

FILE

PUCO EXHIBIT FILINGDate of Hearing: September 24 - October 2, 2018Case No. 16-1871-EL-BGN

PUCO Case Caption: In the Matter of the Application of
Icebreaker Windpower Inc. for a Certificate to
Construct a Wind-Powered Electric Generation
Facility in Cuyahoga County, Ohio.

List of exhibits being filed: Volume IIBratenahl Residents 1, 3, 5, 6Staff 2

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Reporter's Signature: Karen Sue Gibson
 Date Submitted: _____

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BEFORE THE OHIO POWER SITING BOARD

- - -

In the Matter of the :
Application of Icebreaker :
Windpower Inc. for a :
Certificate to Construct : Case No. 16-1871-EL-BGN
a Wind-Powered Electric :
Generation Facility in :
Cuyahoga County, Ohio. :

- - -

PROCEEDINGS

before Mr. Nick Walstra and Ms. Megan Addison,
Administrative Law Judges, at the Public Utilities
Commission of Ohio, 180 East Broad Street, Room 11-A,
Columbus, Ohio, called at 9:03 a.m. on Tuesday,
September 25, 2018.

- - -

VOLUME II

- - -

ARMSTRONG & OKEY, INC.
222 East Town Street, Second Floor
Columbus, Ohio 43215-5201
(614) 224-9481 - (800) 223-9481

- - -

Icebreaker Wind
Lake Erie, City of Cleveland
Cuyahoga County, Ohio

Figure 04-2: Constraint Map

January 2017

- Proposed Wind Turbine
- Alternate Wind Turbine
- Breakwater
- Shipping Lane
- Water Intake
- Electric Transmission Line
- Ancillary Facility
- Electric Collection Line Envelope

Notes:
1. Base map: ESRI/ArcGIS Online, World Topographic Map, Map Service.
2. Shipping lanes and water intakes digitized by EDR based on NOAA Nautical Chart 14023. Breakwater digitized by EDR based on orthorectified, Electric transmission lines digitized by EDR based on a map provided by PLOCO. Facility stippling generated by EDR per Luedke's specification.
3. Map Scale: 1:72,000



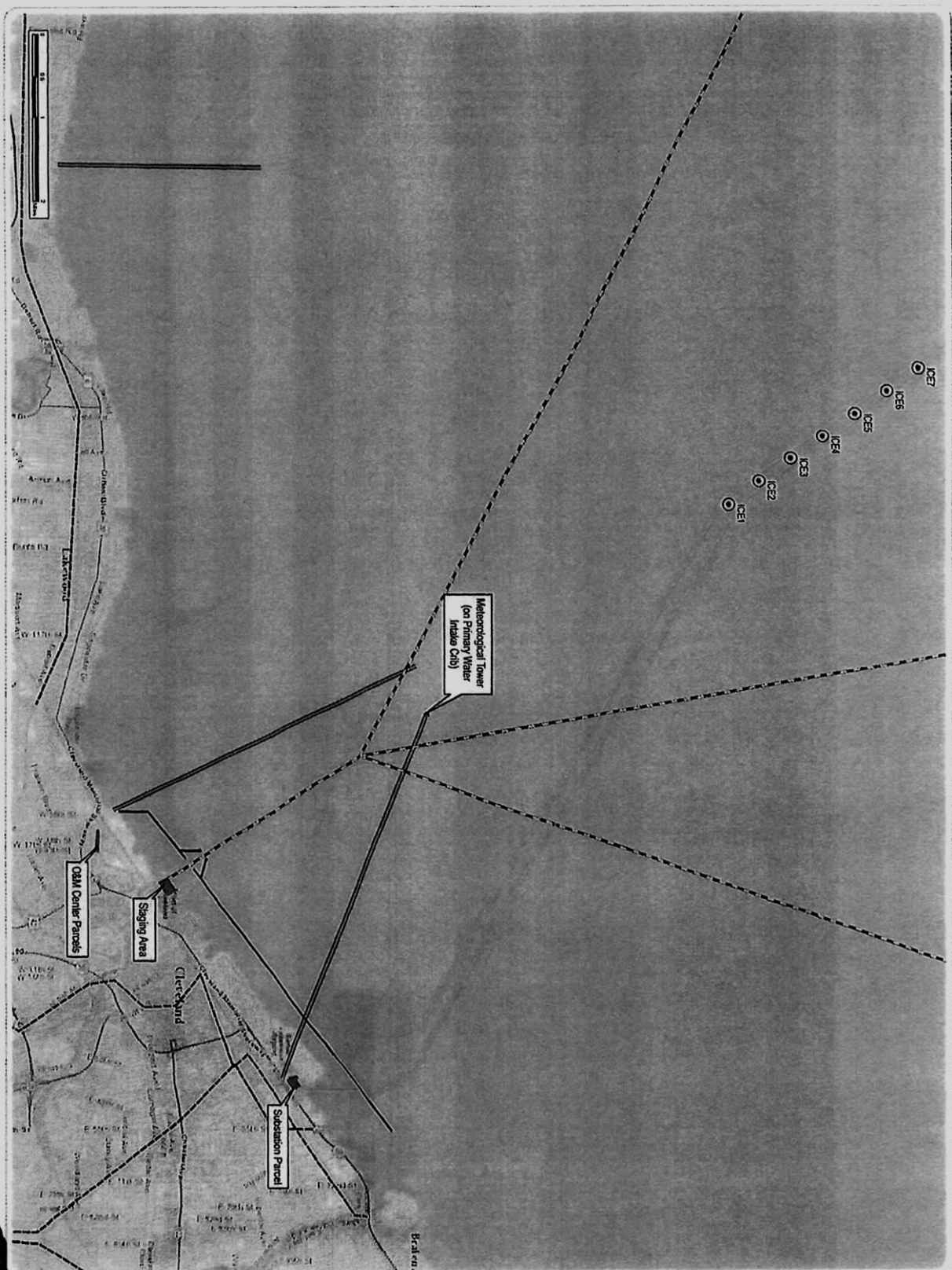
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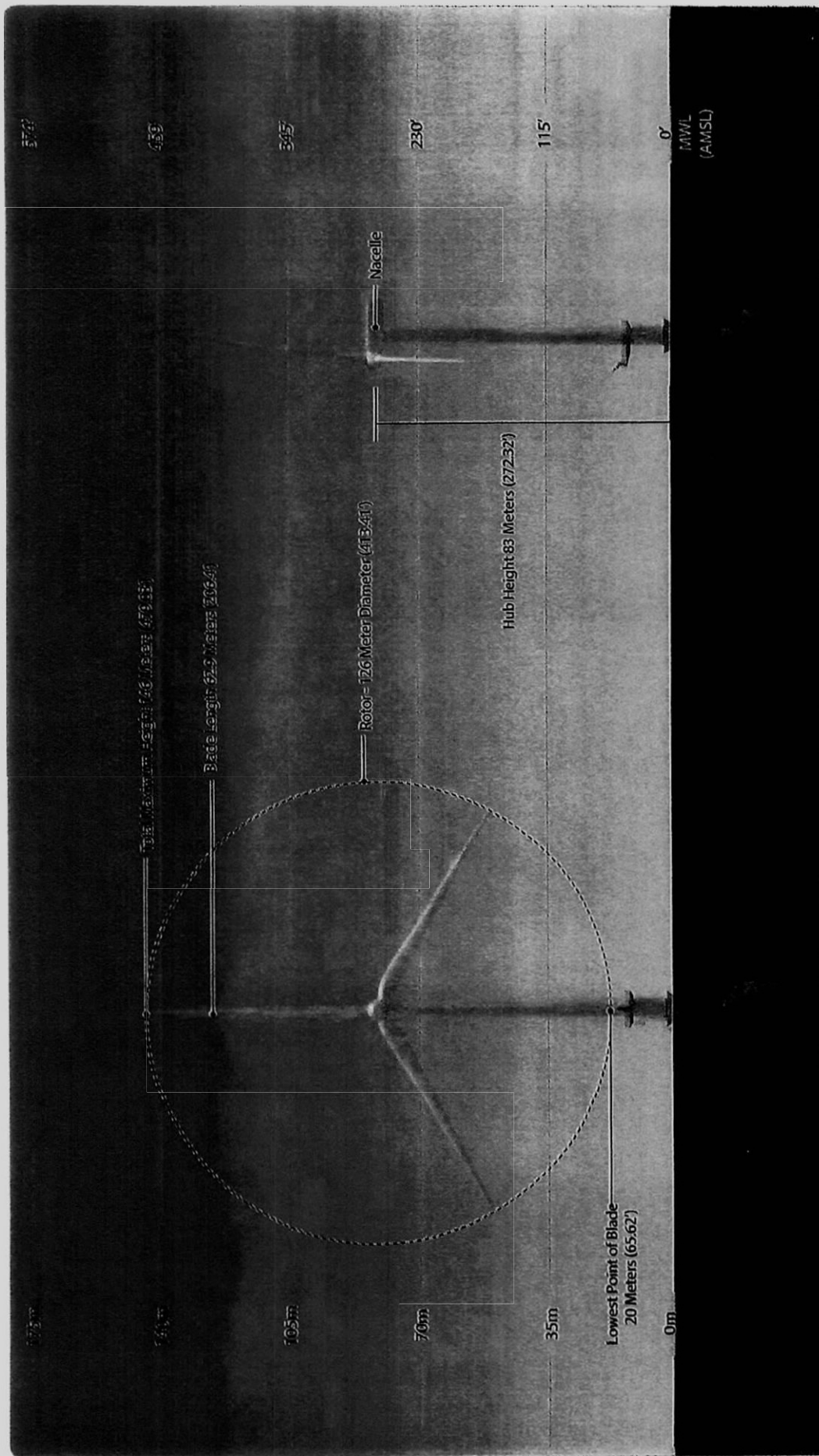
EXHIBIT

Bratenahl
Residents

1

PENGAD 800-631-6989





Icebreaker Wind
 Lake Erie, City of Cleveland, Cuyahoga County, Ohio
 Figure 3: Turbine Design
 November 2016

POWER PURCHASE AND SALE AGREEMENT

This Power Purchase and Sale Agreement ("Agreement") is entered into and made effective this 10th day of May, 2016, by and between **Fred. Olsen Renewables USA, LLC**, an Ohio limited liability company ("Seller") and the **City of Cleveland, Ohio**, acting through the Department of Public Utilities under authority of Section 129.33 of the Cleveland Codified Ordinances and Ordinance No. 156-16, passed March 21, 2016 ("Buyer") (each, a "Party" and collectively, the "Parties").

WITNESSETH

WHEREAS, Seller is developing an electrical generation project comprising offshore wind-powered turbine-generators having an aggregate nominal generating capability not to exceed twenty-one megawatts (21 MW) and related onshore electrical equipment, as further defined herein (collectively, the "Project");

WHEREAS, Buyer owns and operates a municipal electric system for the purpose of providing electric service to the residents and businesses of Cleveland;

WHEREAS, Buyer is willing to allow Seller to interconnect the Project with Buyer's electrical system, subject to terms and conditions specified in a separate Interconnection Agreement between Buyer and Seller; and

WHEREAS, the Parties desire to establish terms and conditions upon which Seller has agreed to sell and supply and Buyer has agreed to purchase and take delivery of, a portion of the electric capacity of and energy produced by the Project.

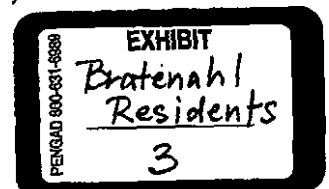
NOW THEREFORE, Seller and Buyer, intending to be bound by the terms of this Agreement, hereby agree as follows:

ARTICLE 1 DEFINITIONS

1.1. **AMP** means American Municipal Power, Inc., an Ohio non-profit corporation headquartered in Columbus, Ohio.

