



# Small wind power in the agricultural sector

**Dr Jonathan Scurlock,  
Chief Adviser, Renewable Energy and Climate Change  
National Farmers Union of England and Wales**

**International Small Wind Conference**

**Glasgow, 27th April 2010**

Could this happen here? (or is it already happening?)



Wind power – small, medium and large scale – can supplement farm incomes and sustain rural livelihoods, directly and indirectly (John Deere already involved)

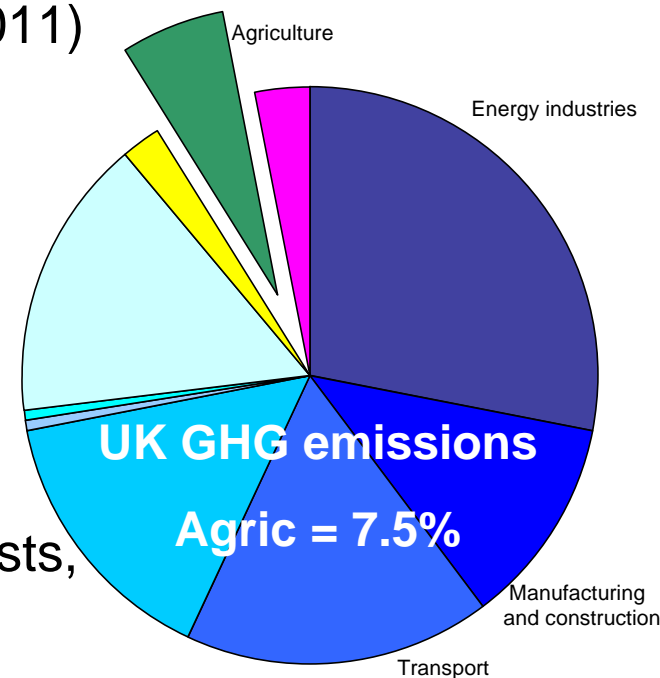


## The NFU and the agricultural sector

- The National Farmers' Union of England and Wales (NFU) represents the interests of some 55,000 members involved in commercial agriculture, horticulture and farmer controlled businesses
- With 75 per cent of national land area in the agricultural sector (18 million hectares), farmers are in the front line of climate change, and adapt to the weather constantly on a daily and yearly basis
- Farmers are well-placed to capture renewable natural energy flows, while maintaining our traditional role in food production as well delivering other environmental and land management services
- The NFU is engaged with Defra, DECC, DfT and other government departments and advisers in directing climate change and renewable energy policy into real economic opportunities for rural diversification and job creation

# Climate change, energy security and agriculture

- climate change → GHG emissions reduction, international and national policy (despite weak Copenhagen Accord, targets are 80% reductions and 2 C limit for global temperature rise by 2050)
- challenging 2020 EU and UK targets for renewable energy – for electricity, transport fuels (and heating from 2011)
- Farmers offer ‘part of the solution’ to energy security, food security and tackling CC
- private sector also becoming an important driver – perceived demand for “low-carbon” food and other products (PAS 2050)
- invest now in renewables! → stable energy costs, diversification of income, lower C footprint



# A wide choice of renewables for farmers





## The shift towards a low-carbon economy

- ‘Green New Deal’ – from culture of embedded fossil carbon (goods, materials and energy), to a sustainable natural resource economy
- NFU policy encourages farmers to diversify into low-carbon energy services – our aspiration is that every farmer could be an clean energy exporter
- wind power and bioenergy (various kinds) are probably the largest of the land-based renewable energy resources
- agricultural buildings also present ideal platforms for deployment of small wind and solar energy capture
- on-site energy needs only, or also export of renewable electricity, heat and fuels?



## Getting the message across: support from the trade press

**Farmers Weekly (27-Feb-09): "If there are two things that were made for each other, it's farmers and renewable energy. Whether it's biofuels or anaerobic digestion, wind turbines or biomass boilers, farmers have the land, the buildings, the entrepreneurial skills and often the raw materials to set up a renewable energy project."**



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**\*** Wind, sun, methane and woodchip may not have much in common with wheat, rape, milk and beef, but that hasn't stopped UK farmers grasping the green energy

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# Web page snapshot – www.farmingfutures.org.uk



## PROFITABLE BUSINESS IN A CHANGING CLIMATE

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## Small wind power in agriculture

- long history of harnessing the wind – since 1200 AD
- can still evoke strong opinions for and against
- likely to become a familiar part of 21st-century landscapes – the saving grace of upland farming?
- need profitable projects deployed to provide peer recommendation and demonstration
- Feed-in Tariffs already resulting in a flood of interest
- range of scales, from 5-11 kW (entry-level, £25-50k) to 250-500 kW (most profitable, £300-500k)





## Feed-in Tariffs – good and bad

- Attractive tariffs across a range of scales – better than some other technologies! – reduces payback time from 10-15 years to more like 5-10 years
- Detailed guidance still lacking on operation of scheme (OFGEM rules, settlement with electricity suppliers)
- Major confusion on capital grants / FITs – poor oversight of RDAs and Rural Development Programme (pending EC ruling on State Aids)
- Definition of a ‘site’ and rules for phased extension of generating capacity – must establish case studies of independent generation near ROC-supported windfarms
- Accreditation under MCS – some suppliers not yet compliant





# Technological and market developments

## Vertical axis turbines

- free-standing
- building-mounted



Building-integrated turbines  
(trials at Cranfield Univ.  
Silsoe campus - Derek  
Taylor, Open University)

**Altechnica** building-integrated wind energy

**building - integrated wind energy solutions**  
**wind turbine design** **design studies**  
**architecture + renewables design package**

# Take-home messages

- agriculture can access substantial natural energy resources, both for on-site power and export to other sectors
- farmers can therefore make a significant contribution to climate change adaptation, mitigation and national energy supply
- small wind power is one of the most attractive options supported by the new Feed-in Tariffs

**Dr Jonathan Scurlock**  
**Chief Policy Adviser, Renewable Energy  
and Climate Change**  
**National Farmers' Union**  
**Stoneleigh Park**  
**Warwicks CV8 2TZ**  
[jonathan.scurlock@nfu.org.uk](mailto:jonathan.scurlock@nfu.org.uk)

