



**Environmental
Protection
Agency**

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Environmental Permit

Issued under the Environmental Protection Act, Cap. 20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.

Reference No.:	20180924-HWEHB
Fee:	Medium (C2) - US\$800 per year
Fees Paid:	US\$ 4000 for five (5) years – July, 2022 to June, 2027.

Addressee:
Mr. Johan Sydow
Project General Manager
Hope Wind Energy Inc.
226 Camp Street
Georgetown

Activity: Construction and Operation of a Wind Farm.

The Hope Wind Energy Inc., herein referred to as the "Permit Holder", is hereby authorised in accordance with the Environmental Protection Act, Cap. 20:05, Laws of Guyana, Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000, to construct and operate Hope Beach Wind Farm at Lease A21823, Hope Beach, Demerara-Berbice Public Road, Region 4 and Lots 2, 3A, 3B, 3C and 3D of Chapman's Grove, hereinafter referred to as "the Project", in the manner indicated in the Application submitted on September 24 2018, subject to the terms and conditions set forth herein under the Environmental Protection Act, existing or forthcoming regulations made under the said Act and/or any other applicable Laws of Guyana, best practices, guidelines and standards relevant to this project.

Terms and Conditions for construction and operation to be adhered to by the Permit Holder, his servants, agents and sub-contractors:

Environmental Permit - Ref. No.: 20180924-HWEHB

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1.0 GENERAL

- 1.1 Make an application to the Agency to vary this Environmental Permit in instances where it becomes necessary to:
- i. Change the construction, operation, structure, or layout of the facility and all associated buildings;
 - ii. Change equipment, machine, apparatus, mechanism, system or technology serving the facility;
 - iii. Change the position and design of any outlet at the point or points of discharge of effluents; or
 - iv. Affect any other change outlined in 20(3) of the Environmental Protection (Authorisations) Regulations.
- 1.2 Adhere to requirements of the **Occupational Health and Safety Act, Cap 99:10, Laws of Guyana.**
- 1.3 Employ or designate an employee to the role of an Occupational Health and Safety (OHS)/Environmental Officer to be responsible for the implementation and coordination of all safety requirements, and terms and conditions stipulated in this Permit, as well as compliance monitoring with the preparation of all required reports.
- 1.4 Make all employees, and third parties under your direction, aware of the conditions of the Environmental Authorisation and provide training on good environmental practices.
- 1.5 Obtain and maintain approval from the Guyana Fire Service and provide fire protection measures in accordance with this approval.
- 1.6 The Project shall be implemented in accordance with the approved EIA, all plans, specifications of location, pathways, reserve and boundary lines shall be adhered to, unless otherwise authorised; evidence of which must be provided to the Agency.
- 1.7 **The Permit Holder shall submit to the EPA upon receipt, the requisite approvals from the Central Housing and Planning Authority (CH&PA), Guyana Power and Light or any other authority with jurisdiction and oversight over the Project.**
- 1.8 Construction works shall not be executed between 18:00 hrs. to 06:00 hrs., on any day, close to communal areas unless, approval is sought from the EPA. This



Environmental Permit - Ref. No.: 20180924-HWEHB

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requirement does not apply for large concrete pours or asphalt laying and earth removal where work in the early morning and late evening is required.

2.0 OPERATION

- 2.1 Eliminate "free-wheeling" (free spinning of rotors under low wind conditions when turbines are not generating power).
- 2.2 The operation of the wind turbine must not infringe on other usage inclusive of agricultural and commercial.
- 2.3 Provide fencing of an appropriate standard around the substation with anti-climb paint and warning signs.
- 2.4 The operation of the wind turbine must not infringe on the movements of marine traffic in both the Hope Canal and the Mahaica River.
- 2.5 Prevent access to turbine tower ladders.
- 2.6 Schedule regular maintenance of turbines, and keep the records of maintenance up-to-date.
- 2.7 All metallic surfaces shall be painted with anti-corrosive paint.

3.0 SHADOW FLICKER

- 3.1 Site wind turbines appropriately to avoid shadow flicker being experienced or to meet limits placed on the duration of shadow flicker occurrence. The predicted duration of shadow flicker effects experienced at a sensitive receptor should not exceed 30 hours per year and 30 minutes per day on the worst affected day.
- 3.2 Shut down wind turbine at the times when shadow flicker limits are exceeded.
- 3.3 Wind turbines are to be painted only with matt, non-reflective finish.
- 3.4 Comply with the condition 7.0 of this Permit in developing a Complaint Response Plan for Shadow Flicker.

