

Promoting Wind Energy

LØGSTØR
RINGKØBING
(Denmark)

ABOUT THE AREA

Two municipalities in Jutland that have prepared wind energy plans for their areas. Both areas are flat and adjoin inlets of the sea. They have produced plans that are being presented as representative of the wind energy plans that are produced throughout Denmark. Løgstør has given particular attention to minimising the landscape impact of the turbines. Ringkøbing to involving the community in the decision -making process.



BACKGROUND

With the growth of wind energy in Denmark there has been a proliferation of wind turbines in areas with good wind resources, in particular in West and North Jutland. Since 1995 Danish local authorities have had the legal obligation to produce wind energy plans for their area which define the locations where wind turbines can be erected. There is a hierarchy of planning documents and regional strategies are produced by the County authorities and local plans by municipalities.

In both these municipalities there are large numbers of small 75kW turbines on lattice towers erected in the late 1980s which often form an intrusive feature in the landscape.

DETAILS OF PROJECT

Both these areas have had a history of sporadic development of wind turbines in the landscape which had caused local reaction to the landscape impact and perceived problems from noise. Both local authorities have reviewed their policies for wind energy during the drafting of their wind energy plan.

The Counties of Ringkøbing and North Jutland have both produced wind energy plans for their region that indicate strategic locations for wind energy projects and general principles regarding

the design of turbines and the allocations of wind energy capacity to be provided in each area. In order to meet the government targets for wind power development regional plans are required to allocate a capacity to each municipality dependent on the wind speed in the area, the constraints and the perceived opportunities for development.



The regional plan for North Jutland suggested that Lægstør should allocate 14.5 MW in its area, which is below the existing and planned installed capacity. The plan allocates areas into three categories, A, B and C. In areas classified "A", which include nature reserves, recreational areas, areas of fine landscape, telecommunications corridors etc., no wind turbines are permitted. Areas classified B are designated for regional wind farms. Areas classified C are areas where wind farms can be permitted in local inset plans drawn up by the municipalities subject to the constraints indicated in the regional plan as regards distances from buildings, noise , turbine size etc.

The Regional Plan for Ringkøbing Amt suggested a target of 40MW for Ringkøbing Municipality. This required an increase of 12MW in the existing capacity. The plan also provides guidelines on other issues such as excluded areas (e.g. protected areas and settlements) and distances from dwellings, turbine height, noise limits etc. These exclude about two thirds of Ringkøbing Municipality.

The draft plans

Both Lægstør and Ringkøbing have prepared their municipal plans for wind energy taking into account the guidelines in the Regional plans prepared by Norjylland and Ringkøbing Amts respectively.

In both municipalities the planners carried out a sieve process to identify suitable areas. The sieve process identified those areas with sufficient wind speed, and then sieved out areas that were unsuitable because of natural interest, landscape, noise, telecommunications and power lines, proximity to roads or houses etc. In Lægstør a special study was made by independent consultants which investigated the landscape impact of turbines and recommended areas where the landscape could best accept new turbines and where local plans should be prepared.

Local plans are detailed plans which indicate areas where turbines can be erected and usually also specifying the precise location of the turbines, their maximum height and capacity, colour etc. Those prepared by Løgstør included photomontages of the proposals.

The Løgstør study prepared four alternative scenarios following a consultation process with a working party of representatives of local interest groups. This discussed matters of policy (e.g. whether to erect large groups or small groups, maximum size of turbines etc.). They also held discussions with owners of existing turbines in undesirable locations to test their willingness to relocate their turbines. A proportion of owners were willing to relocate turbines but there are considerable legal obstacles to this. Individuals are only allowed to construct turbines on their own land and this may not necessarily be suitable for turbines. The investment necessary for replacing turbines owned by cooperatives would be likely to involve the partners in purchasing a quantity of shares that exceeds the legal maximum. There was also a major problem with grid capacity and there was not sufficient capacity over much of the area without reinforcement of the electricity grid.

The Ringkøbing Plan was adopted at the third attempt. The first plan was not satisfactory to the County (Amt) authority since it did not provide enough capacity. The second draft proposed more areas but hit political opposition from local inhabitants and elected members. The final plan went to an 8 week public participation period in 1997 before final approval.