1.2. **Behind-the-Meter Generation** means a generation unit that delivers energy to load without using transmission facilities under PJM's functional control or any distribution facilities (unless the entity that owns or leases the distribution facilities has consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of PJM).

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Behind-the-Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Generation Capacity Resource in PJM; or (ii) in an hour, any portion of the output of such generating unit[s] that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

1.3. Business Day means any day other than Saturday, Sunday or a day on which the Federal Reserve Bank is authorized or required to be closed.

1.4. CPS means a clean energy portfolio standards account within the PJM GATS system.

1.5. Commercial Operation means the demonstration, through suitable testing procedures generally accepted in the electric utility industry, of the ability of the Project or any portion thereof to produce electricity at its rated capability on a dependable basis, subject to wind conditions. Commercial Operation shall be documented through Seller's provision to Buyer of a signed certification from an independent third party selected by Seller that all prerequisites set forth in the Interconnection Agreement that must be satisfied prior to a declaration of Commercial Operation for the Project, or any portion thereof, have been satisfied.

1.6. Commercial Operation Date means the date on which Commercial Operation of the Project is achieved.

1.7. Contract Price means the price at which Seller agrees to sell and Buyer agrees to buy Project Output pursuant to this Agreement.

1.8. CPP means the City of Cleveland, Department of Public Utilities, Division of Cleveland Public Power.

1.9. Delivery Point means the point where Project Output is introduced into the electric distribution system of Buyer through the electrical interconnection of Seller's equipment to Buyer's equipment. The Delivery Point is the Point of Interconnection as defined and described in the Interconnection Agreement.

1.10. Effective Date means the date as of which both the Parties entered into this Agreement, which date appears at the beginning of this Agreement.

1.11. Environmental Credits means all environmental characteristics that are associated with or attributable to the Project, the generation of Project Output and/or the purchase or sale of Purchased Output including but not limited to:

- (A) environmental attributes;
- (B) credits toward achieving local, state, regional, national and international renewable portfolio standards and emissions reduction targets;
- (C) green tags, renewable energy certificates, and renewable energy credits;
- (D) greenhouse gas and emissions reductions, credits, offsets, allowances and benefits;
- (E) actual SO₂, NO_x, CO₂, CO, carbon, VOC, PM10, mercury, and other emissions avoided; and
- (F) any and all other renewable or "green" energy and other environmental benefits and incentives associated with or attributable to the Project, the generation of Project Output and/or the purchase or sale of Purchased Output.

Environmental Credits shall be expressed in megawatt hours (MWh) or, as applicable in the case of emissions credits, in tonne equivalent or other allowance measurement. -Environmental Credits do not include Tax Benefits or any Project Output. As used herein, "Environmental Credits" shall mean all Environmental Credits existing as of the Effective Date, if any, or in the future pursuant to any applicable law, regulation, voluntary regime, or otherwise, and that may be conveyed, and measured, verified or calculated, resulting from the electric energy generated by the Project during the period beginning on the Commercial Operation Date and ending when the Term ends upon the expiration of its original or extended Term or upon any early termination of this Agreement.

1.12. Force Majeure means any one or more of the following:

- (A) earthquake, storm, lightning, flood, tsunami, backwater caused by flood, fire, or explosion;

- (B) act of the public enemy, acts of God, national emergency, war, riot, or civil disturbances;
- (C) epidemic or pandemic;
- (D) interruption of firm transmission service or wholesale distribution service relied upon and without a commercially reasonable substitute to produce and deliver Project Output hereunder;
- (E) strike or other labor disturbance;
- (F) labor or material shortage;
- (G) restraint by court order or other public authority or governmental agency;
- (H) the denial, revocation, suspension, expiration or termination of, or delay in obtaining, any permit, license or approval required to construct or operate the Project or any portion thereof, but only if Seller has taken all requisite actions and acted with due diligence to obtain and maintain such permit, license or approval;
- (I) the adoption of any change in any federal, state or local law, permit, license or approval materially affecting the development, construction or operation of the Project or any portion thereof;
- (J) the imposition of any material conditions on the issuance, continuation in effect or renewal of any permit, license or approval that materially and adversely affects the operation of the Project;
- (K) any other similar causes beyond the control of the Party affected thereby and which the affected Party could not have avoided through the exercise of due diligence and reasonable care; or
- (L) as defined in the PJM Open Access Transmission Tariff as that definition may change from time to time.

1.13. GATS means the Generation Attribute Tracking System operated by PJM Environmental Services for the purpose of tracking the environmental attributes of generation and supporting the reporting, compliance and verification requirements related to environmental compliance and related markets, or any successor system serving the same or similar function.

1.14. Good Utility Practice means any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be a range of acceptable practices, methods, or acts generally accepted in the region.

1.15. Installed Capacity means the aggregate electric power production capability of the Project, as stated on the nameplates affixed by the manufacturer to the generating units that comprise the Project, expressed in kilowatts (kW).

1.16. Interconnection Agreement means that separate agreement between Buyer and Seller that governs the electrical interconnection of Seller's facilities to Buyer's facilities and certain other interconnection-related matters.

1.17. PJM means PJM Interconnection, LLC, a regional transmission organization certified by the U.S. Federal Energy Regulatory Commission that coordinates the movement of wholesale electricity in all or parts of 13 states (including Ohio) and the District of Columbia, or its successor, and exercises functional control over transmission facilities of its transmission-owning members.

1.18. PJM Agreements means the PJM Operating Agreement, the PJM Open Access Transmission Tariff, the Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region, the PJM Manuals, and any other agreement or set of business practices adopted by PJM to govern its provision of services and participation in markets operated by PJM, as they may be amended from time to time, including all schedules, attachments and appendices thereto.

1.19. Project means, collectively, (i) the electrical generation project comprising six offshore wind-powered turbine-generators to be located on Lake Erie within the State of Ohio having an aggregate nominal generating capability not to exceed twenty-one megawatts (21 MW), and (ii) related onshore electrical equipment required to safely and reliably deliver the electrical output of the wind-powered turbine generators into Buyer's electrical system.

1.20. Project Output means the electric energy generated by the Project and delivered by the Seller to the Delivery Point, as metered at the Delivery Point, expressed in MWhs (or kWhs). Project Output shall be alternating current electric energy with a nominal frequency of sixty (60) hertz delivered to the Delivery Point at the nominal voltage specified in the Interconnection Agreement. Project Output shall be net of (i) any electric energy generated by the Project and consumed by the Project prior to delivery to the Delivery Point, and (ii) any transmission and transformation losses between the Project and the Delivery Point.

1.21. Purchased Output means that portion of the Project Output that is sold by Seller to Buyer, and purchased by Buyer from Seller, pursuant to Section 2.1 of this Agreement. Except as otherwise specifically stated, Purchased Output includes Tranche A Purchased Output, Tranche B Purchased Output, and Tranche C Purchased Output.

1.22. Qualified Billing Dispute means a dispute regarding an invoice tendered by Seller to Buyer that is based on: (i) an asserted error in metering; (ii) application of a rate that is asserted to be incorrect; or (iii) an asserted error in the calculation of a refund to Buyer pursuant to Section 7.1(C).

1.23. Required Metering Accuracy means the accuracy requirement for metering at the Delivery Point as specified in paragraph 3 of Attachment 7 (Metering Protocols) to the Interconnection Agreement.

1.24. Return Cap means the upper-bound limitation on the return on investment to equity investors in the Project. Investors' return on investment shall be based on a calculation of the Internal Rate of Return to investors as determined in accordance with Section 7.1(C). [REDACTED]

1.25. Tax Benefits means any and all tax credits available to Seller under the Internal Revenue Code, as amended, (including without limitation grants that are obtained by Seller that are in lieu of, or were otherwise designed to replicate the benefits of, such tax credits) and under other state or federal law, as well as any other tax benefit associated with the Project.

1.26. Term shall have the meaning set forth in Section 5 hereof.

1.27. Tranche A Purchased Output shall mean that portion of Project Output purchased and sold pursuant to Section 2.1(A)(1) of this Agreement.

1.28. Tranche B Purchased Output shall mean that portion of Project Output purchased and sold pursuant to Section 2.1(A)(2) of this Agreement.

1.29. Tranche C Purchased Output shall mean that portion of Project Output purchased and sold pursuant to Section 2.1(A)(3) of this Agreement.

1.30. Transmission Facilities Interconnection Requirements means that document (or set of documents) or posting (or set of postings) developed by CPP which sets forth the facility connection requirements which will facilitate the safe, efficient and reliable integration of any electrical transmission, generation, and end-user facility into the CPP transmission system.

ARTICLE 2 PURCHASE AND SALE OF PURCHASED OUTPUT AND ENVIRONMENTAL CREDITS

2.1. Purchase and Sale of Purchased Output

(A) Purchased Output Tranches

(1) Subject to satisfaction of the conditions set forth in Section 3.1(A), and commencing on the Commercial Operation Date, Buyer shall purchase from Seller, and Seller shall sell to Buyer, Tranche A Purchased Output in an amount equal to 25.0% of the Project Output in any hour, provided that Tranche A Purchased Output shall not exceed 5.0 MWH in any hour.

(2) Subject to satisfaction of the conditions set forth in Section 3.1(B), and commencing on the Commercial Operation Date, Buyer shall procure from Seller, and Seller shall provide to Buyer, Tranche B Purchased Output in an amount equal to 8.6% of the Project Output in any hour, provided that Tranche B Purchased Output shall not exceed 1.8 MWH in any hour.

(3) Subject to satisfaction of the conditions set forth in Section 3.1(C), and commencing on the Commercial Operation Date, Buyer shall procure from Seller, and Seller shall provide to Buyer, Tranche C Purchased Output in an amount up to 30.0% of the Project Output in any hour; provided that Tranche C Purchased Output shall not exceed 6.0 MWH in any hour.

(B) Price

Purchased Output shall be purchased and sold at the Contract Price as determined in accordance with Section 7.1.

(C) No Minimum Sale or Purchase Obligation

(1) The Parties acknowledge that the Project is an intermittent resource and that it will not produce any guaranteed minimum level of Project Output. Nothing in this Agreement shall create any obligation hereunder for Seller to produce, provide or sell any minimum quantity of Purchased Output.

(2) Buyer's payment obligation under this Agreement is limited to paying for such amounts of energy as are generated by the Project and delivered to Buyer, for Buyer's account, at the Delivery Point. Buyer shall have no obligation to make payments to Seller except to the extent of any energy actually generated by the Project and delivered to the Delivery Point for purchase by Buyer hereunder. Buyer shall have no obligation to make payment to Seller for any energy generated by the Project and delivered to the Delivery Point for the account of others.

(D) Buyer's Entitlement to Value under PJM Agreements

Buyer's purchase of Purchased Output shall entitle Buyer to any and all value and benefits attributable to or associated with such purchase under the PJM Agreements, including any credits or reductions in charges or obligations for capacity, energy, transmission, ancillary services, operating reserves or other services, that result from or that are attributable to Buyer's receipt of Purchased Output into its system.

(E) Curtailment; Dispatch

(1) Buyer shall have no right to curtail or dispatch the Project or the Project Output in its capacity as Buyer under this Agreement for any reason. The Parties acknowledge that Buyer has the right to curtail the Project Output in certain circumstances in its separate capacity as interconnecting utility under the Interconnection Agreement, but only to the extent set forth in the Interconnection Agreement.

(2) Seller shall have the exclusive right under this Agreement to control the dispatch of the Project and the Project Output. Buyer acknowledges that Seller may curtail the Project Output as a result of Force Majeure, scheduled or forced outages, requirements of PJM, requirements of CPP in its capacity as interconnecting utility under the Interconnection Agreement, and other reasons. Seller shall have no liability to Buyer as a result of any such

curtailments of the Project Output, nor shall Buyer have any financial responsibility with respect to energy not produced due to a curtailment. Buyer shall purchase and receive Purchased Output only as and when produced and available from the Project at the Delivery Point.

