



On-site Wind Generated  
Electricity: AutoProduction  
The Dundalk Institute of Technology  
Wind Turbine



# On-site Wind Generation

- AutoProduction: Large energy user installs utility scale wind turbine/s on-site
- Off-sets electricity purchases at retail rate
- Fixed price
- Ireland and the UK are particularly suited
- Improved industrial competitive advantage
- Reduce CO2 emissions



# How AutoProduction Works

- No wind: the plant performs as normal, importing all electrical power from the grid
- Moderate wind: electrical energy will be supplied both from the on-site wind turbine and from the grid
- High wind: all of a plants demand can be supplied by a wind turbine, with excess power being exported to the grid



# Dundalk 2020 Zone

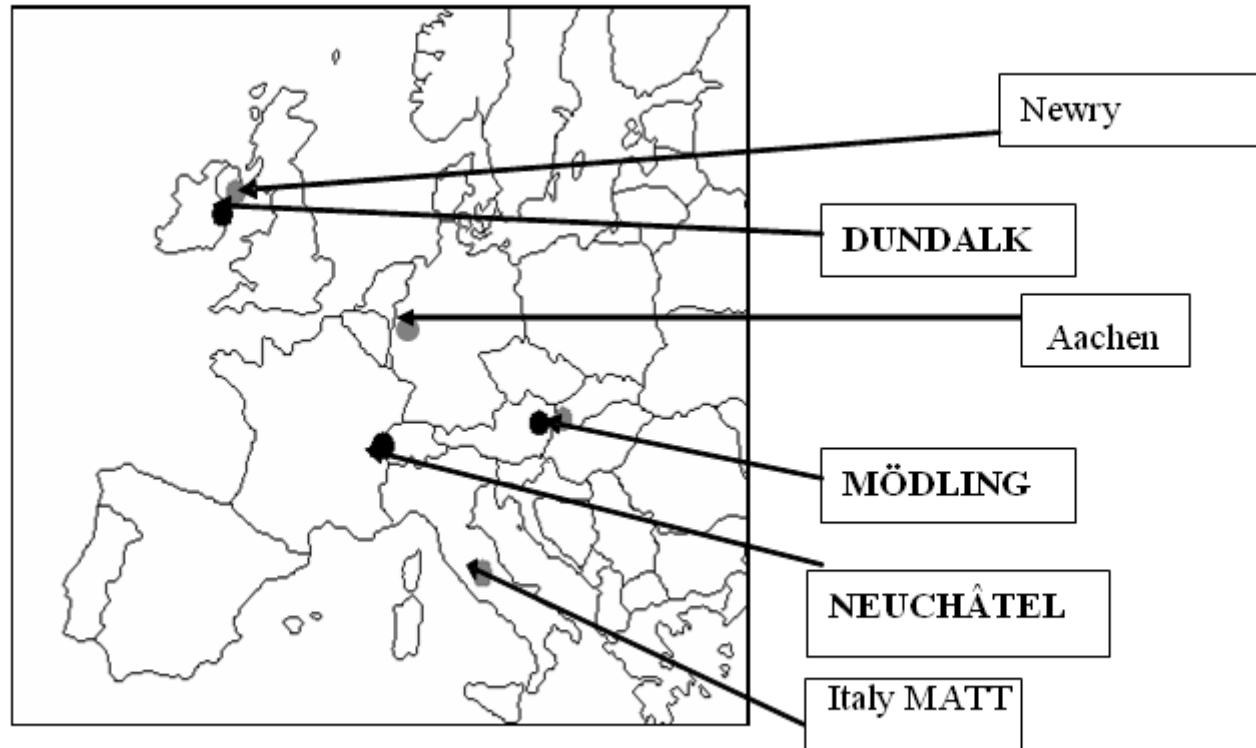


**KEY:**

- Residential
- Industry
- College
- Hospital
- Business Park
- Leisure & Retail



# HOLISTIC Europe



# Dundalk IT Wind Turbine

- Dundalk Institute of Technology commissioned 850kW wind turbine
- AutoProduction – electricity produced offsets purchases at retail rate
- East coast of Ireland, on the Irish sea – lower wind speeds
- 7 year payback