This plan limited new development to three areas to keep public objection to a minimum, but existing turbines can be replaced with up to three turbines and increased in size within certain limits (max. power 660kW). The plan retained two existing wind farms, and identified three areas which together would accommodate 8No. 1.5MW turbines. This also delayed the plan since there was a government edict that they could not identify new MW turbine sites before a government policy on such turbines had been defined. There were a number of key constraints that had to be taken into account

Total turbine height (to blade tip) is limited to 70m near the coast and 75m inland and 50m near to airports. The allocations for 1.5 MW turbines, which are 100-120m high, form an exception.

A minimum distance from houses is fixed 500m from a built up area and 300m from single dwellings and there must be 2km between one turbine or group and another turbine or group.

Small turbines below 35kW purely for one's own use are normally permitted but these must meet the noise limit of 45dBa at residential accommodation.

Currently local churches are also creating an issue. There is a Danish tradition that one should be able to see the churches in neighbouring villages from one's own village church, and there is a principle that turbines should not be within 500m of these sight lines. Currently there is a request to increase this distance to 1-2km.

The final plan produced by Løgstør Municipality in 1997 allocated 12 different areas for local plans (see example below). This plan was substantially the same as one of the scenarios chosen by the landscape study which placed turbines in both coastal and inland areas, however one of the locations proposed by the original study was eliminated and replaced with another nearer to the coast which had better wind conditions. A number of these locations are designed to permit the replacement of existing poorly sited or poorly designed turbines. A maximum tower height of 42m was imposed (normally sufficient for 750kW turbines) apart from one large site where 46m was accepted. This proposed 39 turbines in addition to the 36 in the existing regional wind farm, but a significant number of existing small turbines would be replaced.



Procedure for dealing with applications:

The developer must demand a construction permit from the Amt authority, which can impose conditions. The Amt asks the municipality to give a certificate confirming that the project accords with its plan. Single turbines in open countryside outside designated areas are controlled by the Amt according to the regional and municipal plans. Higher authorities can normally "call-in" plans and decisions to ensure conformity and where there is a disagreement they go to an appeal system at the National Planning Body.

Example of a local plan: The site plan from Local Plan no.90 in Lægster.

EVALUATION

The final wind turbine plans have provided clearly identified sites for new turbines so that there is no conflict when a developer comes up with a proposal. The planning procedure is hierarchical with a clear framework for ensuring that national and regional issues and considerations are taken account of in the process.

The Danish landscape in both these areas is flat with few prominent features. Any turbine is going to be prominent but also a feature in the landscape and appreciation of its impact is very much a matter of aesthetic judgement. A political element in the decision making is therefore inevitable. The plans have been reviewed regularly - the previous plan Lægster had only been approved three years before hand. In the former plan the most modern turbines considered were 150kW models, whereas now turbines of 750kW are the norm and 1.5MW will become commonplace in the next couple of years. This represents an order of magnitude increase in capacity and more than a doubling of turbine height in 5 years. Since turbine size is a major planning consideration, this has an important effect on the way the plan is drawn up. In the current market with booming demand and rapid technical progress, plans need renewing as soon as they are completed.

Local plans for each of the clusters of turbines identified in the municipal plans are in the process of being produced. These plans raise the issue of whether in fact it is the role of the local authority to specify precise turbine locations and turbine capacity, two factors which affect the yield the developer is going to get from the site. Danish plans favour turbines aligned in lines or parallel arrays. The Dutch system (see case study) defines locations in a similarly detailed fashion with turbines generally aligned in straight lines along dikes or ditch features,. In other countries, such as the UK, it is up to the developer to come up with a proposal that meets the specific criteria outlined in the plan even where zones have been identified for wind energy development.

Mountainous landscape, such as those areas favoured for wind turbines in Britain and Ireland and to a lesser extent in France, makes siting of turbines a more complicated procedure. In Britain and Ireland random siting of turbines is favoured since it fits in better with complex landforms and this provides better scope for the developer to choose and less for the planner to predetermine the location.

FURTHER INFORMATION

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