(3) As Behind-the-Meter Generation, the Purchased Output shall reduce Buyer's load obligation to PJM but shall not be bid into the PJM markets. In the event that the Purchased Output is no longer deemed Behind-the-Meter Generation and Buyer elects not to terminate this Agreement and the Purchased Output is bid into the PJM markets, Seller shall have the sole and exclusive right to schedule and bid the Purchased Output into the PJM markets, although Buyer shall retain all rights to the value of the Purchased Output under the PJM Agreements as specified in Section 2.1(D) of this Agreement. In the event that the PJM Agreements require the Buyer to schedule and bid the Purchased Output into the PJM markets, Buyer shall do so as a so-called "price taker" and in a manner intended to maximize the production and output of the Project and the Purchased Output even when market prices are below the Contract Price or are negative, except that, if the applicable market price is negative during any hour in which the Project produces Purchased Output, Seller shall provide a credit to Buyer on the next monthly statement that holds Buyer financially harmless from any liability to PJM it incurs as a result of the Project having produced Purchased Output during hours in which the applicable market price was negative. The Parties acknowledge that the Contract Price is anticipated to be above PJM market prices at the time of the execution of this Agreement and at all times during the Term of this Agreement.

(F) Purchase of Project Output by Others

The Parties acknowledge that the Purchased Output shall not constitute 100% of the Project Output and that the Seller anticipates entering into power purchase agreements with other parties for the sale of the remaining portion of the Project Output not purchased by Buyer under this Agreement. Buyer acknowledges that the portion of the Purchased Output purchased by others will not be considered Behind-the-Meter Generation by PJM and that the other parties purchasing the Project Output may need to wheel the Project Output from the Delivery Point across the CPP system into the PJM transmission system. Buyer will cooperate with Seller and such other purchasers to make arrangements for such wheeling service on reasonable terms. Buyer will also, if requested by Seller, consider purchasing the remainder of the Project Output under this Agreement, exclusive or inclusive of Environmental Credits, at a mutually agreeable

Contract Price, so as to simplify the contract structure and facilitate 100% of the Project Output being purchased by a single purchaser and deemed Behind-the-Meter Generation. If Seller enters into one or more power purchase agreements with other purchasers, Buyer will consider in good faith any amendments to this Agreement (other than changes to the Contract Price) as may be necessary to reasonably accommodate such other power purchase agreements.

2.2. Purchase and Sale of Environmental Credits

(A) Subject to satisfaction of the conditions set forth in Section 3, and commencing on the Commercial Operation Date, Buyer shall purchase and obtain and Seller shall sell and convey the ownership and benefits of any and all Environmental Credits created by or associated with Purchased Output. Such purchase and sale shall be accomplished through Buyer's payment and Seller's acceptance of the Contract Price for Purchased Output as specified in Section 7.1, and Buyer shall not be required to pay any additional amounts (*i.e.*, in addition to the Contract Price) to obtain the ownership and be entitled to the benefits of the Environmental Credits.

(B) On or before the Commercial Operation Date and, as necessary, any time thereafter during the Term, Seller shall take all required actions to effectuate the conveyance and transfer to Buyer of Environmental Credits purchased by Buyer hereunder. Such actions shall include (but shall not be limited to), applying for and receiving certification for the Project from the Public Utilities Commission of Ohio as a renewable energy resource generating facility (but only to the extent that the Project is legally eligible to be registered and certified as such), transferring or endorsing to Buyer any certificate(s) or other documentation of such Environmental Credits, and taking steps to transfer such Environmental Credits (or certificate(s) or other documentation) from Seller's CPS or other account to Buyer's account in the PJM GATS.

(C) Except as stated in Section 7.1(B) with respect to a decrease in the rate to be paid by Buyer under this Agreement resulting from the receipt by Seller of the Investment Tax Credit and the Production Tax Credit, Seller shall be entitled to all Tax Benefits associated with the Project Output and the Purchased Output.

2.3. Seller's Purchase of Electricity from Buyer.

During the Term of this Agreement, Seller agrees to purchase and Buyer agrees to sell any electrical energy as may be required by Seller for the operation of Project facilities and

equipment that cannot be met using Seller's own electricity. The rate for any electricity purchased by Seller as provided herein shall be the applicable rate under Buyer's standard rate schedules for retail electric service of the same or comparable character.

ARTICLE 3
CONDITIONS PRECEDENT TO BUYER'S AND SELLER'S OBLIGATIONS

3.1. Conditions Precedent

(A) Tranche A Purchased Output

Buyer's and Seller's respective obligations regarding the purchase and sale of Tranche A Purchased Output pursuant to Section 2.1(A)(1) are subject to the fulfillment, on or before the Commercial Operation Date, of each of the following conditions (all or any of which may be waived in whole or in part by Buyer in its sole discretion):

(1) The Interconnection Agreement shall have been executed by the other Party and shall be in full force and effect and the other Party shall not be in default thereunder.

(2) Buyer shall have received from Seller a signed certification from an independent third party selected by Seller that all conditions set forth in the Interconnection Agreement that must be satisfied prior to a declaration of the Commercial Operation Date for the Project, or any portion thereof, have been satisfied.

(3) PJM shall have confirmed to Buyer, in a manner satisfactory to Buyer in its sole discretion, that Purchased Output shall be Behind-the-Meter Generation under applicable provisions of the PJM Agreements.

(4) Each Party shall have provided to the other Party a written certification that all corporate actions and approvals required for the providing Party to perform its obligations hereunder (if any) shall have been completed in accordance with such providing Party's by-laws or other applicable corporate governance documents.

(5) Each Party shall have provided to the other Party a written certification that all governmental and regulatory approvals required for the providing Party to perform its obligations hereunder (if any) shall have been obtained and are in full force and effect on the Commercial Operation Date.

(B) Tranche B Purchased Output

Buyer's and Seller's respective obligations regarding the purchase and sale of Tranche B Purchased Output are subject to the fulfillment, on or before the Commercial Operations Date, of each of the following conditions (all or any of which may be waived in whole or in part by Buyer in its sole discretion):

(1) Each of the conditions applicable to the sale of Tranche A Purchased Output, as set forth in Section 3.1(A), shall have been satisfied.

(2) Buyer shall have entered into a binding agreement with Cuyahoga County, Ohio, acting through its County Executive or other authorized agency of county government, pursuant to which Cuyahoga County will procure from Buyer such amounts of power as Buyer shall be entitled to purchase from Seller as Tranche B Purchased Output pursuant to Section 2.1(A)(2) (the "Cuyahoga County Agreement"). Any changes to or termination of the Cuyahoga County Agreement after Buyer enters into such an agreement shall not affect the satisfaction of this condition or the obligations of Buyer under this Agreement.

(3) Seller and Cuyahoga County shall have entered into a binding agreement or amendment to this Agreement providing that if Buyer fails to procure Tranche B Purchased Output under this Agreement as a result of any breach by Cuyahoga County of its obligations under the Cuyahoga County Agreement, Cuyahoga County shall be solely responsible and liable to Seller for any and all liabilities and obligations that Buyer would have incurred under this Agreement as a result of its failure to procure Tranche B Purchased Output in such circumstances, including, but not limited to, responsibility and liability for Seller's damages as calculated under Section 10.4(C) of this Agreement in the event that Seller elects to terminate this Agreement. Cuyahoga County shall not be liable to Seller for failure of the Buyer to pay for any costs or perform any obligations owed to Seller relating to the Tranche A Purchased Output or the Tranche C Purchased Output.

(C) Tranche C Purchased Output

Buyer's and Seller's respective obligations regarding the purchase and sale of Tranche C Purchased Output are subject to the fulfillment, on or before the Commercial Operations Date, of each of the following conditions (all or any of which may be waived in whole or in part by Buyer in its sole discretion):

(1) Each of the conditions applicable to the sale of Tranche A Purchased Output, as set forth in Section 3.1(A), shall have been satisfied.

(2) AMP shall have entered into binding agreements with one or more of its members that, in the aggregate, provide for the members to purchase from AMP in any hour such amounts of power as Buyer shall be entitled to procure from Seller as Tranche C Purchased Output pursuant to Section 2.1(A)(3) (the "AMP/Member Agreement(s)"). In no event shall the amount procured as Tranche C Purchased Output exceed the amount that AMP's members have agreed to purchase through the binding agreements described herein. Any changes to or termination of the AMP/Member Agreement(s) after such agreements are entered into shall not affect the satisfaction of this condition or the obligations of Buyer under this Agreement;

(3) AMP and Buyer shall have entered into a binding agreement regarding allocation of capacity and transmission credits by and between them, among other things (the "AMP/Cleveland Public Power Agreement"). Any changes to or termination of the AMP/Cleveland Public Power Agreement after such agreement is entered into shall not affect the satisfaction of this condition or the obligations of Buyer under this Agreement.

(4) Seller and AMP shall have entered into a binding agreement or amendment to this Agreement providing that if Buyer fails to procure Tranche C Purchased Output under this Agreement as a result of any breach by AMP or its members of their obligations under the AMP/Member Agreement(s) or the AMP/Cleveland Public Power Agreement, AMP shall be solely responsible and liable to Seller for any and all liabilities and obligations that Buyer may incur under this Agreement as a result of its failure to procure Tranche C Purchased Output in such circumstances, including, but not limited to, responsibility and liability for Seller's damages as calculated under Section 10.4(C) of this Agreement in the event that Seller elects to terminate this Agreement. AMP shall not be liable to Seller for failure of the Buyer to pay for any costs or perform any obligations owed to Seller relating to the Tranche A Purchased Output or the Tranche B Purchased Output.

3.2. Effect of Failure of Condition Precedent

(A) If any condition specified in Section 3.1(A) has not been satisfied on or before the Commercial Operation Date, neither Party shall have any obligation to the other Party with

regard to the purchase or sale of Tranche A Purchased Output, Tranche B Purchased Output or Tranche C Purchased Output hereunder, unless the condition is waived pursuant to Section 3.3.

(B) With regard to the conditions set forth in Section 3.1(B):

(1) Each Party shall use reasonable efforts to satisfy all of the conditions set forth in Section 3.1(B) that are to be satisfied by such Party until the earlier of (i) the Commercial Operation Date, or (ii) the date that Seller enters into arrangements with others to sell the Tranche B Purchased Output.

(2) If, before the Commercial Operation Date, Seller enters into arrangements with others to sell the Tranche B Purchased Output, neither Party shall thereafter have any obligation to the other Party with regard to the purchase or sale of Tranche B Purchased Output.

(3) If any condition specified in Section 3.1(B) has not been satisfied on or before the Commercial Operation Date, and if the unsatisfied condition is not waived pursuant to Section 3.3, then the Parties' respective obligations hereunder regarding the purchase and sale of Tranche B Purchased Output shall terminate on and as of the Commercial Operation Date, and Seller may sell and deliver the Tranche B Purchased Output to others.

(C) With regard to the conditions set forth in Section 3.1(C):

(1) Each Party shall use reasonable efforts to satisfy all of the conditions set forth in Section 3.1(C) that are to be satisfied by such Party until the earlier of (i) the Commercial Operation Date, or (ii) the date that Seller enters into arrangements with others to sell the Tranche C Purchased Output.

(2) If, before the Commercial Operation Date, Seller enters into arrangements with others to sell the Tranche C Purchased Output, neither Party shall thereafter have any obligation to the other Party with regard to the purchase or sale of Tranche C Purchased Output.

(3) If any condition specified in Section 3.1(C) has not been satisfied on or before the Commercial Operation Date, and if the unsatisfied condition is not waived pursuant to Section 3.3, then the Parties' respective obligations hereunder regarding the purchase and sale of Tranche C Purchased Output shall terminate on and as of the Commercial Operation Date, and Seller may sell and deliver the Tranche C Purchased Output to others.

