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**NON TECHNICAL SUMMARY FOR THE PROPOSED  
FRENCH FARM WIND FARM**

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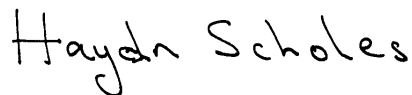
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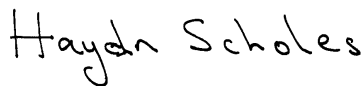
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## **NON TECHNICAL SUMMARY**

### **1.0 INTRODUCTION**

- 1.1 This document forms the Non Technical Summary of the Environmental Report (non EIA) for the proposed French Farm windfarm. The Cornwall Light and Power Company Ltd (CLP) currently have planning permission to erect two 400kW turbines on the site, which is approximately 10km North East of Peterborough in Cambridgeshire. Planning consent was originally granted in 1993 but wind turbine technology has improved substantially since then and it is now possible to deploy turbines which have five times the rated capacity of those originally consented.
- 1.2 The turbine types being considered are typically 2MW capacity, not exceeding 100m in overall blade tip height. The two turbines would have a total installed capacity 4MW whereas the extant permission only has a capacity of only 800kW (0.8MW). For the purposes of this Environmental Report, a three bladed turbine with a 60m hub height and an 80m diameter rotor has been used.
- 1.3 The site extends to approximately 119ha and lies on an area of high ground at North Fen to the East of Crowland. The site itself consists of three strips of open fields currently used for growing crops bounded by small hedgerows. There are few trees, and those which do exist are small and situated next to the dwellings.
- 1.4 The nearest settlements are the villages of Crowland 8km west, Sutton St Edmund 7km north-east, Thorney 5.5km south-west and Peterborough 15km south-west. There are various farms and individual scattered properties in the vicinity of the site, the closest being Blue Bell Farm to the south west, Gothic House Farm to the south east and Avenue Farm to the north east.

### **2.0 LEGAL FRAMEWORK**

- 2.1 The developers of French Farm Wind Farm have commissioned Wardell Armstrong International Ltd (WAI) to assess the potential environmental impacts of the proposal.
- 2.2 The French Farm Wind Farm proposal is not subject to the full EIA Regulations and is considered a “non EIA” application by Peterborough City Council.

### **3.0 THE PLANNING POLICY CONTEXT**

- 3.1 The Environmental Report summarises the principal relevant policies to provide a context for the assessment of the environmental effects. The Environmental Report identifies that a range of policies exist that serve to encourage the development of renewable energy sources and establish targets for their progressive introduction.
- 3.2 National policy, coupled with regional and local development plans, set individual frameworks for decision making, establishing the basis on which developments could be progressed. A number of documents provide relevant planning guidance for this application. The Cambridgeshire and Peterborough Structure Plan was adopted in 2003 and gives strategic guidance on land use until 2016.
- 3.3 The French Farm Wind Farm falls under the jurisdiction of Peterborough City Council. The Local Plan for the area covered by Peterborough City Council is the Peterborough Local Plan (First Replacement). This was adopted on 20, July 2005.

### **4.0 WIND FARM DESIGN**

- 4.1 The final site layout (see Figure 1) has been developed alongside the various studies presented in this Environmental Report and those carried out for the previous planning application in order to minimise any potential environmental and human effects.
- 4.2 The layout of the windfarm will remain the same as in the existing planning consent as it is believed that this is the optimum design for the site.
- 4.3 The final selection of turbine type has yet to be made; however they will be rated between 2.0 and 2.5MW with a maximum height to blade tip of 100m. The turbine will be a three bladed upwind rotor horizontal axis turbine with pitch power regulation. The rotor and nacelle will be mounted on a tapered steel tower and will be pale grey in colour.
- 4.4 The hub height is expected to be 60m with a maximum rotor diameter of 80m. The turbines will start to generate at a wind speed of approximately 3-4m/s. They will be automatically regulated to cut out in wind speeds greater than approximately 25m/s for self-protection. Wind speeds in excess of 25m/s prevail at this site for only about one percent of the year. The nacelle of the turbines will align themselves so as to be always facing into the prevailing wind direction at any given time.

