

# Sustainable Eastside

## Advice Note No.6

### Wind Power in Eastside

#### Funding & Finance

[www.saveenergy.co.uk](http://www.saveenergy.co.uk) & [www.est.org.uk](http://www.est.org.uk), advice and access to funding for wind turbines.

[www.defra.gov.uk](http://www.defra.gov.uk), Government funding for renewable projects.  
E: [life.env@defra.gsi.gov.uk](mailto:life.env@defra.gsi.gov.uk)

DTI Grants, ALTENER II; [mike.brook@dti.gov.uk](mailto:mike.brook@dti.gov.uk), Grants up to £500,000.

Clearskies, <http://www.clear-skies.org/index.aspx>, Provides capital grant and feasibility study assistance for individual householders and community groups.

Biffaward, [www.biffaward.org](http://www.biffaward.org), email; [grants@rswt.org](mailto:grants@rswt.org), offers grants up to £500,000, needs third party contribution.

Esmee Fairbairn Charitable Trust, grants of £1,000 to £500,000,  
T: 020 7297 4700  
[info@esmeefairbairn.org.uk](mailto:info@esmeefairbairn.org.uk)

EcoPower, T:01473 554530 / 553566) [nadine.dooley@eastern.co.uk](mailto:nadine.dooley@eastern.co.uk), funding for educational projects.

[www.biglotteryfund.org.uk](http://www.biglotteryfund.org.uk) for schemes with a community element.

National Grid TRANSCO Foundation T: 0208 663 3086, and TRNSCO  
T: 0191 216 3049  
Grants of up to £25K for community and educational projects.

[www.powergen.co.uk](http://www.powergen.co.uk), Funding from the Green Plan Initiative for Community Power Schemes.

Triodos Bank; [www.triodos.co.uk](http://www.triodos.co.uk), renewables finance initiative.

Co-operative Bank Energy Efficiency Funding Scheme,  
[www.co-operativebank.co.uk](http://www.co-operativebank.co.uk)  
Fixed rate loans & leasing schemes for RSL's renewable projects.  
Contact Jon Lee 0161 829 5461, [jon.lee@co-operativebank.co.uk](mailto:jon.lee@co-operativebank.co.uk)

#### Further Information

1.5Kw Swift wind turbine, Renewable Devices, Scotland  
Contact: Dr. Charlie Silverton, Edinburgh – 0131 535 3301 or see  
<http://www.renewabledevices.com/swift.htm>

[www.birmingham-sustainablebuildings.org](http://www.birmingham-sustainablebuildings.org)  
Downloadable copy of Eastside Wind Power Feasibility Study containing full details of access to grants etc.

Renewable Energy Investment Club; [www.reic.co.uk](http://www.reic.co.uk), equity for community-based projects.

<http://www.advantagewm.co.uk>, search WindSupply WM (Backing W.Mids.Wind Turbine Technology)

#### FUNDING TIPS- REMEMBER!!

Check your work is within the current terms of the funding regime – some change year to year.

What are you applying for? - Capital OR Revenue.

Is match funding required? Check all your figures.

Be prepared for an assessment visit from the funder in person.

Check you are ready to use the funding!!

For further information contact

**Eastside Sustainability Advisor**

t: 0121 464 0900 f: 0121 464 0899

Study commissioned by Groundwork Birmingham and Solihull and undertaken by Dulas Ltd.

Small-scale Neoga Vertical Axis Turbine ideal for fluctuating wind speeds in urban areas capable of meeting most of the electrical needs for a dwelling or small office.



Ecofys "Hera" a "hidden" Urban Wind Turbine. Uses a diffuser resulting in higher energy production at low wind speeds. Can display a company logo/advertisement. Less visually intrusive, less noise disturbance.

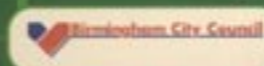
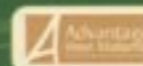


1.5Kw Swift wind turbine, Renewable Devices, Scotland. For turbulent wind flows, ideal for urban areas. Low maintenance, 20-year product life, produces 4200 KWh/yr electricity (saves 2.81 Tonnes CO2 per annum).



Proven 15kW wind turbine (grid connected) (WT15000)

Stand-alone, off-grid use, sold with inverters for grid-connected applications. For harsh wind conditions. Photo courtesy [www.provenenergy.com](http://www.provenenergy.com)



## Sustainable Eastside

Birmingham Eastside is a major regeneration initiative covering 170 hectares of Birmingham City Centre with the opportunity to become an exemplar of sustainable development. Integral to this is the inclusion of renewable energy technologies to reduce reliance on fossil fuels in accordance with Government and Planning Policy on prudent use of natural resources.

Wind energy identified as one of most promising available renewable resources in UK for achieving Governments renewable energy targets. 10% of UK electricity supplies by 2010, 15% by 2015.

Although this will mostly come from large windfarms, the local wind speeds in Eastside at 25 m above ground level are above 5 m/s (and 6 m/s at 45 metres) considered viable by most windfarm developers.

Eastside concept to provide small-scale, building integrated wind turbines incorporated into initial designs, fulfilling a growing need and cumulatively adding many kilowatts.

