

# Wind Power Forecasting



David Lenaghan, Senior Forecasting Analyst  
Operational Forum, 15<sup>th</sup> February 2011

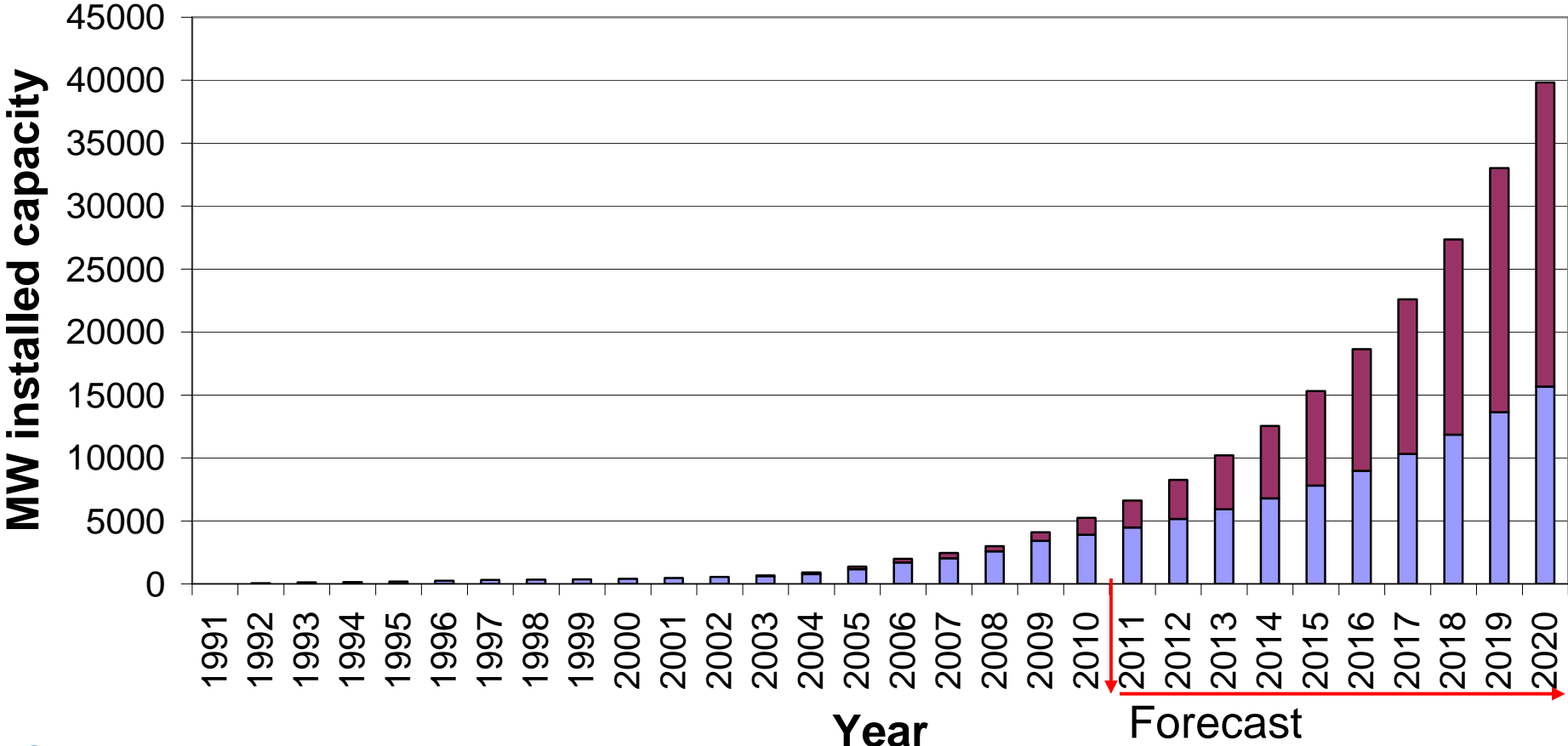
# Agenda

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- Increasing Wind Capacity
- BM reports and Wind Power Information available
- Wind Power Forecasting System
- Importance of good quality metering for the future