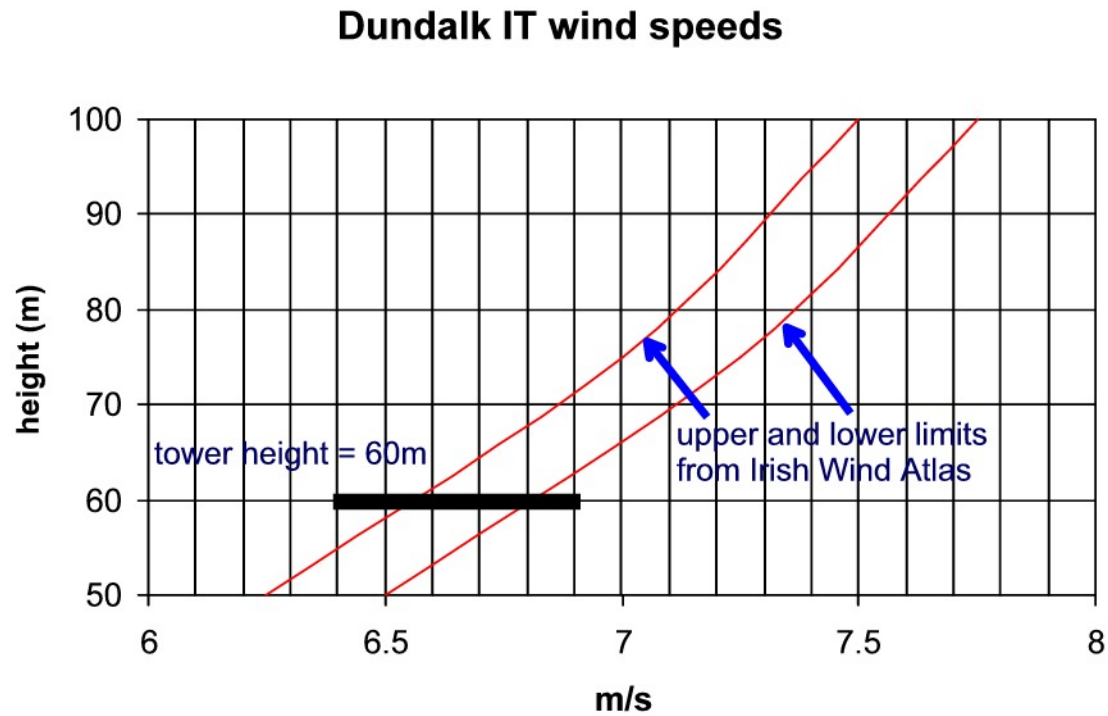


# First Steps

- Feasibility Work: Resource assessment, planning preparation, grid. Resulted in SEI grant – 2002
- Full planning permission granted – 2003
- Finance secured and bids solicited
- Contract awarded to Vestas - 2004



