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**WePWEP:
Web-based Participatory
Wind Energy Planning [2]**

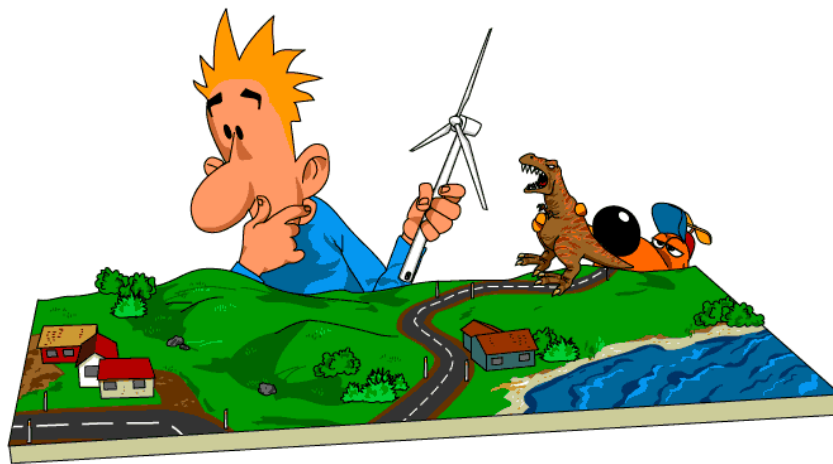
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Centre for Advanced Spatial Analysis
University College London

WePWEF:

Web-based Participatory Wind Energy Planning



WIND ENERGY DEVELOPMENTS IN THE COUNTY OF
NORFOLK

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April, 19th, 2006

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ABBREVIATIONS

AONB	Areas of Outstanding National Beauty
CAA	Civil Aviation Authority
CO ₂	Carbon dioxide
GWh	Giga Watt hour, unit of energy [10^9 W of electricity spent over 1 hour]
km	kilometre, unit of length
kWh	Kilo Watt hour, unit of energy [10^3 W of electricity spent over 1 hour]
m	Meter, the International System's unit for length
MoD	Ministry of Defence
MW	Mega Watt, unit of power [1 MW = 10^6 W]
NO _x	Nitrogen oxides
RSS	Regional Spatial Strategy
SAC	Spatial Areas for Conservation
SO ₂	Sulphur dioxide
SPA	Spatial Protection Areas
U.K.	United Kingdom
W	Watt, the International System's unit for power

INTRODUCTION

This document results from an effort to compile and make available to the wider public information on wind energy developments in the County of Norfolk. It has been prepared in the frame of a PhD research project, which aim is to develop and test a learning-enhancing website to involve the public spatial planning. The application focused is the strategic planning of wind farms location. This website is named WePWEP – Web-based Participatory Wind Energy Planning and is available at <http://ernie.ge.ucl.ac.uk:8080/WePWEP/>. This information presented here is also available at this website, in a more interactive way.

A number of sources have been used in the preparation of this document, namely reports by the local authority's planning officer involved in the assessment of the submitted wind farm planning applications, which have kindly been provided by respective local planning authority.

Three main topics are covered in this document:

- the target for renewable energy production that the East of England region is currently working on;
- commercial wind energy developments that have been approved in the County of Norfolk so far;
- commercial wind energy developments proposed for the County of Norfolk but have that have not been approved by respective planning authority.

WIND ENERGY TARGET

The study *Making Renewable Energy a Reality: Setting a Challenging Target* for the Eastern Region, commissioned by the East of England Sustainable Development Round Table in 2001, estimated the region's potential to generate electricity from onshore wind at 5,000 GWh/year. In their proposed scenario, 14% of the region's electricity would be produced from renewable sources by 2010 with the onshore wind contribution being 1,300 GWh by 2010, obtained by installing 460 MW of wind turbines capacity. For offshore wind energy, the equivalent figures are 53,000 GWh/year and 1,500 GWh/year, obtained from 350 MW of wind turbines capacity.

This scenario has been adopted by the East of England Regional Assembly, the “regional planning body”, and incorporated into The East of England Plan or Regional Spatial Strategy (RSS) (formerly known as the Regional Planning Strategy 14), approved in October 2004.

Proposed county targets for renewable energy production were not taken further by the RSS. Each county should ensure that it makes a contribution that reflects the available resources.

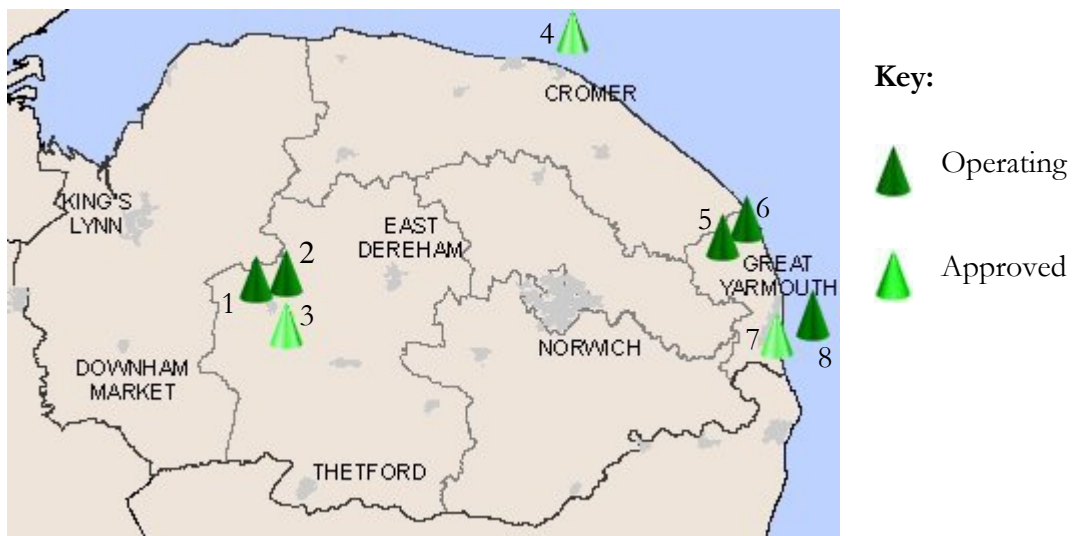
OPERATING AND APPROVED WIND FARM PROJECTS

