



SUPERGEN Wind
Wind Energy Technology

Phase 2

Towards the Offshore Wind Power Station

Prof Peter Tavner

Phase 1 Final Assembly

25th March 2010, Loughborough



SUPERGEN Wind Phase 2

- 23rd March 2010 – 22nd March 2014
- £5.8M
- Aim: *“To undertake research to achieve an integrated, cost-effective, reliable & available Offshore Wind Power Station”*
- Research areas:
 - Reliability
 - Resource estimation
 - Scaling up of Turbine size
 - Lifetime Costs
 - Connection





Academic partners



Research Hub



Finance Hub



Manchester Metropolitan University



Science & Technology Facilities Council
Rutherford Appleton Laboratory



UNIVERSITY OF SURREY

Imperial College London





Industrial partners





Phase 2 Research



Theme 1 The Farm

Theme 2 The Turbine

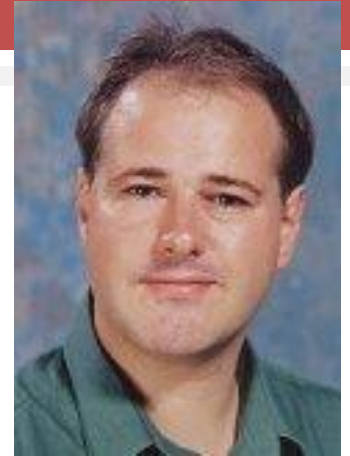
Theme 3 The Connection

Theme 4 The wind farm as a power station



Theme1 The Farm

- Offshore wind resource
- Wakes and aerodynamics
- Radar and the environment
- Optimisation of farm performance
- Multiple wake impact on machines



Dr Simon Watson





Theme 2 The Turbine

- Drive train dynamics
- Rotor-wind field interaction
- Turbine blade and tower materials
- Fault detection
- Subsea turbine foundation



Dr Geoff Dutton



Science & Technology Facilities Council
Rutherford Appleton Laboratory



Theme 3 The Connection

- System performance evaluation
- Offshore control schemes
- Connection to shore
- Integration of energy storage



Prof. Peter Tavner





Theme 4

The wind farm as a power station

- Array performance
- Wind farm control
- Operation as a power station
- Integrated monitoring
- Operation research for the farm
- Integrated wind farm economics
- Connection