# Increasing Wind Power Capacity

## Onshore and Offshore Operational MW

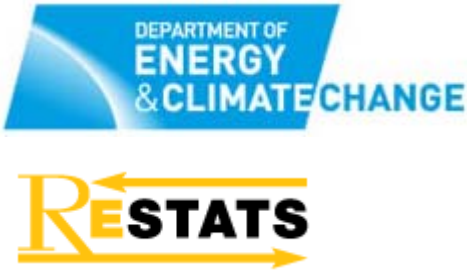
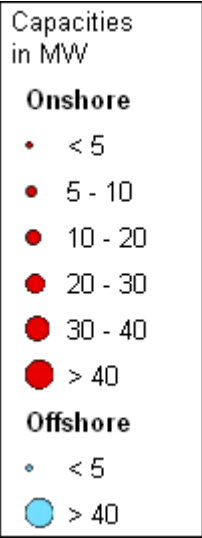
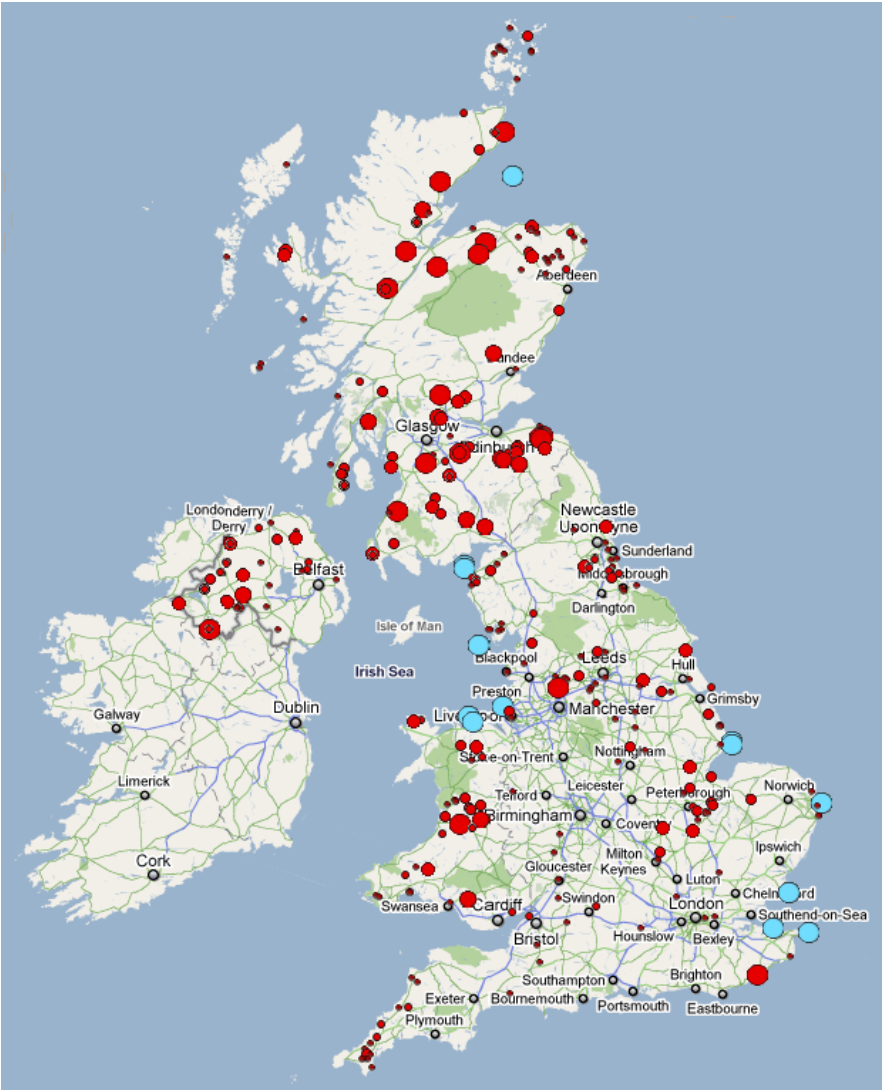


Source :  
RenewableUK

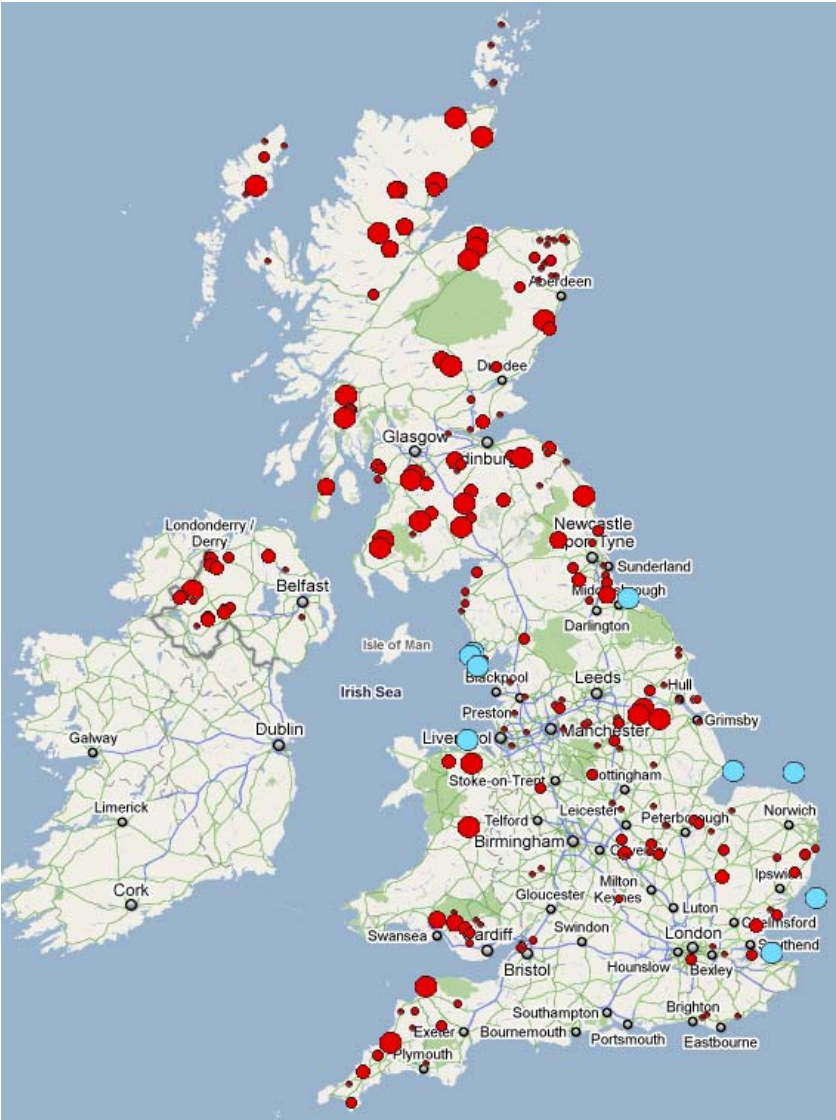
Onshore Cumulative Offshore Cumulative

# Windfarms in the UK (Feb 2011)

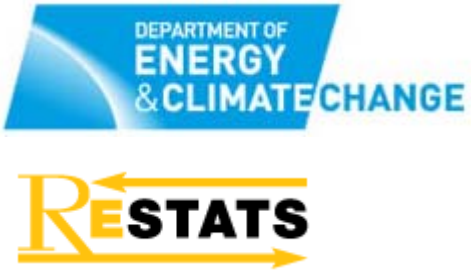
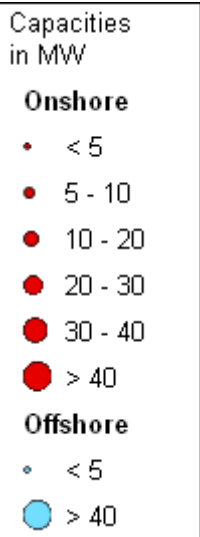
## Operational Windfarms only



