TV Energy Case Study:
The Egg Farm Eco Friendly Office Development

Description:	Eco Friendly Office Development
Status of Project:	Wind turbine and solar thermal / PV systems operational and miscanthus planted on site.
Location:	Egg Farm, Kings Langley, Hertfordshire
Owner/ Developer:	RES

Background

Renewable Energy Systems Ltd (RES) is a member of the Sir Robert McAlpine group of companies, a British privately owned construction group. RES is one of the UK's leading wind energy companies and has successfully constructed 13 wind farms in the UK and Ireland and operates and maintains several others. RES also has a considerable portfolio of wind farm developments overseas.

During 2002, RES applied for planning consent to redevelop the former Ovaltine Egg Farm buildings and a sustainable and energy efficient office and visitor facility. The site is within the Three Rivers District of Hertfordshire approximately 1km to the east of Kings Langley town centre. The site is bounded on two sides by the M25 and the West Coast main line respectively.

The local planning authority is Three Rivers District Council which at the time of the redevelopment proposals was under Liberal Democrat control.

The Development

RES has redeveloped the existing buildings on site to create an eco friendly office and visitor facility supplied from renewable energy resources. Key features include:

- A 225kW wind turbine with a hub height of 36m and a rotor diameter of 29 located alongside the car park. The turbine is grid connected and generates enough electricity to the needs of the office facility plus a surplus which is fed back into the local grid network and is enough to power approximately 50 homes.
- The 7.8 hectare site has also been planted with miscanthus as an energy crop. A biomass heating system is planned for installation in 2004/05 when the first crop is harvested.
- 80m borehole feeds a chilled beam cooling system for the offices and a large underground highly insulated tank is currently being constructed to act as a heat store for excess heat produced in the summer for use in the winter.
- 170m^2 solar thermal panels, 22m^2 of which are combined PV and thermal units installed against a gabioned bank to create a large storage area beneath the panels. This area will be used as a store for the harvested miscanthus crop and a heat dump for excess heat from the solar systems to help with crop drying.

- Energy efficient and passive solar design with high insulation standards, natural shading, high glazing standards and a green roof.

Total costs for the whole development have proved to be slightly higher than with a conventional development. RES considers the investment to be highly worthwhile, both in terms of supporting the company ethos of clean energy and through the revenue savings that will be achieved from on site energy generation.

Planning Issues

A principal planning issue for the development concerned the siting of the wind turbine.

The turbine site is approximately 150m from the nearest property. This property is adjacent to the M25 motorway and is screened by trees. Two further properties are located 160 and 170m distance away. The wind resource at the site is 4.5m/s at 25m height. There are also nearby properties in Toms Lane some 670m to the north of the site.

The Three Rivers Local Plan (1996-2011 deposit draft) makes no specific reference to renewable energy generation; however it does outline a strategy for sustainable development which the proposal for an eco friendly office satisfied.

The Hertfordshire Structure Plan (1991-2011, adopted April 1998) also supports the principle of sustainable development and specifically addresses renewable energy generation through a supportive policy encouraging renewable energy development subject to other policies relating to the environmental effects of the development and impacts on traffic generation

The site is in the Metropolitan Green Belt and the Green Belt and not subject to any national, landscape or ecological designations. The site is within the Central River Valleys Landscape Areas. The Three Rivers Local Plan restricts any development within the Green Belt which conflicts with the purpose of preserving the openness of the Green Belt.

The principle of wind turbines within Green Belt area has been tested with the Secretary of State's decision to grant consent for the Ovenden Moor Wind Farm in West Yorkshire on 2nd July 1992. The Secretary of State noted the inspector's opinion that the proposed wind farm could constitute an appropriate use of land within the Green Belt and was appropriate to a rural area.

RES was granted planning permission for a slightly smaller turbine, with a 31.5m high tower with a 27m rotor diameter, in January 2001. However following monitoring, wind speeds were found to be lower than expected and an application for the slightly larger turbine was submitted in March 2002. RES archived planning consent under delegated powers for the larger turbine in 2003 and it was erected in September 2003.

Local Opinion

In the main, local concern related to the effects of the height of the mast, noise, distraction to drivers on the M25, visual impacts, loss of view and integration with the surrounding rural areas.

RES commissioned a noise assessment which concluded that noise levels at neighbouring properties resulting from the operation of the wind turbine would be acceptable for both day and night time operation at all wind speeds.

RES also undertook a comprehensive programme of community consultation which include local residents associations, parish councils, public meetings, residents living near the site and all the relevant statutory bodies. On the whole the reaction to the proposed turbine was positive. Site visits were arranged and leaflet of FAQ compiled for members of the Planning Committee.

Objections came from the Kings Langley and District Residents Association and Abbots Langley Parish Council which both had concerns over visual impact, detrimental impacts on local amenity, conflict with the green belt policy and the local plan and that the site would create precedent for similar further developments.

A local Conservative Group also circulated a leaflet expressing concerns over the entire Egg Farm development to local residents containing factually incorrect information about the site. The leaflet exaggerated the size of the turbine and raised concerns about pollution from smoke that would be produced from the 'small power station' (the proposed biomass heating system) on the site. The Group lobbied for an inquiry on if the development should go ahead in a Green Belt area.

There were also a number of supportive local groups and individuals and press coverage of the development was on the whole very positive.

Photographs of the Site

A: The entrance to Egg Farm
B: the wind turbine and the solar array in adjacent to the car park
C: the wind turbine from the air
D: the entrance to the fuel store underneath the solar array
E: The green roof on the first storey of the main office building with the wind turbine in the background
F and G: the turbine as seen from the surrounding environment


A


B


C


D


E


F


G