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DORSET COUNCIL

STRATEGIC IDENTIFICATION OF WIND FARM SITES

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STRATEGIC IDENTIFICATION OF WIND FARM SITES

DECEMBER 2020

PREPARED BY:

Marcus Winter Mining Environmental Specialist


Paul Evans Service Area Director

REVIEWED BY:

Simon Allen Associate Director

APPROVED BY:

Paul Evans Service Area Director



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1 INTRODUCTION

Wardell Armstrong LLP (WA) has been commissioned to carry out a GIS based site identification exercise with the aim of identifying potential sites for inclusion in the Local Plan. The exercise has been designed to eliminate all sites that would not be suitable as well as some that would not be desirable, while also maximising the number of suitable sites that could be brought forward. Subject to detailed feasibility, these sites would then be tested fully for suitability through the planning and potentially Environmental Impact Assessment (EIA) process.

2 METHODOLOGY

The project was completed in several steps which included:

- Constraint data collection and collation
- Creation of provisional windfarm areas
- High level layout creation to identify potential installed capacities

The following constraints were collected, modelled and interpreted in the GIS system.

- Exclusions
 - Areas of Outstanding Natural Beauty
 - Special Protection Areas
 - Special Areas of Conservation
 - Ramsar Sites (International Wetlands Designation)
 - Sites of Special Scientific Interest
 - National Nature Reserves
 - Local Nature Reserves
 - Scheduled Ancient Monuments
 - World Heritage Sites
 - Slope (on site) – no turbines on a >1:10 slope or <100m between 10m contour lines
 - Aspect (on site) - not on westerly side of hill (i.e. sheltered from prevailing wind) or behind large obstacles
 - Visible to known aviation radar
- Buffered Constraints
 - Not within 650m from the nearest dwelling
 - Not within 150m of the 132 – 275kV electricity distribution grid
 - Not within 400m of the National Grid 400kV network
 - Buffer for large international Civil Airports at 5km
 - Buffer for operational MoD Bases at 5km
 - Not within 2km of smaller airfields
 - Not within 5km of horizontal NATS radars
 - Not within 4km of vertically aligned NATS radars

- Not within 2km of NATS communication links
 - Not within 5km of Air Defence Radar
 - Not within 4km of existing and planned Meteorological Radars
 - Not within 1km of TV broadcast transmitters
 - Not within 500m of TV relay transmitters
 - Not within 10km, and visible to, any CAT A airport primary radars.
 - Roads (onsite) – offset turbines by 190m
 - Railways (onsite) – offset turbines by 190m
 - Rivers / lakes (onsite) – offset turbines by 45m
 - Possible unidentified occupied buildings (within 600m)
 - Camping & caravan sites (within 800m)
 - Grade 1 listed buildings (within 3km)
 - Dorset Garden's Trust
 - Gliding clubs/private aerodrome (<4km away)
 - TV transmitters within 5km
- Other Constraints
 - Advice from Natural England and county ecologist on sensitive sites. This resulted in some exclusions and some areas simply flagged as potentially requiring more ecological study.

Once all of the constraints were loaded the remaining unconstrained areas were assumed to be suitable for wind farm development. These sites were then subject to a visual check for any obvious errors and then populated with turbines of a scale appropriate to the size of the site identified. Three typical turbine sizes were considered based upon sizes most commonly available in today's market. These are 850kW, 2MW and 4.2MW turbines, as shown in Figure 2.1, alongside appropriate spacing ellipses for each scale. These ellipses ensure turbines are not located too close together to avoid turbulent wake effects.

Woodland and forested areas have not been included in the constraints as managed forestry may provide suitable sites for windfarms in future years. This includes Wareham Forest which, for the purposes of the assessment of capacity, has been excluded as it is deemed unlikely that a windfarm application would be progressed in this location.

