NEW YORK STATE BOARD ON ELECTRIC GENERATION
SITING AND THE ENVIRONMENT

CASE 16-F-0267 – Application of Atlantic Wind LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 of the New York State Public Service Law for the Deer River Wind Farm Project

APPLICANT'S INITIAL POST-HEARING BRIEF

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INITIAL BRIEF OF ATLANTIC WIND LLC (CASE 16-F-0267)

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I. Introduction

With a broad base of community support and the backing of one of the largest renewable development groups in the world, the Deer River Wind Farm Project is one of the "good"[1] projects sought after by the New York State Board on Electric Generation Siting and the Environment ("Siting Board") and represents an opportunity for the addition of 100 megawatts ("MW") of clean, renewable wind energy to New York's energy fleet. The Record in this proceeding demonstrates the Project's many benefits, as well as the Applicant's efforts to reduce project impacts and accommodate stakeholder concerns. The Siting Board should certify the DRWF with the Certificate Conditions proposed by the Applicant and find that its construction and operation serves the public interest by contributing to the State's renewable energy generation goals codified in the 2019 Climate Leadership and Community Protection Act ("CLCPA"), as well as the goals set forth in the New York Clean Energy Standard ("CES").

New York State has declared an urgent need for deployment of thousands of megawatts in additional renewable generation capacity across New York in order to meet its 70% by 2030 goal—and it has done so fully aware of the attendant environmental impacts of that deployment effort. However, as the New York State Public Service Commission ("PSC) acknowledged in its adoption of the 2016 Clean Energy Standard Order, the impacts from construction and operation of renewable generation must be balanced against the considerable environmental benefits of clean energy, and the environmental harms which would result from inaction in addressing climate change (*Order Adopting a Clean Energy Standard* in Case 15-5-0302 [August 1, 2016] pp. 7, 71 [noting that "inaction on air pollution and climate change is unacceptable"], 153-54 and Appx G (hereinafter "CES Order")). As the PSC warns, "[c]limate change will cause not only sea level rise, heat waves, and extreme weather

[1] See, e.g., Walton, Robert, *NY Simplifies Interconnection Standards to Ensure 'Robust' Clean Energy Pipeline: PSC Chair* (Nov. 19, 2018), available at: https://www.utilitydive.com/news/ny-simplifies-interconnection-standards-to-ensure-robust-clean-energy-pip/542260/.

events, but also ***threatens massive economic and lifestyle disruption*** from damage to agriculture, water resources, public health, energy and communication systems, ***and the natural ecosystems that define and support communities***" (*Id.* at 4)[emphasis added].

Building on the CES, the CLCPA calls on the State to achieve 100% renewable energy generation by 2040, requiring a dramatic reduction in greenhouse gas emissions. This mandate demands the creation of significant new renewable energy generation from projects like the DRWF. But in order to meet these requirements, certain Certificate Conditions and issues must be resolved in the Applicant's favor, otherwise the appropriate balancing of impacts and feasibility will not be achieved.

All new renewable energy development will have some impact on the environment. However, if the State is going to meet its aggressive renewable goals in the next 10 years, the Siting Board must approve dozens of new large-scale renewable projects in a manner that does not incorporate onerous and unnecessary Certificate Conditions and Site Engineering and Environmental Plan ("SEEP") requirements that frustrate the rapid development necessary to achieve the State's CLCPA mandates. Similarly, the Siting Board will need to ensure that Certificate Conditions and issue resolution do not render projects economically infeasible and unbuildable. If projects become so overburdened by unnecessary restrictions and burdens imposed during the Article 10 process that they are unmarketable or unbuildable, or become uneconomic when participating in commercial procurements, the State will fail to meet its goals. In the face of a status quo which the PSC has already characterized as "unacceptable," it is imperative that the Siting Board strike a careful balance between the potential impacts of a proposed renewable project and the "massive economic and lifestyle disruption" posed by

climate change (CES Order, p.71). To paraphrase the climate activist Greta Thunberg, the State of New York needs the Siting Board to "act as if our house is on fire. Because it is."[2]

II. Background

A. Facility Description

The Deer River Wind Farm Project ("DRWF" or "Deer River") is a major wind electric generating facility proposed in the Towns of Pinckney and Harrisburg, Lewis County, New York, with a proposed Point of Interconnection ("POI") substation in the Town of Rodman, Jefferson County, where the Facility would connect to the State electric grid along National Grid's Lighthouse Hill to Black River 115 kilovolt (kV) transmission line (Hearing Exh. 2, Application Exh. 3; Hearing Exh. 302). The DRWF is proposed by Atlantic Wind LLC ("Applicant"), a wholly owned subsidiary of Avangrid Renewables LLC (Hearing Exh. 2, Application Exh. 1). Avangrid Renewables is one of the largest producers of wind energy in the United States, with 60 operational wind facilities nationwide, including two facilities in New York: the Maple Ridge Wind Farm in Lowville, Lewis County, and the Hardscrabble Wind Farm in Herkimer County (*Id.*). In total, Avangrid Renewables operates renewable facilities with a total nameplate capacity of approximately 6,000 megawatts (MW) in the U.S. (*Id.*).

The DRWF would be located on privately owned rural land that will be leased or purchased by the Facility, and which can continue to be used for farming, forestry, and other compatible purposes once the Facility is operational. The parcels proposed to host Facility components are referred to collectively as the "Facility Site" (see Hearing Exh. 282 for the most up-to-date Facility layout map). Off-site ancillary features proposed for the Facility are limited to temporary public road improvements (Hearing Exh. 2, Application Exh. 3(a)(3); Hearing Exh. 15, Figure 3-3).

[2] Transcript of Greta Thunberg's speech to world leaders at the January 2019 World Economic Forum at Davos, Switzerland, reprinted in *The Guardian* on January 25, 2019, available at: https://www.theguardian.com/environment/2019/jan/25/our-house-is-on-fire-greta-thunberg16-urges-leaders-to-act-on-climate.

As currently proposed, the DRWF would generate 101.4 megawatts (MW) of renewable wind energy, and would include the following Facility components:

- 25 wind turbines, 21 of which would be located in the Town of Pinckney and 4 of which would be located in the Town of Harrisburg. Of these, 19 turbines would have hub heights of 105 meters and total tip height of 173 to 180 meters, and 6 would have hub heights of 82 meters and total tip heights (hub height plus maximum blade extension) of 150 meters. The Applicant is considering three Vestas wind turbine models, and for purposes of this Application, has utilized the most impactful of the proposed models in estimating potential impacts from the Facility on various resources (Hearing Exh. 2, Application Exh. 6(a)).[3]
- Approximately 27.2[4] miles of associated collection lines (approximately 6.6 miles overhead, and the remaining 20.6 miles underground) connecting the turbines to a collector substation in the Town of Pinckney (Hearing Exh. 13, Application Supplement Appx. A, Site Plans; Hearing Exh. 282, Figure 2-2).
- An approximately 1.5-mile transmission line would connect the DRWF collector substation in Pinckney to the Point of Interconnection (POI) substation in Rodman (Hearing Exh. 2, Application Exh. 3(a)(4).
- Approximately 10.5 miles of access roads would create access to permanent facility components such as turbines, substations and the O&M facility from public roadways (Hearing Exh. 2, Application Exh. 25, p. 6). Temporary access roads will be gravel surfaced and sufficiently wide to accommodate construction vehicles and component deliveries.

[3] The Facility will utilize the turbines considered in this Application, or their equivalents (Hearing Exh. 2, Application Exh. 9, Table 9-1).

[4] As stated in Hearing Exh. 2, Application Exh. 4(j), the Applicant had proposed 27.8 miles of collection lines, including the 3.3-mile overhead "Eastern Collector Line" (Tr.896, L5-6). If the Applicant proceeds, as proposed, with the 2.7-mile "Alternate Collector Line" instead of the Eastern Collector Line, the 27.8 miles of collection stated in the Application would be reduced by 0.5 miles. The previously proposed 9.7 miles of overhead collection would be reduced to 6.6 miles (Tr.896, L5-6).

Following construction, designated roads would be restored for use as permanent access roads, which would be gravel-surfaced and a minimum of 16 feet in width (Hearing Exh. 2, Application Exh. 25 and Appx. 25-A).

- Collection and POI substations would be located in the Towns of Pinckney and Rodman, respectively. The collection substation would be located at the terminus of the Facility's 34.5 kV electrical collection system and would step up power to 115 kV to be sent across the 1.5-mile transmission line to the POI substation (Hearing Exh. 2, Application Exh. 3(a)(1) and Appx. 34-B). The POI substation would be located adjacent to the west side of National Grid's 115 kV transmission line (Hearing Exh. 302).
- A permanent Operations and Maintenance ("O&M") building would be located in the Town of Harrisburg, alongside temporary staging and work areas, a laydown yard and concrete batch plant (Hearing Exhs. 281 and 282; Tr.876, L20 through Tr.878, L17). The O&M Building would house permanent staff offices and store maintenance equipment and supplies (Hearing Exh. 2, Appxs. 5-B and 11-C; Hearing Exhs. 281 and 282). The temporary laydown yard would be established adjacent to the O&M Building to accommodate construction trailers, supplies, large project components and parking for on-site workers.
- A permanent Wind Measurement Tower ("Met Tower") would be located in the Town of Pinckney to collect wind data and support performance testing for the Facility during operations (Hearing Exh. 282).

From the outset of project development, the Applicant has continually revised the Facility layout with the goal of minimizing/balancing potential environmental impacts while at the same time addressing the interests of stakeholders and property owners. Early in the development process, the Applicant had proposed a much larger, 48-turbine layout, which included placement of turbines in the

adjacent Town of Montague (Hearing Exh. 2, Application Exh. 9 and Figure 9-1). However, as discussed in greater detail in Section III(B)(7)(g) below on Fort Drum matters, some turbines had to be eliminated from consideration due to their location within a National Weather Service No Build Zone for a weather radar station in Montague (Hearing Exh. 2, Application Exh. 9(b)(2)(ii)). The 48-turbine layout deployed smaller capacity turbines, which generated 2 MW each, rather than the 3.6-4.2 MW generated by each of the turbines currently proposed (Hearing Exh. 2, Application Exh. 9(b)(2)(ii)). However, several proposed turbine locations were eliminated based on siting constraints, wetland and stream resources, visual impacts, wildlife habitat, and military/radar resources, resulting in the elimination of 23 of the proposed turbines and supporting the decision to pursue larger capacity turbine units (Hearing Exh. 2, Application Exh. 9(b)(2)(ii)).

Importantly, in the initial Application, the Applicant included a 3.3-mile preferred eastern collection route (Hearing Exh. 15, p.6) which ran across the Deer River in the Town of Harrisburg, connecting the northern and southern portions of the Facility (Hearing Exh. 2, Application Figures 2-2 and 3-3). The Application identified an "Alternate Collector Route" proposed to connect the northern and southern portions of the facility on their western edge (Hearing Exh. 2, Application Figure 9-1). In Application Supplements, the Applicant provided additional data regarding the 2.9-mile Alternate Collector Route (Hearing Exh. 15, p.6), including on-site wetland delineations, as well as updated analysis on the viability of this route given available information (Hearing Exhs. 13, 15, and 18). In response to discussions and issues identification by Parties, the Applicant subsequently agreed to make the "Alternate Collector Route" its preferred collection route, which would eliminate the eastern collection route crossing the Deer River (Tr.878, L5 through Tr.879, L4). While the originally proposed eastern collector route is still before the Siting Board as a possible alternative, it appears that Parties including the New York State Department of Public Service ("NYSDPS") (Tr.414, L3-21), the New York State Department of Agriculture & Markets ("NYSDAM") (Hearing Exh. 281), and the

Applicant (Tr.878, L10-14) are in agreement that the "Alternate Collector Route" is the preferred alternative, and that route alone has been portrayed in the Applicant's most recent Facility layout mapping (Hearing Exh. 282; Tr.878, L6-14).

Lastly, for purposes of preparing this Application, several "study areas" of different geographical scopes were used based on the type of resource or impact being studied (Hearing Exh. 2, Application Exh. 3(a)(5)). Study areas were agreed upon among the parties in the stipulations (Hearing Exh. 1) and ranged in size from lands within 500 feet of areas of disturbance, for wetland and stream delineations, to areas of 5 and 10 miles from the Facility Site, for land use and visual impact analyses (Hearing Exh. 2, Application Exh. 3(a)(5)). These applicable study areas were tailored to the type of resource being studied, and the potential for impacts at the ranges identified (Hearing Exh. 2, Application Exh. 3(a)(5)). Off-site ancillary features for the Facility are limited to temporary public road improvements (Hearing Exh. 2, Application Exh. 3(a)(3)).

B. Procedural History

Atlantic Wind commenced these proceedings by filing a Public Involvement Program ("PIP") Plan on May 9, 2016 (Hearing Exh. 2, Application Exh. 2). NYSDPS Staff submitted comments on the plan, and Atlantic Wind filed a revised PIP on July 11, 2016 (*Id.*). NYSDPS Staff provided additional comments on the PIP Plan in August 2016, and the Applicant filed a third revised PIP Plan in September 2016 (Tr.367, L4-8). The PIP was provided to local document repositories[5] established in the area for paper copies of project documents and placed online through the Siting Board's docket site and a dedicated Project Website maintained by the Applicant (Hearing Exh. 2, Application Exh. 2; Tr.915, L14-18).

[5] Repositories have included the Pinckney Town Hall, the Lowville Free Library, the Rodman Public Library and the Applicant's local project office in Lowville, NY (Hearing Exh. 2, Application Exh. 2).

On May 15, 2017, the Applicant submitted its Preliminary Scoping Statement ("PSS") outlining the scope and methodology of studies to be performed in the Application, as well as the proposed contents of the Application (*Id.*). Party comments on the PSS were filed by the extended deadline of June 15, 2017, and the Applicant filed responses to party comments on July 7, 2017. A pre-application Procedural Conference was held July 12, 2017 to award intervenor funding and commence the stipulations negotiation process (Tr.918, L3-5). The Applicant issued notices of its intention to pursue stipulations discussions with parties on August 1, 2017 and conducted these discussions for nearly one year before releasing the Proposed Stipulations for public comment, as required by 16 NYCRR 1000.5(j), on July 13, 2018. Final Executed Stipulations were filed in this proceeding on January 4, 2019 (Hearing Exh. 1).

Atlantic Wind filed its Article 10 Application on February 8, 2019 (Hearing Exh. 2-7) and supplemented the Application on May 28, 2019 (Hearing Exhs. 8-10). The Application was deemed compliant with the Public Service Law by the Chair to the Siting Board on July 3, 2019 (Hearing Exh. 11). Additional Application Supplements were filed on September 6, 2019 (Hearing Exh. 13), providing additional information on the proposed "Alternate Collector Line," and on October 15-17, 2019 (Hearing Exhs. 15-18).

Following the Chair's compliance determination, Public Statement Hearings were convened in the Facility Area on August 6, 2019 (Tr.917, L1-2), and a Procedural Conference was held in the Town of Harrisburg on August 7, 2019. Direct Testimony was filed by parties by November 1, 2019, and Rebuttal Testimony was filed by parties by November 22, 2019. Evidentiary Hearings were held in the Town of Harrisburg on December 16 and 17, 2019 (see, generally, Evidentiary Hearing Transcripts). Limited sur-rebuttal was filed by the Applicant and NYSDPS on January 10, 2020 and January 15, 2020, respectively (Hearing Exhs. 296-303). Lastly, on February 3, 2020, the Examiners issued a ruling admitting into evidence proposed consensus Certificate Conditions and Site Engineering and

Environmental Plan ("SEEP") Guidelines as Hearing Exhibits 304 and 305, respectively, for briefing purposes. The Certificate Conditions and SEEP are discussed further in Section II(D), below.

C. Stakeholder Engagement and Public Comments

Atlantic Wind has met its public outreach obligations for the Deer River project and will continue to do so going forward (Hearing Exh. 2, Application Exh. 2). There is "overwhelming local support for the Deer River Project," according to testimony from the Town of Pinckney (Tr.545, L190 through Tr.546, L219; Tr.558, L238-250; Hearing Exhibit 187). As the NYSDPS testified, the Applicant successfully implemented most elements of its PIP Plan in implementing its public outreach for this project (Tr.369, L2 through Tr.370, L17).

An initial Master List of Stakeholders was included in the Applicant's PIP to identify individuals and groups which may have an interest in the proposed DRWF (Hearing Exh. 2, Application Exh. 2 and Appx 2-A). To facilitate participation in the process by local and municipal stakeholders, the Applicant provided $35,000 in pre-application stage intervenor funding and $101,400 in application stage intervenor funding, as required by the regulations (Tr.377, L19-21). This facilitated the active participation of the two Host Towns, Pinckney and Harrisburg, and local citizens groups, Concerned Citizens of the Deer River Wind Project (pre-Application phase only) and the Tug Hill Alliance for Rural Preservation (THARP)(Application phase only).

The Applicant began its public outreach efforts for the Deer River project in late 2015 and early 2016, when Atlantic Wind held meetings with State agencies and the Tug Hill Commission and commenced outreach with the Towns of Pinckney, Harrisburg and Montague (Hearing Exh. 2, Application Exh. 2 and Appx 2-B; Tr.915, L3-5). In 2016, Atlantic Wind opened a Local Project Office in Lowville, which has been staffed at least two days a week for the past three years, and launched a project website and dedicated project email address (DeerRiverWind@avangrid.com) and phone

number (Tr.915, L5-7; Hearing Exh. 2, Application Exh. 2). The Applicant held public informational meetings as follows:

- June 16, 2016 at 6:30 p.m. at the Harrisburg Town Hall;
- September 20, 2016 from 2:00 p.m. to 4:00 p.m. and 6:00 p.m. to 8:00 p.m. at the Pinckney Town Hall;
- March 9, 2017 from 2:00p.m. to 4:00 p.m. and 6:00 p.m. to 8:00 p.m. at the Pinckney Town Hall;
- November 14, 2018 from 2:00 p.m. to 4:00 p.m. and 6:00 p.m. to 8:00 p.m. at the Pinckney Town Hall; and
- October 2, 2019 from 5:00 p.m. to 7:00 p.m. at the Pinckney Town Hall (Tr.915, L9-13).

Attendance at these sessions ranged from 25 people to nearly 80 (Tr.916, L1-3). The Applicant's first event, in June 2016, was primarily meant as an introduction to the project team and the project concept, shortly after the filing of the Project's Public Involvement Program Plan (Tr.916, L5-7). A summary of this session, as well as the other events, were provided in the Applicant's testimony (Tr.916, L5-20). The DRWF team also gave an informational presentation for members of the public at the Siting Board's Public Statement Hearings, held on August 6, 2019 in Lowville (Tr.917, L1-2). The team provided an overview of the Application, the current layout, studies that were performed, and results of those studies, a question and answer session was held and, following that presentation, members of the public made comments on the record, and the Applicant's representatives were able to speak to many attendees further about their questions and concerns (Tr.917, L1-5).

The Applicant used a variety of measures to ensure the public was aware of the Facility and project Open House events (Tr.917, L7-16). In addition to the newspaper and online advertisements outlined in the Record, the Applicant mailed notices, mainly in the form of postcards, to stakeholders and posted information to the Project Website (*Id.*). Generally, in accordance with the Applicant's PIP,

mailings for Open Houses and major project filings have been sent to the Master Stakeholder List (Hearing Exh. 2, Application Appx 2-A), including host and adjacent landowners, who are defined as landowners with property abutting Facility Site parcels, landowners with property within 500 feet of proposed Project components, and landowners within 2,500 feet of a proposed wind turbine (Tr.917, L13-15). In addition, notices of major project filings such as the PSS, Stipulations and Application, were posted to the Siting Board website, served electronically on the Siting Board's Party List (and automatically on the Siting Board's service list through the DMM system), mailed to the Master Stakeholder List, including host and adjacent landowners, served on State elected officials as required by the regulations, and provided in a direct letter to the Towns as a courtesy (Tr.917, L18 through Tr.918, L9). Since the PIP was filed, the Applicant has made paper copies of major project filings, including the PSS, Stipulations and Application, available at the Local Project Office, as well as designated document repositories, including the Pinckney Town Hall, Lowville Free Library, and Rodman Public Library (Tr.915, L14-18).

The Applicant included the names and addresses of the Local Document Repositories on the Project Website and in the notices for filings such as the PSS, Stipulations and Application (Tr.918, L17-18). The Applicant has also informed the Towns that these repositories exist and have used the Town of Pinckney offices as a repository, so that local elected officials know where to direct residents who inquire about how to access and review documents (Tr.918, L18-19). The Applicant also answered direct questions from residents about where to find information, either at the organized Open Houses, or through telephone calls or emails residents have sent to various members of the project team (Tr.918, L20 through Tr.919, L2). The Applicant has also tried to make sure notices were posted on community boards for some of the Open House events, especially in early stages (Tr.920, L5-9).

Comments received on the DRWF proposal were both supportive and negative, and generally fell into the following categories: visual impacts including aesthetic concerns and shadow flicker,

noise, health and safety issues relate to turbine failures, ecological impacts, economic benefits, and environmental benefits from renewable energy. Commenters also raised concerns about possible impacts to Fort Drum and cumulative impacts on the community from existing wind facilities.

The Applicant consulted extensively with affected agencies and government entities, including attending town board meetings to answer questions about the Facility, and meeting with NYSDEC, NYSDPS and NYSDAM. The Applicant engaged in multiple discussions with the host communities and affected school districts on the Facility layout, transportation routes, and Host Community and Road Use Agreements. As discussed in the sections below, the Applicant engaged in outreach specifically related to certain topics, including the Visual Impact Assessment (see Section III(B)(7)(e)(ii) below on visual impacts), private drinking water resources (see Section III(B)(7)(f)(iii) below), and issues related to local land use and zoning laws (see Section III(B)(7)(a) on land use and Section IV(B) on local laws).

After the Application was submitted, the Applicant continued to engage with stakeholders and proposed minor adjustments to Facility component locations to address specific environmental impacts or issues of concern raised by stakeholders. For example, as discussed in the October 2019 Application Supplement, numerous changes were made to Facility component locations following a settlement meeting held in Albany in September 2019 (Hearing Exh. 15). This resulted in reductions in impacts to resources such as wetland concerns raised by the New York State Department of Environmental Conservation ("NYSDEC") and impacts to agricultural resources raised by NYSDAM (*Id.* and Appx C). Discussions with these parties continued through the Hearings and were memorialized at hearings or shortly thereafter through a series of written memoranda (Hearing Exhs. 281 and 299 on responses to NYSDAM concerns and Hearing Exh. 298 responding to NYSDEC concerns on wetlands). These discussions are outlined in more detail in the relevant issue-based sections of this brief, below. The

Applicant also agreed to numerous Certificate Conditions and Site Engineering and Environmental Plan provisions to resolve issues of concern among Parties (Hearing Exhs. 304 and 305).

For example, to address concerns from THARP and NYSDPS, the Applicant agreed to evaluate feasibility of using aircraft detection lighting systems ("ADLS") on Facility turbines to minimize lighting impacts from the Facility at night (Hearing Exh. 304, Condition 35(e)), as discussed in Section III(B)(3)(a)). Furthermore, the Applicant responded to issues raised by THARP members regarding property values by providing additional information to the record, as outlined in Section III(B)(6)(b) of this brief. The Applicant has also made changes to its proposed Facility design to address concerns raised by National Grid, a Party to this proceeding and the owner of the 115 kV transmission line to which the Applicant seeks to interconnect, regarding the location of the Point of Interconnection substation relative to the National Grid Line, as discussed in Section III(B)(4)(a) of this brief. To address concerns from NYSDEC on grassland bird impacts, the Applicant agreed to utilize an environmental monitoring program for construction activities within occupied grassland bird habitat to prevent impacts to protected species during breeding season (see Section III(B)(1)(b) of this brief and Hearing Exh. 304, Condition 91).

As set forth in this brief and in the Record, the Applicant implemented numerous measures to inform the public about the Project consistent with its PIP plan and with the requirements of Article 10. Although DPS identified certain minor concerns in the Applicant's outreach effort, it concluded that the Applicant was generally successful in implementing the majority of its PIP plan elements. Therefore, the Siting Board can conclude that the Applicant has complied with, if not exceeded, the public outreach requirements of Article 10.

D. Proposed Certificate Conditions and Site Engineering and Environmental Plan

Through testimony and in ongoing efforts to resolve issues, the Parties have developed a proposed set of Certificate Conditions and Site Engineering and Environmental Plan Guidelines

("SEEP"), marked as Hearing Exhibits 304 and 305, respectively. References to sections of the Certificate Conditions and SEEP throughout this post-hearing brief will utilize the numbering and pagination of this most current version, for clarity. Where relevant, specific subject matter discussions may refer to previously proposed Conditions or substance from prior versions; in such instances, a cross reference to the operative Certificate Conditions and SEEP sections will be provided for comparison, as appropriate.

The Applicant first circulated to Parties a set of proposed Certificate Conditions, as Appendix F to the October 2019 Application Supplement (Hearing Exhs. 16-17). The Applicant later provided a proposed SEEP, which was revised and entered into the record at hearings through the testimony of Walter Meisner (Hearing Exh. 278). Some parties provided proposed Certificate Condition and SEEP language through direct testimony, including NYSDPS (Hearing Exhs. 162-63) and NYSDEC (Hearing Exhs. 165-66 and 175-76).

As the Applicant testified on rebuttal, numerous Certificate Conditions proposed by agencies were removed from the operative Certificate Conditions document and placed in the SEEP, in an effort to avoid inclusion of overly detailed and potentially unworkable conditions in the Certificate itself (Tr.893, L5-18). For example, NYSDEC provided extensive proposed Certificate Conditions related to streams and watercourses, at a fine level of detail (Hearing Exh. 168), and NYSDPS offered a detailed shadow flicker mitigation protocol (Hearing Exh. 162). These details, where acceptable to the Applicant, have been removed from the Revised Proposed Certificate Conditions and moved to the SEEP (Tr.893, L9-13; Hearing Exhs. 278, 280, 304 and 305). By using this approach, the Applicant seeks to avoid a situation wherein formal amendments by the Siting Board are required to address relatively minor deviations from the agencies' proposed requirements (see generally, Tr.893, L5 through Tr. 894, L6). Importantly, both Certificate Condition 39 and the SEEP document itself contemplate that minor changes or deviations from the SEEP adopted by the Siting Board may be

handled administratively, while "substantive deviations from the relevant and applicable requirements of the SEEP" must be justified in the SEEP and will be subject to the Siting Board's approval (Hearing Exh. 304, Condition 39).