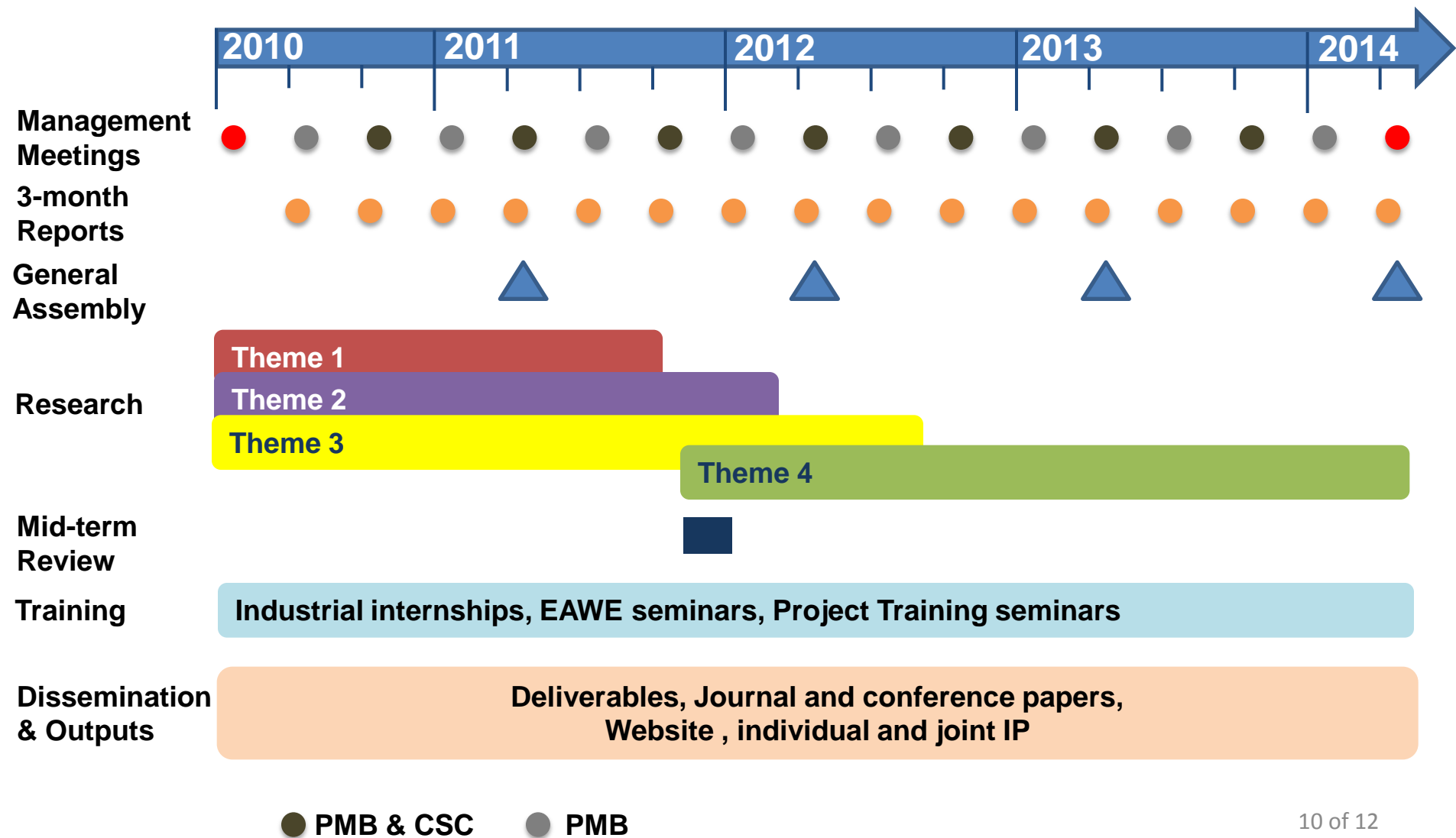


Prof. Bill Leithead



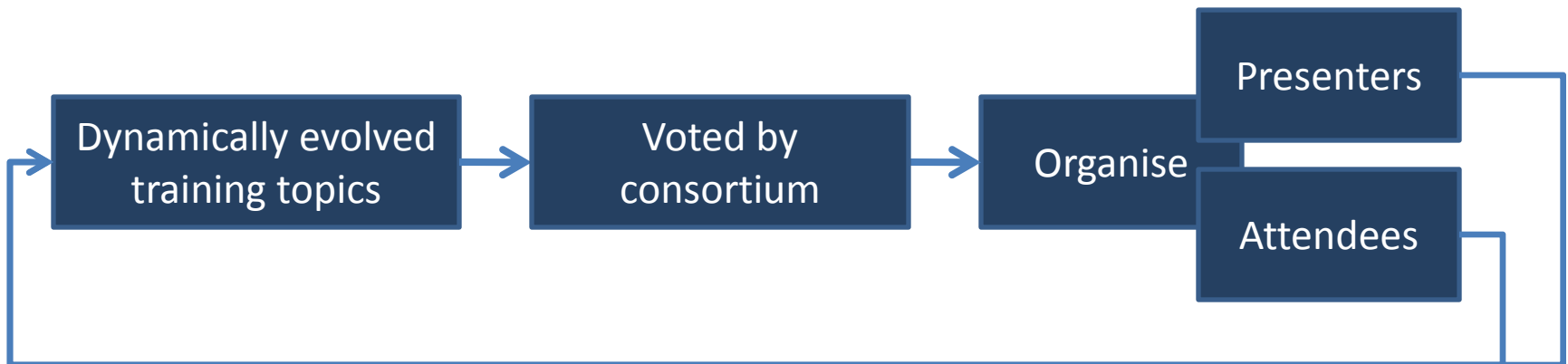


Project management



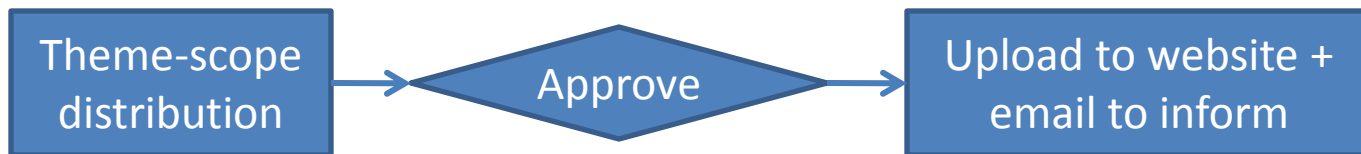
Phase 2 training scheme

- The training will function not only as a training, but also a forum for RAs and students to communicate and develop.
- Requirements based.
- Two days event, every six months.



Deliverable and Publications

- Deliverables
 - Template: available online
 - Distribution procedure



- Publication acknowledgement

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Thank you!