4.0 BIODIVERSITY MANAGEMENT



- 4.1 Avoid creating features in the environment that could attract birds and bats to the wind energy facility, such as water bodies, perching or nesting areas, novel feeding areas, and staging or roosting habitats.
- 4.2 Avoid attracting birds to predictable food sources, such as on-site or off-site waste disposal areas.
- 4.3 Avoid artificial light sources where possible. White, steady lights in particular attract prey (e.g., insects), which in turn attract predators. Steady or slow blinking lights are to be avoided. Timers, motion sensors, or downward-hooded lights may help to reduce light pollution.
- 4.4 Conduct annual monitoring for birds and bats to maintain species richness, abundance and diversity as reported in the approved EIA.

5.0 WATER AND SOIL QUALITY MANAGEMENT

- 5.1 Strictly comply with the provisions of the **Environmental Protection (Water Quality) Regulations 2000**.
- 5.2 Maintain the integrity of the existing waterways at all times. Discharges into the environment shall be in accordance with the Guyana National Bureau of Standards (GNBS) Interim Guidelines for Industrial Effluent Discharge into the Environment. The following are the allowable limits for this type of project and shall not be exceeded:
 - i. Total Suspended Solid (TSS) < 50 mg/L; and
 - ii. Oil and Grease < 10 mg/L.
- 5.3 Water quality shall be monitored in accordance with the approved EIA.
- 5.4 Avoid erosion, siltation and sedimentation of existing water bodies within the vicinity of the project site. Do not discharge wastewater from washout and/or cleanout of bitumen, concrete, paint, and other construction materials into waterways unless appropriately treated.
- 5.5 Install sediment controls along site perimeter areas that will receive effluent and remove sediments before it accumulates to half of the above-ground height of the perimeter control.
- 5.6 Construct and maintain drainage systems capable of handling the probable maximum precipitation event.



Environmental Permit - Ref. No.: 20180924-HWEHB

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- 5.7 Limit the removal of vegetation to the minimum extent necessary for works to proceed. In areas where soils are not to be removed, the vegetation layer shall be maintained to protect the soil from erosion.
- 5.8 Avoid soil and water contamination from fuel, grease, waste oils and other petroleum products that might be used at the facility.
- 5.9 Store fuel in a secured designated area to prevent accidental release into the surrounding environment, especially in rainy conditions. The designated area should not be within 100 m of surrounding water bodies.
- 5.10 Store all chemicals in leak-proof containers that are kept under water-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets) to minimize the potential discharge of chemicals in stormwater and external waterways.

6.0 AIR QUALITY MANAGEMENT AND NOISE ABATEMENT

- 6.1 Strictly comply with the **Environmental Protection (Air Quality) Regulations, 2000** and the **Environmental Protection (Noise Management) Regulations 2000**.
- 6.2 Take all applicable actions to manage, review and mitigate the wind turbine noise from the Windfarm.
- 6.3 Monitor noise emissions in accordance with the approved EIA to determine compliance with the **Guyana National Bureau of Standards (GNBS)** Guidelines for Noise Emissions into the Environment. Sound levels from noise-making devices shall not exceed the limits below, at a distance of 15 metres (50 ft) from the source or property boundary, whichever is closer.

During Construction

- **Construction Limits: 90 dB** during the daytime (06:00 h - 18:00 h)
75 dB during the night-time (18:00 h - 06:00 h)

During Operation:

- **Educational Limits: 75 dB** during the daytime (06:00 h - 18:00 h)
60 dB during the night-time (18:00 h - 06:00 h)



Additionally, noise emissions in accordance with the approved EIA to determine compliance with WHO1999 guidelines for noise emissions as promoted by the International Finance Corporation (World Bank) for wind farms as applied at the exterior of the nearest sensitive receptors (residential, educational and medical buildings).

- **Wind Turbine Limits:** 50 dB during the daytime (06:00 h - 18:00 h)
45 dB during the night-time (18:00 h - 06:00 h)