The Applicant respectfully requests that one revision be made to Certificate Condition 13 to address a minor inconsistency between the current Certificate Conditions and SEEP documents. Specifically, the Applicant requests to end the condition after "Tree Clearing Plan" and strike the remaining text (Hearing Exh. 304, Condition 13). The Condition would then read as follows:

> 13. The Secretary or the Chief of the Environmental Certification and Compliance Section of the DPS Office of Electric, Gas & Water will issue a conditional "Notice to Proceed with Site Preparation" for the removal of trees, stumps, shrubs and vegetation from the site to clear the site for construction, prior to the submission of all pre-construction compliance and informational filings for the tree-clearing phase of construction, provided that the Certificate Holder shall submit a Tree Clearing Plan. ~~consistent with Appendix A, "Guidance for the Development of Site Engineering and Environmental Plan for the Construction of the Deer River Wind Project" Section D.~~

III. Findings and Determinations under PSL § 168

A. Article 10 Standards

Article 10 requires the Siting Board to make the final decision on an application for a Certificate upon the record made before the presiding examiner, including briefs (*see* PSL § 168(1)). Pursuant to PSL § 168(2), to grant a certificate, the Siting Board must make explicit findings regarding the nature of the probable environmental impacts of the construction and operation of the Facility on:[6]

> (a) ecology, air, ground and surface water, wildlife, and habitat;
> (b) public health and safety;
> (c) cultural, historic, and recreational resources, including aesthetics and scenic values; and
> (d) transportation, communication, utilities and other infrastructure.[7]

[6] The Application does not include any "related facilities" as the term is used in PSL § 168(1) and defined in 16 NYCRR § 1000.2(aj).

[7] Where applicable, such findings shall include the cumulative impacts of emissions on the local community, including whether the construction and operation of the facility results in a significant and adverse disproportionate environmental impact on an environmental justice community, as defined by the regulations promulgated by DEC pursuant to PSL § 164(1)(f), which can be found at 6 NYCRR Part 487. The operation of the Facility will not result in any emissions. Also, the Facility is not proposed near an environmental justice area and will not result in significant and adverse disproportionate environmental impacts to such a community, as those terms are used in the context of paragraph (f) of PSL § 164(1) and

In this case, in order for the Siting Board to grant a Certificate for the construction or operation of the Facility, the Siting Board must determine under PSL § 168(3) that:

> (a) the facility is a beneficial addition to or substitution for the electric generation capacity of the state; and
> (b) the construction and operation of the facility will serve the public interest; and
> (c) the adverse environmental effects of the construction and operation of the facility will be minimized or avoided to the maximum extent practicable; and
> (d) the facility is designed to operate in compliance with applicable state and local laws and regulations issued thereunder concerning, among other matters, the environment, public health and safety, all of which shall be binding upon the applicant…

In making the determinations required in PSL § 168(3), the Siting Board shall consider under PSL § 168(4):

> (a) the state of available technology;
> (b) the nature and economics of reasonable alternatives;
> (c) environmental impacts found pursuant to PSL § 168(2);
> (d) the impact of construction and operation of related facilities, such as electric lines, gas lines, water supply lines, wastewater or other sewage treatment facilities, communications and relay facilities, access roads, rail facilities, or steam lines;
> (e) the consistency of the construction and operation of the facility with the energy policies and long-range energy planning objectives and strategies contained in the most recent state energy plan;
> (f) the impact on community character and whether the facility would affect communities that are disproportionately impacted by cumulative levels of pollutants; and
> (g) such additional social, economic, visual or other aesthetic, environmental and other considerations deemed pertinent by the Board.

As set forth in the Brief, the Record provides sufficient evidence for the Siting Board to make the required determinations in PSL § 168(3) based on the findings and considerations of PSL § 168(2) and (4). Therefore, the Siting Board should issue the CECPN for the Deer River Wind Farm Project, as designed by the Applicant, with the Certificate Conditions proposed in Hearing Exhibit 304. The Applicant's Brief provides an outline of the required determinations below, together with the Record evidence that supports the Siting Board's findings and determinations.

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by the DEC in its regulations at 6 NYCRR Part 487 (*See* Section XI. B below for a discussion of environmental justice issues).

1. Burden of Proof

Under 16 NYCRR § 1000.12(b)(1), the Applicant bears the burden of proof to demonstrate that the Siting Board's required findings under § 168 of the PSL can be made. This proof must be based on a preponderance of the evidence standard (16 NYCRR § 1000.12(c)). However, any party raising issues found to be adjudicable has the ultimate burden of proof on its identified issues at the evidentiary hearings.

The evidentiary rules preclude the Siting Board from relying on evidence introduced for the first time in a brief, because the brief itself is not part of the official "Record." Under 16 NYCRR § 1000.12(9), "briefs and other documents that attempt to persuade through argument are not evidence and may not be entered into the evidentiary record of a proceeding." Therefore, any new issues raised for the first time in a brief, and not previously introduced into evidence, will not be contained within the Siting Board's Record and will not be used to inform the decision.

2. Balancing Required under PSL § 168

As the body charged with considering the impact of new energy generation facilities, the Siting Board must view potential impacts from an individual Facility within the broader context of the State's attempt to stave off climate change's threats to the "economic well-being, public health, natural resources, and the environment of New York" (CLCPA § 1(1)) by overseeing the siting of gigawatts of new renewable generation across the State. Article 10 grants the Siting Board broad authority to consider the relevant facts in the Record and the considerations in PSL § 168(4) in making the determinations required by PSL § 168(3). This balancing of interests is particularly reflected in the statutory requirement that the Board determine that adverse environmental effects have been avoided or minimized *to the maximum extent practicable* (taking into account the considerations set forth in PSL § 168(4)). Thus, the Siting Board has substantial flexibility to consider the particular facts of the Facility and weigh the various competing criteria, interests, and concerns.

Importantly, an Applicant is required to avoid, minimize and mitigate "probable environmental impacts" from the Facility (PSL § 168(2)). While the PSL does not further elucidate what constitutes a "probable environmental impact" requiring impact review as well as avoidance, minimization and/or mitigation, a reasonable analogy can be drawn from the long line of case law developed under the State Environmental Quality Review Act ("SEQRA"). Often called the "rule of reason" (*Jackson v. New York State Urban Dev. Corp*., 67 NY2d 400, 417 (1986)), agencies evaluating a proposed action under SEQRA are not required to study or mandate mitigation of any and every conceivable impact, no matter how small—rather, SEQRA requires study and mitigation of "reasonably anticipated" environmental impacts, with a focus on those impacts anticipated to be "significant" (see 16 NYCRR § 617.9(b)(2); *Industrial Liaison Committee of Niagara Falls Area Chamber of Commerce v. William*, 72 NY2d 137 (1988)(holding that State environmental impact assessment requires only review of "nonspeculative environmental impacts" which "can be reasonably anticipated"); *Jackson*, 667 NY2d at 417 ("[n]ot every conceivable environmental impact, mitigating measure or alternative must be identified and addressed" to satisfy SEQRA's environmental review standards)). Indeed, the Public Service Commission also utilizes a "reasonably likely significant adverse impacts" standard when applying SEQRA to its own actions (see, e.g., Case 94-E-0952, In the Matter of Competitive Opportunities Regarding Electric Service, *Opinion and Order Regarding Competitive Opportunities for Electric Service* (May 20, 1996); Case 10-E-0040, Re Consolidated Edison Company of New York Inc, *Order Adopting and Approving Issuance of Final Supplemental Environmental Impact Statement* (August 17, 2001)).

The Siting Board can and should adopt this "rule of reason" approach in determining what constitutes a "probable environmental impact" warranting avoidance, minimization and mitigation under Article 10. The Board's charge in PSL § 168(2) to consider "probable" environmental impacts already suggests by its plain language the consideration of impacts which are "reasonably anticipated"

or "likely" to occur. The Legislature must have chosen to include the modifier "probable" for a reason—likely to ensure that the Board applied a similar "rule of reason" in determining what environmental impacts were significant enough to rise to the level of a "probable environmental impacts." Otherwise, lawmakers could simply have required that the Board make findings regarding the nature of "all" or "any" environmental impacts, regardless of their probability, if the desire was for the Board to consider any and every conceivable environmental impact.

Lastly, as the body charged with siting large-scale renewable projects, the Siting Board must consider the State's various energy policies and the Legislature's clear mandate for significant increases in renewable energy generation throughout the state, as set forth in the CLCPA, when considering whether to impose burdens on a proposed Facility. Where parties are advocating for imposition of significant burdens on Applicants which reduce the economic viability of projects, or which impose cumulative burdens and unnecessary incremental costs with limited benefits, the Siting Board has an obligation to consider those burdens in light of the State's mandated energy targets. For example, the imposition of strict curtailment regimes which some Parties have sought, including those intended to address impacts to migratory bat species, noise levels and shadow flicker, may threaten the financial viability and feasibility of projects, and of commercial wind projects generally in New York, while providing little appreciable benefits, or highly speculative benefits in relation to the burdens imposed.

The Siting Board has already acknowledged the need to balance the benefits of imposing local requirements with the burdens those requirements place on a Facility's feasibility and economic viability (*Order Granting Certificate of Environmental Compatibility and Public Need With Conditions in Case 15-F-0122, Baron Winds, LLC* [September 12, 2019] at pp. 153-54). This need for balance applies across the board in proceedings of this nature, from bat curtailment regimes advocated by NYSDPS to noise limitations which lack a scientific or technical basis. The imposition of these kinds

of unnecessary incremental costs, across the State, will increase the overall costs of production of renewable energy in New York State—costs that load-serving entities will incur in purchasing renewables to meet their mandated targets under the Clean Energy Standard ("CES"), and pass on to ratepayers—and will compromise the State's ability to achieve its enacted energy targets.

B. Nature of Probable Environmental Impacts and Avoidance, Minimization and Mitigation Thereof

1. Ecology

a. Bats

i. The Applicant Has Adequately Assessed Impacts to Bats and Has Minimized and Mitigated Impacts to the Maximum Extent Practicable

The Applicant has set forth in detail the nature of the probable impact of the construction and operation of the Facility on bats (Hearing Exh. 2 & 3, Application Exh. 22, Application Appendices: Appendix 22-C [Avian and Bat Work Plans], Appendix 22-D, [Avian and Bat Reports], Appendix 22-E [Wildlife Inventory], Appendix 22-F [NHP Correspondence], Appendix 22-H, [Cumulative Effects Analysis], Appendix 22-I, [Rare Bat Take Estimate], and Appendix 22-J, [Net Conservation Benefit Plan].

Aside from collision risk, the Application assessed potential impacts associated with the construction and operation of the Facility to bats from loss of habitat, displacement and habitat fragmentation. *Id.* Construction of the Facility is not expected to negatively impact the suitability of foraging or roosting habitat for bats. *Id.* Species distribution may shift in the Facility area as a result of creating additional edge habitat and cleared corridors, but this effect is unlikely to be measurable. Sufficient intact and large forest patches will remain for species that forage within the forest interior habitats as well as those that prefer open habitats and edges. *Id.* Open water and wetland resources, which provide foraging habitat for many bat species in the region, are not limiting in the landscape, and the

Applicant is avoiding impacts to open water and wetland resources. *Id.* Overall, it is unlikely that loss of habitat, displacement, and habitat fragmentation as a result of Facility construction will have a population-level impact on any bat species. *Id*.

In addition, it is anticipated that tree clearing will primarily take place between November 1 and March 31 when bats are hibernating. If tree clearing is required outside this season, the Applicant will implement measures to avoid potential impacts from tree clearing as outlined in Revised Proposed Certificate Condition 90. (Hearing Exh. 304).

With respect to collision risk, the Applicant, NYSDPS and NYSDEC agree that the Facility will present a similar collision risk to bats as has been documented at other operating wind facilities in New York and the Facility has the potential to result in take of the state-threatened northern long-eared bat ("NLEB"), and state-endangered Indiana Bat thereby triggering the requirements of Article 11 of the Environmental Conservation Law ("ECL") ("Article 11"), and its implementing regulations set forth in 6 NYCRR Part 182 ("Part 182").

There is nothing unique about the proposed Facility that represents an increased risk to these bats, and the Facility's risk to bats is comparable to other wind projects which have been granted a Certificate pursuant to Article 10. Therefore, in order to minimize and mitigate potential impacts to migratory tree bats and state listed species, **the Applicant has agreed to apply the same minimization and mitigation measures that the Siting Board found acceptable in the *Eight Point Wind*, *Number Three Wind*, and *Bluestone Wind* proceedings (Hearing Exh. 304, Conditions 59 and 61).** These Conditions are acceptable to NYSDEC and were designed to avoid, minimize, and mitigate impacts to all bats, including state listed species and migratory tree bats (i.e., eastern red bat, hoary bat, and silver-haired bat), and contain a curtailment regime at all turbines for the life of the Project during the period from **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted]

[redacted] **</END CONFIDENTIAL INFORMATION>**.

As outlined below, the Applicant's proposed operational curtailment plan and Net Conservation Benefit Plan adequately avoids, minimizes and mitigates impacts to bats. Given that the risk to migratory tree bats is the same for Deer River as it is for other projects and NYSDEC has agreed with the Applicant's proposed curtailment, the Siting Board can find that the Applicant has avoided, minimized and mitigated impacts to bats to the maximum extent practical and has met its obligations under Article 11 and Part 182 for listed species by implementing the same minimization and mitigation measures as other projects reviewed under Article 10.

A. The Applicant Has Adequately Avoided, Minimized and Mitigated Impacts to Indiana Bat

With respect to impacts to the state-endangered Indiana Bat, the Applicant will avoid impacts to Indiana bats by implementing an interim avoidance curtailment program consistent with recommendations of the US Fish and Wildlife Service ("USFWS") (Hearing Exhibit 304, Condition 60). This plan will be implemented until the Applicant has obtained take authorization via approval of a Habitat Conservation Plan in coordination with the USFWS unless otherwise agreed upon with the USFWS. Once the Applicant has obtained take authorization from USFWS the Applicant will implement a curtailment program consistent with its federal and state take permits. No party has objected to this curtailment program for Indiana Bats and all parties agree that the Applicant will work with USFWS and NYSDEC to develop a take estimate and appropriate conservation plan that will simultaneously satisfy Environmental Article 11 and Part 182. There is no dispute among the Parties with respect to the Applicant's proposed avoidance, minimization and mitigation for Indiana Bats, and the Siting Board can find that the curtailment program proposed for Indiana Bats adequately avoids, minimizes and mitigates impacts to Indiana Bats.

B. The Applicant Has Adequately Avoided, Minimized and Mitigated Impacts to NLEB

With respect to impacts to the state-threatened NLEB, NYSDEC considers the entire state of New York to be occupied NLEB habitat during the fall migration period (July 1 to September 30). In addition, acoustic surveys conducted in July and August of 2016 for the Facility, detected presence of NLEB (Hearing Ex. 3, Appendix 22-D). However, there are no NLEB maternity roosts within 1.5 miles of the Project (Tr.476, L4-5). Therefore, NYSDEC has determined that NLEB are present in the Facility Area and that the Facility Site represents "occupied habitat" for purposes of Article 11 and Part 182.

NYSDEC also assumes that presence means that all land-based wind projects could "take" NLEB triggering Article 11 and Part 182 and the need for the Applicant to obtain an incidental take permit for these species (Tr.471, L14-16). Under Part 182, activities that are "likely to result in the take or taking of any species listed as endangered or threatened" must obtain an incidental take permit from the Department.

The Applicant maintains that while it is possible that NLEB could pass through the area during fall migration (July through September) in very low numbers, this does not imply a "likelihood" of take to trigger the need for an Article 11 permit. The take of NLEB is unlikely based on current post-construction data in New York and the northeast. Wind projects have operated in New York since as early as 1999, nearly 1900 MWs of wind have been developed in total over the last 20 years, and only 7 NLEB mortalities have been recorded at New York wind projects since white nose syndrome ("WNS") (Hearing Exh. 179). Of the 7 known NLEB fatalities, 6 occurred at the Wethersfield wind project suggesting that the potential for take more typically in the state is low (Hearing Exh. 179). Of all bat species in New York, NLEB are the most maneuverable and weakest fliers, characteristically foraging below the forest canopy and gleaning insect prey off leaves (Tr.115, L10-11). Their morphology is not conducive to flight in high winds and their foraging habitats suggest they do not typically fly as high as the rotor zone of wind turbines (Tr.115, L11-12). This likely contributes to their

apparent low rate of turbine-related mortality relative to other bat species, even before population crashes due to WNS (Tr.115, L 13-14).

Even assuming there is some low potential for take, the Applicant has further reduced this risk by agreeing to curtail turbine operations during the following time periods:

- **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **</END CONFIDENTIAL INFORMATION>**.

The Applicant's curtailment regime during the fall migration period is expected to significantly minimize, if not avoid, NLEB fatalities based on a low propensity for turbine-related mortality and efficacy of curtailment to reduce this risk to negligible levels. Significantly, NLEB fatalities have not been reported at wind facilities where ***any*** form of turbine curtailment was implemented including feathering below normal cut-in speed (e.g. 3.5 – 4 m/s) (Tr.115, L8-10).

Although the Applicant believes that the evidence does not support the likelihood of take of NLEB, especially considering the curtailment proposed, the Applicant has agreed to assume the presence of NLEB at the Facility and apply for an incidental take permit. While the Applicant disagrees with NYSDEC's NLEB take calculation and believes NYSDEC's take estimate overestimates the take of NLEB, the Applicant has nonetheless agreed to mitigate for the take of NLEB as calculated by NYSDEC (Tr. PP 110-114).

C. The Applicant Has Met the Requirements of ECL Article 11 and Part 182

DEC argues that Part 182 (1) requires that the Applicant avoid impacts to listed species, to the extent practicable. If such impacts cannot be fully avoided based on a showing by the Applicant that full avoidance is impracticable, then the Applicant is (2) required to minimize impacts to the maximum extent practicable. If impacts are demonstrated to be unavoidable, the Applicant must (3) provide appropriate and effective mitigation, resulting in a net conservation benefit.

D. The Applicant Has Demonstrated that Avoidance, as Defined by NYSDEC, is Not Practicable

NYSDEC argues that Part 182 requires the Applicant to first "avoid" all impacts to NLEB, to the extent practicable. NYSDEC also asserts that "complete avoidance" of impacts to NLEB can only be accomplished through curtailment during May and June when wind speed at hub height is 5.0 m/s or greater, and also during July, August and September when wind speed measured at hub height is 6.9 m/s or greater at times when the ambient temperature is 50 degrees Fahrenheit (10 degrees Celsius) or greater. The turbine curtailment would only need to be in place from ½ hour before sunset to ½ hour after sunrise (Tr. P486 L14-20).

As explained above, the Applicant maintains that the curtailment regime proposed by the Applicant, is just as likely to avoid impacts to NLEB as the "avoidance" plan recommended by NYSDEC within the season in which most risk occurs (July – September). There is no evidence in the record that NLEB fatalities occur when turbines are curtailed at 5.5 m/s, therefore a curtailment regime that curtails at 6.9 m/s, as is proposed by NYSDEC, would not have additional benefit within this period.

Notwithstanding, the Applicant has also demonstrated that implementing a curtailment regime as described by NYSDEC with a 6.9 m/s cut in speed would make the project uneconomical and therefore not practicable (Hearing Exh. 158). Simply put, curtailment as described by NYSDEC would result in a loss of renewable energy generation, and the resulting economic impacts to the Facility would make it unviable and unattractive to investors (Hearing Exh. 158). This is particularly true for Deer River, as Deer River is still actively engaged in bidding for REC contracts and power purchase agreements. An avoidance regime at 6.9 m/s would impose a curtailment regime unlike any other wind facility in New York State, and the cost of this curtailment regime would result in unsuccessful participation in commercial bids and procurement as the Facility would not be able to compete with other projects for the "lowest" costs. Without a commercial offtake option, the Facility would be less

attractive to investors and ultimately, increases the likelihood that this "good project" is never constructed. Therefore, prohibiting turbine operations until 6.9 m/s for little to no additional benefit to NLEB would be impractical (Tr.115, L17-19). Moreover, as further described below in response to NYSDPS's proposed curtailment regime, increasing curtailment to the months of May and June results in substantial energy loss but provides little to no additional benefits to NLEB. This is especially true here, where there are no known maternity roosts within 1.5 miles of the Facility, unlike other projects that have documented roost trees at the facility site, which could justify an extended curtailment period for NLEB (See *Canisteo Wind Proceeding*, Case No. 16-F-0205). Given the evidence in the record on loss energy generation and economic costs to the Project if the Applicant were required to curtail at NYSDEC's recommended plan, the Siting Board can find that "avoidance" as defined by NYSDEC is impracticable.

E. The Applicant's Proposed Curtailment Is an Effective Minimization Measure to Substantially Reduce Mortality of NLEB, and the Applicant Has Minimized Impacts to the Maximum Extent Practicable as Required by Article 10 and Article 11

The NYSDEC, NYSDPS and Applicant agree that the Applicant's proposed curtailment is an effective measure to minimize potential impacts to NLEB. The Applicant has proposed to curtail as follows: **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<END CONFIDENTIAL INFORMATION>**. This curtailment plan is consistent with NYSDEC's minimization plan outlined in their direct testimony, and as explained above is consistent with the curtailment plans adopted in other Article 10 proceedings. NYSDEC estimates that a cut-in speed of **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<END CONFIDENTIAL INFORMATION>**, can reduce impacts to NLEB by 85%, according to data presented in NYSDEC-DH-3 Figure 2 (Hearing Exh. 179). Given the evidence in

the record the Siting Board can find that the Applicant's proposed curtailment minimizes impacts to NLEB to the maximum extent practicable.

F. The Applicant's Proposed Mitigation will Result in a Net Conservation Benefit to the Species

In addition to the proposed curtailment, the Applicant has agreed to implement one or more of the mitigation measures identified by NYSDEC to mitigate impacts to NLEB and provide a net conservation benefit to the species as required by Article 11 and Part 182 (Hearing Exh. 304, Condition 59). The Applicant will submit a final Net Conservation Benefit Plan ("NCBP") for the total calculated take of NLEBs over the life of the Project and will commit to mitigation that will result in a net conservation benefit to the listed species. Therefore, the Siting Board can find that the Applicant has adequately mitigated impacts to NLEB pursuant to Article 10, Article 11 and Part 182.

G. The Applicant has avoided, minimized and mitigation impacts to Migratory Tree Bats to the Maximum Extent Practicable

Again, the Parties do not disagree that a cut-in speed of **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** is adequate minimization for NLEB. In addition, the Applicant and NYSDEC agree "a cut-in speed of **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** would result in a significant reduction in fatalities of the migratory tree bats." (Tr.488, L19). However, NYSDPS has submitted testimony in this proceeding that additional curtailment is necessary to effectively minimize potential impacts to migratory tree bats (Tr.659). As explained below, the curtailment program recommended by NYSDPS Staff should be rejected as it unnecessarily restricts operation of the Facility for little demonstrated benefits to migratory tree bats. The curtailment regime proposed by the Applicant, and agreed to by NYSDEC, significantly reduces impacts to migratory tree bats without unreasonably restricting renewable energy generation, and the Siting Board can find that with the Applicant's proposed curtailment impacts to

migratory tree bats has been avoided, minimized and mitigated to the maximum extent practicable as they have done in other proceedings with the same curtailment.

ii. DPS Staff's Recommended Curtailment is Not Required to Adequately Minimize Risk to Migratory Tree Bats and Unnecessarily Restricts Energy Production

Despite, the fact that the Applicant's curtailment regime has been accepted by the Siting Board in three other proceedings, and found to be adequately protective of tree bats, and that NYSDEC concurs with the Applicant's proposed curtailment program, NYSDPS staff unnecessarily seeks to further limit the operation of the Facility by requiring additional increased curtailment.

NYSDPS proposes a "two tiered" curtailment program with **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** are similarly protective both ranging somewhere between 60% and 75%. However, the plans differ substantially in terms of cost of energy loss. Based on power loss estimates prepared by the Applicant (Hearing Exh. 158) NYSDPS's plan would result in substantial losses in energy and net revenue.

As explained further below, the curtailment program recommended by NYSDPS Staff should be rejected as it unnecessarily restricts operation of the Facility for little demonstrated additional benefits to bats.

First, NYSDPS Staff, was unable on cross examination to justify extending the curtailment regime to the months of May, June and October. In Direct Testimony NYSDPS claims that extending curtailment to these months could further reduce bat mortality by 10% (Tr.663, L19-20). However, NYSDPS estimated this reduction without accounting for differences between the three months (Tr.683). While, 83% of bats reported killed at wind projects in New York are found between July 1

and October 1. This does not mean that the remaining 17% of bat fatalities are distributed evenly among May, June and October[8], nor does it mean that bats are present equally across the landscape during these months. NYSDPS Staff admitted that they did not investigate the presence of bats during these months (or the species typically present) and that the distribution of these bats during these months is likely different by month and location (Tr.683, L4-6). If NYSDPS Staff had investigated this they would have easily been able to tell that the month of October has less documented bat fatalities than the month of May and the month of May has less documented bat fatalities than June, indicating less presence in the months of May and October (Hearing Exh. 92, Figure 7). In fact, only 2% of bat carcasses in New York at studies referenced in Table 2 of NYSDEC-DH-3 were found during October[9] (Tr.120, L10). DPS Staff's recommended curtailment plan fails to incorporate this information by using a relatively high wind speed during a broad summer/fall period and continuing curtailment into October, when available data suggest low risk in New York for bats. Implementing curtailment during these low risk periods comes at a substantial energy loss (Hearing Exh. 158) while providing little additional benefit to bats that are scarcely on the landscape. Therefore, NYSDPS Staff's recommendation to increase the time period of curtailment to May, June and October should be rejected.

Secondly, NYSDPS Staff mischaracterizes available information regarding the relationship between cut-in speeds of curtailment programs and their associated fatality reductions. NYSDPS Staff uses a regression analysis to argue increased curtailment automatically equates to increased protection and that this relationship is linear (Hearing Exh. 159). However, this analysis mischaracterizes the relationship between risk reduction and energy loss and does not acknowledge that curtailment effectiveness varies by curtailment regime, by species, by region, and by season (Hearing Exh. 93). As

[8] Many Post Construction Monitoring Reports from operating wind projects in New York cover from April through November. (Hearing Exh. 179).
[9] Notably DEC does not recommend any curtailment in the month of October for NLEB.

can be clearly seen in Table 4 of Exhibit 93, the relative benefit of higher cut-in speeds accrued most quickly between 3.5 – 5.5 m/s, above which further reductions were less. This indicates that most of the benefit from curtailment occurs in the first 1 – 1.5 m/s increase above normal cut-in speed, while the potential to further reduce risk to bats decreases with higher cut-in speeds. Therefore, the data available on curtailment, from projects across the Country, suggests a nonlinear relationship, with diminishing benefit of curtailment at higher cut-in speeds.