- 4.5 During the construction phase a temporary site compound/storage area will be constructed. The compound will be approximately 30m by 40m and will provide a separate area for site offices, storage of various materials and small components, car parking and welfare and messing facilities. The compound will be removed once deployment has been completed.
- 4.6 The main entrance to the site may require some alterations to facilitate use by construction traffic and turbine component delivery. This typically may comprise the creation of a new temporary access onto site and temporary improvement of verges to enable long vehicles to access the site.
- 4.7 The design of the wind farm has allowed the use of existing on site tracks, minimising any impacts to ecology and overall land take. All of the tracks will need to be a minimum of 4.50m wide and where necessary may be widened. On completion of the construction of the wind farm, for tracks utilised by wind farm operations, existing track will be capped with a higher quality material to form the running surface for operations and maintenance vehicles.
- 4.8 The turbines will be supported on reinforced concrete foundations. These are normally constructed as square or octagonal in plan and will be of reinforced concrete construction without rock anchors. For the size of turbine proposed, the foundation will be approximately 20m square. The overall depth to the underside of the foundation is typically in the range 2.5-3.5m.
- 4.9 Crane hard standings will be required for both turbines. The final detail of the crane hard standings will depend on the exact specification of the cranes chosen by the contractor and the topography of the ground around the turbine location. The cranes are expected to be up to a 600 tonne wheeled crane with a 150 tonne pilot or secondary crane assisting with the lift procedure. The crane hard standings will typically be 20m wide by 40m long.
- 4.10 The electricity produced by the turbines will be generated at 690V and stepped up to 33kV by transformers. The turbines will be connected together in a single electrical circuit, each with three cables laid in trenches about 1m deep and 450mm wide. Most of the cable trenches will be directly adjacent to the site tracks and will also carry earthing and communications cables. Where two sets of cables are required in a trench, it will be approximately 600mm wide. The cable trench is excavated using conventional construction equipment. Excavated topsoil and subsoil will be set aside in separate stockpiles for re-use in reinstatement.

- 4.11 The wind turbines will be monitored by a Supervisory Control and Data Acquisition (SCADA) system. The SCADA system will gather data from all the turbines and provide the facility to control them from a central location. Communications cables connecting to each turbine will be buried in the electrical cable trenches (described above) to facilitate this.
- 4.12 A new control building will be constructed close to the site entrance to house the metering, protection and control equipment. The control building will be approximately 8m wide by 10m long. The building will be of conventional masonry construction on concrete foundations.
- 4.13 As connection to the grid will be the subject of a separate application by EDF Distribution, grid connection issues will not be considered any further in this document, however no significant additional environmental impacts are expected.

## **5.0 CONSTRUCTION INFORMATION**

- 5.1 The likely construction period for the wind farm will be approximately six to seven months and will consist of the following principal operations:
- Mobilisation to site
  - Establishment of site compound and lay-down area
  - Upgrading of site entrance and exit
  - Establishment/upgrading of site tracks and crane hard standing areas
  - Establishment of the electrical substation
  - Power and signal cable laying
  - Establishment of turbine foundations
  - Erection of the turbines
  - Commissioning of the turbines
  - Reinstatement works
  - Demobilisation from site
- 5.2 Although they will take place roughly in the order listed, many tasks will be undertaken concurrently to minimise the duration of the construction programme.

## **6.0 SITE ACCESS**

- 6.1 Modern wind turbines are large structures, the components of which need to be delivered to site by special road transport vehicles. A maximum of 12 abnormal loads is anticipated for the delivery of the turbine components, three blades, two

tower sections and a nacelle for each turbine. The blades for the turbines proposed for this development are 40m long and the tower sections approximately 20m. The nacelle is much smaller but can weigh up to 75 tonnes. In addition a 600t and a 150t crane will also be required on site during the erection of the turbines.

- 6.2 The primary access for construction traffic to the site from the A16 North of Peterborough would be via the A1073 at Cowbit and onto the B1166 for approximately 0.5km and onto an unclassified road leading to Falls Drive. Turning left at the cross roads of Falls Drive and French Drive, the site is then located half a kilometre on the left.
- 6.3 Analysis has identified only one potential pinch point on the French Drive road. The corner leading onto the bridge over New South Eau may need to temporarily modified and the bridge itself may need strengthening.

## **7.0 ECOLOGY**

- 7.1 Andrew McCarthy Associates Limited undertook an 'extended' Phase 1 Habitat Survey of a proposed development site known as French Farm, near Crowland, Cambridgeshire (OS grid reference TF 283 089). There is an extant planning permission for installation of two wind turbines at this site; an amendment to the existing consent is being sought for two larger wind turbines than were originally proposed to be installed on the original footings.
- 7.2 Habitats capable of supporting several protected species, including bats, great crested newt, water vole and reptiles were found on site. The area also supports breeding barn owls. Precautionary mitigation measures will be implemented to ensure none of these are significantly affected by the proposed development and to ensure compliance with the nature conservation legislation.
- 7.3 Field survey data from two proposed wind farm sites near to the French Farm site indicate that the general area does not have any particularly important bird or other wildlife populations. Wintering waterfowl numbers in the area were low, with no evidence of any important use of this area by any SPA species. Other wintering species of interest included lapwing, golden plover and peregrine, but the low numbers and frequency of use of the area meant that no significant effects on them were likely. The breeding bird populations were typical of the region but did include barn owl. Overall these data support the RSPB classification of this area as a green zone, i.e. that there are no populations of bird species particularly vulnerable to wind turbine development. As for the other species, precautionary mitigation measures will be implemented to ensure no bird population is significantly affected by the

proposed development and to ensure compliance with the nature conservation legislation.