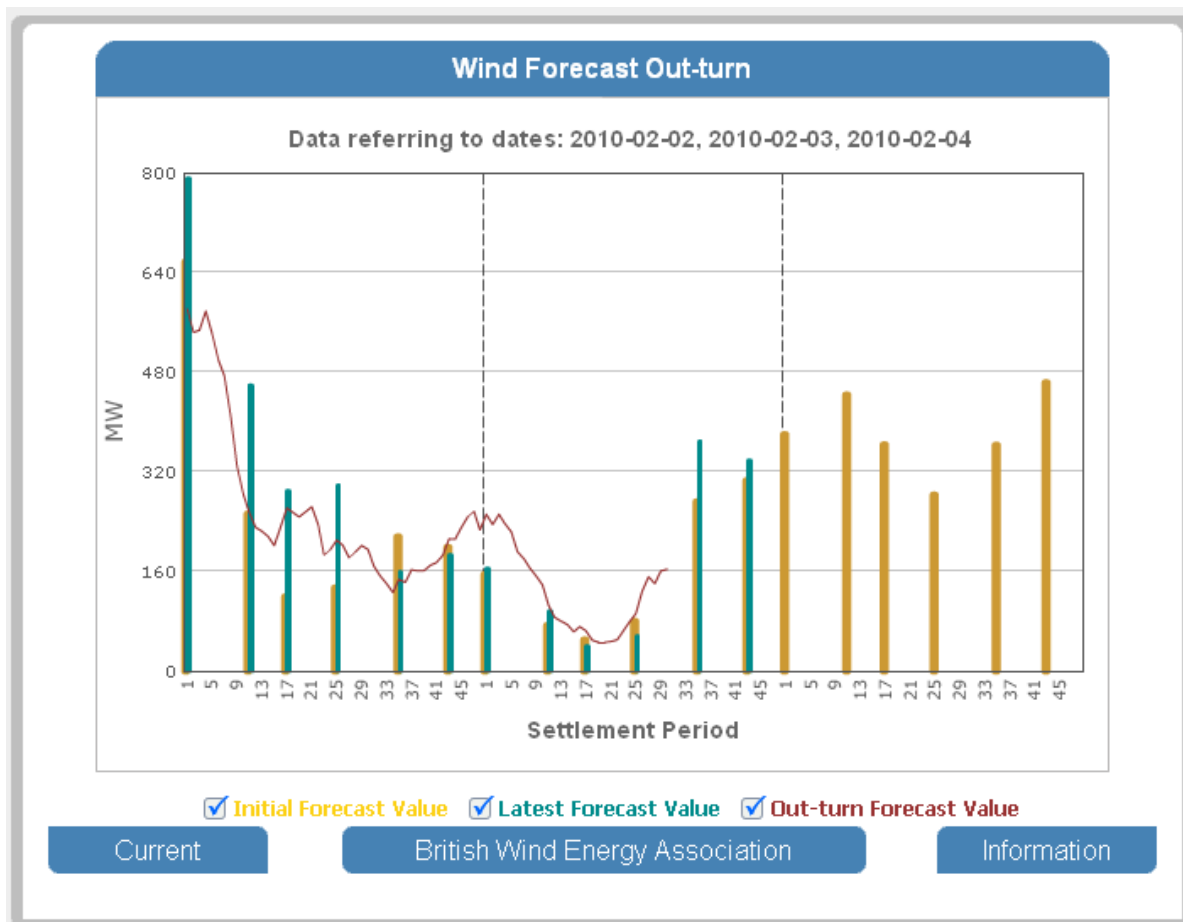
# Windfarms in the UK (Proposed)



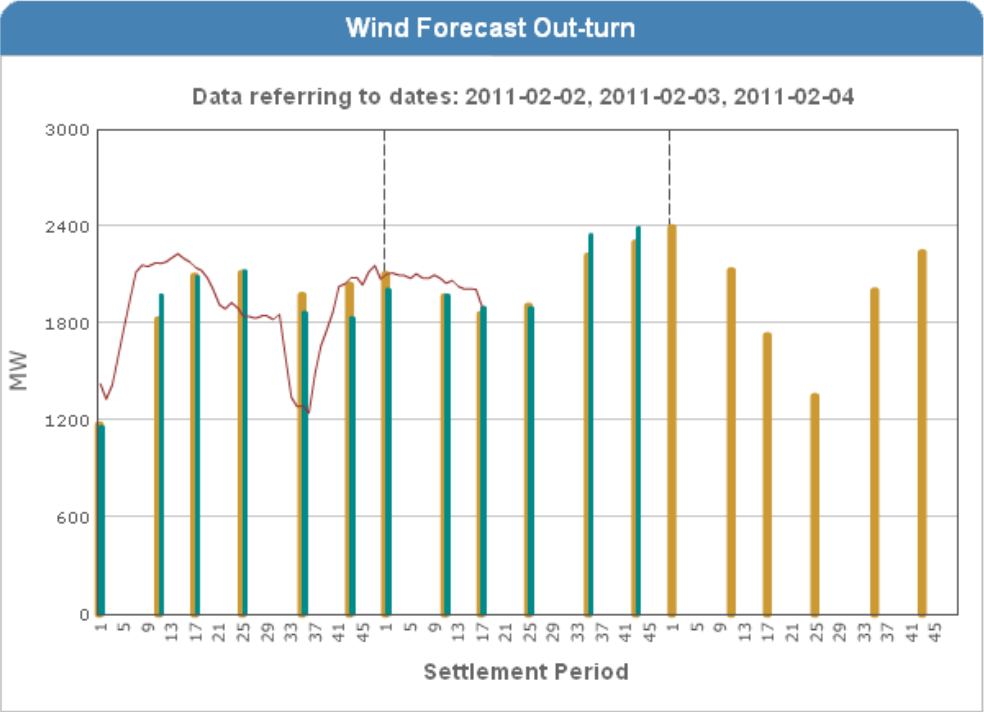
- Under Construction
- Awaiting Construction
- Accepted into the planning process