Moreover, NYSDPS's regression analysis falls to account for energy production relative to increased protection for bats. The amount of power production lost with curtailment increases with the cube of the wind speed, i.e., reductions in power production increase rapidly with the increase in the wind speed threshold for curtailment (Hearing Exh. 93, P.15). In other words, the majority of protection to bats occurs at wind speeds below 5.0 m/s (over 50%), when the majority of cave hibernating and migratory tree bats are flying and present on the landscape. While increasing speeds above 5.0 m/s can have some increased benefits, those benefits are marginally more protective while being exponentially more costly to the Applicant and the environment. The costs of implementing NYSDPS's proposed curtailment regime significantly outweighs the benefits, especially when considering the reduced energy production and effects of climate change (Hearing Exh. 93, P.9).[10]

The Applicant has proposed to limit the operation of the Facility up to **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>**, would reduce potential impacts to all bats by 60% ***or more*** and NLEB by 85% ***or more***. The Applicant's proposed curtailment reduces the renewable energy and renewable energy credits generated by the Facility, which impacts project economics, but in a manner

[10] Suitable area for summer maternity colonies of Indiana bat are forecasted to decline as a result of climate change, particularly in western and central parts of its range (Loeb and Winters 2013). Frick et al. (2010b).

that balances the impacts to the Facility economics with the potential significant reduction in impacts to bats (Hearing Exh. 93).

Moreover, NYSDPS admitted that requiring projects to operate with curtailment reduces energy which in turn could require more projects to meet the states ambitious energy goals, and more turbines on the landscape presents an increased risk to bats (Tr.690). Consequently, requiring increased curtailment at substantial energy loss, may have the unintended consequence of offsetting reductions in cumulative bat mortality. (Hearing Exh. 93, P19).

In light of the above, NYSDPS has failed to demonstrate that the Applicant's proposed curtailment plan is not adequately protective of migratory bats. There is nothing unique about this Facility that would require a different curtailment regime than that adopted by the Siting Board in other proceedings. Extending curtailment during the months of May, June and October will have little additional benefits to bats and increasing curtailment from 5.5 m/s to 6.0 m/s in July through September will likewise provide little additional benefit.

For the reasons in this record, which are directly in accord with the reasoning set forth by the Siting Board in *Eight Point Wind, Number Three Wind,* and *Bluestone Wind* proceedings, the Hearing Examiners should accept the Applicant's proposed Certificate Conditions that establish the Applicant has avoided, minimized or mitigated impacts to bats and reject DPS's proposed curtailment plan.

Given the above, the Record demonstrates that the Applicant has avoided, minimized and mitigated impacts to bats to the maximum extent practicable, consistent with PSL § 168(3)(c), and has met the substantive requirement of Article 11 and Part 182 for state listed species.

b) Grassland Birds

The Application provided an evaluation of potential impacts to avian species and their habitats (Hearing Exh. 2, Application Exh. 22). The Applicant also assessed potential impacts from the Facility on Threatened and Endangered Species, including Northern Harrier ("NOHA"), the grassland bird

species identified by NYSDEC and Facility studies to be potentially present in the Facility Area in this proceeding (Hearing Exh. 2, Application Exh. 22, pp 44-46; Tr.521, L10-13). During pre-application avian studies performed for this Facility, NOHA were observed in the Facility Area (Hearing Exh. 2, Application Exh. 22, pp 16-17, 19, 34 and Table 22-8).

The primary potential impact on grassland bird species identified in the Application was displacement of these species by construction activities during the breeding periods (Hearing Exh. 2, Application Exh. 22, p 28) and habitat impacts generally, including loss of habitat through permanent habitat conversion and habitat fragmentation (Hearing Exh. 2, Application Exh. 22, pp. 28-30; 33-35). NYSDEC identified an issue related to construction within occupied NOHA habitat, which could disturb NOHA during the breeding season (Tr.521, L10 through Tr.522, L2).

Notably, with respect to potential impacts, NYSDEC does not evaluate or weigh the benefits to grassland bird species from this renewable energy project and its contribution to addressing climate change, which is predicted to have significant impact to threatened and endangered species (Tr.159, L7 through Tr.160, L15). Projected increases in global temperatures from climate change puts over two-thirds of North American bird species at risk (*Id.*); the State has made strong commitments to address those risks by transitioning New York to renewable electricity and reducing greenhouse gas emissions by constructing Facilities such as the DRWF (Tr.160, L7-15). These benefits to the species associated with the Facility must be balanced against NYSDEC-identified impacts.

In particular, for this Facility, the potential impacts to grassland bird habitat are relatively limited and minor. The Applicant identified approximately 37 acres of possible grassland habitat in the Facility Area which could be suitable for grassland species generally—about 1% of the vegetated non-forest habitat in the Facility Area—and which could potentially be impacted by the DRWF (Hearing Exh. 2, Application Exh. 22, p. 35). To facilitate further identification of occupied NOHA habitat, and viable NOHA breeding habitat, within this subset of identified grasslands, NYSDEC

provided the Applicant with two maps showing an "occupied habitat area" polygon marked in red within the Facility Area (Hearing Exhs. 173-74). Based on the mapping provided by NYSDEC, there was one turbine and an associated access road and collection line within the identified "occupied habitat area" polygon (Tr.156, L1-20; Tr.522, L19-20; Tr.524, L12-15; Tr.528, L8-12). Specifically, **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** were proposed within the NYSDEC's occupied habitat area polygon (Tr.528, L8-12; Hearing Exhs. 174-74). Importantly, these polygons were created by applying a broad radius around incidental observations of NOHA reported to the New York Natural Heritage Program or Breeding Bird Atlas, and are based on the presumption that NOHA were likely breeding in the vicinity of those observations, in unspecified fields within those polygons which meet the criteria for NOHA breeding habitat (grassland fields of at least 25 acres in size)(Tr.156, L6-12). While it is possible that NOHA breeding may occur within the NYSDEC's identified polygons, the fields at issue are not suitable for NOHA breeding; these fields do not meet the criteria for either breeding habitat or occupied habitat, given that they are less than 25 acres in size and in light of the shrubby vegetative cover found there (Tr.157, L2-9).

Within the identified occupied habitat polygon, NYSDEC identified a 250-meter "impact area" around one specific turbine **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** to denote the anticipated radius within which impacts to NOHA breeding activities were possible, based upon the available evidence of potential impacts to NOHA from wind turbines (Tr.523, L2-11; Hearing Exhs. 173-74). NYSDEC conceded in testimony that the only open field within the 250-meter "impact area" around the turbine in question is "somewhat shrubby," and concluded that the presence of the turbine was "unlikely to adversely impact breeding

NOHA at this site" (Tr.523, L2-5). The shrubby nature of this field edge (in addition to the forested areas nearby) make it unsuitable for NOHA breeding (Tr.156, L20 through Tr.157, L9). Nevertheless, NYSDEC testified that the Applicant needed to take measures to avoid the small amount of potential impacts to "occupied" NOHA breeding habitat (Tr.528, L8 through Tr.530, L10). For purposes of resolution of the issues, the Applicant conceded that the areas identified by NYSDEC were "habitat" and investigated potential options to resolve the "impact."

In rebuttal testimony, the Applicant generally sought to clarify the NYSDEC's characterization of the "occupied habitat area" polygon portrayed in Hearing Exhibits 173 and 174 as "occupied" NOHA habitat was broad, given that the predominant land cover type within the areas designated by NYSDEC on those exhibits was forested land, shrubby land, or lands which are otherwise not suitable NOHA habitat (Tr.156, L3-12). Under NYSDEC's own definition, only those open fields of at least 25 acres in size within the boundaries mapped in Hearing Exhibits 173 and 174 are occupied NOHA breeding habitat (Tr.533, L7-9). Problematically, NYSDEC's testimony appears to conflate the "occupied habitat areas" identified in Hearing Exhibits 173-174 with "occupied habitat" for purposes of determining whether the Applicant proposes Facility components within occupied NOHA habitat (see, e.g., Tr.524, L12-15). Specifically, NYSDEC testified that the access/collection route in question was located within "occupied habitat" (Tr.524, L14-15). However, after performing a site visit with NYSDEC and reviewing the maps provided, the Applicant concluded that DRWF components are not proposed to be located within suitable NOHA breeding habitat, because no components are proposed to be sited in open fields of at least 25 acres within the occupied habitat areas bounded in red on Hearing Exhibits 173 and 174 (Tr.156, L13 through Tr.157, L9). Thus, the Parties disagreed that the turbine and access/collection route in question are located within occupied NOHA breeding habitat, since the fields in which they are located are less than 25 acres in size, separately or combined, and are already too small to serve as viable NOHA breeding habitat (Tr.156, L19 through Tr.158, L13; Tr.533, L7-9).

Initially, NYSDEC requested that the Applicant investigate relocation of the turbine in question (Tr.157, L10-21; L522, L19 through Tr.523, L11). However, the Applicant testified that relocation was not possible due to existing approvals and agreements with the Federal Aviation Administration ("FAA") and the U.S. Department of Defense ("DoD") regarding turbine elevations, height and locations (Tr.897, L7-15; Hearing Exhs 15, Appendices C &D; Hearing Exh.95). Furthermore, wetlands on the property constrain the turbine's location, and relocating the turbine would require shifts of other project components potentially into wetland areas (Tr.157, L16 through Tr.158, L13; Hearing Exhs. 15, Appendices C &D; Hearing Exh. 95). Finally, there are non-participating residences to the north of the turbine in question, and could violate setbacks or noise restrictions at non-participating property lines or sensitive receptors (Tr.897, L12-15).

While the Applicant does not agree that the fields in question are occupied NOHA breeding habitat, given their substandard size (Tr.157, L10 through Tr.158, L13; Tr.161 L14 through Tr.162, L6), in the interests of addressing NYSDEC's concerns about avoiding and minimizing disturbance there, the Applicant shifted the access road in question closer to the field edge by 104 feet, into a "shrubby area" along the tree line (Tr.157, L18-21; Hearing Exh. 15, Appx. D). This placement resulted in the access/collection route in question being located in a manner which the NYSDEC and Applicant agree is "unlikely to adversely impact breeding NOHA at this site" (Tr.158, L9-13).

Moreover, to resolve NYSDEC's concerns and support the Siting Board's required findings, the Applicant and NYSDEC agreed to a Certificate Condition which provides further avoidance, minimization and mitigation of potential impacts to grassland bird species during the breeding period (Hearing Exh. 305, Condition 91). Specifically, the Applicant agreed to additional on-site inspections for NOHA breeding activity prior to performing construction activities within open fields in the identified occupied NOHA habitat area polygon (Hearing Exh. 305, Condition 91; Hearing Exhs. 173-174). With these restrictions in place, NYSDEC concurred that the Applicant "will avoid all impacts

to occupied NOHA habitat" (Tr.533, L14-15). On that basis, no take of occupied habitat will occur, and no permit is required under Part 182 of the Environmental Conservation Law (see Tr.528, L16 through Tr.529, L1; Tr.530, L18-20) resolving issues regarding the "occupied habitat" and location of Facility components.

c) Wetlands

In support of the Application, Atlantic Wind delineated within a Study Area of approximately 4,113 acres of wetlands across the Facility Site (Hearing Exh. 2, Application Exh. 22(i), Figure 22-3, Appx. 22-L and 22-M; Hearing Exh. 8, Appx. P), and an additional 364 acres related to the proposed Alternate Collector Route (Hearing Exh. 13, Appx. B, p.1 [Wetland and Stream Delineation Report]). This included an extensive delineation effort for the originally proposed "eastern collector route" which connected the northern and southern portions of the Facility via a line which crossed the Deer River, as well as the preferred "alternate collector route" identified as an alternative in the Application and studied further in the September and October 2019 Application Supplements (Hearing Exhs. 13 & 15). The Applicant assessed the functions and values of the wetlands delineated, then evaluated the potential impacts from the proposed Facility on those wetlands and regulated adjacent areas (Hearing Exh. 2, Application Exh. 22(i) through (n) and Appx. 22-L and 22-M).

Wetland field verification was performed with NYSDEC regional staff on October 29 and 30, 2018 (Hearing Exh. 15, p.20), with a follow up visit regarding jurisdictional wetland impacts held with NYSDEC staff on August 29, 2019 (Hearing Exh. 15, p 20). These NYSDEC consultations aided in the identification of state jurisdictional wetlands, which are summarized in Table 3 of the October 2019 Application Supplement (Hearing Exh. 15, p 20) and NYSDEC Testimony (Tr.991, L5 through Tr.992, L4). The parties are in agreement regarding the identification of NYSDEC state jurisdictional wetlands in the Facility Site (Tr.31, L2-7).

When designing the Facility, the Record reflects that the Applicant sought to avoid wetland resources wherever practicable (Hearing Exh. 2, Application Exh. 22(n)(1)(i); Tr.28, L15-20), and proposed adoption of measures during construction to avoid and minimize impacts to nearby wetland resources (Hearing Exh. 2, Application Exh. 22(n)(1)(ii); Tr.29, L1 through Tr.30, L19). With regard to State-regulated wetlands, the Applicant was able to fully avoid wetland resources in many areas and relocate Facility components to minimize impacts, such that the September 2018 Application Supplement reduced impacts to a total of 4 acres of permanent wetland impacts. Of the 4.0 acres total, 1.7 acres are permanent fill impacts, and 2.3 of are from forest conversion (Hearing Exh. 13, Appx B, Table 22-9). In State-regulated adjacent areas, the Application showed 12.9 acres of forest conversion in regulated adjacent areas, and 11.6 acres of permanent disturbance of adjacent areas themselves (Hearing Exh. 13, Appx. B, Table 22-9).

The Applicant engaged in numerous consultations with NYSDEC regarding wetlands, including conversations following the August 7, 2019 Procedural Conference, a meeting between the DRWF project team and NYSDEC regional staff on August 29, 2019 at the agency's regional offices, settlement discussions held September 4, 2019, and the NYSDEC's submission of an issues statement on September 19, 2019 (Hearing Exh. 15, p. 24 and Appx. C). During these consultations, the Applicant discussed NYSDEC's concerns about wetland impacts from the Facility and the Applicant made further revisions to the Facility design to resolve NYSDEC's issues (Hearing Exh. 15, p. 24 and Appx. C). Of the 19 Facility design modifications in the October 2019 Supplement, 13 of the modifications were made to further minimize wetland impacts and resolve NYSDEC issues (Hearing Exh. 15, Appx. C).

The Facility modifications resulted in an additional 20% reduction in direct impacts to State wetlands, and an overall 24.6% reduction in impacts to regulated adjacent areas (Hearing Exh. 45; Hearing Exh. 298). These changes reduced permanent wetland loss to 1.1 acres (a decrease of 35%),

permanent forest conversion to 2.1 acres (a reduction of 9%), for a total permanent wetland impact of 3.2 acres (a 20% reduction). Reductions to wetland adjacent area impacts included a 9% reduction in forest conversion (reduced to 10.2 acres), and a 40% reduction in permanent adjacent area disturbance (reduced to 7.0 acres).

Similarly, with regard to federal wetlands, the Application showed a total permanent wetland loss (*ie*, fill) of 10.9 acres (Hearing Exh. 2, Table 22-9). Layout refinements reduced federal wetland impacts to a total of 3.6 acres of permanent loss of federal wetlands (Hearing Exh. 45; Hearing Exh. 298).

These reductions in impacts were achieved in part by the selection of the alternate collector route, which allowed the Applicant to reduce anticipated wetland impacts and through micro-siting efforts made between August 2019 and the close of the evidentiary record (see, e.g., Hearing Exh. 15, Appx. C; Hearing Exhs. 45 & 298). The Alternate Collector Route was also sited parallel to existing roadways, which aided the Applicant in reducing overall impacts to undeveloped areas, including floodplain wetlands near two tributaries to Gulf Creek (state wetlands W313, W316 and W325), which would utilize a trenchless jack and bore technique to aid in the crossing of those stream features (Hearing Exh. 15, p. 6). The Applicant also opted to utilize overhead collection lines to span a large wetland crossing on this route (state wetland W080, Class 2) to avoid direct impacts to the wetland itself, particularly the open water sections (Hearing Exh. 15, p. 6). In selecting a route for the Alternate Collector, the Applicant sited components in upland areas to the extent practicable, to avoid as much as possible impacts to wetlands such as W080 in that area (Hearing Exh. 15, p. 21).

The Applicant will soon submit an Application to the Army Corps of Engineers for federal wetland permits under § 404 of the Clean Water Act, as well as an Application for a Water Quality Certification under § 401 of the Clean Water Act from the Siting Board. While the Siting Board is not required to make any findings related to that federal permit Application in the Article 10 Certificate

Order, the Applicant notes that this submission will contain additional refinements of the Facility layout to further avoid wetlands impacts, per federal permitting requirements. The Applicant has avoided wetlands where possible and has achieved as much minimization of impacts to wetlands as is reasonably practicable (Tr.32, L17 through Tr.34, L1; Hearing Exh. 2, Application Exh. 22(g) and (n)(1)(i)), meeting the requirements of 6 NYCRR Prat 663. The relatively modest remaining impacts, particularly in comparison to originally proposed impacts, will be mitigated in accordance with the Mitigation Plan to be reviewed and approved as a condition to the Certificate by NYSDEC and NYSDPS for state wetlands, and through the federal wetland permitting process for impacts to federal wetlands (Hearing Exh. 22(n)(2); Tr.46, L14 through Tr.47, L6). The Applicant has agreed to a number of Certificate Conditions related to these requirements, including proposed conditions 78(c), 85(b), 94-95, 98-99, 102-113, 119-120 (Hearing Exh. 304). Furthermore, additional conditions and restrictions for wetlands related are set forth in the SEEP (Hearing Exh. 305, pp. 7, 12-16, 19-23).

Despite the Applicant's having avoided and minimized impacts to wetlands and regulated adjacent areas, NYSDEC testified that the Applicant has not sufficiently justified why all impacts to NYSDEC-regulated resources are unavoidable (Tr.993, L13-14). This statement appears to be primarily based on NYSDEC witness Christopher Balk's belief that "the Project has a lot of buildable upland that is not within Article 24 jurisdictional wetlands and AAs" (Tr.32, L17 through Tr.33, L1; Tr.993, L1-4). Yet this assertion fails to acknowledge the myriad siting constraints identified in the Record which make movement of Facility components into "upland" areas infeasible (Tr.33, L2 through Tr.34, L1)—constraints such as a lack of land control, active agricultural resources, proximity of protected historic structures and, in one instance, a home, and technological limitations. Moreover, in some instances the changes advocated by NYSDEC would result in increased direct impacts to wetlands or increased overall impacts to wetlands and regulated adjacent areas (see, e.g., Tr.35, L4-15; Tr.37, L1-15).

In Direct Testimony, Mr. Balk identified 17 areas where he asserted changes could be made to the Facility design to further avoid wetlands and adjacent areas. However, 5 of the wetland impact concerns identified in NYSDEC's testimony related to federal—not state—wetlands, over which NYSDEC has no jurisdiction (Tr.35, L16 through Tr.46, L13; Tr.993, L17 through Tr.996, L3 [identified items 3, 5, 12, 13, 14 and 17]). Of the remaining areas, NYSDEC has accepted the Applicant's explanations regarding the practicability of further Facility modifications provided in the rebuttal testimony of Eben Baker (Tr.23 through Tr.55; Hearing Exhs. 45, 47 and 298) for all but 7 areas of concern raised in Mr. Balk's testimony: areas 4, 6, 7, 8, 9, 11 and 16. In a January 6, 2020 memorandum to NYSDEC (Hearing Exh. 298), the Applicant identified a few additional micro-siting moves which it would consider in order to address those seven remaining wetland areas in dispute, and generally outlined the constraints preventing further reductions to address others.

The Applicant challenged the additional modifications proposed by NYSDEC because they would impose highly burdensome costs and technical challenges which are out of balance with the level of impact actually anticipated to wetlands or regulated adjacent areas. For example, in area 4 of Mr. Balk's testimony (Hearing Exh. 283 [segment labelled "HDD"]), an overhead collection line spanning a wetland south of Hubbard Road, NYSDEC has asked the Applicant to evaluate performing horizontal directional drilling ("HDD") for that wetland crossing (Hearing Exh. 298, pp. 1-2). This request is unreasonable because there are no permanent wetland impacts anticipated at this location; no permanent pole structures are proposed within the wetland, no equipment will cross this portion of the wetland, and no clearing is required at this location (*Id*.; Tr.36, L7-20). Utilization of HDD technology for this crossing would be orders of magnitude more expensive and technically complex, as compared with the overhead method currently proposed, without reducing impacts to the wetland resource, because there are ***no*** impacts to the wetland resource at this location (Hearing Exh. 298, pp. 1-2; Tr.36, L7-20). It is not appropriate for the Hearing Examiners to find this analysis is necessary.

Furthermore, the Applicant does not propose to utilize trenching at this wetland crossing—the Applicant specifically selected an overhead crossing method to avoid and minimize impacts to the resource (Tr.35, L7-20). The same is true for area 6 of Mr. Balk's testimony, which involves an overhead crossing designed to avoid direct disturbance to wetlands in a manner much more technically feasible than HDD (Tr.37, L16 through Tr.38, L14). In fact, the Applicant testified that Mr. Balk's proposed HDD alternative likely would not reduce impacts to wetlands (Tr.38, L4-13). The Applicant should not be required to perform an engineering-level feasibility analysis for a solution which is unreasonable and infeasible, where no permanent impacts to a protected resource are anticipated, or where a solution poses additional impacts to the wetlands it seeks to avoid.

Lastly, the Applicant objects to a request made by NYSDEC for adoption of a condition barring construction between April 1 and June 15 within "amphibian breeding areas" (Tr.54, L12-13; Hearing Exh. 165, DEC wetland condition 13). NYSDEC had given no prior indication that potential impacts to amphibian breeding areas were a concern for the Project (Tr.54, L12-15), and NYSDEC provided no testimony in support of this assertion or in favor of the proposed Condition. It appears that the condition is proposed as based on language from another Facility proposal but is not associated with potential impacts from this Facility. The Applicant delineated potential vernal pools in the Application and the September 2019 Supplement (Hearing Exh. 2, Application Appx. 22-L; Hearing Exh. 13) and identified only one potential vernal pool within the Facility limits of disturbance: a 10-foot by 10'foot man-made depression on an existing logging road, within federal jurisdictional wetland area (W177), along the "Eastern Collector Route" (Tr.54, L15-18)—an area which will not be impacted at all if the Applicant proceeds with the now-preferred Alternate Collector Route. No state or federal threatened or endangered amphibian species were documented within the Facility Site (Tr.54, L18-19), and no such species were identified by NYSDEC's Natural Heritage Program in its response to the Applicant's inquiries (Hearing Exh. 2, Application Appx. 22-F). As a result, there is no evidence of probable

environmental impacts to amphibian breeding from construction of the Facility, and thus no basis to impose construction time restrictions (Tr.54, L19 through Tr.55, L3). Moreover, this restriction places yet another burden on the Applicant's ability to construct the Facility in the timeframes necessary, given the various other construction time limitations imposed by NYSDEC and NYSDPS for protection of other resources (*see, e.g.*, tree clearing restrictions for bat species and construction limitations for grassland bird species). The Applicant has met its burden in demonstrating the probable environmental impacts from the Facility—of which amphibian breeding is not one. NYSDEC has failed to establish that an adjudicable issue exists with regard to this impact, and thus lacks any basis to impose its proposed restriction, which should be rejected.

In summary, the Record contains the required characterization of potential impacts to wetland resources, and the Record demonstrates that the Applicant has avoided and minimized impacts to State-regulated wetlands and adjacent areas to the maximum extent practicable, as required by Article 10 of the PSL § 168(3)(c), Article 24 of the Environmental Conservation Law, and 6 NYCRR Part 663 (Tr.32, L17 through Tr.34, L1; Hearing Exh. 2, Application Exh. 22(g) and (n)(1)(i)). Remaining unavoidable permanent impacts to State jurisdictional wetland resources will be mitigated, in accordance with the conceptual wetland mitigation plan, and Certificate Conditions requiring the Applicant to work with NYSDEC and NYSDPS regarding final approval of the plan (Tr.46, L14 through Tr.47, L6; Hearing Exh. 304, Certificate Condition 120; Hearing Exh. 305, SEEP pp. 22-23).

d. Streams and Waterbodies

In addition to delineating wetland resources on the Facility Site, the Applicant also delineated streams and water bodies and characterized projected impacts to these resources within the Facility Site (Hearing Exh. 2, Application Exh. 23, Appx 22-L; Hearing Exh. 8, Appxs. Q-T, Figures 23-1 through 23-3; Hearing Exh. 13, pp.18-21 and Appx. T; Hearing Exhs. 15, 46, 48-49, and 52). Streams were identified utilizing methodology agreed upon by parties in the stipulations (Tr.27, L3 through Tr.28,

L14; Hearing Exh. 1, Stipulations 22 and 23), and stream classifications were taken from NYSDEC's stream classifications codified in 6 NYCRR Chapter X (Hearing Exh. 2, Application Exh. 23, p.9 and Table 23-4; Hearing Exh. 8, Appxs. Q-T, Figures 23-1 through 23-3). Stream crossing plans were provided (Hearing Exhs. 48-49) to describe in more detail the Applicant's planned methods of crossing protected stream resources. Further review of these resources, including Direct Testimony from NYSDEC and an October 29 and 30, 2018 site visit with NYSDEC Regional Staff, enabled the Applicant to provide additional information on resources in the Facility Site, nearby stream resources outside of the Facility Site, and projected impacts to on-site resources (Tr.31, L2 through Tr.32, L4).

The Applicant utilized the stream and wetland delineation information to avoid and minimize impacts to protected streams, in the initially proposed layout (Hearing Exh. 2, Application Exh. 22(n); Tr.28, L15-20). The initial layout minimized impacts to protected streams and waterbodies by selecting the least impactful routes for access roads and collection lines (Hearing Exh. 2, Application Exh. 23, p. 11), and electrical crossings of protected streams will utilize overhead or trenchless jack and bore methods to minimize impacts to protected streams (Hearing Exh. 2, Application Exh. 23, pp. 11-14).