1 Geographical location

The County of Norfolk currently has:

- 4 operational onshore wind farms, capable of producing approx. 7 MW of power;
- 1 operational offshore wind farm with a total capacity of 60 MW;
- 3 wind farms have been granted planning permission, one of which is offshore.

Figure 1 - Map of operating and approved wind farms in the County of Norfolk.



Basic characteristics of the mapped wind farms can be read in **Table 1** below.

Table 1 - Basic characteristics of wind farm projects not approved in the County of Norfolk.

ID	Designation	Nr wind turbines	Total Power capacity (MW)	Status
1	Ecotech	1	1.5	operating since Nov. 1999
2	Swaffham II	1	1.8	operating since July 2003

3	North Pickenham	8	16.0	consented
4	Cromer	30	100.0	consented
5	Somerton	1	1.5	operating since July 2002
6	Blood Hill	10	2.25	operating since Dec. 1992
7	South Beach	7	3.5	consented
8	Scroby Sands	30	60.0	operating since June 2004

Further details on these wind farm projects can be found at the WePWEP website, available at http://ernie.ge.ucl.ac.uk:8080/Web_System.

2 The planning application process: two case studies:

The following sections describe the planning application process of two of the above wind farms projects: Ecotech and Swaffham II. The purpose of these sections is to illustrate the process that all wind farm proposals have to undergo until being determined (approved or refused) by the respective planning authority. A detailed description of the wind farms planning application process is available in Simao (2006).

2.1. Ecotech wind farm

- Ecotech wind farm is actually a single turbine located at the Ecotech Centre, Swaffham.
- It was awarded a Non-Fossil Fuel Obligation contract under the 4th Renewable Obligation Scheme.
- At the time of erection it was the tallest, largest and most powerful turbine in the U.K.
- Designed by Lord Norman Foster (Foster and Partners), the wind turbine houses a viewing platform enabling visitors to view the surrounding countryside from a height of 65 m.
- It is a very popular turbine among local people.

The planning application process

The vicissitudes of the turbine’s planning application process are described below. The protagonists are the developer (Ecotricity), in the role of applicant, and Breckland District Council, in the role of determining authority for the submitted planning application.

Table 2 - Details of the planning application process for the Ecotech wind farm.

Pre-application stage	
summer 1995 - mid 1997	<p>Developer carries out feasibility studies and consultation with stakeholders, asking for objections to prospective wind farm sites.</p> <p>Stakeholders approached included: Ministry of Defence (MoD), Home Office, Radio Communications Agency, Civil Authority Aviation (CAA), Seething Airfield, British Telecom, mobile phone operators, etc.</p>
Application stage	
2 March 1998	<p>Application submission to Breckland District Council, the Local Planning Authority.</p> <p>Application ref.: 3/98/238/F ; expiry of statutory period: 27 April 1998</p>
Consultation stage	
begin Mar - mid May 98	<p>Administrative consultation</p> <p>Breckland Council carries out consultation among statutory and non-statutory authorities.</p> <p>Concerns are expressed about the proposal’s impacts: visual intrusion and noise.</p> <p>April 98: Breckland Council investigates the possibility of reducing the height of the turbine and its generating capacity. The efforts were unsuccessful.</p> <p>Most authorities raise no objection but:</p> <ul style="list-style-type: none"> • The Director of Environment, Health and Housing imposes conditions to prevent shadow flicker and flashing affecting nearby residents, and to ensure

that possible TV interference will be adequately tackled by the developer.

- MoD did not reply to the notification sent by the Council.

Public consultation

Breckland District Council places notices on the site and in the press: on 9th March, 1998, the application is advertised in the Easter Daily Press.

The Council receives 7 letters of representation:

- oppose the application;
- support the application; and
- 2 express no objection in principle but raise concerns in respect of detail.

Objections and concerns are mainly related to the height and location of the turbine. Other concerns include proximity to residential property, noise and potential traffic hazards through proximity to the A47 Trunk road.

Support is expressed in terms of environmental benefits, the aesthetic attractiveness of wind turbines and the fact that no waste is produced.

Determination stage

18 May 98 The area planning officer recommendation is to approve the application. The Planning and Development Committee determines to grant planning permission to the Ecotech wind farm project.

Post-determination stage

02 June 98 MoD objects to the wind turbine because of detrimental impacts upon the operations at the Royal Air Force Marham.

MoD is not a statutory consultee and, because the objection is received outside the consultation period, Breckland Council remains firm in its position that the grant of planning permission was wholly valid and lawful. Furthermore, the developer approached the MoD during its pre-application consultation and MoD stated that it had no safeguarding objections to the proposal.