# Wind Power Forecasts available externally



# Wind Power Forecast 03-02-2011



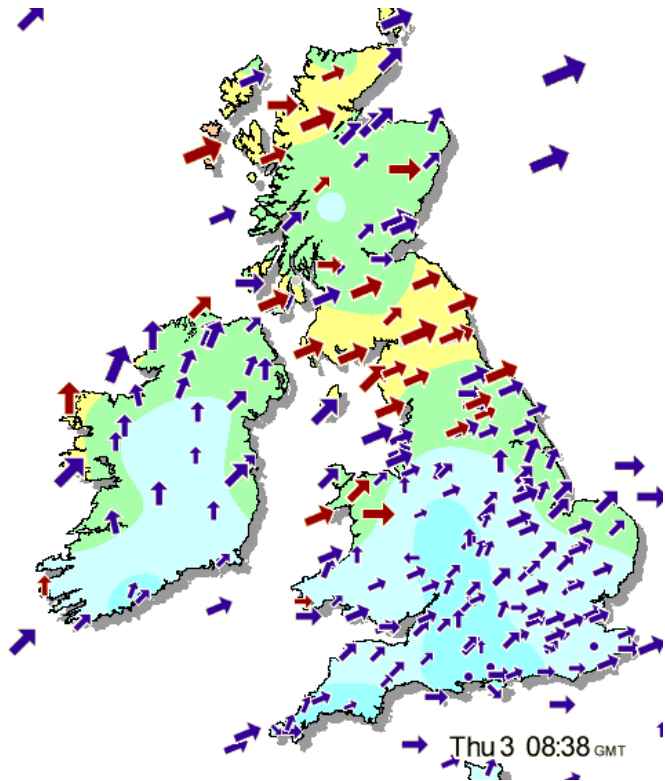
Initial Forecast Value  Latest Forecast Value  Out-turn Forecast Value