Following submission of the Application and gathering of additional information, the Applicant determined that it would utilize the Alternate Collector Route (see generally, Hearing Exhs. 13 and 15), eliminating an overhead crossing of the Deer River as well as a perennial stream, Lacey Creek, both Class C watercourses (Hearing Exh. 15, p.6). The Alternate Collector Route includes two permanent stream crossings involving tributaries to Gulf Creek, perennial streams S091 and S093, both of which can be crossed utilizing a trenchless jack and bore technique to avoid and minimize stream impacts (Hearing Exh. 15, p.6). The Applicant also submitted an Inadvertent Return Plan which will be used to avoid or minimize impacts to protected streams which might result from the use of the trenchless crossing methods proposed (Hearing Exh. 13, Appx. P).

There is one protected Class C(T) stream in the Facility Site, stream S074 (tributary to Lacey Creek), which is requires compliance with Article 15 of the ECL (Tr.31, L8-12) for construction activities. According to the regulations, a Class C(T) stream is a stream whose best use is for fishing, which is suitable for fish, shellfish and wildlife propagation and survival, as well as primary and secondary contact recreation (6 NYCRR § 701.8). The (T) designation indicates that the waters are trout waters, and that water quality standards, guidance values and thermal criterion for trout or trout waters apply to such streams (6 NYCRR § 701.25(a)). Class C(T) streams are protected for their value as cold water trout fisheries, and protections for these streams are geared toward sustaining the habitat for trout (Tr.500, L15-21; Tr.503, L11 through Tr.504, L16). To avoid and minimize impacts from collection lines proposed to cross this stream, the Applicant will install its collection lines utilizing a trenchless jack and bore method, thereby avoiding in-stream work or disturbance (Tr.30, L14-16). Further, given that the identified stream is a (T) trout stream, the Applicant will adhere to proposed seasonal limitations in Certificate Condition 96, which prohibits in-stream work between September 15 and May 31 (Hearing Exh. 304, Condition 96). NYSDEC has determined that the imposition of these limitations will avoid impacts to this Class C(T) stream (Tr. 52, L6-12; Tr.507, L9-21; Tr.511, L14-20).

However, NYSDEC contends that certain streams in the Facility area that are not defined C(T) streams should be protected as trout streams, and proposed imposition of all conditions applicable to protected Class C(T) streams to these streams as well, including, most significantly, construction limitations during certain seasonal periods. Specifically, in the Direct Testimony of Richard McDonald, NYSDEC testified that a number of streams classified by the Applicant as Class C streams (streams S063, S064, S071 and S073) should be treated as protected trout streams, with a standard of (T)(Tr.506, L8 through Tr.507, L2), despite the fact that the State has not classified these streams in that manner (Tr.50, 16 through Tr.51, L3). Mr. McDonald testified that, because NYSDEC captured

trout in these streams in the early 1990s, the Applicant should be required to treat the streams as Class C(T) streams and adhere to trout-related seasonal restrictions at those locations (Tr.506, L8 through Tr.507, L2) regardless of the fact that they are not regulated as Class C(T). It is contrary to the regulations for NYSDEC to attempt to reclassify a stream through its testimony; a prescribed process exists in NYSDEC's regulations for changes to stream classifications, under 6 NYCRR Part 609 (Tr.50, L19 through Tr.51, L1). If NYSDEC believed that the classifications of these streams needed to be revised from Class C to Class C(T), based on the observations cited by Mr. McDonald, then NYSDEC must follow its own process for reclassification of these streams (Tr.50, L16 through Tr.51, L3). As Mr. McDonald himself testified, NYSDEC has apparently had these data for over 25 years, and yet the agency has not modified the classifications of these streams (Tr.506, L8 through Tr.507, L2). There is no basis to require that the Applicant adhere to a different stream classification standard than that established by NYSDEC in its own regulations. Therefore, the Siting Board should reject NYSDEC's assertion that streams S063, S064, S071 and S073 should be treated as Class C(T) streams and affirm that the applicable classification is the one set forth in the NYSDEC's own regulations.

The Applicant has committed to implementing numerous Best Management Practices, Certificate Conditions and SEEP measures to avoid and minimize impacts to protected streams during construction of the Facility (Tr. 29, L1 through Tr.30, L19; Hearing Exh. 304, Conditions 78(c), 85(b), 94-106, 111, 113-118; Hearing Exh. 305, pp. 4, 6, Sections (B)(5)(a)(ii) through (B)(5)(b), (B)(8) and (B)(17)). For example, during construction, the Applicant will use methods such as "mat and span" for temporary stream crossings of streams not protected by the State (Tr.52, L13 through Tr.53, L5); will not use "open trench" methods for crossing streams with underground collection lines (Tr.53, L6-11); will limit equipment access to streams during construction (Tr.29, L7-9); will establish restricted activities "buffer" zones during construction, with numerous limitations on activities in those areas (Tr.29, L10-20); and will implement a Stormwater Pollution Prevention Plan ("SWPPP"), as part of

the State Pollutant Discharge Elimination System ("SPDES") General Permit for the Facility, to avoid potential stormwater impacts to protected streams and waterbodies (Tr.30, L1-9). By agreeing to these Certificate Conditions and SEEP measures, the Applicant has avoided and minimized impacts to streams and waterbodies to the maximum extent practicable, consistent with 168(3)(c).

Lastly, consistent with the Siting Board's recent decision in the Bluestone Wind proceeding (*Order Granting Certificate With Conditions in Case 16-F-0559*, p. 34), the Applicant requests that the Siting Board adopt slightly revised versions of Certificate Conditions 94, 97 through 101, 110, 111, 114, 115, 118 and 119 (Hearing Exh. 304) to clarify the State's regulatory authority and make it clear that the NYSDEC's jurisdiction to require conditions extends only to wetlands and streams which fall under the State's regulatory authority under Article 15 and 24 of the ECL. References to streams and wetlands in those Conditions should be revised to refer to "State-jurisdictional" or "regulated" streams and wetlands.

e) Agricultural Land

One of the benefits of wind energy facilities is that the bulk of the land comprising the Facility can be used concurrently for agricultural purposes. At the DRWF, the Applicant fully expects that many of its turbines and Facility components will operate harmoniously alongside active farming operations, such as the cultivation of crops or the use of lands for grazing, enabling farmers to maximize financial returns on their acreage (Hearing Exh. 2, Application Exh. 4(a)). The Application included information to characterize agricultural resources on the Facility Site, and to assess potential impacts to those resources (Hearing Exh. 2, Application Exh. 4(a), 22(b), Figures 4-2 [Conservation Easements], 4-7[Specially Designated Districts], 21-2 [Natural Resources Conservation Service Soils Maps]; Tr.166, L13 through Tr.167, L18). The Applicant provided additional information through discovery, including data and further assessment of agricultural impacts, in response to information requests from NYSDAM (see, e.g., Hearing Exhs. 29, 31 and 35).

Through careful site design, discussion with landowner-farmers, and review of the New York State Department of Agriculture and Markets' 2018 *Guidelines for Agricultural Mitigation for Wind Power Projects* ("DAM Wind Guidelines"), the Applicant avoided and minimized impacts to agricultural lands to the maximum extent practicable (Tr.167, L14-18; Tr.169, L1-3; Hearing Exh. 2, Application Exh. 4(a)). Of the 6,590 acres of agricultural district lands within the Facility Site, the Facility will impact only 385 acres of agricultural lands on a temporary or permanent basis (5.8% of the total agricultural land in the Facility Site), of which only approximately 135 acres will be permanently impacted (2% of the total agricultural land in the Facility Site (Tr.166, L18 through Tr.167, L4).

Following submission of the Application, the Applicant met with NYSDAM Staff on August 20, 2019 at the Applicant's Lowville office to discuss potential impacts to agricultural lands, and NYSDAM's primary concerns with the proposed Facility (Hearing Exh. 15, p. 24; Tr.168, L1-8). NYSDAM also attended and actively participated in the September 4 settlement meeting among the parties, and numerous changes to the Facility layout were made in response to NYSDAM's concerns (Hearing Exh. 15, p. 24 and Appx. C; Tr.168, L1-17). While the NYSDAM agreed that the Facility generally adhered to the DAM Wind Guidelines (Tr.634, L19 through Tr.635, L2), NYSDAM Staff identified several areas of possible design modifications (Tr.635, L6 through 639, L2). The Applicant made additional changes to address NYSDAM's concerns and provided explanations where it was unable to accommodate the requested changes (Tr.169, L4 through Tr.174, L4; Hearing Exh. 15, Appx C). In fact, of the 19 design modifications made to minimize impacts from the Facility in the October 2019 Supplement, 6 of the modifications were made to address NYSDAM's concerns (Hearing Exh. 15, p. 24 and Appx. C), and a 7th was considered by the Applicant and ultimately adopted by the time Hearings were held in December 2019 (Hearing Exh. 15, Appx. C, item 19; *see* Hearing Exhs. 281 and 299; Tr. 876, L4 through 877, L3; Tr.878, L14-17).

One of NYSDAM's primary concerns was impacts to prime agricultural soils from the Applicant's originally proposed Operations and Maintenance ("O&M") Building location in the Town of Pinckney (Hearing Exh. 15, Appx. C; Tr.173, L4-18; Tr.639, L4-22; Tr. 876, L4 through 877, L3; Tr.878, L14-17). The Applicant was able to shift the O&M Building, and associated temporary features including an adjacent laydown yard and staging area, to avoid prime farmland (Hearing Exhs. 281, 282 and 299; Tr. 876, L4 through 877, L3; Tr.878, L14-17), thereby substantially reducing the Facility's overall impacts on agricultural resources and soils of concern.

A number of the changes to Facility component locations requested by NYSDAM were not feasible for a variety of reasons (see Tr.169, L4 through Tr.174, L4; Hearing Exhs. 32-34). The primary challenge in accommodating requests from NYSDAM to shift components to avoid impacts to agricultural resources was the potential impact of the proposed shifts on other regulated resources, namely wetlands (Tr.169, L13 through Tr.170, L7). In many cases, conflicting requests made by NYSDEC and NYSDAM to shift components away from resources of most concern to each agency; NYSDEC sought relocation of access roads and collection lines into active agricultural fields, while NYSDAM sought to have the same components shifted closer to field edges and tree lines, often bringing those components closer to wetlands and adjacent areas (see, e.g., Hearing Exh. 299, regarding access road to Turbine J3; discussions regarding infeasibility of making NYSDEC-requested changes to accommodate wetlands because of impacts to agricultural resources at Tr.38, L15 through Tr.39, L9; Tr.40, L3-16; Tr.41, L6-16). Given this tension between positions taken by the agencies, the Applicant has endeavored to strike a balance between protection of wetlands and agricultural lands, and to avoid and minimize impacts to both resource types to the maximum extent practicable, consistent with the requirements of PSL § 168.

Lastly, the Applicant agreed to numerous restoration and agricultural monitoring measures consistent with the DAM Wind Guidelines, to ensure protection of agricultural resources during

construction and site restoration (Hearing Exh. 2, Application Exh. 4(a); Tr.167, L8-13; Tr.643, L13 through Tr.645, L7). An agricultural monitor will be present during construction to oversee work in agricultural lands (Tr.176, L9-19; Hearing Exh. 304, Condition 75), and appropriate stormwater protection measures will be implemented to avoid negative impacts to nearby agricultural lands (Tr.633, L13-15). Site restoration following construction will utilize appropriate replanting of vegetation or crops, in consultation with farmers and/or landowners (Hearing Exh. 304, Condition 107; Hearing Exh. 305, p.21). The Parties have also agreed to Certificate Conditions and provisions in the SEEP Guidelines which provide additional measures to avoid and minimize impacts to agricultural lands during construction (Hearing Exhibit 304, Conditions 40, 64, 75, 85(b) and 107; Hearing Exh. 305, pp. 7, 10, 15 and 21).

2. Exhibit 19 – Noise and Vibration

The Applicant has fully evaluated the potential noise and vibration impacts associated with the construction and operation of the Facility and has proposed noise limits that minimize annoyance and complaints, are attainable, and protective of human health and the environment (Hearing Exh. 2 & 3, Application Exh. 19, Application Appendix 19-A Pre-Construction Noise Impact Assessment ["PNIA"]). Studies have demonstrated that there are no health impacts associated with the Applicant's design goals and proposed noise limits. Moreover, while some people report being annoyed by wind turbine sound, studies have also consistently found that annoyance is more directly linked to visual cues and attitudes rather than to the sound itself.

The Applicant has also proposed certificate conditions and a post-construction compliance monitoring plan that will be able to verify that the Facility complies with the proposed noise limits and respond to any noise and vibration complaints (Hearing Exh. 109, Applicant's Revised Proposed Certificate Conditions; Hearing Exh. 61, Sound Testing Compliance Protocol). The Applicant's acoustical consultant, Epsilon Associates, Inc. ("Epsilon"), conducted sufficiently conservative sound

propagation modeling that demonstrates that the Facility will meet the Applicant's design goals and proposed noise limits to the maximum extent practicable. Epsilon's modeling approach was recently upheld by the Siting Board in the Bluestone Wind proceeding (Bluestone Order p. 60).

Despite the Applicant's robust evaluation, Miguel Moreno-Caballero, the acoustics witness for the NYSDPS, disagrees with the Applicant on two main points: the regulatory sound limits that should be implemented for the Facility and whether the modeling performed by the Applicant is sufficiently conservative to avoid under predicting actual sound impacts. In addition, Henry Spliethoff, the witness for the NYSDOH, has also submitted testimony in this proceeding regarding the regulatory sound limits that should be implemented for the Facility and argues the Siting Board should reconsider its rejection of the World Health Organization's 2018 ("WHO 2018") weak conditional recommendation for wind turbine sound (Hearing Exh. 123).

As further explained below, there is no basis to apply the recommendations made by NYSDPS and NYSDOH Staff: (i) the Applicant's proposed noise limits minimize annoyance and complaints, are attainable, and protective of human health and the environment (ii) the Applicant's modeling is sufficiently conservative, and (iii) DPS Staff's remaining contentions regarding the Post Construction Monitoring Plan, cumulative impacts, noise reduction operations ("NRO"), and property boundary limits are also without merit.

a. The Applicant's Proposed Noise Limits Minimize Annoyance and Complaints and are Attainable and Protective of Human Health and the Environment

The Applicant and NYSDPS[11] have proposed different regulatory limits for the Facility. The Applicant is proposing 45 dBA L8h[12], outside at non-participating residences. NYSDPS has proposed 42 dBA L8h[13] outside at non-participating residences. The Applicant's proposed limit is consistent

[11] NYSDOH largely adopts NYSDPS's proposed short-term limits in their testimony.
[12] 55 dBA L8h outside at participating residences.
[13] 52 dBA L8h outside day and night participating residences.

with prior Article 10 decisions, is sufficiently protective of health, and minimizes annoyance to the maximum extent practicable. There is no health basis to apply a stricter sound limit than that proposed by the Applicant.

The Applicant's proposed short-term regulatory limit of 45 dBA L8h at non-participating homes and 55 dBA L8h at participating homes is consistent with a variety of studies, recommendations and guidelines, which specifically address wind turbine noise, including: the National Association of Regulatory Utility Commissioners 2011 report (NARUC-2011)(Hearing Exh. 293), 2016 Health Canada Study ("Health Canada")(Hearing Exh. 63), 2017 Lawrence Berkeley National Laboratory report (Hearing Exh. 58) , and other Article 10 wind proceedings including the Siting Board's Orders in the Cassadaga Wind proceeding (Case 14-F-0490), Baron Winds proceeding (15-F-0122), Number Three Wind proceeding (16-F-0328), and Bluestone Wind proceeding (16-F-0559).

As explained in detail below, the Hearing Examiners and Siting Board should reject NYSDPS Staff's arguments for stricter sound limits because: (a) there is nothing new in this record that supports a different sound limit than the limits previously adopted by the Siting Board in other Article 10 wind proceedings, (b) the Applicant's proposed limits are protective of health and will result in minimal potential for annoyance, (c) NYSDPS Staff's short-term limit recommendation is based on incorrect and overly conservative assumptions and is technically flawed, and (d) NYSDOH Staff's reliance on the WHO 2018 Guidelines is misplaced.

i. *There is nothing new in this record that supports a different sound limit than the limits previously adopted by the Siting Board in other Article 10 wind proceedings*

During the administrative hearing Examiner Gregg C. Sayre asked the NYSDPS and NYSDOH Staff: "In the Number Three Wind proceeding, Case 16-F-0328, on November 12th [sic] the Siting Board adopted regulatory limits on noise that were the same as it adopted on September 12, 2019 in Baron Winds case 15-F-0122. Can you identify where in your testimony and exhibits there are things

the Board did not have in the record of the earlier two cases, that might be the basis for the adoption of different limits?" (Tr.844-845; see also Tr.1028). In response, Mr. Moreno and Mr. Spliethoff identified two studies not previously before the Siting Board[14] they claimed support the adoption of different limits:

- Exhibit 58 (RO-R3) "Wind turbine audibility and noise annoyance in a national U.S. survey: Individual perception and influencing factors," J. Acoust. Soc. Am. 146 (2), August 2019, T. Ryan Haac et al, RSG

- Exhibit 292 (HMS-4) Hongisto, V., Oliva, D., and Keranen, J. (2017). "Indoor noise annoyance due to 3-5 megawatt wind turbines—An exposure-response relationship," J. Acoust. Soc. Am. 142, 2185–2196.

Neither of these studies provide a basis for the Siting Board to adopt different limits. Exhibit 58 (hereinafter referred to as the RSG/LBNL paper) and Exhibit 292 (hereinafter referred to as the Hongisto paper) are reports of the level of potential annoyance of those living in proximity to wind turbines. These reports are relatively consistent in their findings of levels of annoyance with the numerous research papers that have been published for over the past 15 years in Europe, Canada, Australia and the United States, including reports which the Siting Board has considered in previous proceedings, such as the Michaud Study from Health Canada (Hearing Exh. 75). For references to these various papers, see Exhibit 19 and the rebuttal testimony of the sound and health experts from the Cassadaga Wind proceeding (Case 14-F-0490), Baron Winds proceeding (15-F-0122), Number Three Wind proceeding (16-F-0328), and Bluestone Wind proceeding (16-F-0559).

The RSG/LBNL paper and Hongisto paper identify sound as only a minor factor in being able to predict annoyance, with individual's attitude towards the project and the visual cue of the turbines being much larger contributors to an individual's state of annoyance than the noise itself. Neither paper advocates for, nor indicates a preference for, a permitted sound level based on the reported annoyance

[14] The other studies identified by the witnesses were clearly in the record of the previous proceedings as outlined in the sur-rebuttal testimony of Robert O'Neal.

levels. They certainly do not indicate that they support the use of a 10% highly annoyed threshold that the WHO 2018 used in setting their conditional weak guideline. Therefore, these papers do not provide any new or novel information that has not been considered by the Siting Board in past decisions.

Additionally, Mr. Moreno and Mr. Spliethoff both failed to mention that the Hübner paper (Hearing Exh. 78) is the health (stress) companion paper to the RSG/LBNL paper, with the same coauthors and research program. The Hübner paper investigated whether the wind turbine sound annoyance resulted in undue stress in those living around wind turbines. The authors found "*Objective indicators, such as the distance from the nearest turbine and sound pressure level modeled for each respondent,* ***were not found to be correlated to noise annoyance."*** (emphasis added). The Hübner paper provides consistent results with previous studies before the Siting Board (e.g., Michaud/Health Canada) that although a permitted sound level of 45 dBA (8-hr Leq) for non-participating receptors may be annoying to some, it would not result in impacts on health. Mr. Spliethoff admitted during testimony that he had not read the Hübner paper and was unaware of its results (Tr.1083). Clearly, as a health expert Mr. Spliethoff should have reviewed the health companion paper to the RSG/LBNL paper.

Moreover, contrary to the assertions made by NYSDPS and NYSDOH staff, the relationship between annoyance and noise has been evaluated and reviewed in earlier Article 10 proceedings. For example, in the Cassadaga Wind and Baron Wind's proceedings, dose-response curves, which correlate sound levels with percentages of highly annoyed individuals, were included in the noise impact assessments for those facilities. (See sur-rebuttal testimony of Kenneth Kaliski P6 L2-3; Exhibit 19 in the Cassadaga and Baron proceedings). Wind turbine sound and its relationship to annoyance is not a novel concept to this proceeding, there is no new or different information on health or annoyance in this Record that would support adopting different sound limits. The records before the Siting Board in earlier proceedings contained similar, if not the same information, as the record in this proceeding.

ii. *The Applicant's Design Goals and Regulatory Limits are Protective of Health and Will Result in Minimal Potential for Annoyance*

NYSDPS and NYSDOH Staff are recommending a short-term design goal and regulatory limit of 42 dBA (40.5 dBA if DPS modeling methodology using a 4-meter receptor height is applied to the Applicant's current modeling methodology). NYSDPS' justification for this short-term design goal and regulatory limit is to limit health impacts and reduce complaints. NYSDOH justification for this lower limit is based upon the WHO 2018 weak conditional recommendations, which have been rejected by the Siting Board in numerous Article 10 proceedings. As explained below, a lower short-term limit, than proposed by the Applicant, is not more protective of human health nor is it likely to substantially reduce complaints.

The project has been designed, and the Applicant has agreed to a regulatory limit to ensure that the Facility does not exceed 45 dBA L8h[15] outside, at non-participating permanent and seasonal residences. These levels were developed based on a literature review of health-based standards, guidelines on sound and annoyance, and previous Siting Board proceedings (Hearing Exh. 2, Exhibit 19) The purpose of the goals/limits is to balance reasonable development against potential impacts from the Facility. These levels are well below the level that can cause hearing impairment according to WHO, the EPA, and OSHA, is below thresholds for speech interference, is protective of human health, prevents any quality-of-life concerns, and effectively minimizes annoyance and complaints.

45 dBA L8h is also consistent with the Health Canada Study which found no association between wind turbine noise and any adverse health impact for wind turbine noise levels up to 46 dBA outside a residence (Hearing Exh. 63). The Health Canada Study concludes that for long-term exposure to wind turbine noise levels up to 46 dBA, the results do not support an association between wind

[15] 55 dBA L8h at participating receptors.

turbine noise and any health-related endpoint studied, including quality of life, sleep disturbance, a wide range of illnesses, chronic health conditions, or stress (Hearing Exh. 63).

The findings of Health Canada are supported by the recent Hübner paper (Hearing Exh. 78). The Hübner paper represents the first comprehensive study of annoyance and stress effects for people living around wind projects in the United States. People living between 262 feet and up to 3 miles from a turbine were included in the research and sound levels in the study ranged from <30 dBA to >50 dBA. The Hübner paper concludes that wind turbine annoyance and related stress effects are not a widespread problem, and annoyance levels were comparable to the levels associated with traffic noise. Moreover, the paper finds that factors other than hearing the turbines influence strong annoyance.

As established by the Applicant's health expert, Dr. Christopher Ollson, there is no health basis for a lower regulatory standard than the one proposed by the Applicant. Dr. Ollson has over 20 years of international consulting experience in environmental health sciences and toxicology and for the last decade has been engaged in research and reviewing the potential health effects that may be associated with living in proximity to wind turbines. He has conducted extensive research in potential health and environmental issues surrounding wind turbine facilities and has published numerous peer-reviewed articles and government white papers on the topic. Dr. Ollson testified that there have been over 100 peer reviewed scientific articles published in this field and the weight of scientific evidence indicates that adherence to the Applicant's proposed regulatory limits will ensure protection from both direct (e.g., sleep disturbance) and indirect (quality of life) health impacts. (Tr.213, L6-7).

Given the scientific evidence to date, it is impossible to set a sound level from wind turbines or any other source of sound that would eliminate annoyance from living in proximity to wind turbines. This is because only a fraction of reported annoyance is associated with sound and many other factors (visual cue and pre-existing attitudes) that could not be completely mitigated would still result in some

annoyance in the surrounding population. (Tr.224, L12-13) The Deer River Wind Farm sound limit of 45 dBA Leq (8 hour) at nonparticipating properties is a reasonable sound level that would ensure the protection of public health. Reducing the expected complaint rate any further is unrealistic, especially considering that some people are annoyed by wind turbines regardless of sound level due to visual or other impacts. This can be seen in the fact that 2% of people with sound levels below 30 dBA were annoyed by wind turbines (Hearing Exh.58).

A sound level of 45 dBA Leq 8-hour is protective of human health, prevents any quality-of-life concerns (including sleep disturbance), and effectively minimizes annoyance and complaints. A sound level of 45 dBA is a balance between landowner rights to develop their property, such as by hosting a wind turbine, and neighbor's rights to enjoy their land without unreasonable noise.

Moreover, as explained below, NYSDPS's Staff recommendation for lower short-term limits is based on incorrect and overly conservative assumptions and there is no basis to require a lower short-term sound limit than the one proposed by the Applicant.

iii. NYSDPS Staff's short-term limit recommendation is based on incorrect and overly conservative assumptions and is technically flawed

NYSDPS Staff recommends a 42 dBA short-term limit for non-participating properties and a 52 dBA short-term limit for participating properties to demonstrate "compliance with the 40 Lnight and 50 Lnight" (Tr.780, L3-4). This recommendation is based on inaccurate calculations and overly conservative assumptions and should be rejected. It is also an inappropriate attempt to make the long-term design goals a regulatory limit, something the Siting Board has repeatedly rejected in recent proceedings.

As explained further below, Mr. Moreno's equivalency calculations are overly conservative, and therefore the differences in the short-term and long-term are not simply 2 dBA as Mr. Moreno argues. Secondly, requiring this "evaluation" of the long-term using a short-term equivalent is just an attempt by NYSDPS staff to enforce their recommended short-term limit as the regulatory limit. The

Siting Board has consistently held 45 dBA 8-hour Leq is an appropriate regulatory limit and have done so while also ordering long-term modeling. There is nothing unique about Deer River that would require the Siting Board to deviate from their previous orders. A design goal is a sound level limit to which the project is designed. A regulatory limit is an enforceable limit that would be imposed on the project after the project is constructed. Not every design goal is translatable into regulatory limit because they may be difficult or impractical to measure or enforce. Therefore, the design limit is set during design, and the Applicant conducted modeling and design mitigation to meet those goals. Those designs are then carried forward into the construction and operation of the Facility, but are not necessarily measured or enforced during operation as compared to regulatory limits which are measured and enforceable during the operation of the Facility. The Applicant designed the Deer River Project in a manner to provide the lowest predicted sound levels practicable at non-participating homes, within all of the other siting constraints. However, this project optimization for adjacent landowners should not be used as the basis for setting a regulatory limit.