19 Feb 99	Following negotiation of a Unilateral Undertaking to take into account the conditions imposed by the Environment, Health and Housing Department, planning permission is issued. The developer has 5 years to begin development.
Oct 99	Wind turbine start operating.

2.2. Swaffham II wind farm

- Swaffham II wind farm is composed of a single turbine, the second at Swaffham.
- It was build at request of local residents and awarded a Non-Fossil Fuel Obligation contract under the 5th Renewable Obligation Scheme.
- In combination with the Ecotech turbine, enough electricity is generated to supply about 77% of the population of Swaffham.

The planning application process

Swaffham II's planning application process ran over 3 years. It was marked by two objections, one from the MoD, the other from Norfolk County Council, and an Appeal for non-determination. The protagonists are the developer (Ecotricity), in the role of applicant, and Breckland District Council in the role of determining authority for the submitted planning application.

Table 3 – Details of the planning application process for the Swaffham II wind farm.

Pre-application stage	
Nov 1999	In its November meeting Swaffham Town Council voted unanimously in favour of recommending to Breckland District and Norfolk County Councils the proposal to enter into negotiations for a second wind turbine to be assembled at an appropriate site at or near Swaffham.
begin Dec 99 - end May 2000	Developer carries out feasibility studies and consultation with stakeholders asking for objections to prospective sites.

The authorities approached included: MoD, Home Office, Radio Communications Agency, CAA, English Heritage, English Nature, Royal Society for the Protection of Birds (RSPB), mobile phone operators, etc.

31 Jan 2000 Developer requests a scoping opinion from Breckland Council.

Application stage

11 Dec 2001 Application submission to Breckland District Council, the Local Planning Authority.

Application ref.: 3PL/2001/1505/F ; expiry of statutory period: 2 April 2002

Consultation stage

mid Dec - end **Administrative consultation**

Mar 2002

Breckland District Council carries out consultation amongst statutory and non-statutory authorities.

- MoD objects to the use of the proposed wind farm site because it lies within the Military Air Traffic Zone of RAF Marham and also falls within an area of significant Air Defence Radar coverage from the Neatishead and Trimmingham sites. The existing turbine close to this site renders this second proposal unacceptable.

Breckland Council requests that MoD provides details demonstrating that the specific proposal would compromise the effectiveness of air defence radar coverage, without which the objection has little weight.

MoD's reply did not satisfy Breckland District Council.

- Norwich Airport Ltd. supports the objections raised by MoD: that a second wind turbine may cause a serious radar problem. Furthermore, it suggests that the developer should provide evidence that radar interference from the turbines will not be experienced by the safety-related services provided by Norwich Airport Ltd.

- Despite the favourable recommendation from Norfolk County Council's Director of Planning and Transportation, the Norfolk Planning and Highways Delegation Committee raised a strategic planning policy objection to the Swaffham II application on landscape impacts grounds. A particular concern is the cumulative impact of the proposal.

Public consultation

Breckland District Council posts notices on the site.

11 letters of representation are received by the Council:

- 1 letter objects to the development citing a number of amenity concerns that include the proposal's visual impact, size and location. Concerns are also expressed over the actual benefits of the turbine for the local area and the planning process;
- 10 letters support the application - ten copies of the same letter sent by different supporters.

Determination stage

03 Apr 02 Members of the Development Control Committee resolve to defer consideration of the application until Supplementary Planning Guidance on the subject is developed. This means that the determination of the application is postponed by months.

Such a decision results from concerns of the Council over the potential uncoordinated proliferation of wind turbines throughout the district as, besides the Swaffham II planning application, another application for a wind farm has been submitted (for 3 turbines at Shipdham) and planning permission for an anemometer mast had been granted.

1 May 02 Developer lodges a Notice of Appeal with the Secretary of State for non-determination of the submitted application within the statutory period.

The appellant asks for the Appeal to be decided on the basis of written representation. Breckland District Council does not object to this request.

28 May 02	<p>The Planning Inspectorate, having examined the Appeal proposal, determines the Appeal will be decided on the basis of a Public Inquiry.</p> <p>Both the appellant and Breckland District Council request that the Planning Inspectorate reconsiders its decision and decides the Appeal by written representations. The requests were unsuccessful.</p>
mid May - mid Sep 02	<p>Breckland District Council informs the consultees of the Appeal and inquires about their intention to attend to the Public Inquiry scheduled for the 12th and 13th November 2002.</p> <p>Norfolk County Council announces that it will not attend the event due to the divergent positions of the planning officer, who recommended not raising any objection to the application, and the Council's Planning and Highways Delegations Committee, which raised an objection.</p> <p>Defence Estates (MoD) announces that it will not attend the Inquiry but maintains the objection to the application.</p> <p>Meanwhile, Breckland District Council receives 2 other letters from local residents:</p> <ul style="list-style-type: none">• 1 expresses concern about the close proximity of the proposal to their property;• 1 letter of support.
8 July 02	<p>Developer submits the Statement of Case in respect to the Appeal made by notice on the 1st May, 2002.</p>
11 Sep 02	<p>Developer presents a report prepared by an independent consultant on the MoD objection. This report states that the objection is precautionary and is technically unsupported.</p>
23 Sep 02	<p>The Development Control Committee discusses the planning application and, after long deliberation, the members resolve that were the Appeal withdrawn they would be minded to approve the application.</p>

The reasons for such resolution were:

- Further deferral of the application's determination was not an option: 1) it would result in both severe criticism and an order of costs being made against the Council; 2) although Supplementary Planning Guidance on wind turbines is being prepared, the Local Planning Authority can not defer an application pending future policies;

Two authorities raised objections: the MoD and Norfolk County Council. Nevertheless, neither party intended to support the Council by turning up at the forthcoming Public Inquiry nor adducing cross-examinable evidence in support of their objections.