3.3. Waiver of Conditions Precedent

At its election, Buyer may, but in no event shall be required to, waive any condition precedent set forth in Sections 3.1(A) and (B) that has not been satisfied on or before the Commercial Operation Date. With the express written consent of AMP, at its election, Buyer may, but in no event shall be required to, waive the conditions precedent set forth in Section 3.1(C). Any such waiver by Buyer shall be evidenced in a writing which must be signed by the Commissioner of Cleveland Public Power.

3.4 Buyer and Seller Covenants

(A) Each Party shall use reasonable efforts to satisfy all conditions precedent to the purchase and sale of Tranche A Purchased Output, Tranche B Purchased Output, and Tranche C Purchased Output that are to be satisfied by such Party.

(B) Throughout the Term, each Party shall take reasonable actions to maintain in effect any approval, consent, license, permit or agreement required for such Party to perform its obligations under this Agreement.

ARTICLE 4 CHARGES, COSTS AND EXPENSES

4.1. Seller's Responsibility

Seller shall be solely responsible for any and all costs, charges and expenses, including any taxes or fees, imposed on or associated with the delivery of Purchased Output up to and including the Delivery Point. Such costs, charges and expenses shall be conclusively deemed to be included in the Contract Price, and Seller may not recover (or seek to recover) any portion of such costs, charges or expenses through an adjustment to the Contract Price or through the imposition of any charge to Buyer in addition to the Contract Price.

4.2. Buyer's Responsibility

Except as provided in Section 3.1, Buyer shall be solely responsible for any and all costs, charges, and expenses imposed on, or associated with, the Purchased Output from and after the Delivery Point. Buyer may not recover (or seek to recover) any portion of such costs, charges or expenses through an adjustment to the Contract Price or through the imposition of any charge to

Seller, nor shall Buyer fail to pay the Contract Price for Purchased Output delivered by the Seller to the Delivery Point as a result of any such costs, charges or expenses, or any event of Force Majeure occurring from and after the Delivery Point.

ARTICLE 5 TERM AND EARLY TERMINATION

5.1. Term of Agreement

With the exception of Tranche B Purchased Output, the Term of this Agreement shall commence on the Effective Date and, subject to Sections 5.2 and 5.3, shall continue for a period of one-hundred ninety two (192) months beginning on the first day of the first month following the Commercial Operation Date. The Term of this Agreement for the sale and purchase of Tranche B Purchased Output shall commence on the Effective Date and, subject to Sections 5.2 and 5.3, shall continue for a period of one-hundred twenty (120) months beginning on the first day of the first month following the Commercial Operation Date. Buyer shall use reasonable efforts to cause Cuyahoga County to in good faith seek approval of its legislative body to extend its agreement with Buyer to allow the County's receipt of the Tranche B Purchased Output to continue for the duration of the one-hundred ninety two (192) month term referenced herein. If Cuyahoga County receives such legislative approval, the Term of this Agreement for the sale and purchase of Tranche B Purchased Output shall be extended for the duration of the one-hundred ninety-two (192) month term referenced herein. At the end of the Term, each Party's obligations hereunder shall terminate without further action by either Party, except as specified in Section 5.4 regarding a final settlement.

5.2. Extension of Term

Buyer shall have the unilateral right to extend the Term of the Tranche A and Tranche B purchases in this Agreement for up to six (6) months beyond the termination date specified in Section 5.1, on substantially the same terms and conditions as set forth herein, provided that Buyer exercises such right by giving written notice to Seller no later than six (6) months prior to the end of the Term, after which time Buyer's unilateral right to extend the Term shall be extinguished. With the express written consent of AMP, Buyer shall have the right to extend the Term of the Tranche C purchase in this Agreement for up to six (6) months beyond the termination date specified in Section 5.1, on substantially the same terms and conditions as set

forth herein, provided that Buyer exercises such right by giving written notice to Seller no later than six (6) months prior to the end of the Term, after which time Buyer's unilateral right to extend the Term shall be extinguished.

5.3. Early Termination

(A) Termination Rights of Buyer and Seller

Either Party may terminate this Agreement prior to expiration of the Term if an Event of Default by the other Party as specified in Section 10.1 occurs and is not cured within the period allowed for such a cure, if any.

(B) Additional Termination Rights of Buyer

In addition to its rights to terminate this Agreement following an Event of Default by Seller, and notwithstanding any other provision of this Agreement, Buyer may terminate this Agreement prior to the expiration of the Term if:

- (1) Seller elects to cease or materially curtail its design, procurement, construction or other development activities on the Project before the Project has achieved Commercial Operation;
- (2) A determination is made by PJM that all or any portion of the Purchased Output does not qualify as Behind-the-Meter Generation under the PJM Agreements, or if the measure of benefit available to Buyer from Purchased Output is reduced due to the pro-rating of Behind-the-Meter Generation pursuant to applicable provisions of the PJM Agreements;
- (3) The Interconnection Agreement is terminated by Buyer as a result of an event of default by Seller thereunder and a duly executed superseding interconnection agreement between the Parties is not entered into within a reasonable time thereafter; or
- (4) Seller fails to place the Project into Commercial Operation on or before December 31, 2020 other than as a result of any wrongful action by Buyer.

(C) Additional Termination Rights of Seller

In addition to its rights to terminate this Agreement following an Event of Default by Buyer, and notwithstanding any other provision of this Agreement, Seller may terminate this Agreement prior to the expiration of the Term if:

(1) Seller elects to cease or materially curtail its design, procurement, construction or other development activities on the Project before the Project has achieved Commercial Operation, or

(2) Seller otherwise fails to place the Project into Commercial Operation on or before December 31, 2020, despite reasonable efforts by Seller to complete design, procurement, construction and development activities and place the Project into Commercial Operation.

(D) Procedure for Early Termination

A Party electing to terminate this Agreement shall provide written notice to the other Party that (i) specifies the date on which the termination is to become effective, (ii) specifies the asserted justification for the Early Termination, and (iii) is delivered to the other Party no fewer than ten (10) days before the specified termination date. Upon the expiration of such notice, each Party shall be relieved of any and all of its obligations hereunder except as set forth in Section 5.4 with regard to a final settlement.

5.4. Final Settlement

Within thirty (30) days after the date on which this Agreement terminates, Seller shall cause to be prepared and transmitted to Buyer an invoice showing the amounts of Project Output and Purchased Output delivered into Buyer's system, and the payment due from Buyer for such amounts of Purchased Output, for the calendar month or portion of a calendar month between the last day of the billing period covered by the immediately preceding invoice and the date of termination. Buyer shall make payment of such final invoice in accordance with Section 7.3. In the case of a termination right not associated with an Event of Default, Seller's acceptance of such payment shall constitute a final settlement of the Parties' accounts hereunder, except as to any portion of the invoice as may be disputed by Buyer pursuant to Section 7.4 or any portion of any prior invoice that remains in dispute on the date of termination. In the case of a termination right associated with an Event of Default, Seller's acceptance of such payment shall constitute a final settlement of the Parties accounts hereunder with respect to the purchase and sale of Purchased Output on and prior to the date of termination, but the acceptance of such payment shall not affect any rights the non-defaulting party may have to pursue additional relief under applicable law pursuant to Section 10.3.

**ARTICLE 6
METERING OF PROJECT OUTPUT**

6.1. Responsibility for Metering Equipment

The Parties' respective obligations with respect to the furnishing, installation, operation, maintenance and testing of metering and telemetering equipment at the Delivery Point shall be as specified in the Interconnection Agreement, including Attachment 7 (Metering Protocols) attached thereto.

6.2. Buyer's Rights to Review Seller's Meter Data and to Install Check Meters

(A) Upon reasonable prior notice to Seller, Buyer shall have the right to review and copy Seller's electronic and paper records showing the metered quantities of Project Output delivered by Seller to the Delivery Point during any portion of the Term.

(B) At its sole expense, Buyer shall have the right to install its own metering and telemetering equipment for the purpose of measuring, recording and transmitting real-time data concerning the quantities of Project Output delivered by Seller to the Delivery Point; provided, however, that the installation and operation of Buyer's metering and telemetering equipment shall not interfere with the operation or accuracy of the metering and telemetering equipment installed by Seller pursuant to the Interconnection Agreement; and, provided further, that Seller shall have no obligations with respect to the operation, maintenance or testing of Buyer's metering or telemetering equipment.

**ARTICLE 7
BILLING AND PAYMENT**

7.1. Charges for Purchased Output

(A) Subject to Section 7.1(B), Buyer shall pay Seller for all Purchased Output delivered pursuant to this Agreement at a rate of [REDACTED] for the calendar year in which the Commercial Operations Date occurs and then for each calendar year thereafter at a rate that is [REDACTED]

(B) Notwithstanding Section 7.1(A), if Seller receives a grant for the Project from the United States Department of Energy, then Seller and Buyer shall negotiate a decrease in the rate to be paid by Buyer for the Purchased Output that takes into account the Return Cap and the

receipt by Seller of such grant and that implements the principle that the Buyer should be the primary beneficiary of any resulting reduction in Seller's costs. In the event that Seller receives the benefit of the federal Investment Tax Credit (ITC) or Production Tax Credit (PTC) for the Project, then Seller and Buyer shall negotiate a decrease in the rate to be paid by Buyer for Purchased Output that takes into account the Return Cap and the receipt by Seller of such federal ITC and PTC and that implements the principle that the Buyer should be the primary beneficiary of any resulting reduction in Seller's costs.

(C) In the event that the Internal Rate of Return for equity investors (not tax equity investors) in the Project exceeds the Return Cap, then Seller shall refund to Buyer a pro rata portion of such returns above the Return Cap determined based on the ratio of the portion of the Project Output purchased by Buyer under this Agreement (the Purchased Output) to the total Project Output in the relevant period. When the Project achieves Commercial Operations, a schedule of payments to the equity investors will be developed that yields an Internal Rate of Return (IRR) over twelve (12) years equal to the Return Cap (Planned IRR Schedule). The method for calculation of the IRR will be the generally accepted method in the financial industry. At the end of each year, the Revenue Available for Distribution will be computed by subtracting all operating expenses, debt service, and returns to tax equity investors (if any) during the year from total revenue earned by the Project during the year. The scheduled payment to the equity investors will be made from the Revenue Available for Distribution. If the Revenue Available for Distribution is greater than the scheduled payment for the given period, then the difference will be distributed to Buyer based on the ratio of the portion of the Project Output purchased by Buyer (Rebate). If the Revenue Available for Distribution is less than the scheduled payment, causing a shortfall in the Planned IRR Schedule, then no Rebate will be distributed to Buyer for the given year. Further, the Rebate for future periods will not be provided until the Planned IRR Schedule shortfall is recovered. Such shortfalls (if any) will be carried forward from year to year, except that Buyer, Cuyahoga County and AMP shall have no financial obligation to remedy any return shortfall that remains unsatisfied at the end of the Term. Once the Internal Rate of Return (IRR) equals the Return Cap, the Planned IRR Schedule will be deemed satisfied and all Revenue Available for Distribution after that period will be distributed to Buyer based on the ratio of the portion of the Project Output purchased by Buyer. It is anticipated that the IRR equal to the Return Cap will be achieved between twelve and and fifteen (15) years after COD.

(D) For billing purposes, the amounts of Purchased Output delivered to Buyer shall be determined from revenue quality metering equipment located at or in electrical proximity to the Delivery Point as specified in the Interconnection Agreement; provided, however, that if the presence of components between the meter and the Delivery Point are of a nature that may result in electrical losses, the meter readings shall be compensated by the application of a loss factor appropriate for such components in order to establish for billing purposes the amounts of Project Output delivered into Buyer's system at the Delivery Point.

