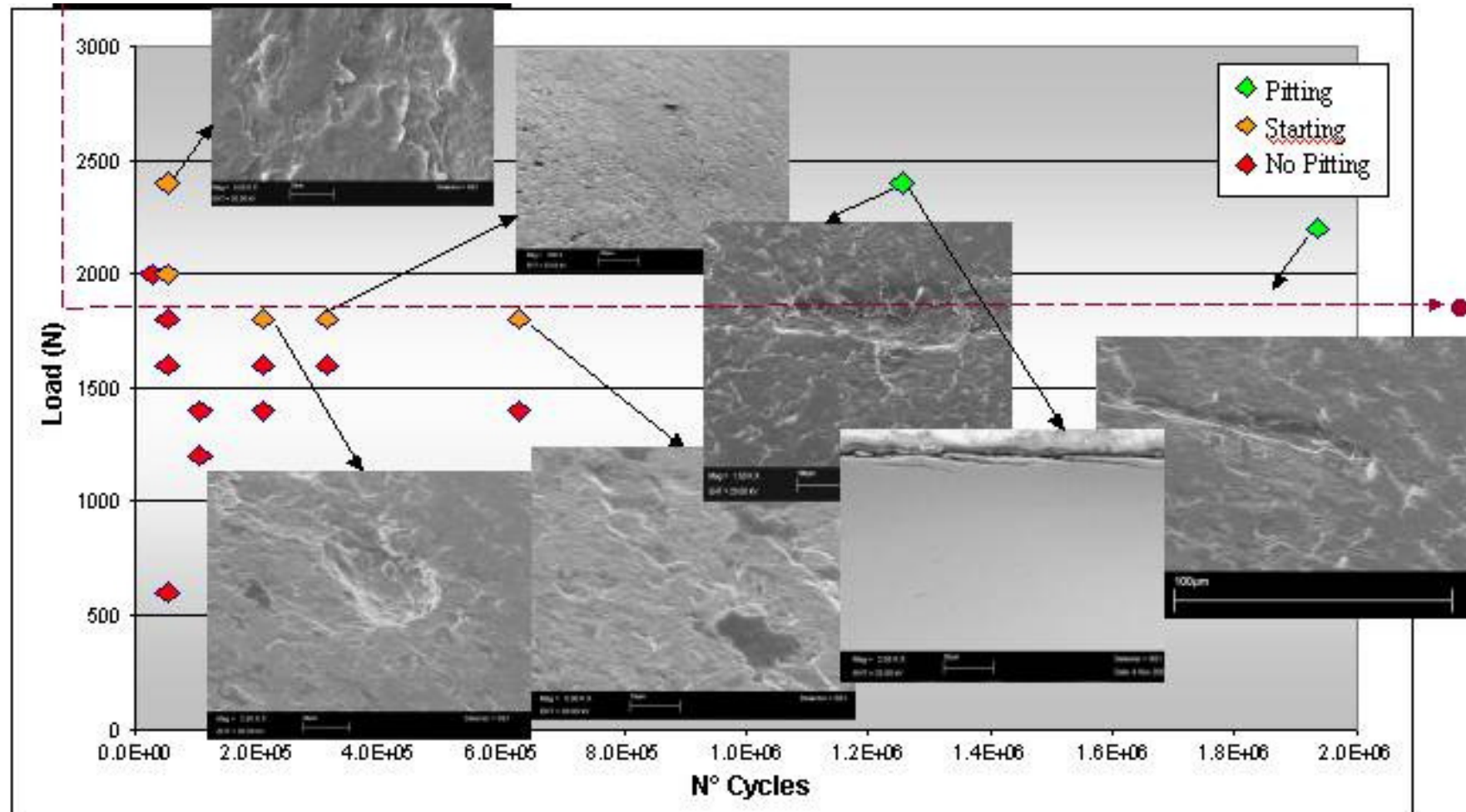
MATERIAL – PROCESS – COMPONENT

(metallurgy + heat treatments + testing + component design)





ROLLING CONTACT FATIGUE (RCF) TESTS: SURFACE ANALYSES





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On- / offshore wind energy



Reduction of the energy production costs of wind farms by technological improvements through reliable global concepts at higher efficiency

Onshore

Increase of the hub heights of the towers to 120 - 160m

Develop efficient low cost structures (braced structures, sandwich shells)

Offshore

new foundation techniques

multifunctional coatings (corrosion protection, monitoring, self repairing, ..)

swimming offshore platforms (experience from the oil & gas field)

combination of hydropower and wind energy



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Offshore Structures



Welding of thick plates

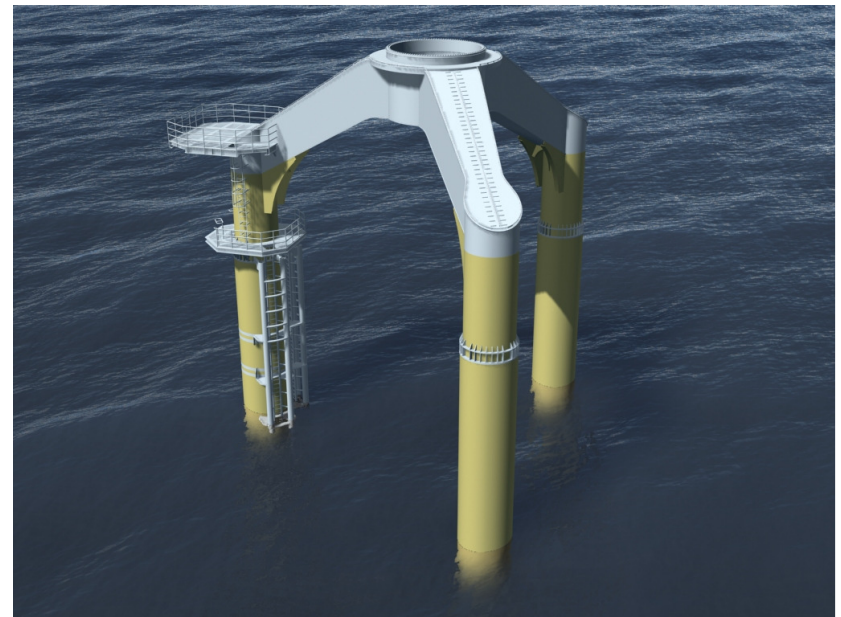
Economical construction by steels with yield strength up to 500 MPa and higher strength

Onesided welding

Fatigue tests on one sided welds regarding the loads (tension, compression, bending) and weld preparation

Partial welding

Fatigue of the notch of the intersection





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Ideas for projects (FP7, RFCS)

- Composite- or sandwich-solutions for monopiles
- New joining methods for segments of monopiles
- steel braced girder towers
- materials and welding for offshore-structures
- corrosion protection for offshore-WEP (splash-zone)



ESTEP - WG6 Energy

- Next meeting is scheduled for the 26 of May in Brussels in the EUROFER offices



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Thank you for your attention

- Steel Technology Platform (ESTEP)

WG6 – Energy

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http://cordis.europa.eu/estep/home_en.html