- 6.4 Conduct a noise assessment within six months post-construction to determine ambient noise levels. The noise assessment should be conducted by trained personnel using calibrated instruments. The noise assessment must demonstrate if the facility complies with the 45dB limit referenced above.
- 6.5 Prepare and submit a Noise Management Plan three months following the submission of the post-construction noise assessment. The Noise Management Plan must include procedures for the following:
- a. the identification, assessment, and control of risks of harm to human health and the environment from wind turbine noise;
 - b. assessing compliance with-
 - i. the noise limit as stipulated in this Permit
 - ii. the applicable alternative monitoring points if the assessment of the wind turbine noise is conducted at alternative monitoring points than those identified in the Approved EIA.
 - c. reducing wind turbine noise in the event of non-compliance with the noise limit stipulated in this Permit.
 - d. addressing any complaints about wind turbine noise received by the operator, including who will investigate the complaint and respond to the complainant.
- 6.6 Locate generators away from communal areas to minimise adverse fumes/soot impacts to the contiguous areas.
- 6.7 Wet suppression must be done daily during road construction phase to reduce dust pollution
- 6.8 Monitor smoke from any engine or air emission unit to ensure that the shade, density, or appearance of the emissions are **not** equal to or greater than No.2 of the Ringelmann Chart, 2010 for a period, or aggregate period of time in excess of six minutes during any one hour. Immediately respond to any emissions that are equal to or greater than No. 2 on the Ringelmann Chart, 2010.



Environmental Permit - Ref. No.: 20180924-HWEHB

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- 6.9 Monitor ambient air quality in accordance with the approved EIA to determine compliance with the World Health Organisation (WHO) Air Quality Guidelines

PM_{2.5}: 25 µg/m³ 24-hour mean

PM₁₀: 50 µg/m³ 24-hour mean

- 6.10 Record, investigate and address complaints of shadow flicker, excessive noise, dust and vibrations from the public promptly upon receipt. Maintain a record of all complaints received and the action taken. Maintain and keep records of complaint's information for each complaint received, including:

- i. the complainant's name;
- ii. any applicable property reference number if connected to a background testing location;
- iii. the complainant's address;
- iv. a receipt number for each complaint which is to be communicated to the complainant;
- v. the time, prevailing conditions and description of the complainant's concerns including the potential incidence of special audible characteristics;
- vi. the processes of investigation to resolve the complaint. A report including a reference map of complaint locations by using GPS coordinates, and complaint type, investigation and remediation actions shall to be provided on an annual basis to the satisfaction of the Agency.
- vii.
- viii.

- 6.11 For the purposes of determining compliance, the following requirements apply:

- i. Acoustic compliance reports shall be prepared by a suitably qualified and experienced independent acoustic engineer to demonstrate compliance with the noise limits specified in the Standard;
- ii. Noise assessment GPS coordinates shall be located and shown on a map;
- iii. Submit an initial acoustic compliance report within six months of commissioning the first turbine, and thereafter at six months interval until full operation (following completion of construction and commissioning); and
- iv. A final compliance report shall be submitted to the Agency after a 12-months period following full operation of the facility.



7.0 COMPLAINT RESPONSE PLAN

- 7.1 Submit a complaint response plan to the Agency for approval on or before September 30, 2022. The plan shall include but not be limited to:
- i. a process of investigation to resolve a complaint;
 - ii. a requirement that all complaints will be recorded in incidents register;
 - iii. how contact details will be communicated to the public; and
 - iv. a telephone number and email contact for complaints and queries.

8.0 FUEL AND HAZARDOUS/ WASTE MANAGEMENT

- 8.1 Strictly adhere to the provisions of the **Environmental Protection (Litter Enforcement) Regulations 2013** and the **Environmental Protection (Hazardous Waste Management) Regulations, 2000**.
- 8.2 Maintain good housekeeping, sanitary and hygienic practices and the aesthetic quality of the surroundings at all times.
- 8.3 Promote proper solid waste management and disposal practices at the site, place covered garbage receptacles at strategic locations around the site.
- 8.4 Dumping of waste into the surrounding environment is strictly prohibited. Waste, inclusive of waste oil and/or fuel, shall not be stored within 10 meters of any waterways.
- 8.5 Hazardous waste shall be treated and/or disposed by an EPA authorised Hazardous Waste Disposal Facility. All hazardous waste treatment and disposal shall be documented on a Waste Manifest Form which shall be submitted to the EPA as a component of the **Annual Report**.
- 8.6 Conduct refuelling, oil changes and maintenance of equipment on an impervious base.
- 8.7 Spill equipment shall be available and utilised for containing and mitigating spills from fuel, bitumen, waste oils, lubricants, curing compounds, concrete admixtures, paints etc.