7.2. Billing

(A) Unless the Parties otherwise agree, the billing period for Buyer's purchases of Purchased Output shall be the calendar month. On or before the fifteenth (15th) day of each month, Seller shall cause to be prepared and transmitted to Buyer an invoice showing the amounts of Project Output and Purchased Output delivered into Buyer's system during the immediately preceding calendar month. If the fifteenth (15th) day of a month is not a Business Day, Seller will render the invoice on the next succeeding Business Day. Each invoice shall be in such detail as may be required by Buyer.

(B) Buyer shall separately invoice Seller for any electricity that Seller purchases from Buyer as set forth in Section 2.2. Payment of any such invoice shall be governed by Buyer's applicable retail service tariff.

7.3. Payment

Not later than the tenth (10th) Business Day after Buyer has received Seller's invoice, Buyer shall remit payment of all amounts due to Seller that are not in dispute. Buyer shall make payment by such means as are customary for Buyer in substantially similar arrangements.

7.4. Meter Errors Affecting Billing.

If at any time during the Term the metering equipment used by Seller to determine the amounts of Project Output delivered into Buyer's system is found not to be recording delivered quantities with the Required Metering Accuracy, the following provisions shall apply:

(A) Buyer and Seller shall cooperate in good faith to determine (i) the time period during which the metering equipment in place failed to operate with the Required Metering Accuracy, and (ii) the corrected amounts of Purchased Output for which Buyer shall be charged during that period. Buyer or Seller shall have two years, or such other period as is consistent

with the PJM Operating Agreement, from the date of the error to request a billing adjustment for a metering error. The corrected amounts of Purchased Output to be paid for by Buyer shall be determined from: (i) metering equipment installed by Buyer, if any, if Buyer's metering equipment has been tested and shown to be recording delivered quantities with the Required Metering Accuracy; (ii) other metering equipment, if any, in place at or near the Delivery Point, if such other metering equipment has been tested and shown to be recording delivered quantities with the Required Metering Accuracy; or (iii) the Parties' jointly developed best estimate of actual deliveries taking into account the Installed Capacity of the Project, wind conditions during the period(s) affected by the metering error, the amounts of Project Output generated during similar wind conditions, and other information the Parties deem relevant.

(B) Based upon the determination of corrected amounts of Purchased Output made pursuant to Section 7.4(A), Seller shall calculate (i) corrected charges to Buyer for the time period affected by the metering error, and (ii) the amount of any refund to or additional payment by Buyer that is necessary to reconcile Buyer's past payments with the corrected charges. If the reconciliation indicates that a refund is due to Buyer, the refund shall be made through a credit against the charges for Purchased Output reflected on Seller's next monthly invoice. If the reconciliation indicates that an additional payment is due from Buyer, the additional payment amount shall be added to the charges for Purchased Output shown on the next monthly invoice. Refunds or additional payments due as a result of any such correction of charges shall not bear interest.

7.5. Qualified Billing Disputes

If the Party from whom payment is due disputes in good faith the amount of any invoice on the basis of a Qualified Billing Dispute, that Party shall be entitled to withhold payment of the amount of the Qualified Billing Dispute, and such withholding of the amount of the Qualified Billing Dispute shall not be an Event of Default hereunder provided that the Party from whom payment is due (i) provides to the other Party, within ten (10) days after the receipt of the invoice, a written explanation of the basis for the Qualified Billing Dispute, and (ii) makes payment of any amount in the invoice not subject to a Qualified Billing Dispute no later than the due date. If the amount withheld based on a Qualified Billing Dispute is later determined to have been properly due and payable, the Party that withheld payment shall pay that amount within ten (10) days after the date on which such determination was made, including interest at the Late Payment Rate from the date on which payment of the amount of the Qualified Billing Dispute was originally due through the date on which payment of that amount is made.

7.6. Late Payment

Other than a payment withheld pursuant to notification of a Qualified Billing Dispute and which is later determined to have been properly withheld, any payment that is not made by the date required by this Agreement shall bear interest, from the date on which such payment was required to have been made through and including the date such payment is actually received, at an annual rate equal to the Prime Rate then in effect plus two percent (2%), but in no event shall such interest rate exceed the maximum interest rate permitted by applicable law ("Late Payment Rate"). The Prime Rate means the interest published in the Wall Street Journal as the Prime Rate from time to time as of the date that the obligation to pay interest arises. If, as a result of a dispute settled in favor of Buyer, a refund is owed to Buyer, then the amount of the overpayment shall bear interest from the date on which such payment was made by Buyer through and including the date that the overpayment is refunded by Seller at an annual rate equal to the Late Payment Rate.

7.7. Records

The Parties shall keep and maintain such records as may be required for either Party to verify the accuracy of any invoice, charge, or computation made pursuant to or otherwise affecting this Agreement. The originals of all such records shall be retained by the Parties for a

minimum of three years from the date of the receipt of the last affected invoice, and copies shall be delivered to the other Party upon request.

ARTICLE 8 LIABILITY AND ALLOCATION OF RISK

8.1. Seller's Responsibilities

Seller assumes and shall bear sole responsibility for the production, transmission and delivery of Purchased Output on Seller's side of the Delivery Point. In no event shall Buyer be liable to Seller for damage or injury to any person or property arising, accruing or resulting from, in any manner, the production, transmission and delivery of Purchased Output on Seller's side of the Delivery Point.

8.2. Buyer's Responsibilities

Buyer assumes and shall bear sole responsibility for the receipt, distribution and use of Purchased Output on Buyer's side of the Delivery Point. In no event shall Seller be liable to Buyer for damage or injury to any person or property arising, accruing or resulting from, in any manner, the receipt, distribution or use of Purchased Output on Buyer's side of the Delivery Point. Title to and risk of loss of the Purchased Output shall pass from Seller to Buyer at the Delivery Point.

8.3. Protective Equipment

In order to prevent injury to persons or damage to property, to ensure the safety of each Party's facilities and to prevent interruptions to services under this Agreement, each Party shall ensure that all of its facilities required for the purposes of this Agreement are protected by such devices and apparatus as may be required of such Party by Buyer's standard Transmission Facilities Interconnection Requirements, as those requirements may be amended from time to time, provided that such amended terms and conditions are made generally applicable to all other entities that are similarly interconnected to Buyer's system. Notwithstanding the foregoing, neither Party shall be liable to the other Party for any personal injury or damage to property which would have been prevented but for the failure of that other Party to install, operate and maintain its Protective Equipment in accordance with Buyer's Transmission Facilities Interconnection Requirements.

**ARTICLE 9
FORCE MAJEURE**

9.1. Effect of Force Majeure

(A) Subject to satisfaction of the requirements specified in Section 9.1(B), the obligations of either Party rendered unable to discharge its performance commitments set forth in this Agreement by reason of Force Majeure (other than the commitment to make payments when due) shall be suspended, but only to the extent of those commitments affected by the Force Majeure event and only during the continuation of the Force Majeure condition but no longer.

(B) A Party invoking Force Majeure pursuant to Section 9.1(A) shall be required to take the following actions:

(1) Such Party shall promptly notify the other Party of the occurrence of the Force Majeure event. Such notice shall specifically state the full particulars of the Force Majeure event, including the time and date when the Force Majeure event occurred and the expected duration of the event (if known). If such notice is given orally, it shall be confirmed in writing as soon as practicable;

(2) Such Party shall take such actions as may be necessary under the circumstances to remove or remedy the Force Majeure condition and recommence the performance of its obligations under this Agreement as soon as practicable, and shall keep the other Party informed of the actions it has taken to remove or remedy the Force Majeure condition and recommence performance; provided, however, that notwithstanding the foregoing, nothing contained herein shall be construed to require a Party to settle any strike, lockout, work stoppage or other industrial disturbance or dispute in which it may be involved or to take an appeal from any judicial, regulatory or administrative order or decision; and

(3) Such Party shall notify the other Party promptly upon the cessation, removal or remediation of the Force Majeure condition.

9.2. Restoration of Service

Any curtailment, reduction or disconnection due to Force Majeure shall continue only for so long as reasonably necessary. The Parties will cooperate with each other to restore the Project and the Buyer's electric distribution system, respectively, to their normal operating states as soon as reasonably practicable following the cessation, removal or remediation of the event that led to the temporary disconnection.

**ARTICLE 10
DEFAULT AND TERMINATION**

10.1. Events of Default

The following occurrences shall constitute Events of Default hereunder:

(A) Failure of a Party to perform any material covenant or obligation set forth in this Agreement (other than the obligation to make a payment when due) if such failure is not cured within thirty (30) days after notice of the failure, which notice sets forth in reasonable detail the nature of the failure; provided however, if the failure is not reasonably capable of being cured within the thirty (30) day cure period specified above, the Party will have such additional time as is reasonably necessary to cure the failure (but in no event longer than ninety (90) days), so long as the Party promptly commences and diligently pursues the cure.

(B) Failure of a Party to make when due any payment required under this Agreement and such failure is not cured within ten (10) business days after receipt of notice from the other Party of such failure. This provision does not apply to any disputed payment that a Party elects to withhold pursuant to Section 7.5.

(C) The making by a Party of an assignment for the benefit of its creditors; the filing of a petition or the commencement (or acquiescence in the commencement) or authorization of a proceeding or cause of action under any bankruptcy or similar law for the protection of creditors; or the filing of such a petition against such Party if the petition is not withdrawn or dismissed for a period of sixty (60) days after its filing.

10.2. No Implied Rights to Cure

A defaulting Party shall be afforded an opportunity to cure its default only if a period for cure is expressly set forth in the numbered paragraph within Section 10.1(A) that specifies the Event of Default applicable in the circumstances. If no cure period is specified in the applicable paragraph of subsection 10.1(A), no opportunity for curing the default shall be afforded to the defaulting Party, and the non-defaulting Party shall be permitted to exercise such rights and pursue such remedies as are available to it upon the occurrence of the applicable Event of Default without delay.

10.3. Remedies in the Event of Default

(A) Termination

Following the occurrence and during the continuation of an Event of Default, the non-defaulting Party may terminate this Agreement as provided in Section 5.2; provided that, following such termination, the Parties shall, subject to Section 10.3(B), comply with the provisions of Section 5.4 regarding final settlement. Notwithstanding anything to the contrary in this Agreement, if the Event of Default relates solely to the nonpayment by Buyer for Tranche B Purchased Output and/or Tranche C Purchased Output as a result of a default by Cuyahoga County under the Cuyahoga County Agreement or a default by AMP or the AMP members under the AMP/Member Agreement(s) or the AMP/Cleveland Public Power Agreement, the right of termination by Seller shall relate only to the purchase and sale obligation of the Tranche B Purchased Output and/or Tranche C Purchased Output, as applicable.

(B) Other Remedies

In addition to the right of termination and the right to receive a final settlement of amounts due with respect to the purchase and sale of Purchased Output prior to the date of termination and without regard to whether the non-defaulting Party exercises its right to terminate this Agreement and receive a final settlement with respect to Purchased Output purchased and sold prior to the date of termination, all remedies at law and in equity shall continue to be available to the non-defaulting Party, including, if available, the right to receive damages associated with the failure of Purchased Output to be purchased and sold for the remainder of the Term of the Agreement.

10.4. Limitation on Damages

(A) Notwithstanding anything in this Agreement to the contrary, neither Party shall be liable to the other Party for consequential, incidental, punitive, exemplary or indirect damages, such as lost profits or other business interruption damages, by statute, in tort or contract, under any indemnity provision or otherwise.

(B) It is the intent of the Parties that the limitations on remedies and the measure of damages herein imposed be effective regardless of the cause or causes related thereto, including the negligence of a Party, whether such negligence be solely that of the Party, or active or passive.