30 Sep 02 Developer withdraws the Appeal.

Breckland District Council investigates the possibility of relocating the turbine further north. Developer informs that the landowner declined to renegotiate the terms of the leasing contract to permit such a move.

Oct 02 Breckland District Council grants planning permission to the Swaffham II wind farm project.

Post-determination stage

Jul 03 Wind turbine starts operating.

09 Sep 03 Developer confirms that the wind turbine has been constructed approx. 15m south from the location used in the planning application.

Breckland District Council treats the change of location as an amendment to the details previously approved.

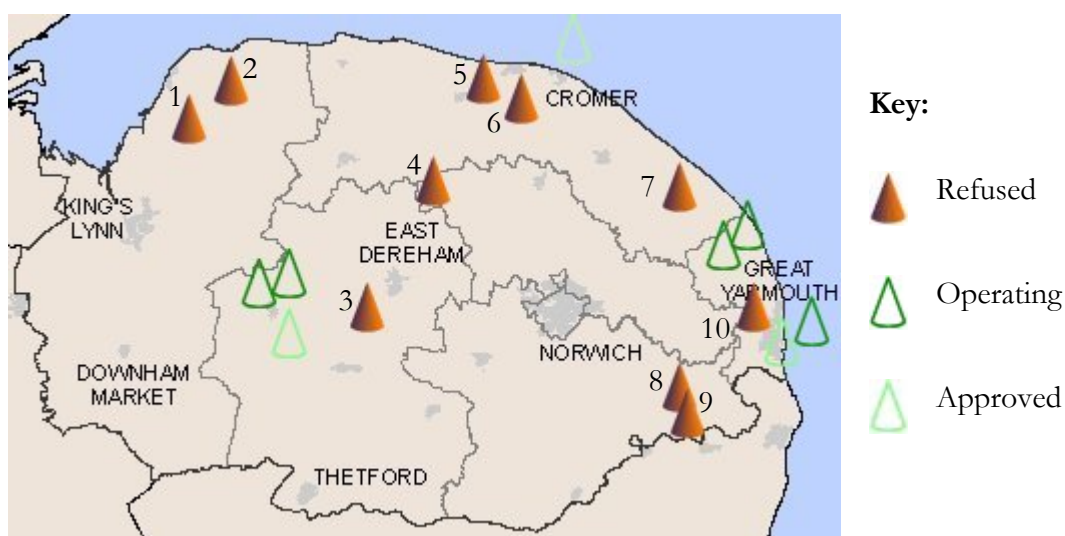
WIND FARM PROJECTS THAT DID NOT OBTAIN PLANNING PERMISSION

1 Geographical location

Besides the 8 approved wind farm developments, 10 other projects have been submitted for approval to Local Planning Authorities in the County of Norfolk.

The map below depicts the location of these 10 wind farm projects that have either been rejected by the Planning Authority (or the Planning Inspectorate in Appeal) or withdrawn by the applicant.

Figure 2 - Map of refused and approved wind farm projects in the County of Norfolk.



Basic characteristics of these projects are shown below, in **Table 4**.

Table 4 – Basic characteristics of wind farm projects not approved in the County of Norfolk.

ID	Designation	Nr wind turbines	Total Power capacity (MW)	Project determination/withdraw date
1	Sedgeford	6	10.8	withdrawn: 21/11/2003
2	Choseley	3	1.8	withdrawn

3	Shipdham	2	4.0	determined: 17/12/2002; appeal decision to be known
4	Guestwick	6	12.0	determined: 31/03/2005; appeal decision to be known
5	Bodham	4	2.4	determined: 06/05/1994; appeal dismissed on 08/09/1995
6	Gresham	15	7.5	determined: 06/05/1994; appeal withdrawn: 04/01/1995
7	Ingham	7	3.5	withdrawn: 25/10/1995
8	Brundish	1	1.5	determined: 2/05/2001
9	Stockton	1	1.5	determined: 2/05/2001
10	Bure Loop	14	7.0	determined: 16/12/1993

2 Projects details and briefing of the planning application process

For all 10 projects that have not been approved, the following information is compiled over the next sections:

- Project description;
- Briefing on the planning application process; and
- Major concerns/objections associated to the proposal.

2.1. Sedgeford wind farm

Table 5 – Sedgeford wind farm: project details.

Developer	Ecotricity
Location	Greenfield hilltop, 1.5 km south of the village of Sedgeford
Application submission date	16 Sep 2002
Application determination date	application withdrawn on 21 Nov 2003

Nr turbines	6
Turbines model	Enercon E 66
Turbine power capacity	1.8 MW
Combined power capacity	10.8 MW
Tower height to the hub	65 m
Rotor diameter	70 m
Generation kWh/year	23.7 million, equivalent to about 7,200 households
Carbon dioxide (CO₂) saving/yr	20,757 tonnes

Source: Ecotricity [http://www.ecotricity.co.uk/projects/plan_sedgeford.html]

The Sedgeford wind farm planning application was the focus of several concerns raised by villagers and wildlife conservation groups. The biggest issue was the possible effects of the proposal on designated nature conservation areas in the Wash and on the Norfolk coast, in particular, on bird species such as the Pink-footed Goose (interference with breeding grounds).