When preforming his equivalency calculations Mr. Moreno simply looks at only the short-term worst-case sound power level and assumes the same conditions will exist for an entire year but at a lower annualized sound power level. An annual Leq, night, outside level of 40 dBA or 50 dBA is conservatively high and overstates the actual expected sound level over an entire year. Other meteorological conditions – atmospheric stability and wind direction, for example – will vary throughout the year. The modeled Leq, night, outside sound level assumes a house is always downwind of every wind turbine for the entire year. This will never happen – when a house is upwind of some wind turbines, actual sound levels will be lower than those assumed in the model, and thus the actual annual sound level will be lower than the long-term modeled sound level (Tr.718, L12-13). Mr. Moreno's Exhibit MMC-9 (Hearing Exh. 128, P.12) shows a very clear increase in propagation loss under upwind periods as compared to downwind periods. The additional reduction in sound levels for

upwind sites as compared to downwind sites is about 6 dBA to 8 dBA under simultaneous measurements. This factor was not included in Mr. Moreno's calculations.

In fact, the Lawrence Berkeley Laboratory study (Hearing Exh. 58) confirms this fact. Hourly simulations of turbine sound power output for 61 different wind projects were generated using project-level hub height wind speed from NREL for a six-year period. The annual average equivalent sound level was 3.5 dBA less than the highest Leq-1-hour sound level. The paper goes on to say that this calculation represents a minimum difference since it does not account for conditions when atmospheric stability and wind direction are less favorable for sound propagation. Data from an actual wind farm in Vermont shows that the Kingdom Community Wind project's long-term sound level measured over eight seasons is approximately 6 dBA lower than the short-term highest value (Hearing Exh.59, P. 9, Figure 2). For these, and many other reasons no jurisdiction around the world has adopted a long-term annual regulatory sound limit for wind turbines.

Therefore, Mr. Moreno's assertion that a short-term sound level of 42 dBA is necessary to ensure a long-term annual 40 dBA and a short-term 52 dBA is necessary to ensure a long term annual of 50 dBA is incorrect. The actual difference between short term sound levels and long-term sound levels, when accounting for such things as directivity and atmospheric stability is closer to 4 or 5 decibels, which is much more consistent with the 45 dBA short term standard proposed by the Applicant.

iv. *WHO Guidelines should not be relied upon to set regulatory limits in this proceeding*

NYSDOH has recommended in this proceeding that the long-term (annual) facility noise impacts not exceed the guideline of 45 dBA L_{den} recommended by the World Health Organization in their "Environmental Noise Guidelines for the European Region ("WHO 2018") (Tr.1013, L16-18). WHO 2018 admits that their recommended descriptor, L_{den} may be a poor characterization of wind turbine noise and may limit the ability to observe associations between wind turbine noise and health

outcomes (Hearing Exh. 123, P.86). Much more work and research need to be done before any of the recommendations in the WHO 2018 Guidelines should be used by the Siting Board to adopt a regulatory standard.

The WHO 2018 literature review was conducted to retrieve relevant information for their evaluation of wind turbine sound, but was limited to studies published prior to 2014. Accordingly, the sole basis for the WHO 2018 conditional guideline is four papers that deal with wind turbine annoyance. However, the majority of the authoritative studies on wind turbine ***health***, including annoyance, were published after this time. In fact, there are over 60 peer-reviewed scientific publications on this research area since 2014 (Tr.215, L12-13). Therefore, at the time of publication in 2018 the WHO conditional guideline was already woefully out of date and does not represent the current state of the research in this field. As explained above, the current research supports that the levels proposed by the Applicant are protective of human health.

The WHO 2018 Guidelines admit that there is a lack of evidence linking wind turbine noise and public health impacts and only ***conditionally*** recommends the limit of 45 L_{den}. This is the weakest classifications of recommendations in the document (Hearing Exh. 123, P. xv). A conditional recommendation means that high quality evidence indicating a strong adverse effect is lacking (*Id*.). This conditional recommendation was not intended by WHO to be applied to proposed wind farms without further debate, review and consideration by appropriate stakeholders. A conditional recommendation requires a policy-making process with substantial debate and involvement of stakeholders (*Id*.). The WHO report acknowledges that in forming its recommendations for wind turbines, it appears there was no stakeholder input at all (Hearing Exh. 123, p. 146, Table A1.5). The Report also states that "…additional considerations of costs, feasibility, values and preferences should also feature in decision-making when choosing reference values such as noise limits for a possible standard or legislation" (Hearing Exh. 123, P. 29).

WHO 2018 states the following shortcomings of their work in Section 3.4.2.3 “Consideration of additional contextual factors” (Hearing Exh. 123):

- There is very little evidence about the adverse health effect of continuous exposure to wind turbine noise;
- The evidence of health effects, excluding annoyance, from wind turbine noise is either absent or rated low or very low quality;
- The effects related to attitudes towards turbines are hard to discern from those related to noise and may be partly responsible for the associations;
- The number of people exposed to wind turbine noise is far lower than for many other sources of noise; therefore, the burden on health at the population level from wind turbines is low and any benefit from specifically reducing population exposure to wind turbine noise in all situations is unclear;
- In relation to possible harms associated with the implementation of the recommendation, the guidelines development group (“GDG”) underline the importance of wind energy for the development of renewable energy policy;
- In light of the assessment of the contextual factors in addition to the quality of evidence, the recommendation for wind turbines remains conditional. There is not enough evidence to provide a strong, certain and definitive recommendation;
- There are serious issues with the noise exposure assessments relating to wind turbines;
- The sound levels of wind turbine noise are generally much lower than those of transportation;
- The audibility of wind turbines in bedrooms is unknown;
- The conversion of L_{eq} to L_{den} requires:

- A specific statistical distribution of annual wind speeds, wind direction, and atmospheric stability (wind shear and temperature profile, etc.) at a particular height, for each turbine location for the particular wind farm site
- The turbine sound power levels at each wind speed
- The residences being upwind, downwind or crosswind from the wind farm site;

- The WHO 2018 report concludes that the acoustical description of wind turbines noise by the means of L_{den} or $L_{eq,\ night\text{-}outside}$ may be a poor characterization of wind turbine noise and may limit the ability to observe associations between wind turbine noise and health outcomes; and
- There is not enough quality evidence to recommend an $L_{eq,\ night\text{-}outside}$ level.

Moreover, the WHO 2018 report states that no stakeholders and end users participated in the stakeholder consultation for implementation of recommendations on wind turbine noise. Therefore, there has been no consultation with regulatory bodies and the wind farm acoustics community in the determination of the guidelines.

In summary, WHO 2018 are not the best guidelines to apply when determining appropriate sound limits for a wind farm. The 2016 Health Canada study, 2017 Lawrence Berkeley National Laboratory survey, and the Hübner paper provide a better framework for determining what sound limits to apply. All three of these reports confirm a sound level of 45 dBA Leq 8-hour is protective of human health and support the Siting Board's finding under PSL § 168(2)(b).

b. The Applicant's Modeling is Sufficiently Conservative, and Sound Levels from the Project are Not Underestimated

NYSDPS contends that Applicant's sound modeling is not conservative enough to avoid under predicting the sound impacts from the constructed Facility, and that the Facility should therefore be remodeled and redesigned according to Staff's specifications, namely using a 4 meter receptor height (Tr.784, L10-14). NYSDPS Staff's contentions are untrue. As an initial matter, the Siting Board recently upheld the modeling parameters used in this proceeding in its decision in the Bluestone Wind

proceeding, including the acceptable use of a 1.5 meter receptor height (Case No. 16-F-0559). The Siting Board found the same modeling methodology as was applied in this proceeding to be "appropriately conservative to avoid the risk of underpredicting noise, and that is supported by the literature." (Bluestone Order p. 60)

Epsilon conducted modeling for the Deer River Facility consistent with Stipulation 19 to model the estimated short-term sound impacts (single night) and long-term sound impacts (annual nighttime) (Hearing Exh. 1, Stipulation 19). The purpose of sound modeling is to estimate the sound impacts that can be expected from the Facility once in operation and ensure that the Facility can be designed to meet the applicable sound limits once operational. As explained below, Epsilon conservatively modeled the expected sound levels to ensure that sound levels from the Facility were not underestimated. Mr. Moreno's Exhibit MMC-9 (Hearing Exh. 128) presents the results of a detailed study comparing measured versus modeled sound levels. The modeling used a 1.5-meter receptor height but did not use a 2 dBA manufacturer's uncertainty factor. The results found that modeling still overpredicted actual measured results except in cases of "concave" topography between the wind turbine and receptor. The Deer River modeling conducted an analysis for concave topography and found none around the most impacted receptors (see page 9-5 of the PNIA).

Modeling does not require that every conservative assumption, or even specific conservative assumptions, are needed to ensure modeled sound levels will not exceed recommended limits. In fact, modeling using parameter inputs that are too conservative would result in poorly designed wind projects. Post-construction testing results for various projects using different conservative modeling assumptions, demonstrate that even under worst-case conditions, sound levels are consistently monitored below modeled predictions.

i. *Short-Term Sound Impact Modeling*

Many conservative assumptions were input to the sound modeling, and therefore, it is expected that the actual measured short-term results will be lower than predicted by the Applicant's computer modeling. While the occurrence of some factors that could adversely affect sound levels is possible, the ***simultaneous*** confluence of every possible worst-case assumption listed below is extremely unlikely. These conservative assumptions include:

- Modeled sound levels assume that the following are all happening simultaneously: maximum sound power (high hub height winds), low ground-level winds, and the location of the receptor either downwind or cross-wind from each wind turbine (ISO 9613-2 propagation standard);
- An uncertainty factor of +2 dBA is added to every wind turbine to account for manufacturer variability in sound levels. This factor is actually +/- 2 dBA but to be conservative, +2 dBA was added to every wind turbine. The probability that every single one of the project's wind turbines will be +2 dBA is extremely unlikely;
- Highest sound power level of each octave band was modeled even though these occur at different wind speeds (which cannot happen in the real world);
- Well-developed ground-based temperature inversion for maximum sound propagation;
- A temperature of 10 degrees C and relative humidity of 70% were used in the modeling, which results in the lowest atmospheric attenuation in the 500 Hz and 1000 Hz octave bands where the human ear is most sensitive. Under other meteorological conditions, the atmospheric attenuation will be larger, thus lowering actual sound levels as compared to predicted sound levels; and

- Modeling with mixed ground (G=0.5) with no dense foliage.[16]

These conservative modeling assumptions and accounted for uncertainties provide a conservative margin to the modeling results and assure that the results are conservative enough and that the Facility will not exceed regulatory limits once in operation.

ii. *Long-term Sound Impact Modeling*

In addition to all the conservative assumptions used for the short term modeling, the modeling inputs used to predict annual nighttime sound levels ($L_{eq,\ night\text{-}outside}$) are overly conservative because the "annual" sound power levels from each turbine were estimated based solely on 8,760 hours of on-site wind speed data which provide an annual "weighted" average of sound power (Hearing Exh. 2 and 3 [Application Appendix 19-A, see Table 9-8 of the PNIA]). However, the calculation of the $L_{eq,\ night\text{-}outside}$ sound level utilizes the ISO 9613-2 propagation algorithm, the same one used to calculate potential short-term impacts. Thus, it assumes that for every hour of the year the receptor is downwind of every turbine (never true), or there is always a well-developed moderate ground-based temperature inversion (never true). For example, during hours when a receptor is upwind of a turbine, sound levels can easily be 3-5 dBA lower than predicted by the model. The same is true of a windy hour at the ground. The atmosphere is well-mixed (thus lowering sound levels), and the wind itself is going to dominate sound levels over sound levels from a wind turbine (Tr.722). In other words, the prediction of the annual nighttime sound levels is overstated. Actual annual nighttime sound levels will be lower than predicted.

[16] G=0 represents a completely hard surface, which would be appropriate for dense cities with very little ground cover. The Deer River Wind area is primarily rural with very little hard surfaces and a ground factor between 0.5 and 1.0 would have been appropriate. Instead, Epsilon modeled with mixed ground to assure conservatism.

iii. Modeling at a 1.5-meter receptor height is consistent with the Stipulations in this proceeding and is sufficiently conservative to model sound impacts

As mentioned above, Epsilon conducted modeling for the Facility in accordance with the Stipulations agreed to in this proceeding and executed by the Applicant and NYSDPS. Stipulation 19(d)(6) states "[f]or the purposes of evaluation of community complaint potential, noise modeling with the ISO 9613-2 standard will be conducted by following the recommendations included in the following reference: 'Best Practices Guidelines for Assessing Sound Emissions from Proposed Wind Farms and Measuring the Performance of Completed Projects,' October 13, 2011. Prepared for: The Minnesota Public Utilities Commission Under the auspices of the National Association of Regulatory Utility Commissioners (NARUC), Washington, DC. (Designated as NARUC-2011 in this stipulation)" (Hearing Exh. 1, Stipulation 19 (d)(6)). The NARUC-2011 document recommends a 1.5-meter receptor height.

Moreover, the Applicant applied reasonable modeling parameters. The modeling parameters used for the Deer River Application are similar to those used in many other wind energy projects, including Bluestone Wind, and have been verified through extensive post-construction measurements. When conducting sound modeling, wind projects can use different conservative assumptions to achieve the same goal of ensuring that predicted future sound levels will be equal to or less than actual measured sound levels post construction. Wind farm modeling does not have to include ***all*** conservative assumptions to achieve that goal. Some projects use a G (ground factor) of 0 and no uncertainty ("K" factor) while others use a G=0.5 and K=2 dBA. As described in the PNIA at Section 9.3.2, ground factor predicts how much the ground will absorb sound and the K factor is a wind turbine uncertainty factor addressing noise from the wind turbine itself. Some projects use a 4-meter receptor height but correct for meteorological conditions (i.e., wind speed), as was done in the Cassadaga Wind and Baron Winds proceedings, and other projects like Bluestone and the Number Three Wind Farm use a 1.5

meter receptor height but do not correct for meteorological conditions.[17] Modeling does not require that every conservative assumption, or even specific conservative assumptions, are needed to ensure modeled sound levels will not exceed recommended limits. Moreover, post-construction testing results for various projects using different conservative modeling assumptions demonstrate that even under worst-case conditions, sound levels are consistently monitored below modeled predictions. Thus, given the other conservative assumptions applied to the modeling in this proceeding, using a 1.5-meter receptor height is sufficiently conservative. By comparison, adopting Mr. Moreno's approach and using a 4-meter receptor height would be overly conservative and produce modeling results that are so over conservative so as to be unrealistic.

c. NYSDPS Remaining Contentions Are Without Merit

i. *The Applicant's Post Construction Monitoring Protocol Should be Adopted*

Epsilon has proposed a post construction monitoring and compliance protocol that will determine compliance with sound limits for the Facility. (Hearing Exhibit 61) Epsilon has extensive experience in designing and implementing post construction monitoring protocols for wind farms and has been monitoring wind farms for years. Epsilon's post construction monitoring protocol is practical and takes into consideration years of experience being in the field monitoring projects. In addition, Epsilon's post construction monitoring and compliance protocol was recently upheld in the Bluestone Wind proceeding. Moreover, NYSDPS Staff's recommendation regarding evaluating sound from adjacent wind farms is impractical and would likely require the shutting down of multiple wind farms (Tr.727 L18-20). NYSDPS admits this is challenging and will require the participation and cooperation of three of the adjacent wind generating facilities, none of which are controlled by the Applicant (Tr794 L3-6).

[17] Correcting for meteorological conditions such as a well-mixed atmosphere, upwind conditions, or different temperature/humidity levels would result in lower predicted sound levels as compared to the worst-case conditions assumed in the Application.

Mr. Moreno has admittedly never monitored a wind farm, yet he has proposed his own post construction monitoring and compliance protocol for the Facility. (Hearing Exh. 140) If the Hearing Examiners and Siting Board are going to adopt a protocol, the protocol should be clearly written and drafted by someone with expertise in the area, such as Epsilon, who has performed numerous postconstruction compliance programs, including those performed over long durations in a variety of conditions. There is nothing in this record that would support adopting NYSDPS protocol over the Applicant's, especially considering the Applicant's protocol has already been adopted by the Siting Board in other proceedings.

ii. *NYSDPS Staff's Recommendations on NRO Compliance Modeling are Unnecessary and Overly Complicated*

NYSDPS Staff has recommended a complicated sliding scale for NRO application during compliance modeling based on values used in the sound model (Tr.785). This method is overly cumbersome and complicated, and is another needless attempt to penalize applicants who do not use NYSDPS's recommended modeling methodology, despite its overly conservative approach.

NRO is a common form of noise control for wind turbines and has proven effective at minimizing turbine sound at receptors during design. It is routine to include NRO as part of pre-construction design modeling for wind projects (of which compliance modeling is a part). NRO was used in the modeling at Cassadaga and the Siting Board did not find that such use was unreasonable, nor did NYSDPS staff object to its use in that proceeding, and NRO has also been used in the design of other wind projects approved under Article 10 by the Siting Board. (Baron Winds and Bluestone Wind) Neither Baron Winds nor Bluestone Wind's Certificate requires the complicated NRO scale advocated by NYSDPS Staff. NYSDPS Staff's complicated scale is not needed to ensure NROs can function as designed in order to meet the design and regulatory limits for the Facility. (*see e.g.* Baron Winds, Order p. 121) It is also important to note, that NRO does reduce energy production, therefore

it is the Applicant's interest to use NRO sensibly and design a project that is protective of health and the environment and maximizes energy production.

iii. NYSDPS Staff's Recommendations Regarding Cumulative Impacts are Overly Conservative

NYSDPS staff has testified that an "absolute noise limit" should be imposed and that the cumulative effect of all wind turbines in an area should not exceed the absolute noise limits (Tr. 792, L6 through 793, L11). This recommendation ignores the realities of the Facility Site and the history of wind farm development in New York State. It ignores that projects across the state have varying noise limits as imposed by local laws and that a certain increase in sound is imperceptible by most people.

A similar argument was made by NYSDPS in the Baron Winds proceeding and was rejected by the Siting Board. (Baron Winds Order pp. 113-114) Here, the cumulative analysis for Deer River included the Deer River project plus three nearby facilities (existing or proposed) – Maple Ridge, Copenhagen, and Number Three (see Sections 9.3.4 and 9.4.3 of the PNIA). The results of the cumulative analysis show that even with all four wind farms operating under worst-case conditions, the highest cumulative sound level at a non-participating residence is 45 dBA. And those receptors at 45 dBA were a result of the other three wind farms and not Deer River Wind as Deer River's contribution was 31 dBA or less. Therefore, cumulative sound from the Facility will not have an adverse impact.

Moreover, although one non-participating receptor is modeled to be half a decibel above the design goal at the 65 dB at 16 Hz level, the cumulative modeling assumed all four wind farms are operating at their maximum production simultaneously while at the same time the worst-case meteorology is occurring. As Mr. O'Neal testified, it would be extraordinarily unlikely that those conditions would apply at that receptor (Tr.749, L20-24). Therefore, cumulative low frequency sound levels from all four wind farms operating concurrently will not have an adverse impact.

iv. *NYSDPS Staff's Recommendations Regarding Property Boundary Limits Should be Rejected*

The Applicant agrees with NYSDPS Staff that a short-term design limit, using sound contour drawings, should be applied to boundary lines for modeling compliance, as compared to an annual Lnight (Tr.790, L1-5). However, consistent with the arguments above, regarding short-term and long-term equivalencies, the short-term design limit at non-participating boundary lines should be 55 dBA Leq-8-hour. 55 dBA Leq-8-hour is consistent with the Applicant's proposed regulatory limit for participating residences and is protective of health and the environment. There is no need for a lower short-term limit at non-participating boundary lines, especially when a lower short-term limit of 45 dBA Leq-8-hour will be applied to non-participating residences.

For all of the reasons above, NYSDPS and NYSDOH Staff's arguments and recommendations should be rejected by the Hearing Examiners, and the Hearing Examiners should recommend that the Applicant's Certificate Conditions be adopted by the Siting Board.

3. Visual Impacts

a) Lighting

Because the DRWF turbines will exceed 499 feet in height, Federal Aviation Administration ("FAA") regulations require that they each be marked with aviation hazard lighting, including two flashing warning lights mounted on each of the turbine nacelles (Hearing Exh. 2, Application Exh. 24; Hearing Exh. 304, Condition 36(c)). Lighting at the substations will be kept to a minimum and turned on only as needed (Hearing Exh. 2, Application Exh. 18, pp.1 and 3; Application Exh. 24, p 9). Consistent with the requirements of Certificate Condition 36(c), the Applicant will prepare a Facility Exterior Lighting Plan addressing lighting requirements for the entire Facility (Hearing Exh. 304, Condition36(c); Hearing Exh. 2, Application Exh. 18, p.3). In developing the plan, the Applicant will seek to balance the need for providing safe working conditions and ensuring aviation safety with the

goal of minimizing off-site lighting impacts (Hearing Exh. 2, Application Exh. 18, p.3). The Plan will be submitted as a Compliance filing per Condition 36.

Specific to turbine lighting, NYSDPS and THARP submitted direct testimony, and the Applicant submitted rebuttal testimony, regarding the use of radar-activated detection lighting systems ("ADLS") on Facility turbines (Tr.254, L10 through Tr.256, L14; Tr.905, L14 through Tr.909, L10). ADLS systems which allow turbine hazard lights to be turned on only when activated by radar sensors detecting aircraft approaching and passing nearby or over the Facility (Tr.905, L15 through Tr.906, L1). The Applicant's testimony stated reservations about the feasibility and reliability of ADLS, which is a nascent technology (Tr.906, L1-13, L18 through Tr.909, L10), including the difficulties the Applicant has experienced in deployment of ADLS at one facility—one of only a few operating wind projects in the United States with deployed ADLS systems—which incurs frequent damage and repair due to icing conditions in the Northeast (Tr.906, L1-13; Tr.908, L1-11). When icing or other damage occurs, the turbine lighting system defaults to traditional FAA-approved lighting to ensure visibility for aircraft, and the Facility loses any of the benefits ADLS would have otherwise provided (Tr.906, L6-9). There is a dearth of available vendors for ADLS systems (Tr.908, L3-8)—exactly three, at the time of testimony (Tr.907, L6)—and the vendor the Applicant has personally used for its only operating ADLS system in the past is no longer in business (Tr.906, L10-11). This creates technological and cost risks for any project seeking to deploy ADLS (Tr.908, L5-11). At DRWF in particular, there is added concern about the use of ADLS in close proximity to the Fort Drum and its military training routes (Tr.906, L9; Hearing Exh. 100).

Regardless, after submission of rebuttal testimony, and in an effort to resolve these issues among the Parties, the Applicant has committed to further evaluate the feasibility of deploying ADLS technology at DRWF to further evaluate the practicability of using ADLS to avoid or minimize visual impacts from the Facility. Specifically, the Applicant has agreed to Certificate Condition 35(e), which

requires that ADLS be implemented if it is determined to be technologically feasible given the specific parameters and site conditions, and provided it is approved by both FAA and DoD (Hearing Exh. 304). The Applicant is required by federal law to obtain FAA approval of its turbine lighting plans, and the Condition recognizes that approval over this technology is contingent on that federal approval (Tr.907, L14-20; Tr.908, L15 through Tr.909, L2; Hearing Exh. 304, Condition 35(e)). With party agreement on this Certificate Condition, there are no remaining issues in dispute about Facility lighting.

b. Shadow Flicker

The Applicant has set forth in detail the nature of the probable shadow flicker impacts from operation of the Facility (Hearing Exh. 2, Application Exh. 24(a)(9) and Appx 24-B[Shadow Flicker Study]; Hearing Exh. 8, Application Exh. 15(e)(4)). Shadow flicker refers to the moving shadows that an operating wind turbine casts over an identified receptor (i.e., non-participating residence) at times of the day when the turbine rotor is between the sun and a receptor's position, and a "flicker" effect which an observer may experience from within that residence when the shadows are cast (Hearing Exh. 2, Application Appx. 24-B, p. 1). The shadow flicker analysis presented by the Applicant is a conservative projection of shadow flicker effects at ground level. As described in the original Shadow Flicker Report, shadows cast close to a turbine will be more intense, distinct, and focused. This is because a greater proportion of the sun's disc is intermittently blocked by the turbine. Obstacles such as terrain, vegetation, and/or buildings occurring between receptors and wind turbines, may significantly reduce or eliminate shadow-flicker effects (Hearing Exh. 2, Application Appx 24-B).

As agreed in the pre-application Stipulations, the shadow flicker analysis identified all receptors located within a 10-rotor diameter distance of all proposed turbine locations, using the maximum rotor diameter of turbine models being considered (i.e., 10 times 150 meters or 4,921 feet) (Hearing Exh. 1, Executed Application Stipulations 24(b)(3) & (7); Hearing Exh. 2, Application Appx. 24-B, pp. 2-3). It was established in the Application and agreed to by the parties to the Stipulations that at distances

beyond roughly 10 rotor diameters shadow-flicker effects are generally considered negligible (Hearing Exh. 2, Application Appx. 24-B; Hearing Exh. 8, Application Exh. 15(e)(4)). No party has challenged the approach used to model shadow flicker.

As the Applicant demonstrated in the Application (Hearing Exh. 8, Application Exh. 15(e)(4)) and in testimony (Tr.236, L18 through Tr.237, L5; Hearing Exh. 66), and as conceded by NYSDOH witness Henry Spliethoff (Tr.237, L4-5; Tr.1026, L2-17), shadow flicker from wind turbines presents an annoyance potential for non-participants who experience flicker at their residences a significant portion of the year (Tr.237, L7 through Tr.238, L21; Hearing Exh. 66 & 87), not a public health concern. In fact, a 2011 study in the United Kingdom concluded that shadow flicker does not "cause a significant risk to health" and determined that "there is nothing in the scientific literature that suggests that shadow flicker should be limited to protect health" (Tr.236, L18 through Tr.237, L2, citing Hearing Exh. 87). Over the years, concerns have been expressed that shadow flicker may cause or contribute to genuine health effects, such as triggering photosensitive epilepsy (Hearing Exh. 8, Application Exh. 15(e)(4)). However, the turbines under consideration for the Project operate at frequencies well below those known to trigger photosensitive epilepsy (Tr.236, L14-17; Hearing Exh. 8, Application Exh. 15(e)(4); Hearing Exh. 87). Therefore, there is no concern that the Facility will trigger epileptic seizures (Hearing Exh. 8, Application Exh. 15(e)(4); Hearing Exhs. 84-87; Tr.235, L20 through 237, L2). Annual limits on shadow flicker impacts to non-participating residents are proposed by the Applicant, and have been adopted by the Siting Board, to minimize visual impacts to these residents (Tr.238, L11-21), but not as a matter of addressing a human health concern.