- 7.4 As a result of the low bird numbers recorded during the Nuts Grove and Wryde Croft wind farm studies, the ecological impact assessments for those sites (both of which concluded that there would not be any significant effect on birds) and the precautionary mitigation measures that will be implemented, it is not likely that the French Farm wind turbines would pose any significant risk to any local bird population.
- 7.5 The effect of wind turbines on bats is not well understood, but bats may be adversely affected by the moving blades of the wind turbines (e.g. collision, disturbance), particularly if turbines are located close to roosts or features used by bats. Wind turbines may be a particular danger to high flying bats such as noctules, which are known to fly many kilometres from their roost sites.
- 7.6 The two proposed wind turbines would be larger structures than those already permitted, but they are not likely to increase the potential impact on bats. The reasons for this are two-fold. Firstly the rotor blades would be higher than those already permitted, taking them further from the usual bat flight altitude. Secondly the rotational speed of the blades would be slower, making it potentially easier for the bats to take avoiding action should they fly in close proximity to them.

## **8.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT**

- 8.1 The location of the proposed wind farm scheme is approximately 4km north of the village of Thorney, 4km east of the village of Crowland and 11km north-east of the city of Peterborough in the county of Cambridgeshire and just to the south of the county boundary with Lincolnshire. The site is on an area of fen land known as North Fen just to the north of French Farm itself.
- 8.2 Landscape and visual effects have been assessed for the proposed French Farm wind farm using current guidance and good practice methodology. This entails following the 'good practice guidance' prepared for Scottish Natural Heritage, (SNH), which represents the most up to date and detailed guidance available in the UK. The assessment includes the generation of a number of figures showing potential zones of visual influence, wireframe images and rendered photomontages from several viewpoints, analysis of existing landscape character studies and site visits.

- 8.3 The landscape of the site area itself is considered to be of medium sensitivity to the development and to have a medium capacity to accommodate a wind farm of this scale. Effects are considered to be moderate adverse due to the low intensity of man-made features and the large scale, open, nature of the site. The site has however undergone modification through drainage for hundreds of years resulting in the intensively farmed arable land divided by straight drainage ditches. The only vertical features within the site area are on the edges. The introduction of two turbines into this area would add vertical elements but as views of the site are panoramic and the turbines would only occupy a small angle of these views the field areas would still remain around the turbines. The landscape character of the site would not be totally changed and much of its key physical and perceptual characteristics would remain. Therefore it would not become a wind farm landscape.
- 8.4 There are however more vertical elements in the wider landscape setting of the site which would help to partially screen, or reduce the prominence of the proposed turbines. The flat landscape means that there would never be distant elevated views of the turbines and intervening features would screen at least the base of the turbines. It has been concluded that parts of the Fens character area would experience adverse effects, but these would not be sufficient for the character areas to experience loss of character as a whole. It should be noted that significant adverse impacts can occur on individual visual receptors within a character area but impacts on the area as a whole may not be significantly adverse.
- 8.5 The range of visual receptors: properties, settlements, the transport network and recreational receptors have been assessed using a range of representative viewpoints. Substantial adverse impacts are predicted during operation for no viewpoints. Moderate/ substantial adverse impacts are predicted during operation for viewpoint 1.
- 8.6 Within approximately 2km of the site, only 1 property would potentially experience significant adverse impacts, this is French Farm itself which is approximately 400m south of the nearest turbine. The majority of properties, including French Farm, are surrounded by shelter belts of trees and shrubs which would help to screen views.
- 8.7 There would be views of the turbines from open sections of many of the roads in the area, however there are no A or B roads within 2km of the site meaning intervening features are likely to screen the base of the turbines in views and they would be less prominent. Therefore the main road network would not experience significantly adverse effects. This is also the case for the long distant footpaths and cycle routes in the area. Therefore the impacts on the roads and paths would not be significantly adverse overall.

- 8.8 The total cumulative effects of the French Farm, Wryde Croft and Nutsgrove Farm schemes on the landscape character of the Fens character area would be moderately adverse overall therefore not significant; they would not be sufficient for the character area to experience loss of character as a whole. The Wryde Croft and Nutsgrove Farm schemes would total 14 turbines and with the French Farm scheme there would be a total of 16 turbines within 4km of each other. However due to the, large scale nature of the landscape of the Fens and the panoramic views the combined schemes would not result in a wind farm landscape.
- 8.9 The cumulative visual impacts on the range of visual receptors: properties, settlements, the transport network and recreational receptors within the French Farm study area have been assessed using the cumulative photomontages and wireframes and the photographic viewpoints. Should the Wryde Croft and Nutsgrove schemes be granted planning permission as well as the French Farm scheme the additional cumulative visual impacts would not be significantly adverse. However the total cumulative visual impacts of all three proposed schemes would significantly adverse for Viewpoints 1 and 4 and the residential properties of French Farm, Third House Farm and Empsons Farm and the near by properties; impacts are assessed as moderate to substantial adverse.
- 8.10 All wind farm developments generate landscape and visual effects but the significant effects are all reversible in that they would cease at decommissioning.