(C) Subject to the terms and limitations of Sections 2 and 3 of this Agreement, the Parties acknowledge and agree that if this Agreement is terminated due to an Event of Default by either Party, the actual and/or direct damages incurred by the non-defaulting Party shall equal (i) in the case of a termination by Seller due to an Event of Default by Buyer, the net present value of the difference, if positive, between (x) the amount that Buyer would have been required to pay to Seller pursuant to this Agreement for delivery of all Purchased Output that would have been delivered by Seller hereunder during the remainder of the Term (absent termination of this Agreement and based on an assumption as to the amount thereof calculated using reasonable projections) and (y) the net amount, if any, payable to Seller by a third party pursuant to any replacement power purchase agreement that Seller using commercially reasonable efforts under the circumstances enters into for the replacement of such Purchased Output, plus, as and to the extent Seller is unable to remarket all of such Purchased Output, then the net amount described in clause (y) shall be \$0, (ii) in the case of a termination by Buyer due to an Event of Default by Seller, the net present value of the difference, if positive, between (x) the amount that Buyer is obligated to pay to a third party pursuant to any replacement power purchase agreement that buyer enters into for Purchased Output that would have been delivered by Seller hereunder during the remainder of the Term (absent termination of this Agreement and based on an assumption as to the amount thereof calculated using reasonable projections) and (y) the amount that Buyer would have been required to pay to Seller pursuant to this Agreement for such Purchased Output. Notwithstanding anything to the contrary in this Section, if the Event of Default relates solely to nonpayment for Tranche B Purchased Output and/or Tranche C Purchased Output as a result of a default by Cuyahoga County under the Cuyahoga County Agreement or a default by AMP or the AMP members under the AMP/Member Agreement(s) or the AMP/Cleveland Public Power Agreement, the calculation of damages stated in this Section 10.4 shall be limited to the Tranche B Purchased Output and/or Tranche C Purchased Output, as applicable.

10.5. Responsibility for Compliance.

Each Party shall be responsible for its own compliance with all applicable laws and regulations, including those relating to the environment.

ARTICLE 11 TAXES

11.1. General

Each Party shall use reasonable efforts to implement the provisions of and to administer this Agreement in accordance with their intent to minimize taxes so long as no Party is materially adversely affected by such efforts. Each Party, upon written request of the other, shall provide a certificate of exemption or other reasonably satisfactory evidence of exemption if either Party is exempt from taxes, and shall use reasonable efforts to obtain and cooperate with obtaining any exemption from or reduction of tax. Either Party with knowledge of a tax on the purchase or sale of Purchased Output under this Agreement shall notify the other Party, in advance, of the applicability of such tax and shall also notify the other Party of the application of a new tax to the purchase, sale, delivery, or receipt of power hereunder.

11.2. Applicable Taxes.

Seller shall be responsible for all applicable taxes in supplying Purchased Output to the Delivery Point. Unless otherwise specified in this Agreement or applicable amendments hereto, Seller shall have no responsibility for taxes applicable to Purchased Output beyond the Delivery Point.

ARTICLE 12 SUCCESSORS AND ASSIGNS

12.1. Assignment

This Agreement may be assigned by either Party only as permitted by and in accordance with the provisions of this Section 12.

12.2. Assignment by Seller

Subject to Seller's right described below to assign for collateral security purposes without the consent of Buyer, Seller may not assign this Agreement without Buyer's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. If Seller proposes at any time to assign this Agreement, it shall furnish Buyer at least twenty (20) Business Days prior notice in advance of the proposed effective date for the assignment, and shall, during that period, respond promptly to any request by Buyer for information available to Seller regarding the proposed assignee. Notwithstanding the foregoing, Seller shall have the

right to assign this Agreement, without the consent of Buyer, solely for collateral security purposes to aid in providing financing for the Project, provided that Seller shall promptly notify Buyer of any such assignment. In the event of a transfer or assignment of this Agreement by Seller as security to a financial institution or other secured lender of Seller or the Project, Buyer shall, at the request of Seller, provide such a financing party with the documentation that is customary for such assignments.

12.3. Assignment by Buyer

Subject to the prior written consent of AMP and Seller, which shall not be unreasonably withheld, conditioned or delayed, Buyer may assign this Agreement to any entity that has the legal authority, financial and operational ability to satisfy Buyer's obligations under this Agreement. If Buyer proposes at any time to assign this Agreement, it shall furnish Seller at least twenty (20) Business Days prior notice in advance of the proposed effective date for the assignment, and shall, during that period, respond promptly to any request by Seller for information available to Buyer regarding the proposed assignee.

12.4. Effect of Assignment

(A) Subject to Sections 12.2 and 12.3, this Agreement shall be binding upon and shall inure to the benefit of the successors and permitted assigns or transferees of the Parties; provided, however, that an assignment of this Agreement shall not relieve the assigning Party of its obligations hereunder, nor shall either Party's obligations be enlarged, in whole or in part, by reason of such an assignment, unless the assignee of any Party, in an assignment and assumption agreement in form and substance acceptable to the non-assigning Party, agrees to assume all obligations of the assigning Party under this Agreement from and after the date of assignment and otherwise agrees to be responsible for satisfying the same financial, credit, and insurance obligations as the assigning Party.

(B) Any assignment or transfer of a Party's rights or obligations under this Agreement that requires the consent of the other Party but which is made without the required consent shall be null and void and shall have no effect on the obligations that the assigning or transferring Party has to the non-consenting Party under this Agreement.

**ARTICLE 13
COMMUNITY DEVELOPMENT**

(A) Seller will use commercially reasonable efforts to use Cleveland and Greater Cleveland firms and to employ underemployed and/or disadvantaged people for Project Icebreaker (through both its efforts and the participation of subcontractors) or agree to a Community Benefits Agreement for Project Icebreaker that includes such efforts.

(B) Seller will use commercially reasonable efforts to work with LEEDCo to stimulate economic development throughout Cleveland and Greater Cleveland. Project Icebreaker will create new opportunities in many sectors of the local economy including: (i) large scale metal fabricating of the turbine foundations; (ii) ground and rail logistics to transport the necessary components, (iii) materials, and supplies; vessels and barges to handle the marine logistics and construction requirements as well as access for ongoing maintenance; (iv) heavy lift cranes and other construction equipment at the port and on the water; (v) legal services for construction & risk management and environmental & permitting; (vi) electrical engineering and high voltage construction; (vii) environmental monitoring professional services.

(C) Seller will work with local and regional firms that are eager to compete for new business opportunities in the Offshore Wind industry by:

(1) educating these firms about the detailed requirements of this new industry and specifically Project Icebreaker,

(2) soliciting their input for the engineers that are designing the project and specifying the requirements, and

(3) facilitating active communications between the project design/construction engineers and local firms.

Seller will pursue these activities with the goal of helping local and regional firms enhance competitiveness in the market in order to win the business for Project Icebreaker over foreign and other domestic competitors.

(D) Seller will help local and regional turbine component supply chain companies gain access to the supply chain channels within the turbine manufacturer selected for Project Icebreaker and future projects developed by the Seller.

(E) Seller will help local and regional foundation fabricators gain access to the east coast opportunities by connecting them to the east coast project developers.

(F) Seller intends to utilize the Port of Cleveland to stage components, materials, and supplies necessary for Project Icebreaker and as a base for marine construction operations.

ARTICLE 14 MISCELLANEOUS

14.1. No Transmission or Interconnection Rights Conferred

Nothing in this Agreement is intended to confer, nor shall it be construed as conferring, any right for Seller or any other party to interconnect with Buyer's system or to transmit electrical energy over Buyer's transmission or distribution facilities. Any such rights shall be conferred only by one or more separate agreements between the Parties, through a tariff or ordinance duly adopted by Buyer, or pursuant to one or more other sources of authority binding on Seller.

14.2. Survivorship

The termination of this Agreement shall not discharge any Party from any obligation it owes to the other Party under this Agreement by reason of any transaction, loss, cost, damage, expense or liability which shall occur or arise (or the circumstances, events or bases of which shall occur or arise) prior to such termination. It is the intent of the Parties hereby that any such obligation owed (whether the same shall be known or unknown at the termination of this Agreement or whether the circumstances, events or bases of the same shall be known or unknown at the termination of this Agreement) will survive the termination of this Agreement.

14.3. Standard of Performance

The Parties shall discharge their respective obligations under this Agreement in accordance with Good Utility Practice.

14.4. Waivers

A failure at any time by a Party to enforce its rights with respect to a failure of performance by the other Party (including but not limited to a default by the other Party) shall not be deemed to constitute a waiver or relinquishment of the Party's rights with respect to any other failure of performance or any subsequent occurrence of the same failure of performance.

14.5. Cooperation

The Parties shall cooperate and provide reasonable assistance to one another as may be needed to procure and maintain all necessary approvals and consents for the development, financing, construction and operation of the Project.

14.6. Computation of Time

In computing any period of time prescribed or allowed by this Agreement, the day of the act, event, or default from which the designated period of time begins to run shall be excluded but the last day of such period shall be included, unless it is a Saturday, Sunday, or legal holiday, in which event the period shall run until the end of the next Business Day which is not a Saturday, Sunday, or legal holiday.

14.7. Section Headings Not To Affect Meaning

The descriptive headings of the Sections and paragraphs of this Agreement have been inserted for convenience only and shall not modify or restrict any of the terms or provisions thereof.

14.8. Severability

If any provision of this Agreement (or the application thereof) is held invalid or unenforceable as to any person or circumstance by a court having jurisdiction, the other provisions hereof (and their application) shall remain in full force and effect unless a court holds that such provision(s) are not separable from provision(s) found to be invalid or unenforceable.

14.9. Amendment

This Agreement may be amended only through a written instrument duly executed by the authorized representatives of the Parties.

14.10. Notices

(A) Notices Relating to Provisions of this Agreement

Any formal notice, demand or request provided for in this Agreement shall be in writing and shall be deemed properly served, given or made if delivered in person, by either registered or certified mail, postage prepaid, to the following persons:

Seller:	David C. Brunt
	Authorized Signatory for Fred. Olsen Renewables USA, LLC
	c/o Bricker & Eckler, LLP

1001 Lakeside Avenue East, Suite 1350
Cleveland, OH 44114

With a copy to: Lake Erie Energy Development Corporation
Lorry Wagner, Ph.D., President
1938 Euclid Avenue, Suite 200
Cleveland, Ohio 44115
216-965-0629 (fax)

Buyer: City of Cleveland
Attention: Director of Public Utilities
1201 Lakeside Avenue
Cleveland, Ohio 44114
216-664-3454 (fax)

With copies to the following:

Commissioner of Cleveland Public
Power
1301 Lakeside Avenue
Cleveland, Ohio 44114

Director of Law
City of Cleveland Law Department
Room 106
601 Lakeside Avenue
Cleveland, Ohio 44114

(B) Change in Notice Recipient

Either Party may, from time to time, change the officer designated to receive notices or the address thereof by giving written notice to the other Party.

14.11. Complete Agreement

This Agreement (including any subsequent amendments), together with the Interconnection Agreement, shall constitute the full and complete agreement of the Parties with respect to the subject matter hereof, and all prior or contemporaneous representations, statements, negotiations, understandings and inducements are fully merged and incorporated in this Agreement.

14.12. Forward Contract

The Parties acknowledge and agree that this Agreement constitutes a "forward contract" within the meaning of the United States Bankruptcy Code.

14.13. Governing Law; Venue

This Agreement shall be governed by and construed in accordance with the laws of the State of Ohio as if fully performed within the State of Ohio. Except for any matter subject to the exclusive or primary jurisdiction of the Federal Energy Regulatory Commission or the Public Utilities Commission of Ohio, any action for enforcement, including for damages, or interpretation of this Agreement shall be brought in the first instance in the Court of Common Pleas of Cuyahoga County, Ohio, or the United States District Court for the Northern District of Ohio, if subject matter jurisdiction is available, which shall be deemed to be the only courts with venue in the matter.