The Towns of Pinckney and Harrisburg do not have any shadow flicker regulations, nor are there statutory or regulatory limitations established by the counties or the State (Hearing Exh. 8, Application Exh. 15(e)(4)). In New York State, the Siting Board has determined in recent Article 10 wind cases, starting with the *Cassadaga Wind Project*, that "operations shall be limited to a maximum

of 30 hours annually at any nonparticipating residential receptor" (Case No. 14-F-0490, *Order Granting Certificate of Environmental Compatibility and Public Need*, Certificate Condition 30)(*see also, Bluestone Wind*, Case No. 16-F-0559; *Eight Point Wind*, Case No. 16-F-0062; *Number Three Wind*, Case 16-F-0328). As set forth in the Application, this standard is also consistent with that followed in other jurisdictions (Hearing Exh. 2, Application Exh. 15(e)(4)). As noted above, the Applicant has agreed to the standard actual shadow flicker limit of 30 hours per year at nonparticipating residences (Hearing Exh. 304, Condition 56; Tr.238, L.12-21). As NYSDPS staff concurred, this limit is reasonable and sufficient to avoid and minimize visual impacts to non-participating residences and receptors (Tr.238, L.12-21; Tr.418, L7 through Tr.419, L11).

In the Application, the Applicant assessed the shadow flicker impacts of the turbine models under consideration. The modeling results showed that only one non-participating residence would be expected to have just over 30 hours of shadow flicker per year, at 31 hours and 44 minutes per year (Hearing Exh. 2, Application Exh. 24(b)(3)). However, these results are inherently conservative because the modeling receptors are treated as "greenhouses" (i.e., it is assumed that sunlight can enter the structure from any angle, and there is a window directly facing every turbine), and all receptors were modeled without obstacles such as vegetation or structures that could block the shadow flicker effect (Hearing Exh. 2, Application Exh. 24(b)(3)). Thus, the one receptor identified may not, in fact, receive anything close to 30 hours per year of shadow flicker during Facility operation. To address this impact, the Applicant has agreed to a Certificate Condition which formalizes this 30-hour-per-year shadow flicker limit at non-participating receptors, subject to verification using shadow prediction and operational controls at appropriate wind turbines (Hearing Exh. 304, Condition 56).

Furthermore, the Applicant identified steps it will take to respond to shadow flicker complaints for non-participating residences that are not subject to the 30-hour shadow flicker limit (Hearing Exh. 305, Section B(14)(b)). In addition, the Applicant has agreed in the SEEP Guidelines to provide a

Shadow Flicker Impacts Analysis, Control, Minimization and Mitigation Plan, which includes an updated shadow flicker analysis based on the final Facility design (if necessary); a protocol for monitoring operational conditions and shadow flicker exposure; details of the shadow detection and prevention technology or operational measures; and proposed mitigation measures for non-participating receptors predicted to receive in excess of 30 hours per year of shadow flicker (Hearing Exh. 305, Section B(14)(b)).

Despite existing Siting Board precedent on the appropriate regulatory standard for shadow flicker in four Article 10 proceedings, decisions in other jurisdictions, evidence in the record in this proceeding, and consensus between the Applicant and NYSDPS, NYSDOH nevertheless advocates for additional shadow flicker limitations without providing any additional evidence or a basis for the Siting Board to deviate from previously established precedent.. Specifically, Mr. Spliethoff testified, on behalf of NYSDOH, for imposition of an additional 30 minutes per day limit for shadow flicker impacts to non-participating residences (Tr.1026, L1 through Tr.1027, L12). The Siting Board has already reviewed the available information, including NARUC's 2012 study, and has opted to proceed with a 30 hours per year standard. NYSDOH has provided no evidentiary basis to diverge from that here.

Furthermore, as outlined in the testimony of Christopher Ollson, NYSDOH is incorrect in its interpretation of the Heath Canada Study and its assertion that the Health Canada supports the need to impose an additional 30 minutes per day shadow flicker limit (Tr.237, L3 through Tr.238, L21). First, the Health Canada Study affirms what the Applicant has already shown in the Record—namely, that the science does not show probable health impacts, such as triggering of epileptic seizures in individuals with photosensitive epilepsy, from wind turbines (Tr.235, L19 through Tr.238, L21). Shadow flicker limits placed on wind facilities are instead designed to address the potential for annoyance at non-participating residential receptors (Hearing Exh. 304, Condition 56; Tr.Tr.237, L3 through Tr.238, L21). However, the science does not support imposition of additional regulatory limits

on shadow flicker from wind turbines as a means of avoiding annoyance (Tr.238, L11-21)—such as the 30 minutes per day standard advocated by NYSDOH. Importantly, the Health Canada study concluded that minutes-per-day of shadow flicker were not statistically relevant to the question of annoyance impacts from wind facilities, finding that "the number of minutes at a time of shadow flicker is an inadequate model for estimating prevalence high annoyance" from wind turbines (Tr.238, L1-10). In fact, Health Canada determined that annoyance factors related to living in proximity to turbines was the product of visual cues and perception issues (Tr.938, L1-10)—annoyance factors which can be addressed through the 30 hours per year shadow flicker limit agreed to among the parties.

Notably, the only apparent basis provided in NYSDOH's testimony to support imposing a minutes per day shadow flicker limitation in the Deer River proceeding is a statement that NYSDPS proposed such a standard in an unrelated proceeding, *Canisteo Wind* (see Recommended Decision in Case 16-F-0205, Canisteo Wind at page 119). Reliance on the *Canisteo Wind* case is inapposite; the recommendation there appears to have been based on the existence of a local law establishing a minutes/day standard, and a desire to ensure substantive compliance with a local law (Id.). No such law exists here. Moreover, NYSDPS has not recommended a 30 minutes per day standard for Deer River (see Tr.418, L1 through Tr.421, L5). For all of those reasons, the Siting Board should reject NYSDOH's proposed minutes-per-day shadow flicker limit as it lacks a basis in the record of these proceedings, or in the available science.

As the above summary shows, the Applicant has avoided and minimized shadow flicker impacts to the maximum extent practicable. Those impacts that cannot be avoided/minimized will be mitigated in accordance with Certificate Condition 56 and the SEEP Guidance (Hearing Exh. 304, Condition 56; and Hearing Exh. 305, Section B(14)(b)).

4. Facility Location, Materials and Components

In general, the Facility Location was described in detail in the Application and Application Supplements (Hearing Exh. 2, Application Exhs. 3 and 11; Hearing Exh. 13, Appx. A; Hearing Exh. 15, Appxs. B & C, Figs 3-3, 4-4, 4-9 and 13-1; Hearing Exh. 282). The Parties have agreed to Certificate Conditions and a SEEP which contain, among other things, specific requirements for the filing of final design details, site plans, and component information (Hearing Exhs. 304 and 305). Through testimony, and during hearings, specific issues were raised regarding the location of the Point of Interconnection ("POI") substation, and the materials and components proposed by the Applicant. Other than the specific items enumerated below, and the discussions of turbine lighting above, there are no disputed issues in this proceeding regarding the Facility's location, materials or components.

a) POI Substation

In the Application, Atlantic Wind proposed locating the Point of Interconnection ("POI") substation on the eastern side of the National Grid Lighthouse Hill to Black River 115 kV Transmission Line in the Town of Rodman (Hearing Exh. 10). However, shortly before rebuttal testimony was due in these proceedings, National Grid contacted the Applicant requesting that the POI location be corrected to the western side of the existing right of way (ROW) (Tr.897, L17-19; Hearing Exh. 302). National Grid indicated that two transmission lines, Lines 5 and 6, are present in that portion of the ROW sharing one structure (Hearing Exh. 302). However, given that Deer River will interconnect to Line 5, National Grid indicated that the POI needed to be located on the western side of the ROW, which is the correct positioning for interconnection to Line 5 (Hearing Exh. 302). Because this issue was not brought to Atlantic Wind's attention until November 2019, full design drawings showing the corrected location had not been completed by the time hearings were held (Tr.934, L2-4).

At Hearings, NYSDPS Staff questioned Witness Walter Meisner of Atlantic Wind on the POI location change, however much of the information Staff sought was unavailable at the time, or

unknown to the witness (Tr.933, L10 through Tr.944, L9). Following the Hearings, NYSDPS followed up with Interrogatory 13, asking for additional information from the Applicant about the POI substation location, construction methods, safety requirements for crossing the National Grid transmission line, and other matters (Hearing Exh. 302). The Applicant responded to these questions and proposed Certificate Conditions 32(b) and (c) to address DPS Staff's concerns about the POI location, crossings and construction (Hearing Exh. 302).

Preliminary plans have been provided to National Grid for review (Hearing Exh. 302) but have not yet been finalized. However, the POI will move less than 500 feet from its originally proposed location (Hearing Exh. 302), the Applicant will submit the final locational information as part of its final design drawings and submitted as a compliance filing (Tr.938, L6-12). There will be minor corrections in the final design stages which can be addressed through compliance filings, but these minor changes will not result in a major change or in significant additional environmental impacts or non-compliance with local laws, such as setbacks (Hearing Exh. 302). The POI substation will remain on the same 315-acre parcel, and would simply shift approximately 150 feet west, to the opposite side of the overhead transmission line, away from County Route 156 (Hearing Exh. 10 and 302). The change will reduce the more than 2,200-foot setback distance to the westernmost parcel boundary by about 150 feet, but will still more than comply with setbacks to the east; the change will increase the setback distance to the public roadway, resulting in greater compliance with the Town's applicable setbacks of 20 feet to a parcel boundary on the western boundary and 25 feet from the road line (Hearing Exh. 2, Application Exh. 31; Hearing Exh. 10 and 302). The move would not impact additional wetlands or protected resources (Hearing Exh. 2, Application Appx. 22-M).

Lastly, in Direct Testimony, NYSDPS witness Andrew Davis raised a concern that the Application lacked adequate depictions of the POI switchyard, as well as the collector substation and electrical collection and transmission lines (Tr.447, L6-9). In response, the Applicant provided

additional information through the testimony of Diane Sullivan (Tr.198, L15 through Tr.199, L10), including a representative view of a typical substation (Hearing Exh. 38), a vegetative viewshed analysis of the POI and collector substations (Hearing Exh. 39), and a simulated view of the overhead collector line (Hearing Exh. 40). NYSDPS sought no additional cross examination on these topics; it appears these items have been addressed through testimony, and nothing further is required.

For all of these reasons, the Siting Board has sufficient information to approve the Application as it relates to the POI substation location. Any additional changes to the POI substation location will be reflected in final design drawings and will involve minor shifts of less than 500 feet within the same tax parcel to address National Grid's requested corrections. Other concerns will be addressed through proposed Certificate Condition 32.

b) Materials and Components

NYSDPS Witness Andrew Davis identified potential issues with the Facility's materials and components as it pertained to non-specular coating on overhead transmission and collection lines (Tr.445, L13-20); the materials used for transmission poles (Tr.443, L19 through Tr.445, L13); and, together with the NYSDPS Transportation and Construction Panel, the use of certain turbine lighting technology (Tr. 253, L18 through Tr.256, L14; Tr.439, L7 through Tr.441, L14). Turbine lighting is discussed in Section III(B)(3) of this brief, above.

With regard to materials for transmission poles, Mr. Davis testified that the Applicant should be required to utilize wood or self-weathering steel poles to reduce potential glare impacts from overhead transmission poles (Tr.444, L1 through Tr.445, L13). The Applicant in the Rebuttal Testimony of Walter Meisner indicated it would most likely utilize self-weathering steel poles, and provided a sample photograph showing the appearance and color of typical self-weathering steel poles (Tr.911, L4-8; Hearing Exh. 101). This issue has been further resolved through the addition of proposed Certificate Condition 36(e) which establishes that the Applicant will utilize pole structures

which are either self-weathering steel or would have some other dark brown or green, non-glare finish to address these potential visual impacts (Hearing Exh. 304).

With regard to non-specular conductor wires, Mr. Davis testified simply that the Applicant should be required to use non-specular conductors to mitigate and/or minimize visual impacts from the overhead collection and transmission lines (Tr. 445, L14-20). Non-specular conductor wires are more expensive than standard electrical wires, because they are treated in an acid bath to dull the appearance of the equipment, adding an estimated 5% to the cost of that material (Tr.911, L6-8; Hearing Exh. 303). The Applicant disagrees that this measure should be required for two reasons: because there is not a reasonably likely significant adverse environmental impact associated with the use of regular electrical wires on the Facility's limited electrical collection and transmission components, which account for only one third of the total collection and transmission infrastructure proposed for the Facility, and because even if a significant adverse environmental impact were associated with this issue, any benefit associated with this additional expense would be limited in duration (approximately 6 to 12 months) and scope, given the extremely limited visibility of the overhead infrastructure proposed for DRWF.

First, Article 10 does not demand that the Applicant pursue mitigation for mitigation's sake. As outlined in Section III(A)(2) of this brief, the Siting Board should only require mitigation for reasonably likely significant adverse impacts from a Facility. As it pertains to non-specular coated wires, there is simply no evidence in the record to suggest that substantive or significant visual impacts are reasonably likely result from the use of standard rather than non-specular wires for overhead transmission lines. The Applicant does acknowledge that there will be some unavoidable visual impacts from Facility components, including overhead transmission infrastructure, where visible from publicly accessible areas such as public roads (Hearing Exh. 2, Application Exh. 24 and Appx. 24-A, Section 5.5 showing anticipated visibility of overhead collection and transmission lines and Figure 11, showing viewshed analysis for overhead collection and transmission; Tr.198, L17 through Tr.199, L10;

Hearing Exhs. 39 & 40). However, the Applicant has avoided and minimized the visual impacts from overhead transmission infrastructure by removing large segments from the most visually sensitive areas of the Facility Site (see, e.g., Hearing Exh. 2, Application Appx. 24-A, Figure 11; Hearing Exh. 15 and Figures 4-4 and 4-9; Hearing Exh. 282, showing removal of collection crossing the Deer River), and locating most remaining segments in predominantly wooded areas without proximity to residences (Hearing Exh. 15, Figure 4-4); in areas where distribution lines are already in place along public roadways (Hearing Exh. 2, Application Appx. 24-A, contrast rating forms and photos of existing conditions); or in close proximity to existing high-voltage overhead transmission and near the POI where they are unlikely to be noticeable in contrast to the larger, and longstanding transmission corridor (Hearing Exh. 15, Figure 4-4).

The Application itself shows that visibility of the remaining overhead collection and transmission infrastructure itself—especially with the eastern collection segment removed—is very limited (Hearing Exh. 2, Application Appx. 24-A, Figure 11). Short overhead spans include a stream crossing between Turbines G1 and G3, between two participating parcels and a short portion of the segment connecting B11 and B13 (Hearing Exh. 15, Figure 4-4). The longest portion of overhead collection in the DRWF is located in the northern portion of the Facility, and involves a line running from Turbine B9 west to the Collector substation (*Id.*). Visible segments of this line primarily exist where the line crosses County Route 194, Tontarski Road, Corey Road, Whitesville Road and Waterman Road; the bulk of the remaining sections of this line run through forested lands which are not proximate to residences or sensitive resources (*Id.*). The final segment of the transmission line runs north/northeast through agricultural lands in the vicinity of existing overhead transmission infrastructure owned by National Grid (*Id.*).

Importantly, there are less than 2 miles (approximately 30%) of the Facility's 6.6 miles of proposed overhead collection and transmission lines which would be potentially visible from public

roadways or located in open lands, such as agricultural fields (Hearing Exh. 15, Figure 4-4), while approximately 4.6 miles (70%) of the Facility's overhead transmission and collection lines are proposed in forested lands (Hearing Exh. 2, Application Figure 22-1; Hearing Exh. 15, Figure 4-4 and 4-9). NYSDPS provides no evidence beyond mere speculation that *additional* significant visual impacts are likely to result from the use of standard electrical equipment, such that additional minimization or mitigation via the use of specialized "non-specular coating" would be warranted for all overhead lines, when 70% of the overhead infrastructure would not be readily visible due to its location in privately owned forested land. Absent proof of a probable environmental impact—in this case, a reasonably likely and significant adverse visual impact from standard overhead wires (in a rural area where overhead electrical infrastructure is commonplace) there is no basis to require mitigation in the form of non-specular wires for overhead transmission. Furthermore, even if a reasonably likely significant adverse environmental impact were likely to occur from the use of standard wires, the Applicant has been advised that such an impact would be minimal and temporary—lasting approximately 6 to 12 months (Tr.911, L14 through Tr.912, L3).

Meanwhile, were the Siting Board to adopt NYSDPS's position and require non-specular coating on overhead transmission lines, the Board would impose significant additional cost on the Facility, for little to no actual benefit (Tr.911, L14 through Tr.912, L3; Hearing Exh. 303). The Applicant has been advised that the non-specular coating adds approximately 5% to the total cost of the overhead wires themselves, while only providing a visual benefit for approximately six months to one year, depending on climate, before standard wires would be sufficiently "weathered" to appear the same as the non-specular coated wires (Tr.911, L7-8; Hearing Exh. 303). Requiring the Applicant to spend approximately $35,000 to treat 6.6 miles of overhead wires—of which only 2 miles, at most, are potentially visible—in order to provide 6 to 12 months of mitigation, would be unreasonable.

For all of these reasons, the Siting Board should find that the alleged visual impacts from use of regular conductor wires in overhead collection and transmission lines, if any, do not rise to the level of probable environmental impact from the Facility requiring mitigation. In the alternative, the Siting Board should reject NYSDPS's requirement that the Applicant deploy non-specular coating on overhead transmission and collection as unreasonable in light of the cost to the Applicant, the minimal and temporary nature of the benefit achieved, the lack of visibility of at least 70% of the overhead infrastructure, and in the interests of not unduly burdening electric ratepayers by imposing unnecessary incremental costs on renewable energy generation facilities.

5. Decommissioning

The Application provided a detailed Decommissioning Plan and assessment of estimated costs of decommissioning, as well as a methodology for periodically revising the decommissioning estimate to ensure costs are reflective of inflation and market changes over the course of the Project's life (Hearing Exh. 2, Application Exh. 29 and Appx 29-A). The Decommissioning Plan provides detailed steps for removal of Facility components, as well as restoration of the Facility Site, including measures for reseeding and revegetation, grading and backfilling, cleanup of the site, and monitoring (Hearing Exh. 2, Application Appx. 29-A).

In general, there were only two areas in dispute among the parties with regard to decommissioning: the question of financial security mechanisms and issues related to whether net salvage value should be factored into the cost of removal in the Applicant's decommissioning estimate, dealt with in turn below. NYSDPS's Decommissioning Panel agreed with the Applicant's decommissioning estimates for wind turbines and turbine foundations (Tr.273, L21 through Tr.275, L5), but disagreed about the estimates provided, and assumptions used for removal and restoration of access roads (Tr.275, L5-14; Tr.276, L3 through Tr.277, L3) as discussed further in section (b) below.

The Towns of Harrisburg and Pinckney sought additional information regarding decommissioning of the Facility during discussions with the Applicant (Hearing Exh. 183; Tr.542, L124-139; Tr.544, L179-89). The Applicant responded by setting up a meeting with the Towns and their consultants, and provided a written response offering additional information (Hearing Exh. 184; Tr.544, L181-89). The Town of Pinckney testified that the Applicant's proposals were generally consistent with the Town's requirements for decommissioning (Tr.544, L181-85).

Lastly, the Applicant proposed Certificate Conditions to formalize the Applicant's commitments to the Towns related to decommissioning (Hearing Exh. 304, Condition 42). As stated in Exhibit 25 to the Application, the Applicant intends to execute a Decommissioning Agreement with the host Towns which will provide the Towns with a process for accessing decommissioning-related financial security in the event the Applicant is unavailable or unable to complete decommissioning as required by the Certificate (Tr.544, L185-89).

a) Financial Security

One area of disagreement between the Applicant and DPS is the question of financial security mechanisms to fund decommissioning of the facility (Tr. 905, L5-13; Tr.273, L17-20). The Applicant requested that the Siting Board allow the use of a parent guarantee with a stipulated credit rating (Tr. 905, L7-11; Hearing Exh. 99), in addition to the letter of credit option preferred by NYSDPS (Tr.273, L17-20). Where, as here, the Applicant's upstream parent is a publicly traded company (Avangrid, Inc. [NYSE: AGR]) and part of one of the largest renewable asset bases in the world (Iberdrola Group, Iberdrola S.A.), an executed parent guarantee should be more than sufficient to ensure that adequate financial security is available for removal of the Facility in the event of a default by the Facility owner prior to or during decommissioning, in a manner which is less burdensome over the life of the Project to the Applicant (Tr.905, L5-13; Hearing Exh. 2, Application Exh. 1). The Applicant is aware that NYSDPS has advocated for a letter of credit as the sole financial security mechanism by which wind

facilities in New York can assure decommissioning will occur (Tr.286, L10 through Tr.290, L15). However, a parent guarantee with a stipulated credit rating is a broadly accepted form of credit support, while offering cost savings to the Applicant associated with the annual maintenance costs for letters of credit (Tr.905, L9-11). Similarly, while the NYSDPS has disfavored use of mechanisms such as a bond, reportedly because of difficulties municipalities may have in accessing the funding through those mechanisms (Tr.287, L1 through Tr.288, L1), the Applicant believes the letter of credit and parent guarantee would be similar in this regard. For example, the credit worthiness of a utility and publicly traded company such as Avangrid may be equal to or better than some lending institutions where a letter of credit could be obtained.

For all of these reasons, the Applicant requests that the Siting Board adopt proposed Certificate Condition 42, which allows the Applicant flexibility to utilize either a letter of credit or a parent guarantee for purposes of financial security for decommissioning (Hearing Exh. 304)

b) Cost of Removal

In the Application's Decommissioning Plan, the Applicant provided a lower per-foot estimate for removal and restoration of access roads (Hearing Exh. 2, Application Appx. 29-A) than advocated by NYSDPS (Tr.145, L7-15; Tr.277, L6 through Tr.280, L1). In Direct Testimony, NYSDPS Staff raised a concern regarding the adequacy of the Applicant's estimated costs of decommissioning access roads; an issue that the Town of Harrisburg had also informally raised with the Applicant (Tr.273, L5-13; Tr.277, L4 through Tr.279, L14: Hearing Exh. 116). NYSDPS Staff also testified that the plan was missing estimates for removal of permanent wind measurement towers (Tr.273, L1-5). Lastly, NYSDPS Staff objected to what staff believed was Applicant's assumption that all access roads would be left in place (Tr.273, L5-9; Tr.275, L11 through Tr.277, L3).

The Applicant's estimates with regard to access road removal were based on the assumption that only a certain percentage of the roads would be removed, while others would remain in place

(Tr.145, L1-13). This was based in part on the notion that, as NYSDAM testified, the addition of access roads to properties such as agricultural fields can be beneficial to landowners whose lands are opened up for additional cultivation (Tr.622, L3-6). However, to resolve these issues, the Applicant revised its Decommissioning Plan (Hearing Exh. 107). The Updated Decommissioning plan assumes that all roads will be removed, for purposes of estimating the decommissioning costs (Tr.145, L13-14); however, the Applicant will leave access roads in place where requested by the landowner (Tr.145, L14-15), although the Updated Decommissioning Plan's estimates do not assume any access roads will be left in place. The Updated Decommissioning Plan also includes as estimate for removal of the permanent met tower (Tr.145, L4-5); increases the estimated costs of access road removal to the level proposed by NYSDPS's Decommissioning Panel (Tr.145, L7 through Tr.146, L3), and revised per-turbine removal estimates to include the decommissioning costs for associated roads and collection lines (Tr.148, 15 through Tr. 149, L3), as recommended by NYSDPS's Decommissioning Panel. There does not appear to be any remaining dispute over these topics.

The Applicant and NYSDPS did not agree on the use of salvage value in calculating decommissioning costs (Tr. 146, L4 through Tr.148, L14; Tr.273, L13-17; Tr.283, L11 through 286, L9). Many of the Facility components contain materials which will have some financial value at the end of the Facility's useful life, such as scrap copper and steel from turbines; while the prices for scrap metals fluctuate over time, these commodities have always had *some* value (Tr.146, L7 through Tr.148, L7). This value is not insignificant. Even using the lowest scrap steel value recorded in the five years preceding the preparation of the decommissioning estimate—the conservative methodology proposed by the Applicant in the Decommissioning Plan—the estimated 200 tons of tower steel components would have a salvage value of at least $196 per ton (Hearing Exh. 2, Application Appx. 29-A, Table 1). In total, the Applicant estimated that, after accounting for the salvage value of metals using a conservative pricing approach (Tr.147, L10-21), the cost to decommission the Facility would be offset

by **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** or nearly half of the Facility decommissioning cost in the original estimate (Hearing Exh. 2, Application Appx. 29-A, Table 1).

In total, NYSDPS's proposed decommissioning requirements are unreasonably and unnecessarily conservative, and will impose significant additional costs on the operation of renewable projects (see Tr.146, L7-11; Tr.905, L5-13). The cost associated with carrying bonds and other financial instruments with costs that are unnecessary to decommission the Facility are patently unreasonable and these costs, combined with many other costs associated with the Facility drive up the potential bid prices and competitiveness of renewable energy projects compared with other energy sources. While the Applicant understands NYSDPS's desire to ensure that Towns are not burdened with the costs of decommissioning (Tr.148, L1-4; Tr.285, L14 through Tr.286, L9) the Applicant's proposed approach already included numerous built-in safeguards to ensure financial assurance was adequate, including the consideration of only those facility components with obvious value, such as scrap metals (Tr.146, L11-14; Tr.147, L12-15), calculating using the lowest scrap metal market values over the preceding five years (Tr.147, L17-19), not applying an escalation to the value (Tr.147, L16); and including a 10 percent contingency to protect against the risk that the financial assurance will be too low to cover the full costs of decommissioning (Tr.147, L20-21; Hearing Exh. 2, Application Appx. 29-A, Table 1; Hearing Exh. 107)—all of which provides adequate protection to the Towns (Tr.148, L1-4). Further, the subject of scrap value must be taken in the broader context of decommissioning requirements NYSDPS seeks to impose. NYSDPS also seeks to have a letter of credit designated at the only acceptable financial security mechanism permitted for the Facility (Tr.273, L17-20); a financial security mechanism which carries with it significant maintenance costs over the life of the project. By not allowing for an offset for salvage value, and by imposing a letter of credit requirement, the Applicant will need to pay for 30 years to maintain a letter of credit for **<BEGIN**

CONFIDENTIAL INFORMATION/> [redacted] **<\END CONFIDENTIAL INFORMATION>** to cover net decommissioning costs, after salvage of components, of nearly half that amount (Tr.146, L7 through Tr.147, L7; Tr.905, L5-13; Hearing Exh. 107).