## **9.0 NOISE**

- 9.1 An assessment of the likely noise impact of the proposed French Farm wind turbines has been carried out. Baseline noise levels have been measured over a period of 19 days at two locations representative of the nearest neighbouring dwellings.
- 9.2 Worst case turbine noise levels at the closest residential locations to the site have been predicted based on warranted sound power level data for a Vestas V80 wind turbine.
- 9.3 The assessment has been carried out by comparing predicted noise levels with noise limits described in ETSU-R-97, Assessment and Rating of Noise from Wind Farms, as referred to in PPS22, Renewable Energy.
- 9.4 The assessment shows that the predicted wind turbine noise levels at all residential locations meet the night-time and lower day-time noise limits, under all conditions.

- 9.5 A warranty will be sought from the manufacturer of the turbine for this site such that any tonal noise output from the turbines will not require a correction under the ETSU-R-97 scheme.

## **10.0 ENVIRONMENTAL AND OTHER BENEFITS OF THE PROPOSAL**

- 10.1 There will be no movement or displacement of population during either construction or operation. Thus there will be no pressure on or additional requirements for social infrastructure such as housing, education, health or social services.
- 10.2 There will be some job creation associated with both the construction and operation and maintenance of the wind farm.
- 10.3 The construction of the turbines would represent an investment approaching £4 million. The typical installed cost of one 2.0MW wind turbine of the type proposed is some £2 million. It is expected that some £500 000, approximately 25% of this cost, would be spent locally through contracts for services ranging from electrical and civil engineering companies through to hoteliers.
- 10.4 Once the wind farm starts to generate electricity into the local electricity network, as a minimum the farmers directly involved in the project will benefit from their investment in the project as either rental payments or electrical revenues. When this is combined with local authority rates and other expenses, the project would represent a substantial long term investment in the local area with significant potential benefits.
- 10.5 Concern is sometimes expressed that the presence of a wind farm will deter visitors and tourists. This concern is considered to be misplaced and evidence is available that demonstrates that there is no such effect. A number of recent surveys have found no evidence of people being put off visiting an area because of the presence of a windfarm.
- 10.6 One of the main benefits associated with renewable technology is the ability to offset the use of fossil fuels. Termed *clean energy*, renewables do not generate the same pollutants that are created when combusting fossil fuel. This means that there is a health benefit as well as the avoidance of greenhouse gas production and the associated climate change issues.

## **11.0 SHADOW FLICKER**

- 11.1 A shadow flicker assessment was carried out to determine which if any sensitive receptors (houses/schools etc) might be subject to shadow flicker effects from the proposed turbines at French Farm, between Crowland and Thorney, approximately 12km North-East of Peterborough.
- 11.2 Using a worst case scenario and in accord with Planning Policy Statement 22: Renewable Energy (the Wind Energy Annex to the Companion Guide to PPS22, para 76) the assessment showed that no residential properties would be subject to shadow flicker effects.
- 11.3 PPS22 states that properties beyond the equivalent of 10 times rotor diameter will not be subject to shadow flicker effects. The assessment of potential shadow flicker was carried out using industry standard software.

## **12.0 HEALTH AND SAFETY**

- 12.1 It is suggested that if the proposed larger development at French Farm is granted planning permission then the BWEA endorsed Wind Turbine Safety Rules (WTSR) be applied to any construction and other works to be undertaken as part of the project.
- 12.2 The WTSR clearly specify actions and procedures which have to be followed in order that persons working on wind turbines are safeguarded from inherent dangers that exist from the installed electrical and mechanical equipment in wind turbines

## **13.0 AVIATION**

- 13.1 An aviation study of the area has been undertaken by Windpower Aviation Consultants to capture and address all aviation issues relating to the French Farm development. Issues that have been considered are:
- Civil Aviation – Aerodromes
  - National Air Traffic Services En Route Radar
  - Ministry of Defence Air Traffic Control
  - Ministry of Defence Air Defence Radar Systems
  - Ministry of Defence Meteorological Radars

- 13.2 Increasing the turbine height at French Farm from 60 to 100 metres will have no effect upon aviation operations in the area, either from the MOD or civilian perspective, either in terms of the physical obstruction criteria applied around airports, or with regard to the effect upon any radars in the area. Where the turbines will already be detected by radar, they will continue to be, and where there are radars that do not currently detect the turbines at 60 metres, this will continue to be the case at 100 metres.