Current

British Wind Energy Association

Information

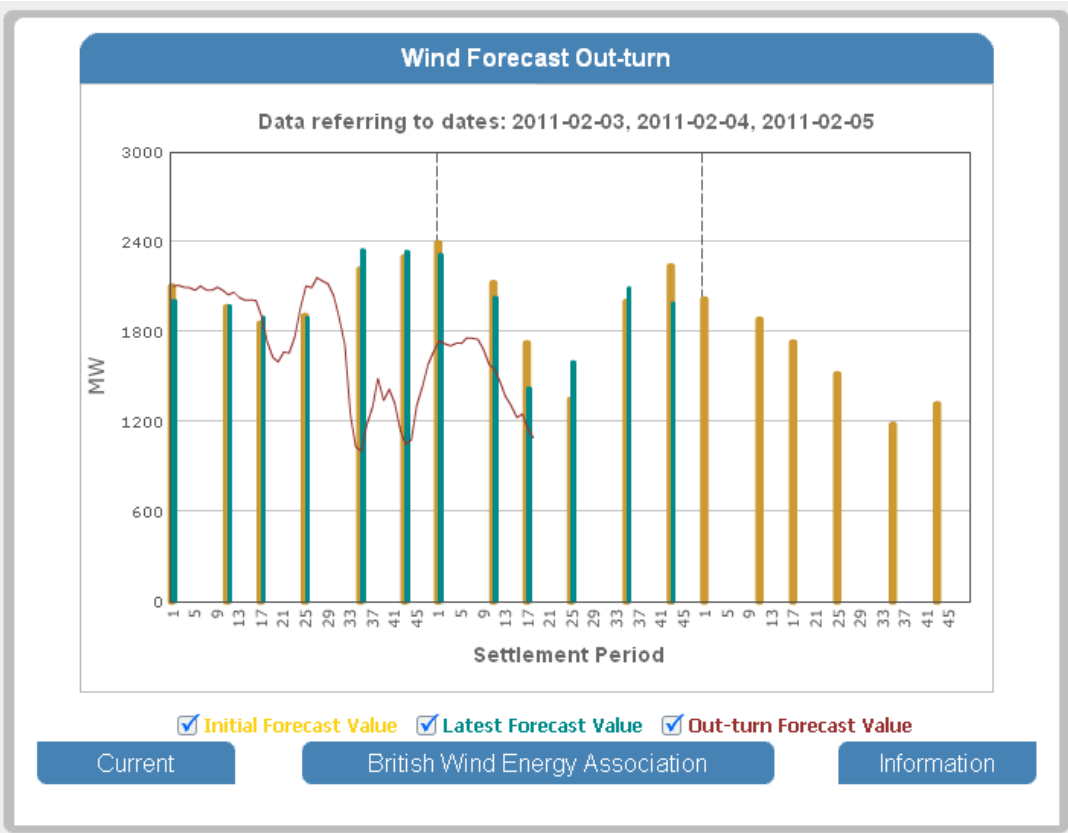
X C W weather.co.uk



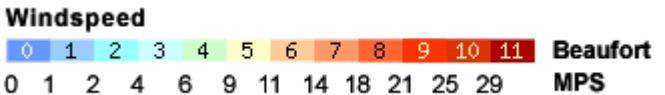
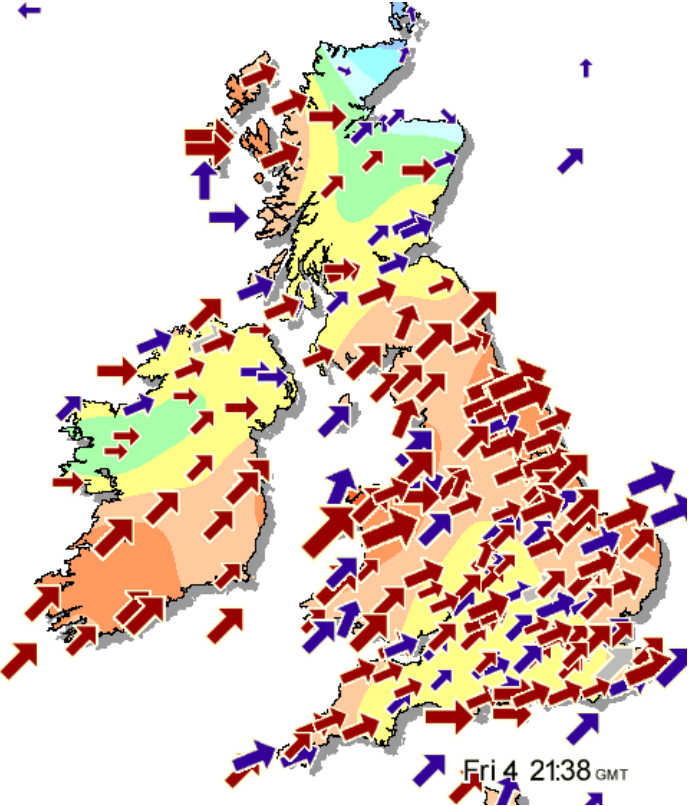
Windspeed