Environmental Permit - Ref. No.: 20180924-HWEHB

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- 8.8 Designate an area for the storage of fuel, used oil, washing detergents, sanitisers and other hazardous materials. Hazardous materials/ waste storage areas shall be clearly labelled and secured. The following warning signs shall be clearly posted:
- i. "Hazardous Waste Storage Area"
 - ii. Danger - "Authorised Personnel Only"
 - iii. No eating, drinking or smoking
- 8.9 Hazardous waste shall be contained in bunded/kerbed storage areas. These areas shall adhere to the following requirements:
- i. Be situated in low traffic areas;
 - ii. No interceptor drains shall be constructed; and
 - iii. Be bunded to provide 110% containment of the largest volume of hazardous materials stored therein.
- 8.10 Hazardous waste shall be stored in containers appropriate for the waste stream; that is:
- i. Sealed Plastic Containers
 - a. Water-based waste
 - ii. Sealed Metal Containers
 - a. Solvents and petroleum-based products
 - b. Oil and oily absorbents
- 8.11 Hazardous waste/materials storage containers shall be inspected weekly for signs of leakage, deterioration or corrosion, and damaged containers shall be replaced immediately. Inspection reports shall be maintained and signed by the appropriately qualified inspecting officer and his/her supervisor.
- 8.12 Construct and maintain a septic system on site; the septic tank shall not be located within 1.5 m of a building or property boundary and should be accessible for cleaning and de-sludging. Any modification to the septic tank shall be in accordance with the **Guyana National Bureau of Standards (GNBS)** Code of Practice for the Design and Construction of Septic Tanks and Associated Secondary Treatment and Disposal Systems.



9.0 COMPLIANCE MONITORING AND REPORTING

- 9.1 Strictly comply with any lawful directions given by the Agency from time-to-time in furtherance of the implementation of any international or other obligation for the environmental protection of Guyana.
- 9.2 Monitor the implementation of the conditions of this Environmental Permit, insofar as they involve adherence by employees and all third parties under your direction.
- 9.3 Report to the Agency any non-compliance(s) with this Environmental Permit.
- i. Within **twenty-four (24) hours** of the time the Holder of this Environmental Permit becomes aware of the non-compliance, with the anticipated manner in which it may endanger human health or the environment may be impacted.
 - ii. Within **seventy-two (72) hours** of the time the Holder of the Environmental Permit becomes aware of the non-compliance, submit to the Agency a written report containing a description of the non-compliance, its cause, the period of non-compliance including exact dates and time and the anticipated time it is expected to continue if the non-compliance(s) has not been corrected.
- 9.4 Submit an **Annual Report** to the EPA on your compliance with this Environmental Permit on or before **March 31, each year**.
- 9.5 Notify the EPA within **twenty-four (24) hours** of the occurrence of any environmental emergencies (e.g., oil spills, hazardous materials/wastes spill, sudden onset disaster, natural, technological or human-induced factors that cause or threaten to cause severe environmental damage as well as harm to human health or livelihood).
- 9.6 Notify the Agency in writing of any change of name or ownership of the Permit Holder's facility within **thirty (30) days** after the change occurs.
- 9.7 Notify the Agency within **twenty-one (21) days** in event of death, bankruptcy, liquidation or receivership of the Permit Holder or if the Company becomes a party to an amalgamation.



- 9.8 It is the responsibility of the Permit Holder to ensure the permitted activity and premises are secured and that all practicable steps necessary to prevent fires, explosions, leaks or suspected leaks and spills at the permitted premises are taken.

10.0 INSTITUTIONAL AUTHORITY/LIABILITIES

- 10.1 The Permit Holder shall be liable for any material environmental harm caused by polluting the environment, pursuant to **s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 10.2 The Permit Holder shall be liable for any serious environmental harm caused by polluting the environment, pursuant to **s. 39 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 10.3 The Permit Holder shall be liable for any activity that causes or is likely to cause pollution of the environment unless all reasonable and practicable measures are taken to prevent or minimize any resulting adverse effect, pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 10.4 The Permit Holder shall be liable for discharging, causing or permitting the entry into the environment, of any contaminant in any amount, concentration or level excess of that prescribed by the regulations or stipulated by this Environmental Permit, pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 10.5 The Permit Holder shall be liable to compensate any person who suffers any loss or damage as a result of contravening conditions 10.3 and 10.4 of this Environmental Permit, pursuant to **s. 19 of the Environmental Protection Act, Cap. 20:05, Laws of Guyana.**
- 10.6 The Permit Holder shall not be indemnified by the Agency for any activity that causes or is likely to cause pollution to the environment, resulting from adverse effects through the discharge, any contaminant in any amount, concentration, ultra-hazardous substances, chemicals or otherwise, and shall be rendered liable to prosecution and to penalties prescribed under the Environmental Protection Act and Regulations.
- 10.7 The Permit Holder shall be liable of any gross negligence or wilful misconduct caused by the Permit Holder, his Servants and/or Agents, to the environment, biodiversity,



Environmental Permit - Ref. No.: 20180924-HWEHB

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protected species and natural habitat with respect to any release, discharge, or spill, of contaminant fluids, oil or lubricants.