## Benefits of Wind Power

- A 1MW generated output e.g. a collective of 20 individual 50 KW turbines (equal to a 60m 1MW turbine) would make a significant contribution to the reduction of emissions that cause global warming and acid rain, these would be:

CO <sub>2</sub>	2260 tonnes p.a.
SO <sub>2</sub>	26.3 tonnes p.a.

and would be sufficient to provide for the average electrical needs of about 600 households.

- Excellent BREEAM ratings (Energy/Eco-labels) through reducing greenhouse gas emissions.
- Positive energy balance, turbines repay up to 80 times energy used in manufacture and installation.
- Ensure security and continuity of supply; "business as normal" in power cuts, safeguarding residential supplies.
- Source of additional income, developers and occupiers can use electricity generated or "sell back" excess to grid, i.e., from offices at weekends.
- Tax breaks, exemptions from Climate Change Levy and other proposed Carbon or Energy Taxes. Companies can trade "Carbon Credits" on futures markets.
- Corporate Social Responsibility; companies need to demonstrate to markets and shareholders understanding of social & environmental issues including climate change. Will affect future business, perform better financially and are eligible for reduced insurance premiums.
- Educational purposes, learning/demonstration for Universities, Colleges and tourists e.g. visiting Millennium Point.
- New Business Opportunities; Creating jobs and stimulating growth of local economy. New skills training for installation and opportunities for local manufacturing of wind turbines championed by Advantage West Midlands' WindSupply WM initiative

## Key constraints and solutions in Eastside

Consultations carried out with a large number of statutory consultees including Birmingham International Airport and telecommunications companies. Review of relevant planning policies and guidance has also taken place.

### Planning:

Proposals in Eastside should be taken forward on a case-by-case basis and consultations with the planning department should take place as early as possible to discuss potential locations.

The following regulatory requirements may apply:

- Town and Country Planning (General Development Order) Act 1990: new proposals must be applied for through Development Control with the Council.
- Town and Country Planning (Environmental Impact Assessment (England and Wales)) 1999/DETR Circular 02/99: Environmental Statements required for proposals over 5 MW or 5 turbines. 1MW limit for Eastside, less onerous environmental report usually required, subject to requirements of planning control authority.
- New Planning Act 2004, Strategic Environmental Assessment
- Regulating Energy and Birmingham Energy Strategies

**Turbine height:** Recommended max wind turbine size in Eastside is 60m to blade tip, within the limits of the City Council's Tall Buildings Policy. Individual applications require consultation with National Air Services Ltd and the Civil Aviation Authority to ensure no large structures interfere with radar. Also applies to construction phase as large structures such as cranes could have an effect.

**Grid connection and maximum turbine capacity:** Aquila Networks recommend total wind turbine capacity kept below 1 MW. Nearest primary substation to the proposed site is Bordesley.



**Large turbines (freestanding) require minimum distance of 10 rotor diameters from any residential properties.**

**EMI exclusion zone:** To avoid interference with telecommunications, turbines should not be placed within 150m of the following three links as shown on the map.

**Biodiversity:** Key wildlife corridors in Eastside e.g. the canal should be avoided where possible.

**Conservation areas:** Warwick Bar and Digbeth Deritend. Building-integrated small turbines may be appropriate.

**Noise:** Small-scale turbines (on buildings) covered by standard noise insulation and Building Regulations.

**Safety distance:** Required from any footpath, road or public right of way; equivalent to the height to tip plus 10m (minimum distance equal to the oversail distance -1 blade length).

**Shadow flicker:** Can occur at distances up to, and no more than 10 rotor diameters in Britain for properties that lie in the directions from east through north to west of turbines. High rotational speed: take care in selecting and positioning turbine to avoid shadow flicker. BBC indicated need to be consulted on applications to determine if there would be any interference with TV signals.

**Reflected light:** Turbines should be painted semi-matt light grey colour to minimise reflected light.

## Options for wind energy in Eastside

### 1. Medium scale urban wind turbine

Community-owned venture by people of Birmingham, electricity purchased by Birmingham City Council or exported to National Grid.

- Installation costs using a second hand 225Kw wind turbine approx £120,000
- Payback period approx 12 years.

Area adjacent to railway line close to proposed educational facility near Moor Street Station could be suitable for this type of development. May also be suitable for open space around Millennium Point as can be temporary.

### 2. Individual, stand-alone grid connected wind turbine

Integrated into developments in Eastside to supply electricity to existing/proposed commercial, industrial or educational buildings. 2Kw -75Kw turbine could be installed within open space of development.

### 3. Building integrated wind turbine <50kW

Need to be incorporated into initial building design by architects, although roof-mounted turbines are available for retrofitting to existing building. Companies inc Wind Dam and Ecofys (see front cover)

### 4. Individual building integrated (roof mounted) wind turbines up to 2KW

Could be retrofitted to existing buildings in Eastside.

Windsave ([www.windsave.com](http://www.windsave.com)) wind-powered generator uses low to medium wind speeds to create electricity. Designed to mount on almost any roof or wall. Feeds electricity directly into property on consumer side of meter.

Costs (inc installation):

£980 for an 850w wind turbine (1.8m rotor diameter) £780 for 1 333w turbine (1.4m rotor diameter)

Looking to be clear-skies accredited, should be commercially available in short-term. With costs of electricity saved could pay-back in 2 years.