

TOWN AND COUNTRY DEVELOPMENT PLANNING OFFICE

Block C, Garrison, St. Michael, Barbados. West Indies Tel. No. (246) 467-3000 Fax No. (246) 430-9392 E-mail: townplanning@gob.bb



Our Ref.: 3262/11/04C

Date: 2005-10-/3

The Barbados Light & Power Co. Ltd. P.O. Box 142
Garrison Hill
ST. MICHAEL

Dear Sir,

Re: Application No. 3262/11/04C - Construction of a Wind driven electrical generating station at Lamberts East, Lamberts Plantation, St. Lucy

Reference is made to the above captioned application and the Terms of Reference (TOR) for the proposed Environmental Impact Assessment (EIA).

You are hereby informed that the Terms of Reference has been evaluated by the relevant agencies and comments have been returned to the Chief Town Planner. These comments are herewith attached for your information.

You are given permission to proceed with the preparation of the Environment Impact Assessment but you must ensure that the comments on the Terms of Reference are taken into consideration in addition to those identified by you in the document. On completion, four (4) copies of the document must be submitted to the Chief Town Planner.

Your attention to the foregoing is appreciated.

Yours faithfully

P. Bryan for Chief Town Planner

PB/sdj



MEMORANDUM

FROM:

DIRECTOR

ENVIRONMENTAL PROTECTION DEPARTMENT

TO:

Chief Town Planner

Attn: Mr. Patrick Bryan

REF:

20/T23



Application No 3262/11/04C - Construction of a Wind-Driven Generating Station at Lamberts St. Lucy

The EIA outline submitted by Barbados Light and Power Company in respect of the above-captioned application provides, for the most part, adequate coverage of the environmental considerations attached to such a development. The comments of the Environmental Engineering Division are as follows:

- The EIA should outline and compare the socio-economic and environmental costs and benefits of the proposed development and potential alternatives. These alternatives should include (i) the "do nothing" scenario, (ii) the use of fossil fuels to provide the equivalent amount of energy, and (iii) alternative sites for the generating station.
- The Socio-Economic Assessment should include adequate and appropriate consultation with potentially affected or concerned stakeholders.

or Director.





MEMORANDUM

FROM: PERMANENT SECRETARY

MINISTRY OF HOUSING, LANDS AND THE ENVIRONMENT

(ENVIRONMENT DIVISION)

TO: The Chief Town Planner

Town and Country Development Planning Office

February 25, 2005 DATE: **Ref: No.:** 8330/9/3 Vol. II

SUBJECT:

Application No. 3262/11/04C - Construction of a Wind Driven Generating Station to operate for 24 years and consisting of eleven (11) turbines and associated equipment at Lamberts Plantation, St. Lucy

Reference is made to the memorandum dated January 31, 2005 received by the Environment Unit on February 10, 2005 regarding the above captioned subject.

2. The following headings need to be added to the proposal for Lamberts wind farm:

Scope of work (a)

Standard EIA techniques should be used including site reconnaissance, literature review, desktop research, field work, data analysis and interviews with appropriate personnel.

(b) Background

This section should be included in the report as a separate and distinct paragraph from the section labeled 'description of project'. The background should identify all of the alternative sites and should give an indication as to why Lamberts was finally chosen.

Nour attention please fl 1 2005-03-04 Bloos-0

(c) Description of Environment

Assemble, evaluate and present baseline data on the relevant characteristics, biological, environmental, socio-cultural and socio-economical setting. This information could be placed under the heading 'site description'. The information would include:

- Physical Environment- geology, topography, soils;
- ❖ Natural drainage features- surface drainage, flood risk;
- ❖ Air Quality- particulates and noise levels;
- Biological environment- vegetation cover, existing wildlife (flora & fauna), rare and endangered species, sensitive habitats, species of commercial importance, migratory bird species and their migratory path, nuisance pests and vectors; and
- Socio-cultural/socio-economic- land use, traffic patterns, proposed development, public health issues, employment, solid waste and demographics.

(d) Legislative and Regulatory Considerations

A description should be given of the pertinent regulations, standards and regulatory bodies governing environmental quality, health and safety protection of animal and plant species, parks and protected areas, siting and land use control.