Following protests from the public and organisations such as the Wildfowl and Wetlands Trust, the Royal Society for the Protection of Birds (RSPB) and English Nature, the developer withdrew the planning application, submitted to Kings Lynn and West Norfolk Borough Council, on 21st November 2003.

2.2. Choseley wind farm

Table 6 - Choseley wind farm: project details.

Developer	Parkers of Leicester/National Wind Power
Location	Choseley Farm, approximately 3 km south of Tichwell and 2 km north of Docking
Application submission date	23 Jan 2002
Application determination date	withdrawn before determination
Nr turbines	3
Turbines model	
Turbine power capacity	0.6 MW
Combined power capacity	1.8 MW
Tower height to the hub	60 m

Rotor diameter	62 m
Generation kWh/year	
Carbon dioxide (CO₂) saving/yr	

Source: Norfolk County's Planning and Highways Committee

Following consultation with King's Lynn and West Norfolk District Council on the Choseley wind farm planning application, Norfolk County Council's Planning and Highways Delegations Committee voted to object on environmental grounds to the application. The main reasons for the objection stem from the location of the application site:

1. lying in an Area of Important Landscape Quality and close (400 m away) to the North Norfolk Area of Outstanding National Beauty (AONB) - it was considered the applicant had provided insufficient information to show that the development would not have a detrimental impact on the AONB; and
2. lying approximately 3 km from Tichwell Nature Reserve, a Royal Society for Protection of Birds (RSPB) site, and relatively close to the coast-line which, in this area, is designated a Site of Specific Scientific Interest (SSSI), Ramsar site, Special Protection Area (SPA) and Special Area of Conservation (SAC) - it was considered that the applicant had not provided sufficient information or assurances the proposal would not have a detrimental impact on these important nature conservation areas.

Before any determination by the King's Lynn and West Norfolk Council's Planning Committee, the applicant withdrew the planning application.

2.3. Shipdham wind farm

Table 7 – Shipdham wind farm: project details.

Developer	Ecotricity
Location	Wood Farm, Church Lane, Shipdham
Application submission date	3 Jan 2002
Application determination date	17 Dec 2002
Nr turbines	2

Turbines model	Enercon E 66
Turbine power capacity	2.0 MW
Combined power capacity	4.0 MW
Tower height to the hub	65 m
Rotor diameter	70 m
Generation kWh/year	9.1 million, equivalent to about 2,778 households
Carbon dioxide (CO₂) saving/yr	7,884 tonnes
Sulphur dioxide (SO₂) saving/yr	92 tonnes
Nitrogen oxide (NO_x) saving/yr	28 tonnes

Source: Ecotricity [http://www.ecotricity.co.uk/projects/plan_shipdham.html]

Shipdham wind farm planning application has a quite long history. The original planning application for this development was submitted in late 2001 to Breckland District Council. The project was called Wood Farm and consisted of three 85m (hub height) 1.8 MW turbines in the north of Shipdham village.

Following protests by villagers, this initial plan was scaled down to two generators (the project described in the table above) and re-submitted to the Planning Authority in January 2002.

This second proposal has also prompted many protests by local residents. Campaign Against Turbines in Shipdham and Scarning (CATSS), a group of local residents, actively campaigned against the project using the arguments that:

1. wind turbines would "dominate, industrialise and desecrate" the village and the surrounding landscape;
2. their noise would be "unacceptably loud in the quiet area";
3. they would cast a "huge shadow" on some homes;
4. they were on the flight path of migrating swans; and,
5. acceptance of this proposal would create a precedent for future wind farm applications.

On the opposite side, Campaign Against Nimbyism in Shipdham (CANIS) lobbied in favour of the development.

In consultation with Breckland Council, Norfolk County Council's Planning and Highways Delegations Committee raised a strategic planning policy objection to the project, due to the unacceptable landscape impact.

In December 2002, twelve months after the application submission, Breckland Council’s Planning Committee refused the application amid concerns that the turbines would have a detrimental effect on landscape and generate too much extra traffic.

In disputing this decision, the developer lodged an appeal to the Office of the Deputy Prime Minister on the 3rd February 2003.

After a five-day planning inquiry held in August, the decision is announced in September 2003: the Planning Inspector overrules the objections but dismisses the appeal on the grounds of inadequate evidence on the question of noise pollution, an issue distinct from the Council’s reasons to refuse the planning application.

Subsequently, the developer collects further information on the noise issue and re-submits the application with additional noise information in February 2004.

Based on this new information, noise becomes less of an issue. However, on April 7th, 2004, councillors voted unanimously against the project. A key element in this decision were objections from Norwich Airport on the grounds that the turbines would be a safety hazard for aircraft operations and from Shipdham Aeroclub expressing that planes and gliders using the Shipdham airfield would have their safety compromised by the project.

Again, the developer lodged an appeal against the Council’s decision and a Public Inquiry was scheduled for the 21st-23rd March 2006. On the 22nd March, already during the Planning Inquiry, Norwich Airport dropped its safety objections, in return for Ecotricity (the developer) agreeing to fund safety improvements recommended by an independent expert, who will assess the effect of the turbines on airport radar. This forced Breckland Council to withdraw its defence of the earlier decision to refuse planning permission on the grounds of safety concerns. The Inspector’s decision is anticipated in about two months’ time.