# Wind Power Forecast 04-02-2011

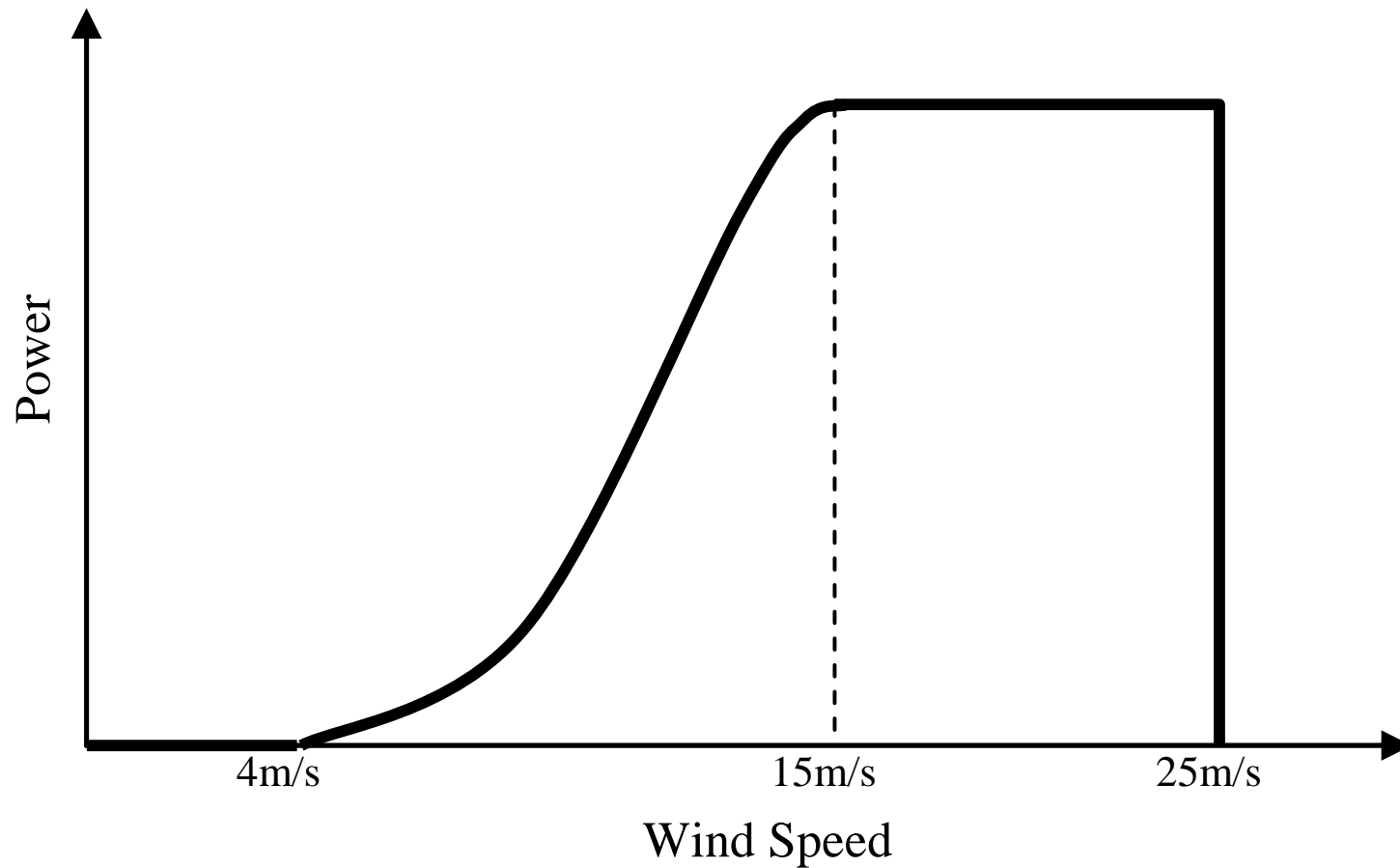


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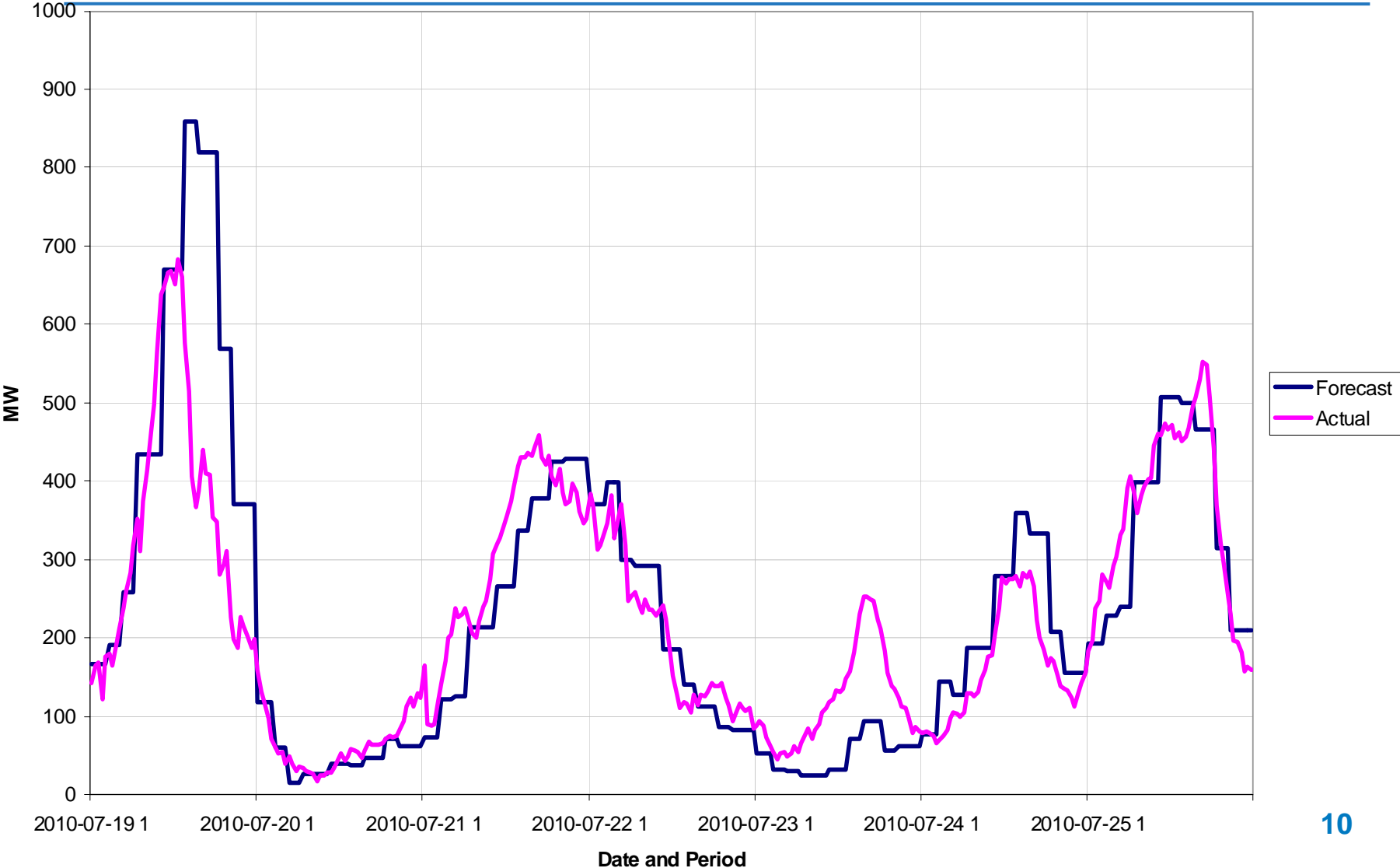