Despite this disagreement regarding the overall unreasonableness of the decommissioning requirements advocated by NYSDPS, in the interests of providing the information sought to complete the record, the Applicant revised its Decommissioning Plan to show the estimated costs of decommissioning without accounting for salvage value (Hearing Exh. 107; Tr.148, L8-14). The Applicant maintains, however, that it should be permitted to utilize salvage value (Tr.148, L8-11), using the conservative approach outlined in testimony (Tr.147, L10-21), and/or to pursue other, less costly methods of financial security, as outlined in section (a) above.

6. Socioeconomic Impacts

A guiding principle of the past decade's State energy policies and the State Energy Plan is increasing private investment in New York's clean energy economy. Efforts to fight climate change and develop renewables in New York will create direct and indirect socioeconomic benefits, including new jobs and business opportunities, and will help broaden the market for clean energy products and innovations, including domestically-produced products and locally-based services (Hearing Exh. 2, Application Exh. 10(g)(4)).

As part of its Article 10 Application, the Applicant submitted significant information and documentation concerning the socioeconomic benefits of the Project both locally and statewide, including increased construction and permanent employment, increased revenues to local municipalities, and purchases of products and services in the local community (Hearing Exh. 2, Application Exh. 27). As set forth in greater detail below, while DPS Staff has expressed concerns about the Applicant's approach to quantifying the jobs impact of the Project, there does not appear to be any major disagreement that the Project will have socioeconomic benefits and is in the public

interest. In fact, the Town of Pinckney in particular testified that the local community is struggling economically and would benefit significantly from positive economic contributions the DRWF would make in the region, from increased tax revenues to assist the Towns in paving roads, improving services, acquiring better equipment, and improving buildings, playgrounds and other facilities (Tr.545, L199-206), to providing employment to local workers and commercial activity to support local stores, restaurants, hotels and motels (Tr.545, L195-206)

The socioeconomic analysis of the Project was conducted using the Jobs and Economic Development Impact ("JEDI") model, which was developed by the National Renewable Energy Laboratory specifically to estimate jobs and economic development impacts associated with wind power generation projects using project-specific data provided by applicants and geographically-defined multipliers (Tr.81, L7 through Tr.82, L18: Hearing Exh. 54). In this case, the multipliers were produced by IMPLAN Group, LLC using a software/database system called IMPLAN and specifically address both New York State and Lewis and Jefferson Counties (*Id.*). The Applicant reviewed the default values generated by the JEDI model to determine whether they were on par with real costs as experienced by the Applicant's team of development and financial experts and adjusted them, as appropriate, based on experience (Hearing Exh. 118; Tr.82, L3-18). According to the Applicant's socioeconomic impact analysis as summarized in Exhibit 27 of the Application (Hearing Exh. 2, Application Exh. 27; Hearing Exhs. 54 and 118), the Facility will have the following socioeconomic benefits:

- *Statewide and Countywide Jobs and Economic Impact Analysis:* According to the JEDI model, construction of the Facility will generate 115 direct jobs in construction and construction-related services, 241 turbine and supply chain jobs, and 109 jobs associated with induced impacts, with total earnings of **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END**

CONFIDENTIAL INFORMATION>. Annual operation of the Facility will generate 5 on-site jobs, 6 local revenue and supply chain jobs, and 3 jobs relating to induced impacts, with total earnings of **<BEGIN CONFIDENTIAL INFORMATION/>** [redacted] **<\END CONFIDENTIAL INFORMATION>** (Hearing Exh. 2, Application Exh. 27, Table 27-2).

- *PILOTs:* Local governments will receive significant payments in lieu of taxes (PILOTs) over 25 years that will be distributed over 8 jurisdictions – the Towns of Pinckney, Harrisburg and Rodman, Jefferson and Lewis County, and 3 school districts (Hearing Exh. 2, Application Exh. 27(h)-(i) and Table 27-7). At the same time, the Facility will impose little, if any, additional operating or infrastructure costs on the local municipalities because wind turbines require limited police, fire and emergency medical services (*Id.*, Application Exh. 27(f)-(g), (k)). Damage to local roads relating to construction and operation of the Facility will be addressed under RUAs with the affected towns and county (*Id.*, Application Exh. 27(g), Appendix 25-B [Road Use Agreement][18]).
- *Payments to Landowners:* Landowners leasing land for the Facility received and will receive payments from the Applicant. These payments may supplement farm and forestry income, enabling the landowner to keep their property as agricultural land or forest (Hearing Exh. 2, Application Exh. 27(d), Table 27-6; Hearing Exh. 118).

With respect to direct operation and maintenance jobs, NYSDPS witness Daniel Gadomski, Utility Analyst I, DPS Office of Market and Regulatory Economics, performed a "benchmarking" (Hearing Exh. 119) and concluded the "Applicant's direct construction job estimates . . . appear to be

[18] Since filing the Application, Atlantic Wind has finalized and executed a Road Use Agreement with Lewis County and the Towns of Pinckney and Harrisburg. The final executed Road Use Agreement will be appended to a forthcoming Petition for a Certificate of Public Convenience and Need under Section 68 of the Public Service Law, which the Applicant intends to file with the Public Service Commission.

reasonably in line with those of other Article 10 Projects" (Tr.343, L1-3) as did the Applicant's direct job estimates (Tr.343, L12-14). Further, Mr. Gadomski testified that the Applicant's direct construction phase estimates on a per megawatt basis were reasonable, comparable with other New York renewable projects "and should be considered as a benefit of the project" (Tr. 343, L17-22). DPS thus appears reasonably comfortable with the Applicant's direct job estimates. The NYSDPS and Applicant diverge, however, on the question of indirect and induced impacts, largely because of ideological differences which are somewhat academic to this proceeding, as discussed further in Section 6(a) below.

a) Modeling and Secondary Impacts

As it has in previous Article 10 proceedings, NYSDPS Staff urges the Siting Board not to rely on induced job impact estimates yielded by models such as JEDI, and expresses concerns regarding the "non-robust and upwardly biased nature of the indirect and induced job impacts estimated with the Applicant's use of the JEDI model" (Tr.326, L9-12; Tr.327, L3-8). This concern has been articulated in some fashion by NYSDPS in Article 10 proceedings to date (see e.g., Case 16-F-0559, Bluestone Wind; Case 15-F-0122, Baron Winds; Case 16-F-0062, Eight Point Wind; Case 16-F-0328, Number Three Wind), and is representative of NYSDPS's dislike of the JEDI model generally for purposes of estimating indirect and induced economic impacts from energy facilities (see, e.g., Tr.326, L13 through Tr.328, L18; Tr.330, L1 through Tr.332, L16). Importantly, this concern is not specific to the DRWF or the manner in which Atlantic Wind approached its modeling.

With respect to the Applicant's indirect/induced job estimates, Mr. Gadomski criticized both the method used to obtain the estimate and the actual results. Based on these criticisms, she recommended that "the Applicant's secondary job estimates should not be given much weight by the Siting Board." (Tr.343, L24 through Tr.344, L2). Although the JEDI model is widely used throughout the industry as a means of estimating the economic impact of wind projects, Msr. Gadomski concludes

that the model has various limitations, including that the "results are an estimate, not a precise forecast; results reflect gross impacts and not net impacts; results … are dependent on the accuracy of the multipliers used" (Tr.330, L5-19). These concerns are similar to those raised by DPS in conjunction with other Article 10 wind projects and should be rejected for the reasons articulated by the Hearing Examiners in those cases (see, e.g., Case 15-F-0122, Baron Winds Recommended Decision at 178; Case 16-F-0559, Bluestone Wind Recommended Decision at 138; Case 16-F-0062, Eight Point Wind Recommended Decision at 31).

As a preliminary matter, DPS staff has objected to Applicants' use of the JEDI model to quantify the economic impacts but has not provided Applicants with another workable model to perform the assessments required under the regulations (Tr.83, L1-2; Tr.86, L7-15; Tr.87, L4-18). In testimony, Mr. Gadomski identifies another model (the Regional Economic Models, Inc.) as a possible alternative to the JEDI model, but goes on to declare that "the indirect and induced impacts on the statewide economy might be representative of substantially larger and smaller impacts on the various local economies in which the proposed facilities are located" (Tr.335, L8-17). Thus, even the possible alternative identified by DPS has acknowledged limitations.

As it has in conjunction with other wind projects, DPS has condemned the JEDI model because it estimates only positive job impacts and not net job impacts, i.e., it does not consider the potential for a wind facility to cause secondary job losses associated with the possible displacement of other energy sources or increased electricity rates due to wind development (Tr.333, L3-8). This contention is problematic for several reasons.

First, neither the Article 10 regulations nor the Stipulations agreed to by the parties require the Applicant to consider job losses (Tr.83, L1-2; Tr.84, L13-20). Although the Stipulations require the Applicant to estimate "induced impacts associated with construction and operation of the Facility" they do not specifically require an assessment of net job impacts (Hearing Exh. 1, Executed Application

Stipulations, 27(3)). Also, the focus of the regulations is on the economic impact of the Project locally. In particular, the relevant provisions focus on job and economic impacts "in the vicinity of the facility." 16 NYCRR § 1001.27(b)-(e). The type of net economic benefit analysis demanded by DPS can only be performed industry/state-wide.

NYSDPS incorrectly advocates for use of an economic model which would assign induced job losses from the energy industry at large, despite the fact that most of these losses will result from State policy decisions, such as the decision to shutter all coal-fired power plants, and recent legislation, the 2019 Climate Leadership and Community Protection Act, which mandates elimination of all fossil fuel-fired power generation by 2040 (Tr.85, L6-10; Tr.86, L16, through Tr.87, L7)—job losses which will occur as a direct result of State policy decisions, regardless of whether a single new renewable generation is constructed in New York. In theory, even if all Load-Serving Entities (LSEs) were to fulfill their obligations to purchase renewables under the CES by making alternative compliance payments, or acquiring renewables from out-of-state, New York's coal-fired and carbon-emitting power plants will still be required, *by law*, to close, and jobs related to those industries would still be lost. Contrary to Mr. Gadomski's testimony (Tr.335, L18 through Tr.337, L14), there is a clear, direct, causal relationship between State legislation and policy decisions and resulting job losses in the oil, coal and gas power generation sector; apportioning those job losses to individual renewable generation projects in unreasonable and illogical.

Finally, the regulations and Stipulations do not require the Applicant to assess a Facility's impact on retail electric rates, let alone how the change in rates could affect jobs in the electric industry. Estimated impacts on wholesale pricing for electricity post operation of the Project are discussed in Application Exhibit 8 (Hearing Exh. 2, Application Exh. 8). The DPS Engineering Panel found that "both our internal analysis, as well as the Applicant's modeling, forecasted a decrease in statewide wholesale energy market prices" (Tr.307, L20 through Tr.308, L3).

Mr. Gadomski himself acknowledged the difficulties associated with linking the construction of a single wind energy facility to job losses and other adverse economic impacts associated with the possible shutdown of conventional power plants. In his testimony, Mr. Gadomski cites a 2012 study of the potential costs and benefits of increasing the use of solar photovoltaics ("PV") as an example of a model that considers the net benefits of renewable generating facilities (Tr.333, L9 through Tr.335, L17). However, he acknowledges that translating the results of a statewide solar PV study to a single renewable energy project "would be difficult to accomplish in practice" (Tr.334, L20-21). He then notes that while renewable projects can have significant economic impacts in the aggregate, "an attempt to make a top-down allocation of the overall indirect impacts from a statewide study to an individual facility would be very imprecise" (Tr.335, L4-8).

Despite these acknowledged difficulties, Mr. Gadomski declares that a separate job impact analysis is necessary to show that each individual project is beneficial and cost effective on its own (Tr.336, L10 through Tr.337, L14) even though the New York State Clean Energy Standard has already considered net job impacts and concluded that renewable energy projects have important economic benefits. Mr. Gadomski provides no realistic alternative to the JEDI model for conducting that analysis (Tr.85, L11 through Tr.86, L15).

DPS is condemning the Applicant for failing to quantify something – the net economic benefits of a particular renewable energy project – that they acknowledge cannot realistically be quantified. While the JEDI model may not be perfect, (1) it is widely used in New York State and nationwide to quantify economic impacts in the absence of a workable alternative, (2) it provides a reasonable estimate of direct construction and operation job impacts, and (3) it provides a reasonable basis for benchmarking one wind energy project against another, as Mr. Gadomski has done (*see* Hearing Exh.119).

Even if the Applicant were to concede DPS's argument that the Siting Board should not consider indirect and induced job impacts in assessing the socioeconomic benefits of the Project, the Siting Board nevertheless must conclude that the Project offers significant economic benefits and so is in the public interest. There appears to be no dispute among the parties that:

- The Project will directly generate both construction and operation-related jobs (Hearing Exh. 2, Application Exh. 27, Table 27-2; Tr. 83, L13-19; Tr.89, L9 through Tr.90, L10; Tr.343, L17-22);
- Per DPS Staff, both its modeling and the Applicant's forecasts a decrease in statewide wholesale energy market prices as a result of the Project (Tr.307, L20 through Tr.308, L3);
- The affected communities will receive significant PILOT payments (Hearing Exh. 2, Application Exh. 27(i));
- The Project will not impose significant additional costs on the participating communities (*Id.,* Application Exh. 27(f)-(g), (k)); and
- The landowners will receive lease payments based on their participation in the Project. (*Id.,* Application Exh. 27, Tables 27-6; Hearing Exh. 118).

Taking the larger view, the State has repeatedly emphasized the economic development opportunities associated with encouraging renewable energy development. Over the past decade, a key goal of the State's energy policies, including the SEP, is increasing private investment in New York's clean energy economy. In support of this goal, these policies have repeatedly pointed to the various State and local direct and indirect economic benefits associated with clean energy investment (Hearing Exh. 2, Application Exh. 10(g)(4)). In light of these declarations, the dispute between the Applicant and DPS regarding the specific jobs and economic impact of the DRWF is largely academic. Regardless of whether the Applicant or DPS is right about the indirect/induced economic impacts of Project, as a matter of State policy, renewable energy projects are generally considered an economic "plus" (Tr.90,

L14 through Tr.91, L3). The precise number of indirect/induced jobs associated with the Project does not change this determination (Tr.91, L2-3).

This conclusion is consistent with the recent Recommended Decision issued to the *Baron Winds Project* (Case No. 15-F-0122), in which the Examiners declared that:

> "based upon the arguments for and against reliance upon the indirect/induced job estimates, and given our recommendation below that the record otherwise contains evidence sufficient for the Siting Board to determine that the Project is in the public interest, we do not believe the Siting Board needs to resolve the issue whether the JEDI model's estimates of indirect/ induced jobs should be considered in determining the economic benefits resulting from the Project" (Baron Recommended Decision, p. 178).

In light of the above, the Siting Board can readily determine that, on balance, construction and operation of the Project will result in economic benefits and that the Project is in the public interest. To confirm the economic impact of the Project, the Applicant has agreed to a Certificate Condition – requested by Mr. Gadomski – which requires it to file a tracking report concerning the actual number of jobs created and actual tax payments to local jurisdictions within 15 months of the Project becoming operational (Hearing Exh. 304, Condition 33).

b) Property Values

Article 10 does not require an assessment of impacts to property values, and the Siting Board is not required to make findings related to property values (PSL § 168(2); Tr.913, L14 through Tr.913, L3; *see Recommended Decision* in Case 16-F-0559, Bluestone Wind [October 1, 2019] at pp. 139-40). While Article 10's implementing regulations at 16 NYCRR § 1001.27 include consideration of socioeconomic impacts from the Facility, general economic impacts such as impacts to property values are not among those to be considered by the Siting Board. This is consistent with the State's treatment of economic considerations in the context of environmental impact review performed under the State

Environmental Quality Review Act ("SEQRA") case law, which is helpful in providing guidance under Article 10, it is clear that "[r]eduction of property values and other economic-related matters *standing alone* are not considered to be environmental impacts." *In The Matter Of St. Lawrence Cement Company, LLC, Applicant,* 2004 WL 2026420, at 51 [September 8, 2004] (emphasis added) *citing, Matter of Red Wing Props., Inc.,* 1989 WL 97001, Interim Decision of the Commissioner, January 20, 1989, at 2; *Matter of William E. Dailey, Inc.,* Interim Decision of the Commissioner, June 20, 1995, at 8 (upholding administrative law judge [ALJ] ruling that diminution of property values not an environmental issue); *Matter of Hyland Facility Assocs.,* Interim Decision of the Commissioner, August 20, 1992, at 5 (potential loss of revenue derived from tourism an economic issue, not an issue of community character); *Matter of Waste Mgt. of New York,* ALJ Rulings on Party Status and Issues, December 31, 1999, at 46 (holding that under agency precedent, property value impacts not considered "environmental" impacts, but accepting submission relating to property impacts as a substantive comment on the project's Draft Environmental Impact Statement) *see also In the Matter of the Application of Seneca Meadows, Inc.,* 2012 WL 1384772, Ruling on Issues and Party Status, March 26, 2012.

Although the Article 10 statute and implementing regulations do not expressly require an assessment of property values as part of the Article 10 review process, and although this issue was not included in scoping or executed stipulations for this project (Hearing Exh 1; Tr.913, L10-21), the Applicant nevertheless submitted rebuttal testimony from Dr. Eric Brunner, a Professor of Economics and Policy at the University of Connecticut (Tr.179 through 189), to address concerns raised by members of THARP in their direct testimony (Tr.578-585; Tr.600) about impacts from the Facility on property values, and to supplement the record regarding potential property value impacts associated with the DRWF to the extent that the Siting Board considers them an issue in this proceeding (Tr.913, L13 through Tr.914, L3).

Numerous property value studies, based on statistical analysis of real estate transactions near wind farms, have found that wind facilities have no consistent significant impact on property values (Tr. 182, L11-13). Dr. Brunner testified that since 2009, 13 large empirical studies have been completed that examined the impact of wind farms on nearby property values in the United States 11 of which found no significant effect of wind turbines on property values (Tr.182, L20 through Tr.183, L17). The other two studies had mixed results, finding a negative effect in one location but either no effect or a positive effect in another (Tr.184, L17 through Tr.186, L10). Of note, one of the two "mixed" studies found that proximity to turbines had a limited to positive effect in Lewis County, where the DRWF is proposed (Tr.185, L3-4). However, both studies suffered from small sample sizes as compared with the 11 studies that found no significant impact (Tr.185, L11 through TR.186, L4).

There have also been 2 recent peer-reviewed studies that conducted a meta-analysis of the existing evidence on the impact of wind turbines on residential property values (Tr.186, L11 through Tr.187, L4). These studies did not conduct original research but rather analyzed the existing body of peer-reviewed studies to investigate the overall impact of wind turbines on property values (*Id.*). These studies concluded that most of the literature on effects of wind farms on nearby housing values have overwhelming indicate no significant impacts on nearby property values (*Id*.). Dr. Brunner evaluated the 10 studies attached as exhibits to the lay testimony of THARP Member Karen Reed (Hearing Exhs 217-219, 222-223 and 226), and noted that seven of these studies are based on wind facilities in Europe, where cultural norms and attitudes toward energy facilities are sufficiently different that it is "extremely difficult and problematic to extrapolate" the results of European property value studies to the United States (Tr.187, L8-16). Of the remaining three studies, Dr. Brunner had reviewed one (Hearing Exhibit 221) in his own evaluation (Tr.185, L16 through Tr.186, L10; Tr.187, L16-18), while the other two were non-peer reviewed reports, one of which incorrectly interprets an underlying study (Tr.187, L17 through Tr.188, L15), and the other of which involved a hypothetical analysis of the potential impacts

of a proposed wind farm on property values if that wind farm was constructed in future, and not an evidentiary analysis of actual impacts to property values from an operating wind farm (Tr.188, L16 through Tr. 189, L7). In conclusion, the overwhelming evidence in the Record indicates that the Facility is unlikely to have a long-term negative impact on property values.

7. Other Issues Not in Dispute

a. Land Use

The land use analysis conducted by the Applicant supports a finding by the Siting Board, consistent with PSL § 168(3)(c), that the Facility is compatible with existing and proposed land uses and that any effects on land use will be minimized or avoided to the maximum extent practicable (Hearing Exh. 2, Application Exh. 4; Hearing Exh. 8, Appxs. B and C; Hearing Exh 13; Hearing Exh. 15 and Figures 4-4 and 4-9).

In preparing Application Exhibit 4, the Applicant identified existing and proposed land uses using publicly available data from publicly available sources, including Lewis County GIS resources, as well as from host municipalities and adjacent municipalities within a 5-mile radius of the Facility Site (Hearing Exh. 2, Application Exh. 4). The Applicant also reviewed land use-related data, including comprehensive plans for Towns in the Study Area, data relating to specially designated areas (e.g., inland waterways, groundwater management zones, agricultural districts, flood hazard areas, etc.) and recreational areas and other sensitive land uses (e.g., wild, scenic and recreational river corridors, open space, archaeological, geologic, historical or scenic areas, etc.), and regional planning documents (Hearing Exh. 2, Application Exh. 4(c), (e), (g)-(i)).

Prior to submission of the Application, the Applicant sent letters to the Towns of Harrisburg and Pinckney, and conferred with the Towns' Attorneys regarding land use, in particular whether there were any new applications of land developments which had been filed or under review for lands near the Facility (Hearing Exh. 2, Application Appx 31-A; Tr.540, L87 through Tr.541, L101). The Towns'

respective attorneys responded that there were no such applications (Hearing Exh. 2, Application Appx 31-A), which was further affirmed by the Town of Pinckney in its testimony (Tr.540, L90 through Tr.541, L101).

As set forth in the Application and Supplements, the presence of the turbine pads, access roads, substations, and the O&M building would result in the cumulative conversion of approximately 137.3 acres of the 6,661.8-acre site from its current use to built facilities, which represents approximately 2% of the Facility Site. In addition, the Application identified an additional 280.3 acres of temporary land use impacts resulting from construction activities (i.e., clearing, soil disturbance, etc.) as a result of the Project (Hearing Exh. 2, Application Exh. 22(b)(1), Table 22-2; Hearing Exh. 13 and Table 6). This amount has been reduced given the selection of the shorter and narrower Alternate Collector Route, as outlined in the September and October 2019 Supplements (Hearing Exhs. 13 and 15). During Facility operation, additional impacts on land use (if any) over the years should be infrequent and minimal. Aside from occasional maintenance and repair activities, Facility operation will not interfere with ongoing land use (i.e., farming and forestry activities) (Hearing Exh. 2, Application Exh. 4(i)). No substantial permanent changes in land use are anticipated because of Facility construction and operation, and no changes are predicted outside the Facility Site (*Id.*).

b. Alternatives

The Record demonstrates the Applicant has reduced, avoided and minimized probable environmental impacts from the proposed Facility to the maximum extent practicable through an iterative design process outlined in Exhibit 9 of the Application (*Id.*), and in subsequent testimony and exhibits submitted to address specific stakeholder issues (*see, e.g.*, Hearing Exh.15, Appx C; Hearing Exhs. 298-99). The Applicant evaluated alternatives including a scenario involving fewer, taller turbines, a 48-turbine alternative, and a no action alternative (Hearing Exh. 2, Application Exh. 9(b)-(d) and Figure 9-1) and justified how the preferred alternative best promotes the public health and

welfare (Hearing Exh. 2, Application Exh. 9(f)). The Applicant and the Parties stipulated to the alternatives analysis to be presented and addressed in Exhibit 9 of the Application (Hearing Exh. 1, Stipulation 9; Hearing Exh. 2, Application Exh. 9). No Party has raised any issues with the alternative layouts and related analysis included in the original Application, nor have parties raised issues related to the selection of the Alternate Collector Line, which was proposed as an alternative route in the Application, and later selected as a preferred alternative in the September and October 2019 Application Supplements (Hearing Exhs. 13 and 15) and Applicant's testimony (Hearing Exh. 282; Tr.878, L6-14). In fact, NYSDPS testified in favor of the Alternate Collector Line as the preferred alternative for collection line routing (Tr.414, L3-21).

The Applicant extensively examined existing conditions at the Facility Site prior to submission of the Application; shifted components away from identified resources of concern during layout design, and through consultations with stakeholders; and selected the Alternate Collector Line route as the preferred alternative to reduce required overhead collection lines needed for the Facility and eliminate a crossing of the Deer River (Hearing Exh. 2, Application Exh. 9; Hearing Exhs. 13, 15, 282, 298-99; Tr.878, L6-14). This iterative development process was conducted throughout the pre-Application and Application phases (see Hearing Exh. 2, Application Exh. 9; Hearing Exhs. 13 and 15 on Alternate Collector Line), and in discussions with parties prior to and following Evidentiary Hearings (see Hearing Exh. 15, Appx C [identifying 19 Facility layout changes made to resolve Party issues]), to ensure that the Facility layout selected avoided, minimized and mitigated probable environmental impacts from the Facility to the maximum extent practicable. Resource-specific efforts to avoid and minimize impacts are discussed further in other sections of this brief, including: the portions of Section II(A) of the Facility Description discussing the Alternate Collector Line, Section III(B)(1)(c) and (d) on wetlands and streams (Section III(B)(1)(c)-(d)), Section III(B)(1)(e) discussing agricultural impacts, and Section III(7)(g) on Fort Drum, communications and transportation impacts.

The alternatives analysis presented in Application Exhibit 9 meets the requirements of Article 10 and enables the Siting Board to determine that the proposed turbine layout is best suited to promote public health and welfare as it properly balances siting constraints and minimization of environmental resource impacts with the generation of the maximum amount of renewable energy to meet the Applicant's objectives and goals and achieve the significant public health and economic benefits of wind energy generation in comparison to other alternatives (Hearing Exh. 2, Application Exh. 9).

c. Construction and Transportation

The Record characterizes potential impacts from Facility construction and operation on transportation resources and local roadways, includes extensive information regarding the Facility construction process, and supports a finding by the Siting Board that impacts during construction have been avoided, minimized and/or mitigated to the maximum extent practicable (Hearing Exh. 2, Application Exhs. 12, 18, 25, Appx 25-A [Route Evaluation Study] and 25-B [Sample Road Use Agreement]). The Applicant performed a Route Evaluation Study (Hearing Exh. 2, Application Appx 25-A) to explore potential traffic and transportation impacts on the community (Tr.542, L125 through Tr.543, L148).

Further, pursuant to 16 NYCRR § 1001.12, the Applicant developed a preliminary Quality Assurance and Control Plan ("QA/QC Plan") demonstrating how the Applicant will monitor and assure conformance of Facility installation with all applicable design, engineering and installation standards and criteria (Hearing Exh. 2, Application Exh. 12(a), Appendix 18-B [Preliminary QA/QC Plan]; Hearing Exh. 8, Appx. H [Revised QA/QC Plan]). The final QA/QC Plan is site specific and will not be developed until the balance of plant (BOP) contractor has been selected and the Facility is proceeding with construction (*Id.*).

