

Wind Energy



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Wind Research at Strathclyde



David Infield

- ❑ rotor aerodynamics
- ❑ condition monitoring
- ❑ responsive load for power system integration
- ❑ O&M modelling

Stephen McArthur

- ❑ condition monitoring and AI techniques

Barry Williams, John Fletcher

- ❑ novel machines and drives

Olimpo Anaya-Lara

- ❑ stability analysis and novel offshore DC networks

Strathclyde (contd.)



Jim Thomason

- composites and blade materials analysis

Nigel Bartrop, Atilla Incecik

- offshore structures

Bill Leithead

- turbine control
- dynamic analysis
- performance assessment
- fatigue-life estimation
- load case evaluation, certification

Professor Robin Wallace, Dr Markus Mueller & Dr Ewen Macpherson

- Generators for wind and wave devices
- Light-weight low speed high torque machines for direct-drive wind turbines
- Network integration issues



Prof Richard Brown

- ❑ Wind tunnel investigation of wind turbine flows
- ❑ CFD modelling of wind turbine aerodynamic behaviour including wakes



Dr Wolf-Gerrit Früh, Prof. Bryce Richards

- CFD modelling of wind turbines
- Performance assessment and prediction of small wind turbines

Collaborating Companies



Utilities/Developers

- ScottishPower
- SSE
- Eon
- RES

Consultants

- Garrad Hassan

• Manufacturers

- Howdens
- WEG
- NEG-Micon
- Vestas
- RePower
- Acciona
- Ecotecnia
- Nordic

Core Projects within ETP



Supergen Wind
Consortium

ETI
First Call – Wind

Doctoral Training Centre
Wind Energy Systems



SUPERGEN Wind



- EPSRC funded – £2.5M 2006-2010
- Consortium of 9 academic institutions
- Chair: Bill Leithead, University of Strathclyde
- Mission statement
 - “To undertake research to improve the cost effective reliability & availability of existing and future large scale wind turbine systems in the UK.”
- Context: off-shore development using large-scale wind turbine
- Second phase – £3.9M 2010-2014



ETI Wind Projects



- ETI funding 3 projects in Wind Energy
- Purpose
 - ❑ Design, build and deploy a large off-shore wind turbine
- University of Strathclyde is partner in two projects:
 - ❑ Helm Wind
 - ❑ NOVA
- Support – £40M 2009-2015+

EPSRC

Engineering and Physical Sciences
Research Council

Doctoral Training Centre - Wind Energy Systems



- One of 44 DT and EngD Centres in UK
- Based in Strathclyde
- 34 industrial partners
- 4 year studentships
- 5 yearly intakes of 10 PhD students
- Start date 1st October 2009
- Support: EPSRC £6M 2009-2018

- All aspects of wind energy
 - Everything that impacts on wind energy
 - Everything that wind energy impacts on
- Wind turbines
- Power systems
- Socio-economic



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Thank you