- 10.8 Should the Permit Holder contravene or be likely to contravene any condition of this Permit, the Agency (EPA) may serve on him an Enforcement Notice in accordance with **Section 26** of the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**.
- 10.9 Where it appears to the Agency that the Permit Holder is engaged in any activity that may pose a serious threat to natural resources or the environment, or a risk of serious pollution of the environment or any damage to public health, the EPA may issue to the Permit Holder a Prohibition Notice, which may order him to immediately cease the offending activity, in accordance with **Section 27** of the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**.
- 10.10 The EPA reserves the right to conduct regular inspections of the Permit Holder's activities as part of its monitoring and enforcement requirements under the Environmental Protection Act, Cap 20:05, the **Environmental Protection (Amendment) Act, 2005**, and **Environmental Protection (Authorisations) Regulations, 2000**.
- 10.11 The Permit Holder, His Servants and/or Agents shall at all times, allow entry to the permitted facility to any Officer designated by the EPA for the purposes of conducting inspections or any other legitimate business of the Agency. Pursuant to **Section 38** of the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**, it is an offence to assault, obstruct or hinder an authorised person in the execution of his/her duty under the said Act or its Regulations and the Permit Holder shall be liable to penalties prescribed under paragraph (c) of the Fifth Schedule for doing so.
- 10.12 The EPA has the right to modify, cancel or suspend this Permit for breach of any of the terms and conditions contained herein.
- 10.13 **This Environmental Permit is not the final consent; all relevant Permissions shall be obtained from other regulatory bodies before commencing construction activities.**
- 10.14 This Environmental Permit is effective for the period stipulated herein, **July, 2022 to June, 2027**.

A handwritten signature in blue ink is written over a blue ink stamp. The stamp appears to be a stylized 'V' or 'H' shape. To the right of the signature is another handwritten mark, possibly initials.

Environmental Permit - Ref. No.: 20180924-HWEHB

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- 10.15 This Environmental Permit shall remain valid until June 30, 2027, unless otherwise suspended, cancelled, modified or varied, in accordance with the **Environmental Protection Act, Cap. 20:05, Laws of Guyana, Environmental Protection (Amendment) Act, 2005, and the Environmental Protection (Authorisations) Regulations, 2000.**
- 10.16 This Environmental Permit shall be renewed by submitting "an Application for Renewal of Environmental Authorisation to the Agency at least six (6) months before this Permit expires, that is, no later than **December 30, 2026.**
- 10.17 Any late submission of renewal application(s) after the specified date as stated above, may require the Permit Holder to pay, in addition to renewal fees, a late penalty fee (accruing at the time such obligation was first owed for renewal) at a rate of **two thousand dollars (GY\$2000.00) per day for every business day late**, until such renewal application is submitted to the Agency, without prejudice to any other rights of the Permit Holder in connection therewith.
- 10.18 Failure to comply with the requirements of this Permit or with applicable laws and regulations, whether existing or forthcoming, shall render the Permit Holder liable to prosecution and to penalties, inclusive of civil penalties, injunctive relief and imprisonment, as prescribed under the **Environmental Protection Act, Cap. 20:05, Laws of Guyana**, the Environmental Protection Regulations and other applicable Laws of Guyana.

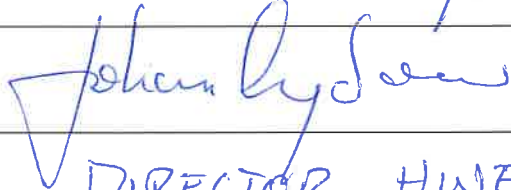
Signed by  on behalf of the Environmental Protection Agency.
Kemraj Parsram
Executive Director

Date 2022.07.14

Environmental Permit - Ref. No.: 20180924-HWEHB

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I hereby accept the above Terms and Conditions upon which this Environmental Permit is granted and agree to abide by the Environmental Protection Act, Cap.20:05, Laws of Guyana, the Environmental Protection (Amendment) Act, 2005, the Environmental Protection (Authorisations) Regulations, 2000, and any forthcoming regulations, best practices, guidelines and standards made under this Act.

NAME:	CLAES JOHAN SYDOW
SIGNATURE:	
DESIGNATION:	DIRECTOR HWE
DATE:	26 Sep 2022