2.4. Guestwick wind farm

Table 8 – Guestwick wind farm: project details.

Developer	Enertrag UK Ltd
Location	Farmland adjacent to Skitfield Road (former Bungay airbase)

Application submission date	15 Nov 2004
Application determination date	31 March 2005
Nr turbines	6
Turbines model	either DeWind D8 or Enercon E 66
Turbine power capacity	2.0 MW
Combined power capacity	12.0 MW
Tower height to the hub	80-85 m
Rotor diameter	70-80 m
Total site area	approx. 42 ha (1.05 km x 0.4 km)
Turbine's foundation	20 m diameter concrete base
Distance to the closest dwelling	700 m
Generation kWh/year	25 million, equivalent to about 7,750 households
Carbon dioxide (CO₂) saving/yr	more than 20,000 tonnes

Source: Enertrag UK [<http://www.enertrag.co.uk/guestwick.html>]

Guestwick wind farm planning application raised strong local opposition. Approximately 440 letters from approximately 260 households have been received by the District Council, of which only twelve letters supported the application. Additionally, petition of 642 signatories was received by Breckland Council, raising a number of objections to the application.

The Campaign to Protect Rural England - Norfolk, a local action group, conducted a resident's survey about the proposed Guestwick wind farm. A questionnaire was delivered to 1,000 homes in the area and the results were¹:

- 96% of the respondents (over one hundred households) believed that the proposed wind turbines were inappropriate for the area, the landscape would be severely affected, and the local wildlife would be put at risk; and
- 92% of the respondents expressed concerns about possible noise disturbance from the wind turbines.

Besides local residents' opposition, other consultees in the planning application process raised objections and concerns, including some Parishes in the area, the Ministry of Defence (which later

¹ "Door to Door Mailing: Special Report" by Campaign to Protect Rural England – Norfolk – available at: <http://www.cprenorfolk.org.uk/campaigns/campaign-renew-energy-3.htm>

made its objection conditional on the building of wind turbines after the decommissioning of RAF Coltishall airport), the Norwich Airport, etc.

Norfolk County Planning and Highway Delegations Committee was also against the project. On the 18th February, 2005, the Committee raised a strategic planning policy objection to the application, considering that the development would result in an unacceptable landscape impact, and a conditional highway objection until the question of the route by which wind turbines would be transported to the site is resolved.

The appraisal of the planning application by the District Council planning officer is that there are substantial concerns regarding the impact of the proposed wind farm upon:

1. the surrounding landscape: a major concern was raised regarding the area between Reepham and Foulsham, considered a “simple landscape of generally high quality”, which is exacerbated by the lack of any existing and significant man-made elements;
2. aircraft safety by virtue of the adverse effects on the wind turbines on radar; and
3. local residents, both due to the loss of visual amenity nearby their properties, but most importantly, to the potential noise generated by the wind turbines: since many properties are downwind of the turbines, their associated aerodynamic noise is likely to cause problems at medium- or high- wind speed.

Based on the appraisal, the officer’s recommendation was for the Planning Committee to refuse the planning application.

On the meeting of the 31st March, 2005, the Planning Committee for Broadland District Council voted unanimously to refuse permission for the Guestwick wind farm application.

The developer lodged an Appeal to the Secretary of State. The start date for the Appeal was 13th June 2005, but by the Planning Inspectorate has not yet made a determination.

2.5. Bodham wind farm

Table 9 –Bodham wind farm: project details.

Developer	Private application - Mr & Ms Mack
Location	Pond Farm, Church Road, Bodham, Holt
Application submission date	11 May 1993
Application determination date	06 May 1994
Nr turbines	4
Turbines model	Markham Wind Energy Floda 600/45
Turbine power capacity	600 KW
Combined power capacity	2.4 MW
Tower height to the hub	43.5 m
Rotor diameter	45 m
Generation kWh/year	between 3.44 and 11.86 millions, equivalent to 1,042 and 3,590 households

Source: North Norfolk District Council

On the 6th May, 1994, Bodham wind farm's planning application was refused by the Local Planning Authority on the grounds that:

1. the development would result in a severely detrimental impact on the landscape quality of the area, would detract from the views from the Area of Outstanding Natural Beauty, and impinge upon the setting of important historical features of the locality and detract from the rural character of the area;
2. the development would be likely to interfere with Civil Aviation Authority radar equipment, to the detriment of aircraft safety;
3. the development's proximity to existing residential properties, roads and public footpaths could result in a situation hazardous to public safety in case of mechanical failure in extreme weather conditions (parts of blades being thrown); and
4. the siting of the turbines in close proximity to residential properties is likely to give rise to unacceptable levels of noise nuisance.

The developer subsequently appealed this decision to the Secretary of State. The Appeal was received by the Local Planning Authority on 9th November 1994 and a Public Inquiry took place.

On 8th September, 1995, the Planning Inspectorate dismisses the appeal. It was the Planning Inspectorate's view that:

1. the community's and nation's need for renewable energy does not override the significant harm that the proposed development would cause to the landscape of the area and the adverse consequences that this harm could have on the tourism industry and local economy; and
2. the harmful effect which the proposal could have on the living conditions of the occupiers of the residential properties in the vicinity of the site, particularly in terms of the dominating visual presence of the turbines and the noise disturbance that could at times be created.