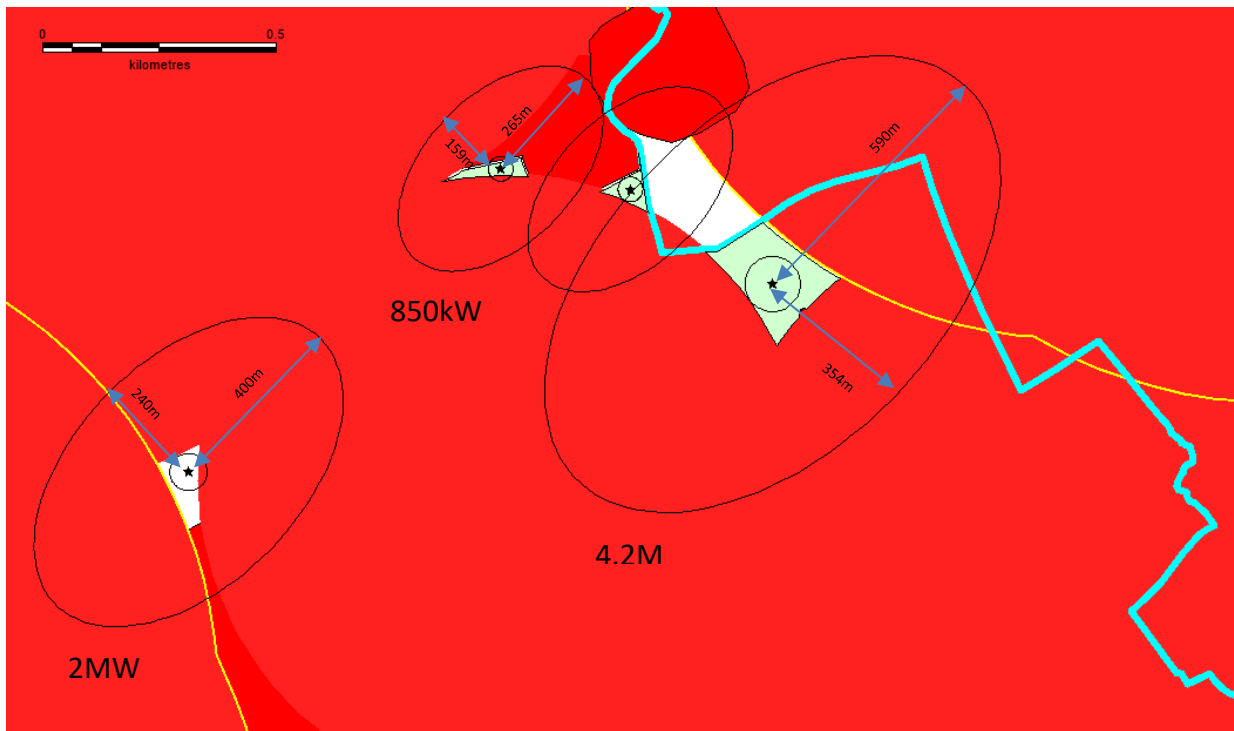


Figure 2.1: 850kW, 2MW and 4.2MW Ellipse Spacings Used

3 RESULTS AND OUTPUTS

Three maps have been produced showing the identified sites, an overview map scaled at 1:250k and two more detailed maps showing the northern and southern portions of the county at 1:50k.

Overall, it is estimated that the sites identified could support the following development (see Table 3.1) if all of the sites were able to be utilised. It should be noted that when tested as part of a planning application constraints may come to light that were not included in this exercise that may preclude development.

Table 3.1: Summary of Capacity based on Sites Identified			
Area	Turbine Power	No. of Turbines	Total Capacity (MW)
Northern Area	4.2MW	97	407.4
	2MW	9	18
	850kW	6	5.1
South Area Avoiding Medium Risk Ecology Areas	4.2MW	52	218.4
	2MW	1	2
	850kW	1	0.85
South Area	4.2MW	101	424.2
	2MW	3	6
	850kW	1	0.85
Combined Area Total	4.2MW	250	1050
	2MW	13	26
	850kW	8	6.8
Total Capacity (All turbine types)			1082.8

STOKE-ON-TRENT

Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM

Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON

41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BURY ST EDMUNDS

6 Brunel Business Court
Eastern Way
Bury St Edmunds
Suffolk
IP32 7AJ
Tel: +44 (0)1284 765 210

CARDIFF

Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE

Marconi Road
Burgh Road Industrial
Estate Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH

Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW

2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LEEDS

36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON

Third Floor
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE

City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

SHEFFORD

PI House
R/O 23 Clifton Road
Shefford
Bedfordshire
SG17 5AF
Tel: +44 (0)1462 850 483

TRURO

Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:

ALMATY

29/6 Satpaev Avenue Regency
Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW

21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67