

Micro-wind: The national perspective and EST field trials

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EST Microwind Field Trials

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The most comprehensive monitoring of micro-wind turbines in the UK

- Extensive consultation with key stakeholders
- Robust, peer-reviewed methodology
- Pilot project undertaken
- State-of-the-art monitoring equipment
- Representative sample across the UK
- Project advisory group
- Inclusion of data from Warwick sites
- Customer feedback and satisfaction

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Objectives

- The field trial has a *technical* focus:
 - To determine energy generation and carbon savings
 - Identify factors that influence performance of micro-wind systems
 - Evaluate inverter performance
- To provide information to the *consumer*.

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Respondents to consultation process:



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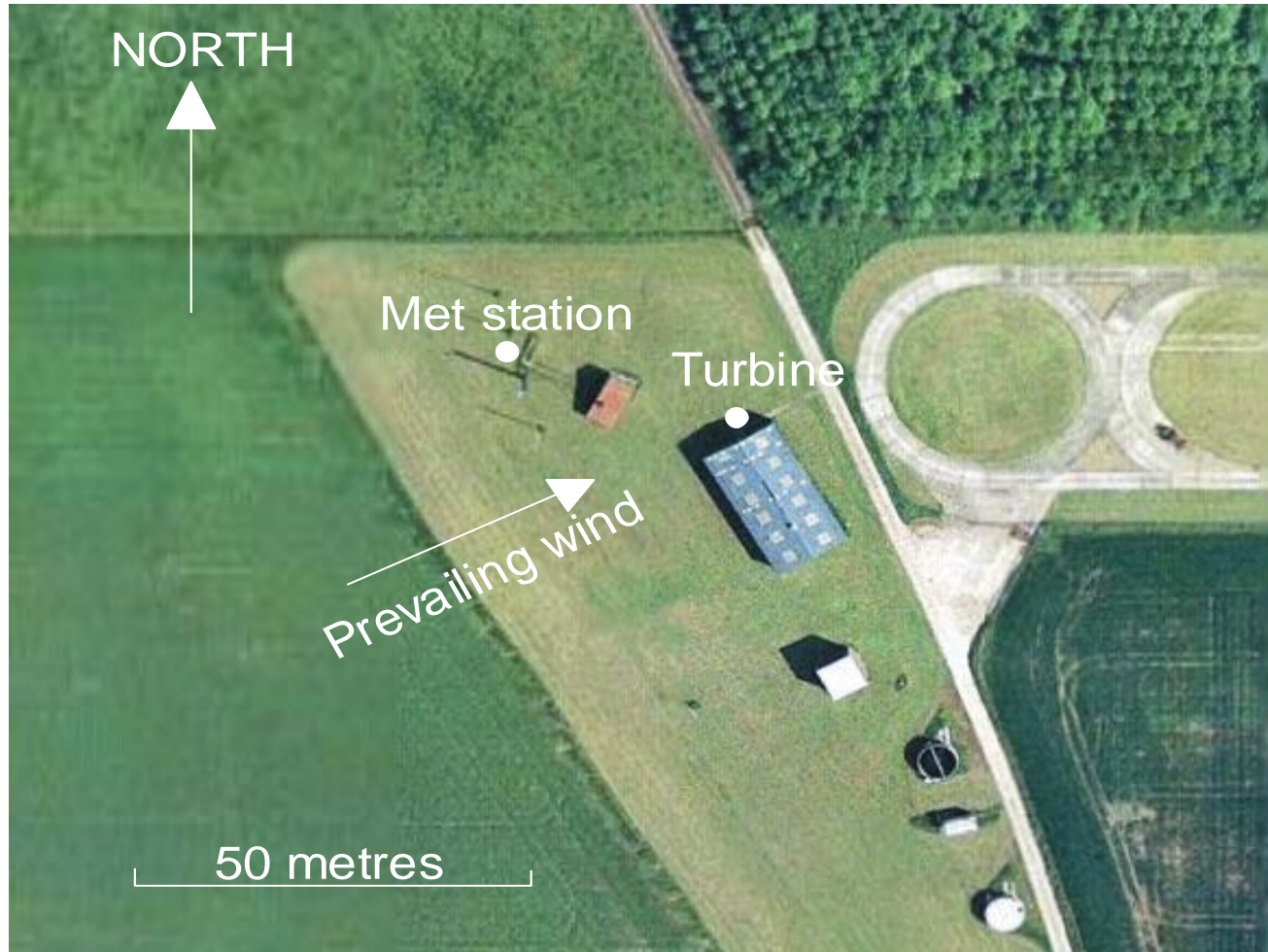
MICROWIND PILOT MONITORING EXERCISE – RESULTS AND CONCLUSIONS