2.6. Gresham wind farm

Table 10 – Gresham wind farm: project details.

Developer	New Generation Projects
Location	Gresham Estate, Chaucer's Farm, West Beckham and East Beckham
Application submission date	13 Oct 1993
Application determination date	06 May 1994
Nr turbines	15
Turbines model	Vesta V39
Turbine power capacity	500 KW
Combined power capacity	7.5 MW
Tower height to the hub	39 m
Rotor diameter	42 m
Generation kWh/year	between 9.8 and 25.5 millions, equivalent to 2,970 and 7,725 households

Source: North Norfolk District Council

On 6th May, 1994, the planning application for Gresham wind farm was refused by the North Norfolk Planning Committee on the grounds that:

1. the development would have a severely detrimental impact on the landscape quality of the area, detracting from views of the Area of Outstanding Natural Beauty, impinging upon the setting of important historical features of the locality, and detracting from the rural character of the area;
2. the development would be likely to interfere with Civil Aviation Authority and Ministry of Defence radar equipment, to the detriment of aircraft safety;
3. by being located close to residential properties, roads and public footpaths, the development could result in situations hazardous to public safety in case of mechanical failures in extreme weather conditions (parts of broken blades being thrown clear); and
4. without the provision of a Clearway Order on the A148, the development is likely to give rise to a situation detrimental to highway safety and the free flow of traffic.

Following the refusal, the developer appealed the decision to the Secretary of State. The Local Planning Authority received the Appeal on 4th November, 1994.

Two months later, on 4th January, 1995, the developer withdrew the appeal because they were unsuccessful in their bid for the government subsidy (NFFO contract).

2.7. Ingham wind farm

Table 11 – Ingham wind farm: project details.

Developer	Private application - Mr A Kendall
Location	Grove Road, Ingham
Application submission date	22 Dec. 1993
Application determination date	withdrawn before determination
Nr turbines	7
Turbines model	Vesta V39
Turbine power capacity	500 KW
Combined power capacity	3.5 MW
Tower height to the hub	40.5 m
Rotor diameter	42 m

Generation kWh/year	between 4.57 and 11.9 million, equivalent to a max. of 3,600 households ²
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Source: North Norfolk District Council

On 23rd October, 1995, before the project determination by the Local Planning Authority, the developer withdrew the planning application. The stated reason was a “continuing lack of information from the DTI regarding the details of the next round of NFFO contracts” (applicant’s words).

2.8. Brundish wind farm

Table 12 – Brundish wind farm: project details.

Developer	Ecotricity / Western Windpower Ltd
Location	East of Brundish Road and three quarters of a kilometre south of Brundish hamlet
NFFO award	Tranche 4
Application submission date	9 Mar 1998
Application determination date	2 May 2001
Nr Turbines	1
Turbines model	Enercon E-66
Turbine power capacity	1.5 MW
Tower height to the hub	66 m
Rotor diameter	66 m
Generation kWh/year	equivalent to 1,400 households
Carbon dioxide (CO₂) saving/yr	3,375 tonnes
Sulphur dioxide (SO₂) saving/yr	39 tonnes
Nitrogen oxide (NO_x) saving/yr	3 tonnes

Source: South Norfolk District Council

² The Electricity Association suggests that the modal average household demand is 3,300 kWh.

The planning application for this project was originally submitted to the South Norfolk District Council in March, 1998, in conjunction with the application for the Stockton wind farm, 1.6 km away.

The application gave rise to a significant number of representations and, following a Site Panel visit to the turbine's site, in May 1988, the applicant requested a deferral of a decision on the application to enable the preparation of further supporting information.

Following consultation by the District Council, on May 1st 1998, the former Norfolk Planning Sub-Committee resolved not to raise a strategic planning policy objection to the application. Following a motion of contested business, the application was, on 11th June, 1998, considered by the Norfolk County Planning and Transportation Committee, who raised a strategic planning policy objection, considering the application to be a departure from the Development Plan.

Brundish planning application (along with the Stockton planning application) was reactivated on 18th January, 2001. A full reconsultation took place and most consultees echoed the representations made in 1998.

On 23rd March, 2001, the Norfolk County Planning and Transportation Committee re-considered the application and, again, raised a strategic planning policy objection, considering the proposal to be a departure from the Development Plan. The reason behind this position was the significant impact the wind turbine would have on the local area. Although within 5 km from the Broads Area, this proposal was considered not significantly intrusive because of an existing woodland largely filtered the views.

In the period since the application was reactivated on 3rd April, 2001, 275 letters and e-mails of objection to the Brundish and Stockton proposals, of which about 200 were from residents of South Norfolk and about 75 from outside the district. In the same period, 21 letters of support were received, of which 17 came from residents of the District.

On 2nd May, 2001, the District Council's Development Control Committee decided to refuse the application, in agreement with the planning officer's recommendation.

It was the planning officer's view that the landscape around the turbine's site is capable of accommodating the turbine. However, the consideration that the proposal could render the airfield inoperable, his recommendation was to refuse the proposal. Also his understanding was that the cumulative effect of this and Stockton's wind turbine together would harm the visual amenity/landscape of the area, outweighing the national benefit stemming from these projects.

2.9. Stockton wind farm

Table 13 – Stockton wind farm: project details.