The developer made reference to a document known as 'National Planning and Policy Document'. Documents such as the Environmental Management and Land Use Plan (EMLUP) and the Physical Development Plan, updated 2003 can be useful sources of information.

(e) <u>Determination, Mitigation and Management of Potential Impacts of</u> the Project

Sections 5.0 to 11.0, should be grouped under this broad heading. Impacts will be determined as negative, positive, direct/indirect, short/long term or unavoidable/irreversible. Cumulative impacts of the proposed development should also be highlighted. Mitigation and Management measures of these negative impacts may stay as they are in the existing TOR. Recommendations should be made for feasible and cost-effective measures to prevent or reduce significant negative

impacts to acceptable levels.

(f) Recommendations for the Development of an Emergency Response Management Plan

The EIA should contain provisions for an emergency Response Management Plan (ERMP) to ensure procedures are in place to handle emergencies. There needs to be a section that addresses natural disasters, specifically storm and hurricane events, this can be covered in the ERMP. This section should look at the possible impacts these disasters can have on windfarms and neighbouring communities and the measures that will be put in place to minimize these impacts.

(g) Recommendations for the Development of an Environmental Management Plan (EMP)

The EMP should contain an implementation plan for each of the mitigative protection and enhancement measures. The structure of the EMP should include objective; workplan; implementation schedule; manpower requirements for mitigation measures and budgetary provisions. In addition, a monitoring plan for the implementation of the mitigation measures and long-term minimization of negative environmental impacts needs to be included as well. This is a very important addition to any project EIA.

(h) Social Impact Assessment

Section 9.0 entitled 'Socio-economic assessment' should be renamed 'Social Impact Assessment', under which, the socio-economic assessment section would fall:

There needs to be some indication of the public's perceptions to the project, which should be obtained through stakeholder consultations. The public would include relevant governmental agencies, civil society and the general public of Barbados especially those of the surrounding area. A projection of the known and possible likely effects on the public should also be included in this section.

(i) General

- All of the major negative effects that pertain to windfarms namely electromagnetic disturbance; use of land, noise; impact on biodiversity, particularly bird strikes and impact on the landscape have been identified;
- ❖ The relevant photographs, maps and plans should be submitted. A plan of the area, with the proposed trail for the new road should be submitted, so that the reviewers can have an idea of what the impact of the road's footprint is on the surrounding area. The relevant agency i.e. Ministry of Public Transport should provide the substantial comment on this area;
- Section 6 'Noise Assessment' should detail Mitigation Measures. Part 6.1 which should discuss introduction and methodology is missing in the TOR at present and needs to be included;
- ❖ The methodology chosen in each case (sections 5.0-11.0) should clearly indicate the type of evaluation method or tool used to quantitatively assess the impact due to the proposed action e.g. cost-benefit analysis, geographic information systems (GIS) and weighted-scale matrix; and
- ❖ Section 4.2 should be entitled Zone of Visual Influence (ZVI);
- 3. Please contact the undersigned for any further information you may require at Telephone (246) 467-5708 or Fax (246) 437-8859.

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NICOLE SCHOLAR-BEST, (Mrs.)

for Permanent Secretary

NSB/db





MINISTRY OF ENERGY & PUBLIC UTILITIES



FACSIMILE COVER SHEET

TO	TOWN AND ICLITIC PLANNING	PAN NO.	430-9392
AFIN	Par RICK BRYAN	NATE	2005-06-23
ADDRESS.		OUR REPS-	
		Out 1/see	(246) 436-6004
PROME.		No Picks feet Coops	3

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PLEASE NOTE THAT US APPLICATE FOR

RELIEVED SUR COMMENTS,

PASSESSION SINCE FEBRUARY 2005

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MINISTRY OF ENERGY AND PUBLIC UTILITIES





Chief Town Planner
Town Planning Department
Ministry of Housing Lands and the Environment
Building C
The Garrison
St Michael
Barbados

Attention: Patrick Bryan

Dear Sir

We have reviewed the draft Terms Of Reference (TOR) for the proposed wind farm, submitted by the Barbados Light and Power Company.