# Dundalk IT Wind Speeds



# Civil Works – April/May 2005



# Civil Works May 13th



# Civil Works May 17<sup>th</sup>



# Civil Works May 18<sup>th</sup>



# Installation of Transformer



# Tower Erection



# Tower Completion



# Blade Installation



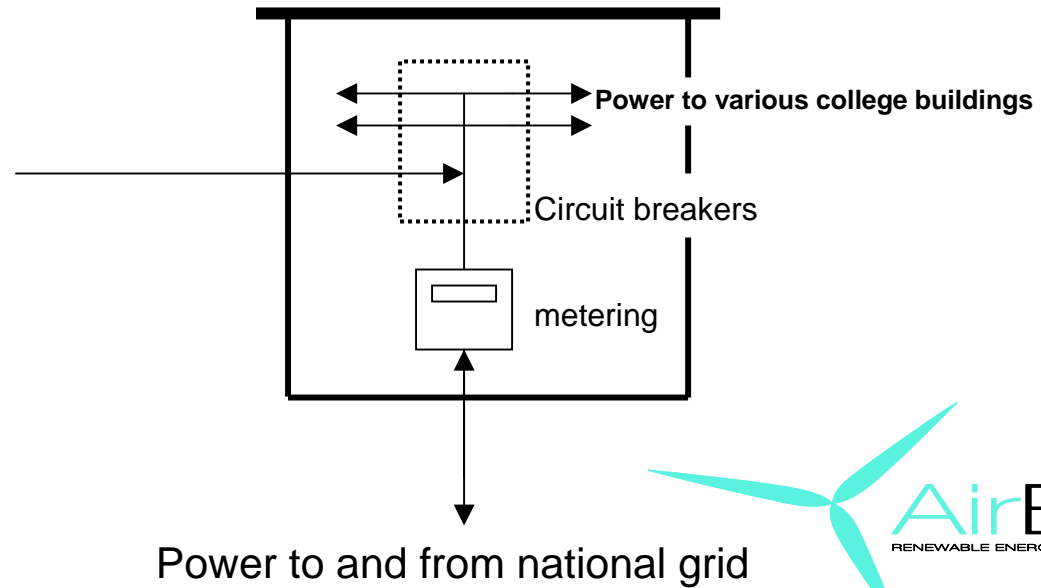
# Completed Installation



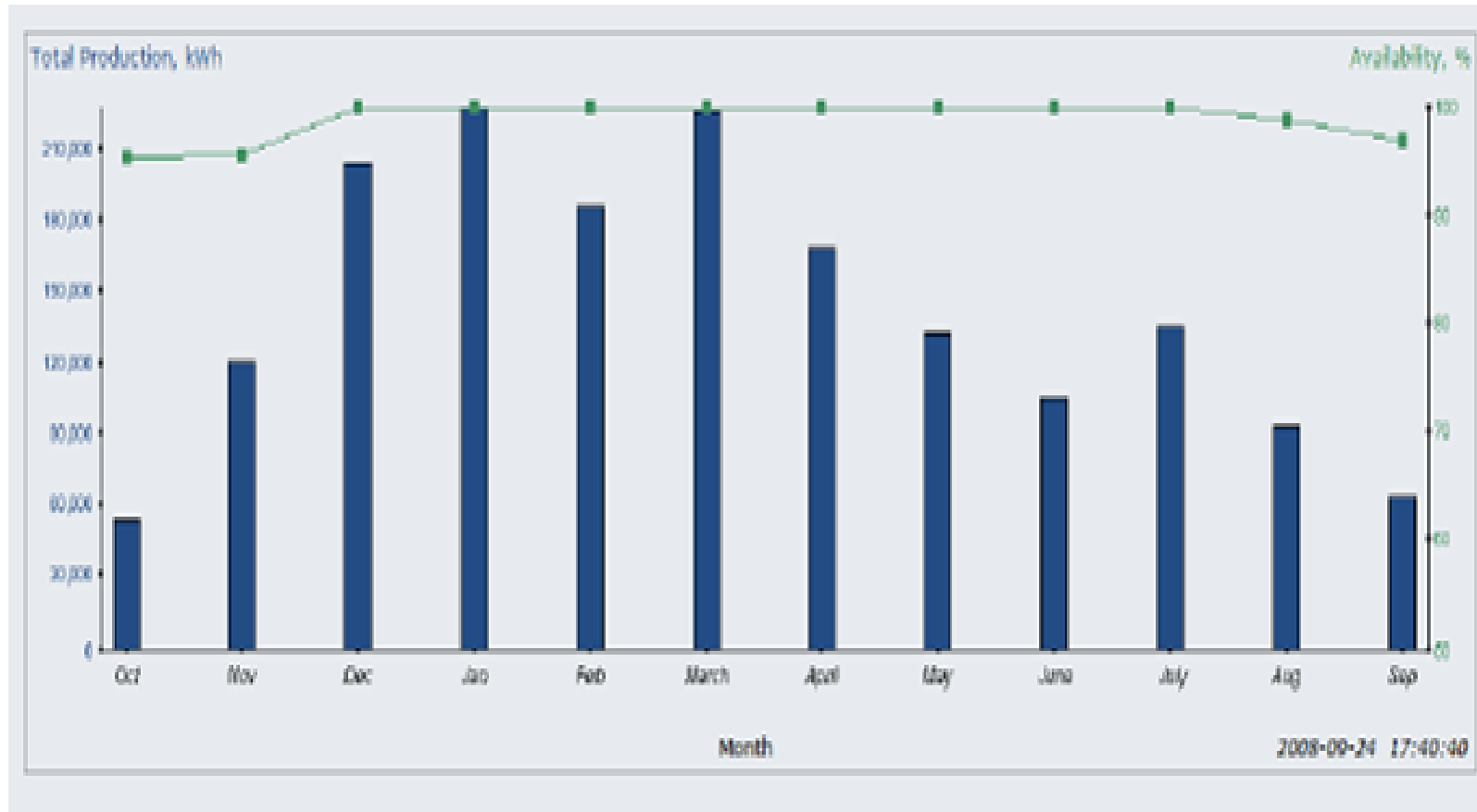
# Grid Connection



DKIT 10kV Electrical Compound



# Turbine Performance



2007 – 1.5 million kWh / 1,500 MWh  
2008 – 1.9 million kWh 1,900 MWh



# College Turbine Finances

- Total - €993k plus 13.5% VAT - €1.127m
- Electricity bill without turbine 2008  
€558,041
- Electricity bill with turbine 2008 was  
€383,755
- Total savings 2008 €174,286
- Exports of 348MWh (@.06c = €20,880
- O+M costs €15k annually



# Why Western Europe

- An excellent wind climate means that we can place wind turbines in semi urban environments. Not possible in many countries
- High electrical costs, vulnerable to price increases
- Potential future disruption
- CO2



# Brown Field & Urban Sites

- Large energy requirement
- Existing grid connection
- Access in place
- EIS
- Noise
- Visual impact





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