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Pilot Study Objectives

- Trial proposed monitoring equipment
- Identify electromagnetic interference between monitoring instruments and turbine
- Test the remote download methods
- Confirm if proposed ten minute sample interval is appropriate

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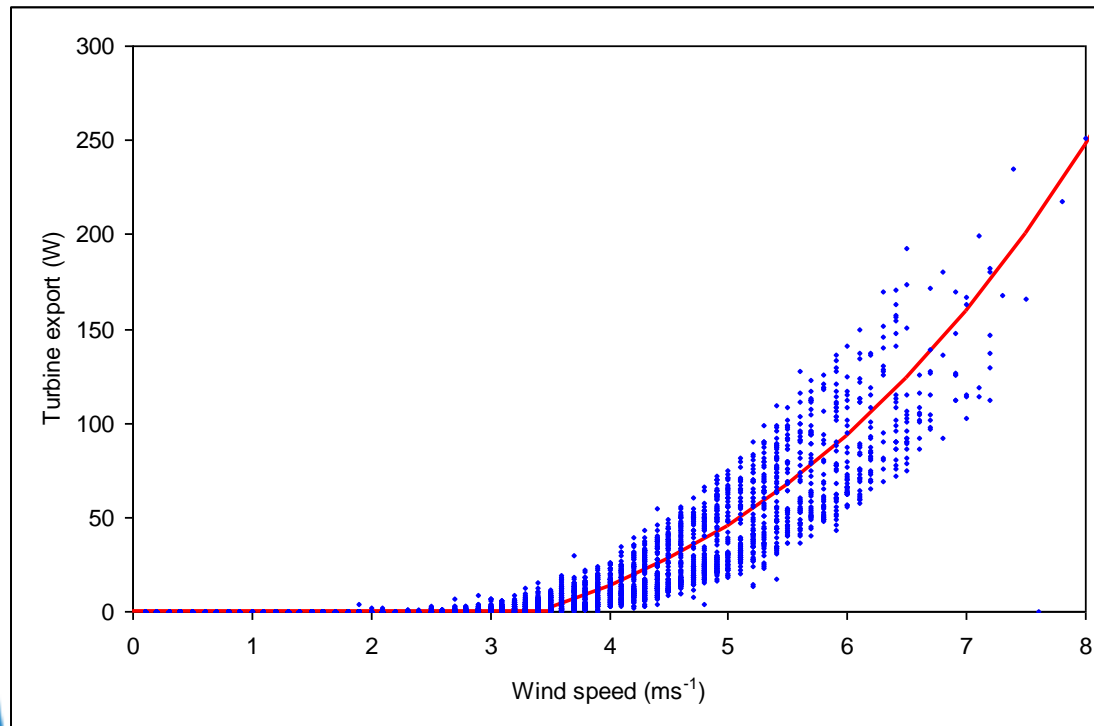
Results and Conclusions

- Monitoring equipment functioned appropriately
 - no interference / compatibility issues
- GSM modem remote download facility functioned very well
 - eliminates need for repeated site visits
- Data loggers required software update

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Results and Conclusions

Analysis concluded that 5 minute averages of data yield most appropriate results – takes better account of gusty conditions and incidences such as turbine shut-down.



Plot of 5-min monitored data vs. manufacturer's published power curve.

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PROJECT OVERVIEW

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Project advisory group:



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- Monitoring began October 2007
- 61 sites generating data
- 6 manufacturers represented
- Additional 50+ sites providing inverter readings
- Mast and roof-mounted turbines

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Number of installations and date of first collected data:

Manufacturer	2007				2008							Total
	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	
Eoltec						1		5		1		7
Iskra						1	3	1		1		6
Proven					1	5	1			2		9
Renewable Devices							1	1	1		1	4
Windsave	1	1	4	1	16	7	3	1				34
Zephyr							1					1
												61

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Data Collection

Field data collected by BSRIA:

- Electricity generation
- Inverter consumption
- Wind speed
- Wind direction

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Overview of Monitoring Equipment



Vaisala Ultrasonic Anemometer



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Data analysis and reporting

- Data analysed by Southampton University
- Monthly data collection
- Quarterly reports to EST
- Preliminary report presented to project advisory group – December 2008
- Data collection completes in April 2009

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EST has bought data from the Warwick Wind Trials (WWT):

- EST trial incorporates data from 29 additional WWT sites
- 5 WWT sites funded by EST
- 8 manufacturers represented across both trials

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Media and Communications Strategy

- Stakeholder mapping exercise
- SWOT analysis
- Risk mitigation
- Identify key media outlets

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