Our staff have visited the proposed site and attended the meeting relating to the project in the past. Our comments are as follows -

- Section 1. There should be a review of the environmental impact of the last wind turbine on an adjacent site in St.Lucy. This project though unrelated is visually close to the proposed site to be implicated by or implicate the social impact of the planned wind farm. The presences of an abandoned wind turbine near a new wind farm may suggest that when the windfarm ends its useful life the turbines will also be abandoned.
- 2 Impact on grid stability both positive and negative should be identified and mitigation issues identified. How does the wind farm figure in the national electric grid management/expansion plans.
- 3 Section 1 This should include description of national wind energy plans and policies. The site was identified through a national wind energy development process which has planning implications. All of this was done prior to the BL&P interest in the site.

- 4 Section 3 The term "site environment" is vague. This seems like a baseline assessment of the site in the present form.
- 5 Section 9 Assumes that there are only benefits rather than both benefits and disadvantages. There should be an assessment of possible disadvantages and the identification of mitigation measures.
- 6 There is no section on impact on agriculture. This is important since the windfarm is in an agricultural environment.
- 7 Impact on other utilities such as water and telephone. The study should state if there are any major demands and how they would be affected.
- 8 There is an impact where the windfarm may be seen as a point of interest for locals and tourist. The impact of this on the national and local community. This impact needs to be identified and the cost and benefits nationally and locally need to be discussed.
- 9 Hazard / Disaster issues and mitigation. What at the possible both probable and improbable risks and what are the measures that will be put in place to mitigate against them.
- 10 Global environmental impacts and benefits should be discussed. Is there a net benefit or disadvantage and to what extent (expressed in Tons of Carbon.)
- 11 Unlike fossil fuel generators wind turbines are very public in what they do If they are functioning, how often they function is usually know by the public if not the community. There should be a plan identified, not necessary to mitigate negative public opinion but to introduce them the new and very public technology.

In conclusion we consider the EIA as a positive step towards the development of the proposed wind farm and look forward to further developments of this project

Yours Sincerely

William Hinds

2 T^{al} Fl. NPC Building Wildey, St. Michael BARBADOS

Tei Nos (346) 127-8615:427-9806:429-3726 - Fax Number (246) 436-6004

r.-mull energydivia)sunbeach.nei



PHONE: (246) 436 - 1600 FAX: NO: (246) 429 - 6000

LIGHT & POWER

P.O. BOX 142 GARRISON HILL, ST. MICHAEL, BARBADOS, WEST INDIES

June 11, 2004

Mr. Mark Cummins
Chief Town Planner
Town & Country Planning Department
Blk C The Garrison
St. Michael

Dear Mr. Cummins,

Re: Wind Power Project - Outline Planning Application

Attached is an application for permission to construct a wind driven electrical generating station at Lamberts East in St. Lucy.

Also attached is an outline of the Environmental Impact Assessment (EIA) that the Barbados Light & Power Co. Ltd. proposes to conduct for the project. The EIA will assess in detail the potential environmental impacts of the proposed development, including; pollution, landscape and visual, noise, flora and fauna, cultural heritage, highways and traffic, socio-economic, electromagnetic interference, geology, soils and hydrology. Mitigation measures will be identified and incorporated in the wind farm design to minimise the potential effects identified.

We would appreciate your comments on the proposed format for the EIA, and any areas that we may have overlooked.

Yours truly.

THE BARBADOS LIGHT & POWER COMPANY LIMITED

Peter Williams

Chief Operating Officer

RB:

cc:

Managing Director Generation Manager

Lamberts East Wind Farm

Environmental Impact Assessment

CONTENTS

1.0	INTRODUCTION	
I.I	The Proposal	
1.2	The Site Area	
1.3	The Applicant	
1.4	The Need For Wind Energy	·
2.0	DESCRIPTION OF THE PROJECT	
2.1	Site Selection and History	
2.2	Wind Resource	: > ***********************************
2.3	Separation criteria)
2.4	Grid Connection	*/*/****
2.5	Environmental criteria/designations	, ,,
2.6	The proposed Development	
2.7	Wind Turbines	
2.8	Land use	
2.9	Construction	***************************************
2.9	9.1 Site access tracks	`` *******************************
2.9	9.2 Foundations	***************************************
2.9	9.3 Site Cabling and Substation	**************************
2.9	9.4 Anemometry Mast	
2.9	9.5 Grid Connection Line	
2.10	Operation	
2.11	Decommissioning	
3.0	SITE ENVIRONMENT	
<i>3.1</i>	Landscape	***************************************
3.2	Ambient Noise Levels	,
4.0	PLANNING POLICY	************
4.1	National Planning Policy and Guidance	· .
5.0	LANDSCAPE AND VISUAL ASSESSMENT	
4.1	Introduction and Methodology	
4.2	ZVI	:
4.3	Photomontages	
4.4	Results)
4.5	Mitigation Measures	
5.0	ECOLOGICAL/ORNITHOLOGICAL ASSESSMENT	
5.1	Introduction and Methodology	:
5.2	Ecology	
<i>5.3</i>	Ornithology	
5.4	Results	
5.5	Mitigation Measures	
5.6	Summary	

6.0	NOISE ASSESSMENT	
6.2	Results	
6.3		
7.0	ARCHAEOLOGICAL ASSESSMENT	
7.1	Introduction and Methodology	
7.2	Results	
<i>7.3</i>	Mitigation Measures	
7.4	Summary	
8.0	HIGHWAYS AND TRAFFIC ASSESSMENT	
8.1	Introduction/Methodology	
8.2	Public Highway Access	
8.3	Site Access	
8	3.4 Vehicle Numbers	
8.5	Operational Phase	
8.6	-	
8.7	•	Ī.
9.0	SOCIO-ECONOMIC ASSESSMENT	
9.1	Economic Benefits	
ç	9.1.1 National Economic Benefits	
9	1.2 Local Benefits	
9.2	Public safety	
9.3	Public rights of way - Footpaths	*
9.4	Tourism and Education	
10.0	ELECTROMAGNETIC INTERFERENCE ASSESSMENT	
10.1		
10.2	? Television Reception	:
10.3	• · · · · · · · · · · · · · · · · · · ·	
10.4		
10.5		
10.6	<u> </u>	
11.0	GEOLOGY, SOILS AND HYDROLOGY ASSESSMENT	
11.	·	
11.2	Private Water Supplies	••••
11.5	B Hydrological Assessment	
11.5	• -	
11.0	5 Summary	
12.0	SUMMARY AND EVALUATION	
13.0	GENERAL REFERENCES	;
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MEVISED (2001)	Application No.	
	Land Registration No.	
	Date received	
TOW!	N AND COUNTRY DEVELOPMENT PLANNING OFFICE Town and Country Development Planning Act, Cap. 240	
Ap	plication for Permission to Develop Land	
(the atten	tion of applicants is drawn to the directions appended to this form)	
	•	
TO THE CHIEF TOWN PLANN	ER:	
I/WE HEREBY me and on the attached plans a	ake an application for permission to carry out the development described hereun and drawings.	de
	1 104	
	(Signed) Lillia CHIEF OPERATION DEFREE	
FULL NAME & ADDRE	SS OF APPLICANT (in block letters)	
(State	whether Mr. Mrs., Miss) THE BARBADOS LIGHT & Powled CO LTD.	.
(Pasta	(Address) P.O. Bex 142, GARRISON HILL	
. (2.33	1 Address) P.O. Bex 142, GARRISON HILL ST. MICHAEL	••••
		••••
Teleph	none Number 436-1800	
If signed by an Agent on behalf of the applicant:	NAME & ADDRESS OF AGENT	
		••••
	Telephone Number	

For office use only:

(the word "land" includes any buildings thereon)