# Forecasting Power Curve

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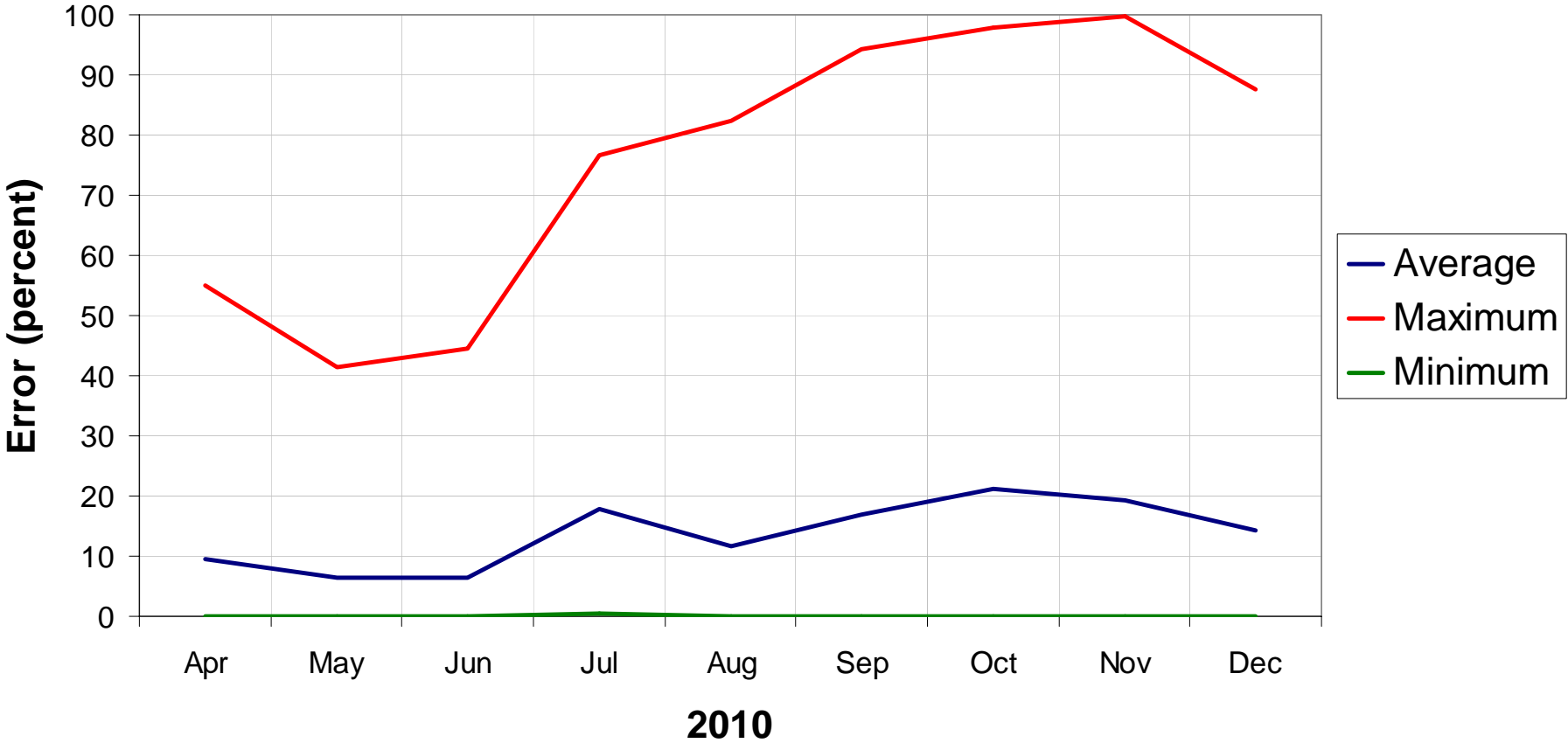