14.14. Counterparts

This Agreement may be executed and delivered in counterparts, each of which shall for all purposes be treated as the original hereof and all of which shall constitute a single agreement.

14.15. Costs

Each Party shall bear and be responsible for its own costs (including, without limitation, legal costs) in connection with the negotiation, preparation, execution, completion and carrying into effect of this Agreement, except as otherwise expressly provided herein.

14.16 Standard of Review

Absent agreement of the Parties to the proposed change, the standard of review for changes to any rate, charge, classification, term or condition of this Agreement, whether proposed by a Party, a non-party or the Federal Energy Regulatory Commission sua sponte, shall be the "public interest" standard of review set forth in United Gas Pipeline Co. v. Mobile Gas Service Corp., 350 U.S. 332 (1956) and Federal Power Commission v. Sierra Pacific Power Co., 350 U.S. 348 (1956) and clarified by Morgan Stanley Capital Group, Inc. v. Public Util. Dist. No. 1 of Snohomish, 554 U.S. 527 (2008), and NRG Power Marketing LLC v. Maine Public Utilities Commission, 558 U.S. 165 (2010).

14.17 Representations and Warranties

On the Effective Date, each Party represents and warrants to the other Party that:

(A) it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation;

(B) subject to the fulfillment of the conditions precedent set forth in Section 3.1, it has all corporate and governmental approvals necessary for it to legally perform its obligations under this Agreement;

(C) the execution, delivery and performance of this Agreement are within its power, and do not violate any of the terms and conditions in its governing documents, any contracts to which it is a party or any law, rule, regulation, order or the like applicable to it;

(D) this Agreement constitutes a legally valid and binding obligation, enforceable against it in accordance with its terms, subject to any equitable defenses;

(E) it is not bankrupt, however evidenced, and there are no proceedings pending or being contemplated by it or, to its knowledge, threatened against it which would result it being bankrupt or becoming bankrupt;

(F) there is not pending or, to its knowledge, threatened against it any legal proceedings that could materially adversely affect its ability to perform its obligations under this Agreement;

(G) no material breach of this Agreement with respect to it has occurred and is continuing and no such event or circumstance would occur as a result of it entering into or performing its obligations under this Agreement; and

(H) it has entered into this Agreement in connection with the conduct of its business, and it has the capacity or ability to make or take delivery of the Purchased Output.

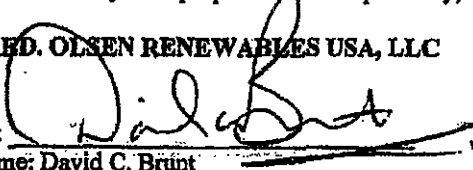
14.18 Dispute Resolution

Before initiating legal action, a Party aggrieved by a dispute hereunder shall provide written notice to the other Party setting forth the nature of the dispute, the amount involved, if any, and the remedies sought. The Parties shall use good faith and reasonable commercial efforts to informally resolve the dispute. Such efforts shall last for a period of at least thirty (30) days from the date that the notice of the dispute is first delivered from one Party to the other Party.

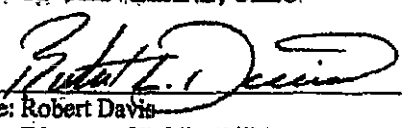
Any amounts determined to be owed as a result of such informal dispute resolution pursuant to this Section 14.18 shall be paid within three (3) Business Days of such resolution.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their proper officers respectively, being hereunto duly authorized.

FRED. OLSEN RENEWABLES USA, LLC

By: 
Name: David C. Brunt
Title: Authorized signatory for Fred. Olsen
Renewables USA, LLC

CITY OF CLEVELAND, OHIO

By: 
Name: Robert Davis
Title: Director of Public Utilities

The legal form and correctness of this Agreement is approved:

BARBARA A. LANGHENRY
Director of Law

By: 
Assistant Director of Law

BLACK SWAMP BIRD OBSERVATORY

13551 W. State Route 2 ♦ Oak Harbor, Ohio 43449 ♦ 419-898-4070 ♦ www.bsbo.org

TEAMING RESEARCH WITH EDUCATION TO PROMOTE BIRD CONSERVATION



September 14, 2018

Ohio Power Siting Board
Docketing Division
108 Broad Street
Columbus, OH 43215-3797
By email: contactOPSB@puc.state.oh.us

Re: Case# 16-1871-EL-BGN

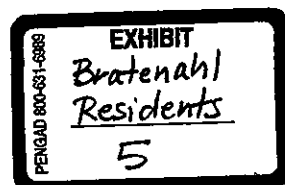
Dear Ohio Power Siting Board:

This letter is in response to the "Joint Stipulation And Recommendation" filed by Icebreaker Windpower, Inc., et. al., on Sept. 4, 2018, which are recommendations to modify the Conditions put forth in the OPSB "Staff Report of Investigation" dated July 3, 2018.

We wish to make our understanding clear from the outset that the Avian and Bat MOU as a whole is the primary condition for beginning construction, and that the Conditions set forth in the Staff Report are supplementary to, not replacing or superseding, that MOU. Therefore, as stated in the MOU on p. 3, Sect. C., "Prior to the date of construction...post-construction protocols in the (Avian and Bat Monitoring) plan will be finalized and approved through written communication with the ODNR." While this certainly cannot be ignored it has not been addressed directly in the Stipulations document. There is at this point no approved Avian and Bat Monitoring Plan for Post Construction.

Further, we take issue with some of the many modifications recommended in the Stipulations; since we see them as being contrary to good ecological science or contrary to the intent of the Staff Report for the reasons detailed as follows:

Condition 18. The Applicant has changed the word "acceptance" found in the Staff Report to read "confirms compliance." This sidesteps the issue of the effectiveness of the avian and bat mitigation plan being required by the condition. Compliance merely means that a mitigation plan has been submitted, but acceptance by ODNR and Staff means that the plan itself is acceptable because it is expected to be effective. By changing the wording of Condition 18 it has been made meaningless.



Condition 19. There are a number of shortcomings in this Condition which are worthy of discussion. First, the Condition calls for a "collision" monitoring plan. This has been discussed elsewhere as a "thunk" detection technology. This technology only detects actual collisions, but does not address the fact that many, if not most bat fatalities do not involve actual collision with the turbine, but are rather a result of barotrauma resulting from pressure differentials around the turning blades. It has been reported that as much as 90% of bat fatalities from wind turbines may be due to barotrauma that would not be detected by "collision" technology. (Baerwald, Erin F., et.al., "Current Biology," Vol. 18, Issue 16, pp. R695-R696.) Second, the wording in this Condition has been changed from (paraphrasing) "feather until monitoring is proven" to "monitor until monitoring is proven effective, and feather if indicated." This is not a small change in the logic of a scientific plan, and the implications are that mortality will be allowed until it can be shown that mortality can be proven. The Staff report took the position that mortality should be avoided (by feathering) until it can be proven that mortality can be reliably detected. This would appear to be the more logical way to proceed, given that developing the detection technology itself is one of the primary obstacles/goals of this project, and has been an open-ended issue from the beginning of this project. In his comments to the OPSB dated 06 Sep 2018 Mr. Karpinski, of LEEDCo, mentions in this regard an "accepted and proven" technology, but the fact of the matter is that such technology simply does not yet exist. Third, it should be recognized that birds are vulnerable to stationary objects like towers and feathered turbines as well as to turning blades. So, while feathering may mitigate bat mortality, it may not have a similar effect upon bird mortality. Until a proven detection method is employed the effect of feathering on birds and bats will remain unknown.

Condition 22.(a). It should be noted here that a large number of migrant passerine species have been shown in our research to weigh less than 10 grams, and their detection would not be required by the Condition as stated since it only requires a ≥ 10 gram detection limit. This is a major shortcoming in this Condition. We recommend a detection limit of >4 gram instead so that the presence of migrant passerines is not missed due to an ineffective detection limit.

Condition 22.(c). The wording change concerning survey time producing viable data from "80 percent...including...high seas events" as found in the Staff Report to "80 percent...unless precluded by...high seas events" clearly corrupts the intent of this condition. It is important to note that the very weather conditions which might prevent radar operation on the barge due to high seas are the same conditions which would promote migration flight at low altitudes due to low cloud cover. The change to this Condition would then preclude important migration events from radar monitoring, and would then underestimate migration volumes. This wording change may be prompted by the Applicant's having chosen the less expensive radar mounting option of a floating barge, rather than a fixed platform; but that is no good reason to allow the collection of required data to suffer. If the less expensive choice cannot fulfill the purpose of collecting adequate data then it is simply not a viable choice for doing so.

Condition 22.(g). The Condition was modified to remove the phrase "to determine behavioral changes" from the Staff Report and replace it with stipulations that negate the purpose of collecting data. Behavioral changes cannot be detected over the span of only one year – one year must be compared to another to determine if behavioral changes are being exhibited, meaning that a minimum of two years of data collection are required to fulfill the purpose of adequate comparison. In fact, what is missing from even the Staff Report's version of this Condition is the option for ODNR to require additional years of data collection beyond the minimum of two if the data suggest that more information is needed to address the issue of behavioral changes resulting from the presence of turbines. That being said, we

recommend that the Condition require a minimum of three consecutive years of monitoring in order to collect sufficient data for statistical analysis of migration at the project site.

Condition 23. The Applicant has changed the word "acceptance" found in the Staff Report to read "confirms compliance." This sidesteps the issue of the acceptability, i.e., the scientific veracity of the radar monitoring plan being required by the condition. Compliance merely means that a monitoring plan has been implemented, but acceptance by ODNR and Staff means that the monitoring plan is expected to actually fulfill its purpose. By changing the wording of Condition 23 it has been made meaningless.

Condition 24. There are a number of issues with The Stipulation in this Condition. First, the Stipulation inserted the parenthetical phrase beginning "i.e., biologically significant impact on the population level..." to modify the meaning of "significant adverse impact" found in the Staff Report. This modification is in direct disagreement with the intent of both the Migratory Bird Treaty Act and the Endangered Species Act which, by definition, does not differentiate between population effects and individual effects (e.g., take). Second, the Stipulation changes wording from the Staff Report to be "Applicant will develop and submit a mitigation..." rather than the original "adaptive management shall be prescribed to the Applicant..." if the project is producing significant adverse effect upon species covered in the MOUs. It would seem imprudent to leave it up to the Applicant to singularly devise a revised monitoring plan since they have an inherent conflict of interest. Third, nowhere in this Condition does it address the issue of continuing or halting operations when the project has been seen to result in significant adverse effects to species. This seems to be a major omission and we recommend it be addressed.

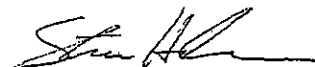
We at BSBO appreciate the opportunity to publicly comment on the science involved in this project since it is intended to be sited in a Globally Important Bird Area known world wide as a major avian migratory crossover route used by millions of birds every year. The potential for damage to the avian species present is enormous and should be given a much higher priority by the Applicant. Clearly this is a pilot project in this regard since the ecological science of evaluating and monitoring avian risk in an offshore wind environment is almost nonexistent, and so deserves to be approached cautiously.

Sincerely,



Don Bauman

Chairman, Conservation Committee
Member, Board of Directors
Black Swamp Bird Observatory



Steve Holmer

Vice President of Policy
American Bird Conservancy



United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458



IN REPLY REFER TO:

FWS/AES

MAR 12 2018

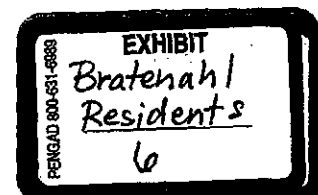
Gary Obermiller
Assistant Director
Ohio Department of Natural Resources
2045 Morse Road
Columbus, Ohio 43229

Dear Mr. Obermiller:

The U.S. Fish and Wildlife Service (Service) has provided technical assistance for the Icebreaker project since the early stages of project development. Service input has included Endangered Species Act consultation, migratory bird related technical assistance, and NEPA comments on the Department of Energy's (DOE) Draft Environmental Assessment. The intent of this coordination has been to promote pre- and post-construction data gathering and analyses sufficient to understand and minimize project impacts. It is important to clarify the Service's role in this process. Particularly for non-listed migratory birds (not including eagles) and bats, various authorities provide us with the responsibility to provide technical assistance and recommendations, but we are not decision makers in this context.