(1)	(i) Particulars of the applicant's interest in the land (PROSPECTIVE LESSEE	(e.g., free holder, lessee, prospective purchaser,) etc.
	to the proposed development ~	of lessee of the land, state whether the vendor or lessor has consented COST UNDER NEGOTIATION).
_	70	COST NOSSIMINA)
(2)	Address or lucation of the land to be developed.	(2) LAMBERTS EAST
		LAMBERTS PLANTATION
		ST. LUCY
(3)	Describe briefly the proposed development, including the purpose for which the land and/or buildings are to be used if they are to be used for more than one purpose, give details.	GENERATINE STATION TO PREMATE FOR
(4)	(a) Area of site in square metres/hectares (b) Gross floor area metres/feet (c) Gross roof area metres/feet	(4) (a) APROX. 2 KM² (b) APROX. 2,650 M²; EACH TURBAL REQUIRES 200 M² (c) N/A FOR FOUNDATION AND NORWAYS THEA PLUS 450 M² FOR SITE CONTROL ROOM
(5)	(a) Where applicable state the number of lots to be created.	(5) N/A
(6)	State the purpose for which the land and/or buildings are now used, and if used for more than one purpose, give details.	(6) AGRICULTURE (SUGAR CANE PLANTATION)
(7)	(a) State whether the proposed development involves the use or construction of a vehicle access onto a road other than a Class IV road.	(7) (a) YES. VEHICLE ACCESS TRACK MAXIMUM 45M WIDE AND APPROX. 1.5 KM. (SEE SITE LAYOUT DUE)
	(b) State whether the development is on the coastline.	(b) No
(8)	Does the land form part of a sub-division plan	(8)
	approved or permitted by – (a) The General Board of Health; or	(a) No
	(b) Chief Town Planner;	(b) No ·
	If so, state the reference number and date of approval or permission.	N/A
(9)	If the land is to be used wholly or partly for industrial or commercial use, state:-	(9)
3	 the nature of the proposed industry or business, including, if for industrial use, a brief description of the type of processes to be carried on; 	(1) ELECTRICITY GENERATION

(9)	(ii) if for industrial use ~ (a) the amount and the means of disposa of any SOLID, LIQUID, or GASEOUS trade refuse or made effluents.	
	(b) estimated water requirements in gallons per day.	101 FOR FLUSHING TOILERS ONLY.
	(c) estimated electricity requirements in Kilowatts.	14046
	(d) estimated number of persons to be employed.	DURING CONSTRUCTION APPROX. 40 DURING DECLATION APPROX. 2
	 (iii) If for industrial use — (a) Does the proposal involve use or storage of any hazardous material. 	(iii)
	(b) If yes, state materials and approximate quantities.	(b) N/A
(10)	Where appropriate state – (i) Source of water supply – (a) existing.	(10) (a) None
	(b) proposed.	(b) B.W.A. PLUS RANDWAYER STORAGE (LOANCE PL
<u> </u>	Means of waste water and sewage disposal - (a) existing.	(ii) Noye
	(b) proposed.	(b) SUCK WELL
(11)	Where appropriate state building materials - (i) Walls.	(11) (1) TURBINE TOWERS: TUBULAR STEEL
	(ii) Roof covering.	(11) BLADES : GLASS FIBLE REINFORCED FAMON
	(iii) Roof supports.	" (III) FOUNDMINIONS: STEEL REINFORCED CONCRETE
(12)	The amount of floor space involved: (a) the amount of retail floor space.	(12) (a) N/A
	(b) the amount of office floor space.	(b) N/A
	(c) the amount of institutional floor space.	(c) N/A
	(d) the amount of warehouse floor space.	(d) N/A
	(e) the amount of industrial floor space.	(e) CONTROL ROOM: APPROX. 450 M2
	 the amount of floor space common to more than one use (e.g., service area). 	(n) N/A
(13)	(a) Where applicable state the number of storeys/floors to be created.	s (13) (a) N/A
	(b) State the height of the proposed building(s) from the lowest point of the building(s).	e (b) Foel Metres 50 TURBINE HUB HEIGHT. (SEE TURBINE DIMENSIONS BINDS.)
(14)	(1) For apartment/hotels or town houses, state the number of units proposed.	-
	(ii) For hotels and guest houses, state the number of bedrooms proposed.	f (ii) N/A
(15)	For places of public assembly, state the maximum seating capacity.	(15) N/A

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