# Wind Forecast Error – 19<sup>th</sup> Jul 2010



# Performance for 2010

### Percentage Error of All Wind Farms by Months



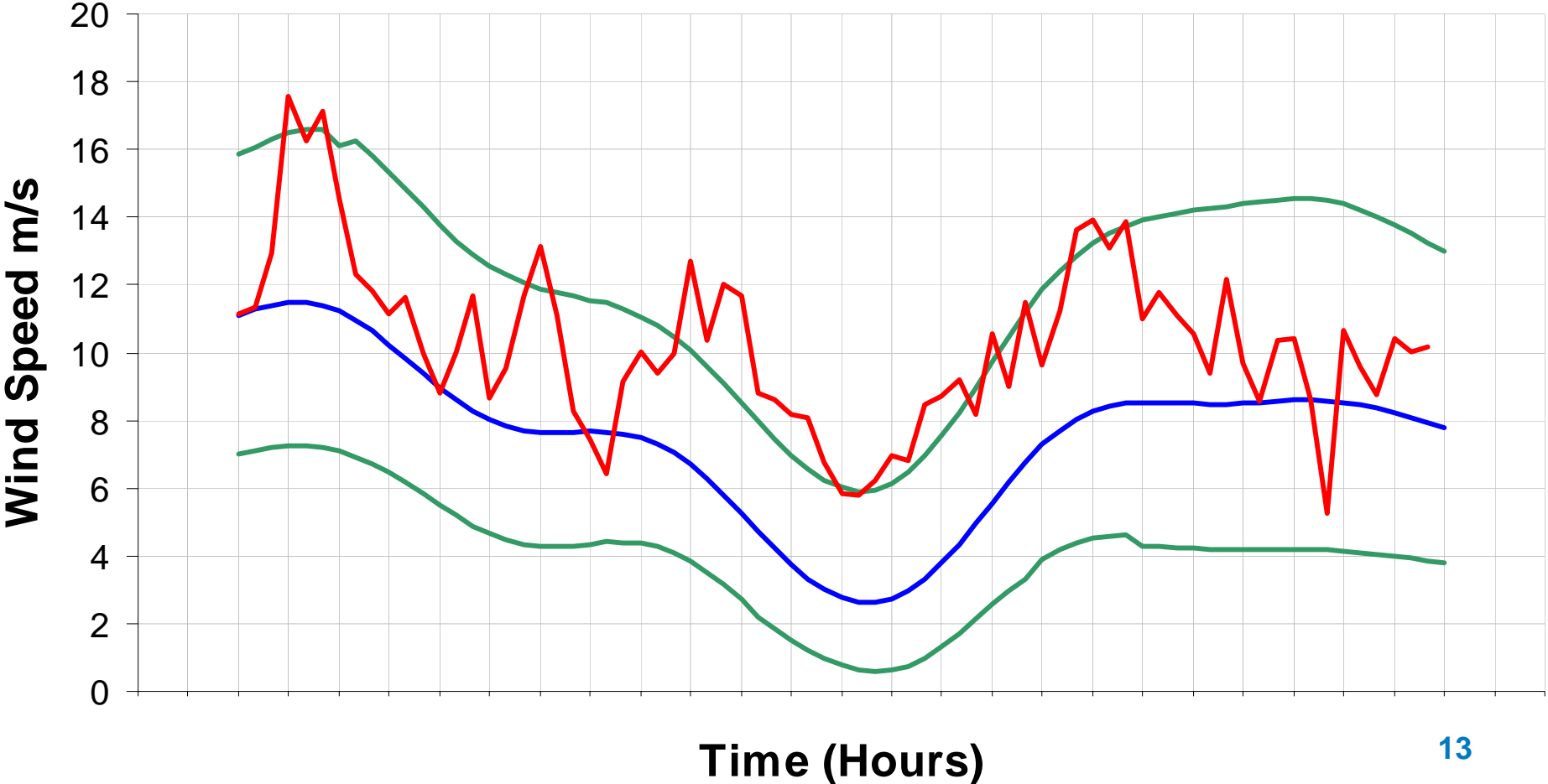
# Wind Power Forecasting System

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- Improvement on the current system
- Able to do probabilistic forecasts
- Uses 3 forecasting models
  - Physical model
  - Statistical model
  - Artificial Neural Network
- Fully integrated into operational systems
- Enables easier performance analysis and refinement

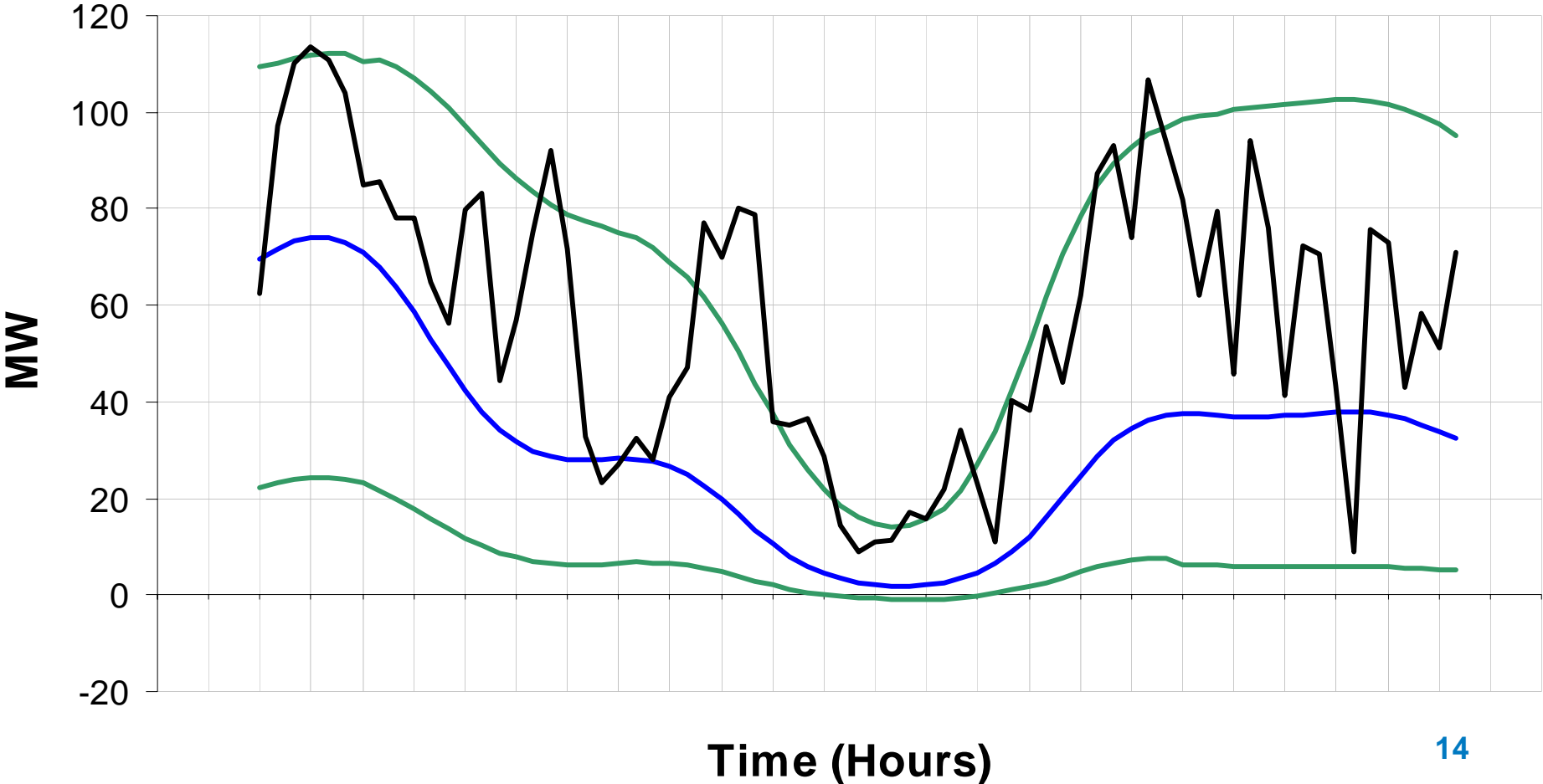
# Working in a probabilistic world

## Windspeed Probabilistic Forecast



# Working in a probabilistic world

## MW Probabilistic Forecast



# Wind Power Forecasting System

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- To be deployed to the production systems in March 2011.
- Initially no change will be seen externally.
- Stage by stage enabling of communications links.
- Extensive period of parallel running.

## Conclusion

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- Wind Capacity will increase
- Information will continue to be provided on the BM reports website.
- Wind Power Forecasting System will become operational in the next few months
- National Grid will continue to work to manage the wind power resource.