Regarding potential take of federally listed species, DOE has determined that LEEDCo's Project Icebreaker is not likely to adversely affect Indiana bat, northern long-eared bat, piping plover, rufa red knot, and Kirtland's warbler. The Service concurred with these determinations.

For pre-construction radar monitoring, a USGS expert (Dr. Robert Diehl) recently completed a report (December 2017) analyzing various radar proposals and identifying which vendor's proposal would have the likelihood of the most accurate data. Based on Dr. Diehl's report, LEEDCo subsequently worked with the preferred vendor (Accipiter Radar) to address specific concerns and recommendations. We appreciate that LEEDCo is working with the vendor to address concerns and incorporate recommendations from Dr. Diehl and the Service to increase the reliability of the monitoring program. Accipiter provided LEEDCo with a second proposal that would include placing the radar on a fixed platform, at a water intake crib a few miles offshore. The Service believes both proposals have trade-offs (i.e., vessel based at the project site vs. fixed platform several miles away) and uncertainties related to data collection and interpretation. However, both proposals have the potential to contribute meaningfully to migratory bird and bat exposure data for the project.



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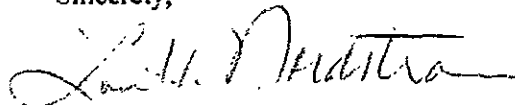
The Service agrees with stakeholders that post-construction fatality monitoring is of particular importance to the project. This is because pre-construction monitoring will indicate if birds and bats are flying in or near the project area, whereas post-construction monitoring will help determine if birds and bats are actually struck by the turbines. In recent discussions, LEEDCo indicated there have been advancements in fatality monitoring detector technology. LEEDCo shared with the Service an Oregon State University proposal to further develop this technology and implement research at the project site. LEEDCo noted another research proposal is pending from the Netherlands. The Service is encouraged that there is progress in this realm of technological development. The Service continues to recommend implementation of post-construction monitoring (whether it be this technology if shown to be effective or another valid method) as soon as the wind turbine project is operational.

The Service acknowledges that Icebreaker is a relatively small-scale demonstration project consisting of six turbines and as such has limited direct risk to migratory birds and bats. The Service's interest is in both reducing the risk to birds and bats from this project and also gaining useful data from the pre- and post-construction monitoring of the operation of Icebreaker to inform any future off-shore wind developments in the Great Lakes so that risk to birds and bats from such projects can be avoided or minimized.

We recognize that for an off-shore project such as Icebreaker, any pre- and post-construction monitoring strategies will have technological challenges and uncertainties as a result of the environmental conditions under which the project will operate. Based on LEEDCo's ongoing efforts to incorporate expert input for pre- and post-construction monitoring, the Service believes the monitoring will inform our understanding of project impacts on birds and bats. It will also advance the understanding of radar capabilities and monitoring strategies in an off-shore environment. We expect that pre- and post-construction monitoring will be tied to a strong adaptive management plan so that any necessary changes can be made as monitoring results are acquired to reduce impacts to birds and bats.

Thank you for the opportunity to provide input on the technology for the pre- and post-construction monitoring for the Icebreaker project. If you have any questions regarding this letter, please don't hesitate to contact me.

Sincerely,



Lori H. Nordstrom
Assistant Regional Director
Ecological Services
Midwest Region

cc: Dan Everson, Ohio Ecological Services Field Office, USFWS

ICE0003539



United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458



IN REPLY REFER TO:

FWS/AES

DEC 21 2017

Dr. Robert Diehl
U.S. Geological Survey
Northern Rocky Mountain Science Center
2327 University Way, Suite 2
Bozeman, MT 59715

Dear Dr. Diehl:

Following are the U.S. Fish and Wildlife Service's (Service) comments on the Evaluation of Icebreaker Wind project vendor proposals for radar-based monitoring of flying animals. We received the draft report on December 14, 2017 and comments were requested by December 20, 2017. Given the short time-frame, this is a summary of our major concerns with the report along with some specific examples.

The Service's Ohio Field Office and Region 3 Avian Radar Team have been involved in discussions with the developer, LEEDCo, over nearly two years to establish appropriate pre- and post-construction studies for assessing risks and impacts of the Icebreaker project to migrating birds and bats. Radar has been proposed as a tool for monitoring bird and bat use of project airspace, due to its ability to monitor nocturnal flight activity over a large area and because the majority of birds and all bats migrate nocturnally. Radar was included as a pre-construction tool for the proposed project as early as 2010, when a biological consultant deployed a radar system on the Cleveland water intake crib. Multiple problems associated with the setup and operation of the radar unit resulted in data that both the Service and the developer consider largely uninformative. The Service began recommending an on-site avian radar study for the LEEDCo project in August 2016. The primary objectives of a radar study would be to 1) document the magnitude of nocturnal migration at the proposed site, 2) determine the proportion of migrants flying within or near the rotor-swept zone, and 3) examine if birds or bats exhibit turbine avoidance or attraction to turbines in a before-after comparison.

For this pilot project, the Service has requested on multiple occasions that all commercial-available options of avian radar be considered to expeditiously and cost-effectively obtain data that address the three study objective. Although many aspects of the study's design have been discussed, one of the main topics of investigation has been how to situate a radar unit within the project area on a platform that would allow for successful operation and data collection. The



Service has recommended that a fixed platform be considered because it would provide the highest probability of any radar system successfully tracking migrants.

Our recommendations for a successful study were outlined to the developer in a letter dated February 28, 2017, and include the following:

- Radar must have a site-specific (within construction site) deployment.
- Radar must be able to detect and track 10-gram sized and larger vertebrates.
- Radar must have the ability to collect data continuously, due to pulsed nature of migration.
- Radar must suppress false detections from insects, wave clutter, and weather ($\geq 80\%$ of surveyed time producing viable data, including during heavy precipitation events.) Additionally, downtime should be non-biased. That is, each biological period (Dawn, Day, Dusk, and Night) should meet the $\geq 80\%$ threshold. This was not part of the February 28th letter and is added here as a clarification.
- Radar must be able to determine flight altitude of migrants at altitudes near and within the rotor-swept zone to quantify collision risk.
- Radar must be able to determine and quantify behavioral avoidance or attraction to turbines in the open water setting.
- Radar must collect data for both small bird and bat migratory seasons (April-June; mid-August-Mid-November) pre-construction.
- Radar must collect data for several spring/fall seasons post-construction (determining behavioral changes that make collision more or less likely).

The draft report is an insightful and detailed comparison of the options provided by three respondents to LEEDCo's request for information. It also highlights several areas of concern related to operating an avian radar unit on a moving platform. LEEDCo has settled on a plan to use a four-point anchored barge, and has solicited responses from radar vendors for that type of deployment. The three proposals received by LEEDCo represent a limited set of options with known problems related to design, support, and lack of experience in the offshore environment. Unfortunately, the scope of the evaluation is limited to relative comparisons among proposals solicited by LEEDCo.

Chief among our concerns is that the evaluation was limited to options using a non-stable platform. This technique has not been used in a long-duration study and, based on years of experience operating avian radar units in the Great Lakes region, we are concerned about a high rate of failure, resulting in collection of poor data. The draft report identified the rolling and pitching barge as one of the major limitations for all systems evaluated. It is likely that any of these systems would perform better on a stable platform, but this option was not considered. A

compounding factor is that windy weather, known to be associated with high numbers of migrants, will likely be especially destabilizing to a barge-based system. This may cause the loss of critical data at times when capturing that data is most important. For that reason, the Service finds it critically important that a system capable of capturing accurate data reliably, even during periods of high wind and waves, be used for the study. The Service is unaware of radar studies that successfully used a floating platform for offshore studies.

The draft report, while stating concerns about a moving platform and weather, has not fully described the ramifications to a radar study. The recommendation in the report is for data collection to be successful during 80% of the time when weather conditions permit. This metric is concerning for the following reasons. First, the biological periods (dawn, day, dusk, and night) have been combined. If data is lost during the most important biological periods (i.e., at night, when most migrants are moving, and at dawn and dusk when migrants may be most vulnerable to collision), an 80% threshold met overall will not be as informative. Second, the "when weather permits" criteria is arbitrary and could result in a lack of informative data. While radars of all types are affected by weather, certain bands (notably S-Band) are less affected by atmospheric moisture than others (X-band). The report's recommendations to use these more susceptible bands do not take into account the additional lost data due to this weakness.

Additionally, since wind can also be considered a weather parameter, losses of radar data due to a rocking barge could cause large losses of data that would be otherwise recorded from a stable platform. Accepting a radar system that collects data "weather permitting" could lead to using a system that is unsuitable for an effective data collection in the project environment, and lead to costly delays.

Poor data quality has important downstream effects on the decision made for this and other projects, including project siting and mitigation. Poor data resulting from a faulty deployment may be interpreted as low migratory activity. All systems proposed by LEEDCo's respondents were engineered for use on land or a stable platform. If low numbers of migrants are recorded, it may not be possible to determine if these results are due to low migration rates or if the system is failing to detect or track migrants due to the movement of the barge.

In addition, software associated with these systems plays an integral part in suppressing false signals (clutter), and with accurate reporting (including sampling corrections for airspace). However, the report does not evaluate the the software, especially under the circumstances of a moving platform. This lack of evaluation makes it impossible to gauge the likely limitations of any system and difficult to anticipate circumstances when the system may be failing to detect or track migrants.

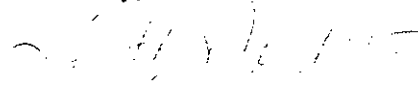
Finally, because the radar is placed offshore in a remote area, it is critically important to be able to monitor the system without personnel on site. While two of the vendors stated that they had remote capabilities, they did not clarify the full extent of what they could monitor and the extent to which they could resolve issues remotely. The Service has repeatedly suggested having remote troubleshooting and monitoring to quickly rectify issues with the system. This measure will save time and money and is crucial for an effective system (in our opinion, based on seven years of experience conducting radar studies around the Great Lakes). Commercial avian radar

systems are available that can be monitored and often repaired remotely, send electronic notifications when problems occur, include integrated power supplies, and have been used successfully on fixed platforms in an off-shore environment. However, these were not considered in the draft report.

The Service collected data with one of its avian radar units placed on-shore in the City of Cleveland this fall. Both the southward direction of flight and the delayed arrival times indicated that high numbers of migrants arriving in Cleveland were crossing Lake Erie. (See attachment 2 of USFWS letter "Draft Environmental Assessment for Lake Erie Energy Development Corporation's Project Icebreaker, Offshore Cleveland, OH (DOE/EA-2045)" sent 4-October-2017, attached.) While the location we utilized cannot tell us the flight altitude over the site of the proposed project or be able to serve as a basis for detecting attraction or avoidance to turbines post-construction, we have documented that large numbers of nocturnal migrants cross Lake Erie during fall migration.

The Service's comments and recommendations provided in this and previous letters have been focused on providing guidance that will result in a system and study design that are likely to successfully produce needed information to inform decisions. We appreciate the opportunity to review the evaluation of proposals and provide our recommendations.

Sincerely,



Lori H. Nordstrom
Assistant Region Director
Ecological Services
Midwest Region

cc:
Erin Hazelton
Wind Energy/Wildlife Administrator
ODNR Division of Wildlife
2045 Morse Road
Columbus, OH 43229