Developer	Western Wind Power [later Ecotricity]
Location	West of A146 Norwich Road and 1 km South of Stockton village
NFFO award	Tranche 4
Application submission date	9 Mar 1998
Application determination date	2 May 2001
Nr Turbines	1
Turbines model	Enercon E-66
Turbine power capacity	1.5 MW
Tower height to the hub	66 m
Rotor diameter	66 m
Generation kWh/year	4.73 millions, equivalent to 1,419 households
Carbon dioxide (CO₂) saving/yr	3,375 tonnes
Sulphur dioxide (SO₂) saving/yr	39 tonnes
Nitrogen oxide (NO_x) saving/yr	3 tonnes

Source: South Norfolk District Council

The planning application for Stockton wind farm was originally submitted to South Norfolk District Council in March 1998, in conjunction with the application for the Brundish wind farm, 1.6 km away.

The application gave rise to a significant number of representations and, following a Site Panel visit to the turbine's site, in May 1988, the applicant requested a deferral of a decision on the application to enable the preparation of further supporting information.

On 11th June, 1998, following consultation by the District Council, the Norfolk County Planning and Transportation Committee raised a strategic planning policy objection to the proposal. This objection followed a motion of contested business as, on 1st May, 1998, the former Norfolk Planning Sub-Committee resolved not to raise a strategic planning policy objection to the application.

The Stockton planning application (along with the Brundish planning application) was reactivated in January 2001. A full reconsultation took place and most consultees echoed the representations made in 1998.

On 23rd March, 2001, the Norfolk County Planning and Transportation Committee re-considered the application and maintained the strategic planning policy objection raised in 1998. The objection is raised on the grounds of landscape and visual impact on the Broads. The proximity of the proposed wind turbine site to the Waveney Valley and the Broads area, from which it would be visible from certain points, as well as the severe impact the wind turbine would cause in the small settlement of Stockton, led the Committee to consider the proposed development inappropriate for the location.

In the period since the application was reactivated on 3rd April, 2001, 275 letters and e-mails of objection were made to the Stockton and Brundish proposals, of which about 200 were from residents of South Norfolk and about 75 outside the district. In the same period, 21 letters of support were received, of which 17 came from residents of the District.

On 2nd May, 2001, the District Council's Development Control Committee decides to refuse the application, in agreement with the planning officer's recommendation.

It was the planning officer's view that the Stockton wind turbine would harm the character of the landscape to an unacceptable extent due to the prominence of the structure in the open landscape and its proximity to the Broads. Considering the Stockton and Brundish proposals together, the planning officer's understanding is that the cumulative effect of the two turbines would harm the visual amenity/landscape of the area, outweighing the national benefit stemming from the projects.

2.10. Bure Loop wind farm

Table 14 - Bure Loop wind farm: project details.

Developer	New Generation Projects Ltd.
Location	Bure Loop area, 500 m to the west of Great Yarmouth
Application submission date	21 Oct 1993
Application determination date	03 Oct 1994, after application had been re-submitted
Nr turbines	14
Turbines model	Vesta V39
Turbine power capacity	500 KW
Combined power capacity	7 MW
Tower height to the hub	40.5 m

Rotor diameter	39 m
Generation kWh/year	equivalent to 3,550 households
Carbon dioxide (CO₂) saving/yr	20,000 tonnes

Source: Great Yarmouth Borough Council

The 300 m² site of the Bore Loop wind farm project falls partly in Great Yarmouth Borough’s area and partly in the Broads Authority’s area, with 12 of the 14 proposed turbines within the latter’s jurisdiction. Nonetheless, only one planning application was submitted, to the Great Yarmouth Borough Council.

The project raised several objections from different authorities. The main issues were:

- the development was considered to have a significant landscape impact, with its scale representing an unacceptable intrusion into the flat and open characteristics of the Broads National Park;
- the proposed turbines could have an important effect on birdlife since there is a large winter passage of migrant birds over the turbines’ site to the adjacent Breydon Water, a site classified as SPA. Furthermore, the inter-tidal mud flats on Breydon Water provide a feeding ground for large concentrations of scarce bird species. Both English Nature and the Royal Society for the Protection of Birds (RSPB) considered that the turbines might present a serious disturbance to these birds;
- the proposal would have serious implications for the operational capabilities of the nearby North Denes heliport;

On 9th December 1993, the Borough Council planning officer recommends the Planning Committee not to grant planning approval to this application until further research was carried out into the effect on the functioning of the Heliport and the ecological value of Breydon Water. Furthermore, the planning officer recommends the Planning Committee to delegate the power to determine the complete application to the Broads Authority, since 12 of the proposed 14 wind turbines fall within their area of jurisdiction.

On 16th December 1993, the applicant withdrew the application before it reached the Planning Committee. However, on 27th June 1994, the applicant re-submits the application after addressing some of the objections to the first application.

The planning officer's report on the re-submitted application, dated from 8th September 1994, reads "it is clear from the consultation replies received ... hat the applicants have not overcome, or provided satisfactory arguments to counter the two principal concerns of this Council; namely, the effect on the bird population of the Breydon Water and the effect on the operation of the heliport. In addition to this there will be a massive visual impact that the development will cause in the open Broads landscape. ... for the above reasons this is not the right site for a wind farm as proposed here" . Accordingly, the officer recommendation to the Planning Committee was to refuse planning permission for this development.

On 3rd October 1994 the application was refused by the Broads Authority due to its likely detrimental effect on Breydon Water, visual intrusion, effect on the heliport and contrary to strategic and local planning guidelines.

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