The Record includes an overview of the Facility construction process and measures to be taken to avoid, minimize and mitigate impacts during construction (Hearing Exh. 2, Application Exh. 12).

For example, the Applicant has agreed to a Certificate Condition specific to avoiding, minimizing and mitigating construction noise (Hearing Exh. 304, Condition 71); has committed to providing construction notices to the Towns and Counties, emergency responders, and the public at large (Hearing Exh. 304, Conditions 22-26); and agreed to provide DRWF contact information for members of the public to use to obtain more information or submit complaints during construction (Hearing Exh. 304, Conditions 22-26, 43; Tr.923, L10-16).

Furthermore, the Applicant proposed and committed to revising a Facility Communication and Complaint Resolution Plan (Tr.924, L4-10; Hearing Exh. 2, Application Exh. 12 and Appx. 2-C; Hearing Exh. 304, Condition 43; Hearing Exh. 305, Section B(3)) and agreed to Site Engineering and Environmental Plan guidelines to address complaints during construction (Hearing Exh. 305, Section B(3)). The Applicant will make the final Facility Communication and Complaint Resolution Plan available on its project website, at local document repositories, and to the host municipalities (Hearing Exh. 304, Condition 43) to ensure members of the public are aware of the process for receiving notices and submitting complaints. Additional information will be provided to the community regarding complaints specific to blasting, if blasting is proposed (Hearing Exh. 304, Condition 55(c)), and noise (Hearing Exh. 304, Condition 66). Lastly, the Applicant will provide NYSDPS and the Towns with records of complaints received and their resolutions (Hearing Exh. 304, Conditions 70-71, 80 (b)).

In the early stages of this proceeding, the Towns of Pinckney and Harrisburg identified issues regarding potential construction impacts on Town and County roadways, which the Applicant addressed through negotiation of a joint Road Use Agreement[19] executed by the Towns of Harrisburg and Pinckney, Lewis County, and the Applicant (Hearing Exh. 2, Application Exh. 25-B; Hearing Exh. 183 & 184; Tr.542, L123 through Tr.543, L148), and through discussions and correspondence with the

[19] The final executed Road Use Agreement will be appended to the Applicant's Petition for a Certificate of Public Convenience and Necessity under PSL § 68, when submitted to the New York State Public Service Commission (PSC).

Towns and their joint engineer (Hearing Exhs. 183 & 184; Tr.542, L123 through Tr.543, L148). The Applicant has agreed to Certificate Condition 49 related to coordination with municipalities, including the Towns, to address traffic issues, and Condition 50 related to the Road Use Agreement and finalization of construction haul routes, among others (Hearing Exh. 304).

The preliminary QA/QC Plan, the preliminary Complaint Resolution Plan, and the agreed upon Certificate Conditions allow the Siting Board to find that construction of the Facility will follow all applicable design, engineering and installation standards and criteria and that impacts to utilities have been avoided and minimized to the maximum extent practicable.

d. Public Health, Safety and Security

i. Ice Throw, Blade Throw and Tower Collapse

PSL § 168(2)(b) requires the Siting Board to make findings regarding the nature of the probable environmental impacts of the construction and operation of the Facility on public health and safety. Section 168(3)(c), in turn, requires the Siting Board to determine that any adverse environmental effects of the construction and operation of the Facility will be minimized or avoided to the maximum extent practicable before it issues a Certificate under Article 10.

As the Record demonstrates, the potential risks associated with the operation of the Facility are generally limited in nature to effects associated with the movement of the blades and the operation of the electrical components within the nacelle. These include ice shedding, tower collapse, and blade failure (Hearing Exh. 8, Application Exh. 15). While extremely rare, such incidents have occurred; however, to the best of the Applicant's knowledge, no member of the public has ever been injured as a result of these incidents and local setbacks have proved to be sufficient to protect area homes and public roads (Hearing Exh. 8, Application Exh. 15(e)(1)). The reasons for tower collapse or blade throw vary depending on conditions and tower type. The main causes of blade and tower failure are a control system failure leading to an over speed situation, a lightning strike, or a manufacturing defect

in the blade. Technological improvements and mandatory safety standards during turbine design, manufacturing, and installation, and wind turbine design certification and type approval, have significantly reduced the instances of blade throw (*Id.*). No issues were raised during the testimony with respect to ice shedding, tower collapse or blade failure.

Modern utility-scale turbines are certified according to international engineering standards. These include ratings for withstanding different levels of hurricane-strength winds and other criteria. The wind turbines under consideration for the Project will meet all applicable engineering standards. In particular, they will be equipped with state-of-the art braking systems, pitch controls, sensors, and speed controls, all of which greatly reduce the risk of blade throw. In addition, it is anticipated that the turbines will be equipped with two fully independent braking systems that allow the rotor to be brought to a halt under all foreseeable conditions and that the turbines will automatically shut down at wind speeds over the manufacturer's threshold. The turbines will also cease operation if significant vibrations or rotor blade stress is sensed by the monitoring systems. For all of these reasons, the risk of catastrophic blade throw is low (Hearing Exh. 8, Application Exh. 15(e)(1)).

Ice shedding and ice throw refer to the phenomena that can occur when ice accumulates on rotor blades and subsequently breaks free and falls to the ground (Hearing Exh. 8, Application Exh. 15(e)(3)). Although a potential safety concern, no serious accidents caused by ice being "thrown" from an operating wind turbine have been reported. The risk of ice landing at a specific location is found to drop dramatically as the distance from the turbine increases. Studies identified in the Application have shown that ice fragments typically land within 410 feet (125 meters) of the wind turbine. The "Wind Turbine Health Impact Study" prepared by an independent expert panel for the Massachusetts Department of Public Health concluded that "ice is unlikely to land farther from the turbine than its maximum vertical extent" (Ellenbogen et al., 2012) (*Id.*). Since all of the applicable setbacks are greater than the proposed turbine height, any risk associated with ice throw has been minimized to the

extent practicable. Moreover, the Applicant is not aware of any reported injury caused by ice being thrown from a turbine (Hearing Exh. 8, Application Exh. 15(e)(3)).

The Applicant has agreed to Certificate Conditions to document for the Siting Board that the turbines selected for the Facility will meet these design standards and commit to providing certain manufacturer safety and operational manuals (Hearing Exh. 304). These measures are sufficient to assure that the risks associated with ice throw, blade throw and tower collapse have been avoided or minimized to the maximum extent practicable, consistent with PSL § 168(3)(c).

ii. Air Emissions

Wind-generated electricity is in many ways safer and healthier than other forms of electricity generation. Among other things, wind energy produces electricity without burning fossil fuels and therefore has no air pollution emissions and no emissions that contribute to climate change (Hearing Exh. 2, Application Exh. 17). The air emissions from the Facility are therefore limited to vehicle emissions during construction and from a concrete batch plant (*Id.*), which were described in the Application. However, the Facility will have an overall positive impact on air quality and will contribute to meeting New York's climate change and renewable energy goals. Importantly, no issues were raised during the testimony with respect to air emissions.

iii. Safety, Security and Emergency Response

To ensure the safety of construction and operations personnel, as well as the security of the Facility, the Applicant has developed and will implement plans for site security, worker safety, and emergencies (Hearing Exh. 2, Appendix 18-A [Preliminary Site-Specific Safety Plan]), Appendix 18-C [Preliminary Emergency Response Plan], and Appendix 18-C [Preliminary Site Security Plan]). The Applicant submitted the Site Security Plan to the New York State Department of Homeland Security, in fulfillment of 16 NYCRR § 1001.18(d)'s requirements, and to local emergency responders (Hearing Exh. 2, Appx 18-E; Hearing Exh. 8, Appx. L). Further, the Applicant has consulted and will continue

to coordinate with local emergency responders during construction and operation (Hearing Exh. 2, Application Exh. 18; Tr. 544, L175-76), and made specific commitments in Certificate Conditions 20, 43 and 44 related to coordination with and notification of local emergency departments during construction and operations (Hearing Exh. 304). No issues were raised during the testimony with respect to this topic.

e. Cultural, Historic and Recreational Resources

The impact of construction and operation of the Facility on cultural, historic and recreational resources is addressed in Application Exhibit 20 (Hearing Exh. 2, Application Exh. 20 and Appx 20-A [Phase 1a Cultural Resources Investigation Report], 20-B [Phase 1b Cultural Resources Investigation Report], 20-C [Unanticipated Discovery Plan], 20-D [Five-Mile Visual APE Architectural Resource Survey Report], 20-E [Correspondence with the New York State Historic Preservation Office] and 20-F [Cultural Resources Mitigation Plan]). Consistent with 16 NYCRR § 1001.20 and the OPRHP *Guidelines for Wind Farm Development Cultural Resources Survey Work* (OPRHP, 2006) (the "SHPO Wind Guidelines"), the Applicant consulted with OPRHP to develop the scope and methodology for the resource studies conducted for the Facility and included with the Application (Hearing Exh. 2, Application Exh. 20; Hearing Exh. 8, Appx. N [SHPO Letter]) The Applicant provided sufficient information to enable the Siting Board to make its required findings under PSL § 168(2)(c).

i. Archeological Resources

The Applicant conducted a comprehensive assessment of the impact of the Facility on cultural/historic resources. Specifically, the Applicant's consultant, Panamerican, performed a Phase 1A Archaeological Resources Survey for the Facility in December 2016 to determine if cultural resources were present in the Facility Area, and to assess general sensitivity for archeological and historic architectural cultural resources (Hearing Exh. 2, Application Exh. 20(a)(2) and Appx 20-A). The Phase 1A study documented 5 previously-reported historic archeological sites and 1 prehistoric

archeological site within one mile of the Facility Area (Hearing Exh. 2, Application Exh. 20(a)(2) and Appx 20-A). The Facility Area was considered to have moderate to low sensitivity for prehistoric/precontact period cultural resources (Hearing Exh. 2, Application Exh. 20(a)(2)).

A Phase 1B Fieldwork Plan was prepared in accordance with SHPO Wind Guidelines and submitted to SHPO in September 2017 and approved in October 2017 (Hearing Exh. 2, Application Exh. (20)(a)(3) and Appx 20-B). The Applicant followed up in November 2017 with a Phase 1B Archaeological Resources Study consisting of a site walkover and shovel testing in areas where proposed Facility components are located (Hearing Exh. 2, Application Exh. 20(a)(3) and Appx 20-B). The Applicant did not identify any archaeological sites or other cultural resources in the Facility Area during (Hearing Exh. 2, Application Exh. 20(a)(3) and Appx 20-B). Scattered and isolated historic and modern artifacts were found in the Facility Area, but Panamerican considered these historic artifacts to be a relatively light scatter with no research potential (Hearing Exh. 2, Application Exh. 20(a)(3) and Appx 20-B). Panamerican also evaluated intersection improvement areas ("IAAs") proposed for the Facility but identified no cultural materials (Hearing Exh. 2, Application Exh. 20(a)(3) and Appx 20-B). On that basis, no Phase 2 Study was required (Hearing Exh. 2, Application Exh. 20(a)(4)).

In connection with the Applicant's decision to further evaluate the feasibility of the Alternate Collector Line as part of the September and October 2019 Application Supplements, the Applicant provided an addendum to the Phase 1B field investigation (Hearing Exh. 13, pp. 4-5; Hearing Exh. 15, p. 9 and Appx A[Phase 1B Cultural Resources Report Addendum to Appendix 20-B]). No precontact artifacts or features were found during this investigation, and no S/NRHP resources were identified (Hearing Exh. 15, p.9). As a result, no further investigations were performed for the Alternate Collector Line, and the final report contained within Appendix A to the October 2019 Supplement was submitted to SHPO in October 2019 (Hearing Exh. 15, p. 9 and Appx A).

To prevent impacts to archeological resources, mapped locations of archaeological sites within 100 feet of proposed Facility-related impacts will be identified on construction drawings and marked in the field by construction fencing with signs restricting access (Hearing Exh. 11, SEEP Section A, Subsection 10(b)). If a potentially significant archaeological resource is discovered within the APE, the Applicant will attempt to relocate the component to avoid the impact; if the impact cannot be avoided, then a Phase 2 archaeological investigation will be conducted in accordance with OPRHP guidance (Hearing Exh. 2, Application Exh. 20(a)(1)). If unanticipated archaeological resources are discovered, the Applicant will implement its Unanticipated Discovery Plan, which will include provisions to stop all work in the vicinity of the archaeological finds until those resources can be evaluated and documented by a Registered Professional Archaeologist ("RPA") (Hearing Exh. 2, Application Exh. 20(a)(6), Appendix 20-C).

No parties have identified issues relating to the potential archaeologic impacts associated with the Facility. The information included in the Application and the Phase 1B archaeological survey permits the Siting Board to find that the Facility has avoided, minimized and mitigated potential impacts on archaeological resources to the maximum extent practicable, consistent with PSL § 168(3)(c).

ii. Cultural and Historic Resources

A review of the state and national registers of historic places ("S/NRHP") did not identify any sites or districts within the Facility Area (Hearing Exh. 2, Application Exh. 20(a)(2)). One resource listed on the S/NRHP—Pinckney Corners Cemetery—was identified immediately adjacent to the Facility Area (*Id.*). Within the 5-mile "area of potential effect" ("APE") around the Facility Area, the Applicant identified 22 additional S/NRHP-eligible sites, three historic districts and 17 individual resources with "undetermined" S/NRHP status (*Id.*). Based on those results, the Applicant also conducted a Historic Resources Survey, which was submitted to the OPRHP/SHPO and summarized

in Exhibit 20 of the Application (Hearing Exh. 2, Application Exh. 20(a)(2) and (b) and Appx 20-D). The survey inventoried structures and buildings within the APE identified as being 50 years or older, and provided basic information about their architectural style, features, current integrity, and identification for purposes of determining whether the structures/buildings warrant consideration for eligibility for listing on the S/NRHP (Hearing Exh. 2, Application Exh. 20(b) and Appx 20-D).

As described in the Historic Resources Survey Report and Exhibit 20 of the Application, the Facility will have no physical impacts to the identified historic architectural resources (i.e., no historic structures will be damaged or removed) (Hearing Exh. 2, Application Exh. 20(b)(1) and (2) and Appx 20-D). The Facility's only potential effect on historic properties would be a change in the property's visual setting resulting from the introduction of wind turbines (*Id.*). The Applicant updated its visual impacts analysis to address the changes to the Facility layout as part of the September and October 2019 Application Supplements, in particular as it relates to the Alternate Collector Line (Hearing Exhibits 13, pp. 4-5).

The next step in the review process under Section 106 of the National Historic Preservation Act is to wait until the involved federal agency initiates a formal consultation process under this statute. Once this process begins, OPRHP will finalize its review and provide the involved agency with its recommendations on effects and possible mitigation measures.

In anticipation of this process, the Applicant proposed a Cultural Resource Mitigation Plan as part of its Application (Hearing Exh. 2, Application Exh. 20(b)(3), Appendix 20-F). The Applicant also has stipulated to Certificate Condition 58, which calls for (a) plans to avoid or minimize impacts to archaeological and historic resources to the extent practicable, (b) preparation of a final Unanticipated Discovery Plan, (c) consultation with OPRHP and DPS staff if complete avoidance of archaeological sites is impossible, and (d) preparation of a final Cultural Resources Mitigation and Offset Plan (Hearing Exh. 304, Condition 58).

Based on the above, the Siting Board can reasonably determine that the Applicant has avoided, minimized and mitigated impacts to cultural and historic resources to the maximum extent practicable, consistent with PSL § 168(3)(c).

iii. Visual Impacts

The Applicant has set forth the nature of the probable visual impacts associated with the construction and operation of the Facility, which consists of up to 25 wind turbines reaching up to 180 meters (590.5 feet) in height (Hearing Exh. 2, Application Exh. 24 and Appx 24-A [Visual Impact Assessment]; Hearing Exh. 13, pp. 22-23), sufficient to enable the Siting Board to make its required findings under PSL § 168(2)(c). The VIA assessed the Facility's potential visibility and includes an evaluation of the character and visual quality of the existing landscape, including dividing the area by Landscape Similarity Zones ("LSZ"), identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), and potential visual mitigation (Hearing Exh. 2, Application Exh. 24(a) and Appx. 24-A). As set forth in greater detail in Exhibit 24 and Section 5 of the VIA, the viewshed analysis, which considers the screening effects of topography, vegetation, and structures, suggests that 87% of the 10-mile visual study area will not include views of the Project's turbines, given the heavily forested nature of the Facility Area (Hearing Exh. 2, Application Appx. 24-A, Section 5 and Table 3). Further, considering existing vegetation in the Facility Area, the VIA concluded that no portion of the Study Area would have visibility of the entire Facility (21-25 turbines), and only 3% had the potential to see more than 10 turbines (Hearing Exh. 2, Application Appx. 24-A, Table 3).

A 10-mile visual study area was established to identify visually sensitive resources of national, regional and statewide significance (Hearing Exh. 1). A more inclusive inventory that added locally significant visually sensitive resources was conducted for the area within 5 miles of the proposed Facility. Following public outreach, several additional resources of local significance located within

the 10-mile radius visual study area were identified. The VIA includes an analysis of potential visibility (construction, turbines, and lighting), and identifies locations within the visual study area where it may be possible to view the installation and operation of the proposed wind turbines (Hearing Exh. 2, Application Exh. 24(a)(1)).

During the visual field review, the Applicant's consultant took photographs to document representative views, and for use in the preparation of visual simulations. As required by the Article 10 regulations, the Applicant conferred with municipal planning representatives, DPS and other agencies to identify important or representative viewpoints (Hearing Exh. 2, Application Exh. 24(b)(2), (4)).

From an initial pool of 105 representative viewpoints (Key Observation Points) for which photographs were taken, a total of 12 viewpoints were selected for the development of simulations based on various criteria, including the goal of representing different types of typical views, views from specific visually sensitive resources and views illustrating different numbers of turbines from a variety of viewer distances to illustrate the range of visual change associated with the proposed Project (Hearing Exh. 2, Application Appx. 24-A, Section 4.3). To show the anticipated visual change associated with the proposed Facility, high-resolution computer enhanced image processing was used to create realistic photographic simulations of the proposed turbines and other Facility components from the various LSZs where views could be available within the study area (e.g., Forest, Agricultural, City/Village, Hamlet/Crossroads, Waterways) (Hearing Exh. 2, Application Exh. 24(a)(1) and Appx 24-A, Section 3.3 and Table 2). Forest is the dominant LSZ in the Study Area (58%), followed by Agricultural (35.5%)(Hearing Exh. 2, Application Exh. 24(a)(1)(i)).

Visual simulations of the DRWF were provided to a panel of landscape architects and a community planning professional who were asked to evaluate the visual impact of the proposed Facility on a scale ranging from "very low" to "very high" (Hearing Exh. 2, Application Exh. 24-A, Section 4.6). In addition, for landscape elements present in views, panelists rated change in visual character

from “none” to “strong” (*Id.*). The panel concluded that the Facility’s overall contrast with the visual/aesthetic character of the area will generally have a noticeable contrast for closer views, but would fade into background views and be difficult to discern at a distance (Hearing Exh. 2, Application Exh. 24(b)(7)). Viewed more broadly, and taking into account the cumulative impact of wind generating facilities in and around the Study Area, the DRWF may appear to be an expansion of the regional cluster of wind generating facilities, and may appear as part of the overall existing visual character (*Id.*; see also, Hearing Exh. 2, Application Appx. 24-A, Sections 5.3 and 5.6).

Measures to minimize and mitigate visual impacts are limited given the height of wind turbines generally (Hearing Exh. 2, Application Exh. 24(b)(8) and Appx 24-A, Section 5.7). However, in accordance with NYSDEC Program Policy: Assessing and Mitigating Visual Impacts, DEP-00-2 (NYSDEC, 2000) (“NYSDEC Visual Policy”), various mitigation measures were considered to minimize potential visual impacts, the Applicant and DPS have agreed to Certificate Condition 36, which requires that the Facility design incorporates the following measures to minimize visual impact:

- Prohibiting advertisements, conspicuous lettering, or logos identifying the Facility owner, turbine manufacturer or other entity;
- Requiring turbines, towers and blades to be in FAA-approved white or off-white colors and non-reflective finishes; and
- Requiring turbine lighting to be kept to the minimum allowable by the FAA (Hearing Exh. 304, Condition 36).

Several conditions addressing lighting concerns are discussed in Section III(B)(3)(a) of this brief.

Although the focus of the VIA is on the turbines, the Applicant also assessed the potential visibility of the collection and point of interconnection substations (Hearing Exh. 2, Application Exh. 24(7) and Appx 24-A, Section 5.5; Hearing Exhs. 38-40; Tr.198, L10 through 199, L10). Importantly, selection of the Alternate Collector Route and elimination of the originally proposed collection route

eliminated 3.3 miles of proposed overhead collection lines, including a crossing of the Deer River (Tr.896, L13-16; Hearing Exh. 15, p.6). These segments of overhead line had some of the most significant contributions toward visual impacts from non-turbine Facility infrastructure (Hearing Exh. 2, Application Appx 24-A, Section 5.5 and Figure 11) and their elimination allowed the Applicant to further avoid and minimize visual impacts from non-turbine infrastructure (Hearing Exh 15, pp. 22-23;).

Visual impacts during construction are anticipated to be relatively minor and temporary in duration. Representative photographs of construction activities were included in the VIA (Hearing Exh. 2, Application Exh. 24(b)(7) and Appx. 24-A, Section 5.4). Visual impacts associated with construction may include, but are not limited to: temporary increase in truck traffic on area roadways, temporary widening of some public roads/intersections, construction/operation of construction laydown yards, disturbance associated with construction and operation of the access roads, construction of turbine foundations, and installation of the tower, nacelles and rotors using a large erection crane(Hearing Exh. 2, Application Exh. 24(a)(7) and Appx. 24-A, Section 5.4).

Andrew Davis, Utility Supervisor, DPS Office of Electric, Gas and Water, Environmental Certification and Compliance Section, reviewed the Application and concluded that "[t]he VIA generally presents a reasonable depiction and characterization of the likely appearance of the proposed generating Facility from a range of viewpoints" (Tr.447, L3-6). Mr. Davis identified an issue regarding the lack of photo simulations of transmission interconnection line and substation infrastructure in the VIA (Tr.444, L10-13; Tr.447, L6-9). To resolve this issue, the Applicant provided additional photo simulations of this infrastructure (Hearing Exhs. 38-40; Tr.198, L10 through 199, L10). While acknowledging that some reviewers may disagree with the impact ratings assigned by the expert panel and that certain viewpoints of interest to the public may not be included, Mr. Davis noted that the VIA is intended to provide a "representative assessment identifying and addressing potential impacts on the

range of landscape types, user-groups, and distance zones in the Study Areas" (Tr.447, L14-19). The VIA for the DRWF achieves that goal.

NYSDPS identified issues related to Facility visual impacts in testimony, including the potential that orange turbine markings would be required by the FAA for "snow-prone" areas (Tr.441, L17 through Tr.443, L7), topics related to turbine lighting addressed in Section III(B)(3)(a), shadow flicker addressed in Section III(B)(3)(b), and a number of issues related to materials and components discussed further in Section III(B)(4)(b), above. With regard to the orange turbine markings, the Applicant provided additional testimony indicating that the FAA had not required these markings for any wind projects operating in the Northeast, including those already in operation on the Tug Hill, and that the Applicant would not utilize these turbine markings unless specifically mandated to do so by the FAA, which was unlikely (Tr.909, L18 through Tr.910, L20). The Applicant proposed a modification to Certificate Condition 36(b) to resolve this issue (Hearing Exh. 304).

During consultations, the Towns raised issues regarding potential visual and aesthetic impacts from the Facility (Hearing Exhibits 183-84; T.542, L124 through T.544, L169). The Applicant addressed these concerns in meetings and correspondence with the Towns (Hearing Exhs. 183 and 184). The Applicant also proposed Certificate Conditions related to consulting with the Towns regarding vegetative screening of components like the substation (Hearing Exh. 304, Condition 57; Hearing Exhibit 305, SEEP Guidelines Section 14), and has agreed to evaluate the use of radar-activated turbine lights to minimize visual impacts during the nighttime hours (Hearing Exh. 304, Condition 35(e)).

In testimony, NYSDPS, NYSDEC and THARP raised an issue related to the evaluation of Facility visibility from Inman Gulf Trails in the Tug Hill State Forest (Tr.196, L3 through Tr.198, L9; Hearing Exh. 37). While the Applicant provided justification for not selecting a viewpoint from the Inman Gulf Trails, because it did not offer an unobstructed view of the Facility (Tr.197, L3-12; Hearing

Exh. 37), the Applicant nevertheless agreed to provide additional visual analysis of this trail to resolve this issue (Tr.197, L8-12). To that end, the Applicant visited the Inman Gulf Trail with NYSDEC Regional staff on August 29 to walk the section of trail identified as a concern and collect photographs for an additional visual simulation (Tr.198, L2-9; Hearing Exh. 13, Appx E; see also Hearing Exh. 15, Appx E; Hearing Exh. 37). An accurate depiction of the potential views from Inman Gulf Trail were provided in the Record (Hearing Exh. 15, Appx. E; Hearing Exh. 37; Tr.196, L3 through Tr.198, L9).

Based on the Record, the Siting Board can reasonably conclude that visual impacts of the construction and operation of the Facility will be avoided or minimized to the maximum extent practicable in accordance with PSL § 168(2)(c) and (3)(c).

f. Environmental Impacts

PSL § 168(2)(a) requires the Siting Board to make the required findings regarding the nature of the probable environmental impacts of the construction and operation of the Facility on ecology, air, ground and surface water, wildlife and habitat. Section 168(3)(c), in turn, requires the Siting Board to determine that any adverse environmental effects of the construction and operation of the Facility will be avoided or minimized to the maximum extent practicable before it issues a Certificate under Article 10. Sections III(B)(1) provide extensive discussion of only those ecology-related subject areas that were the subject of dispute among the parties in written testimony and/or hearings: bats, grassland birds, wetlands, streams and agricultural lands. A summary of other ecology-related topics relevant to these findings is included below. The Record supports a finding by the Siting Board that the Facility avoids and minimizes adverse environmental impacts to the maximum extent practicable under PSL § 168(3)(c).

i. Wildlife Other than Bats and Grassland Birds; Wildlife Habitat Other than Wetlands and Streams

The Applicant has set forth in detail the nature of the probable impact of construction and operation of the Facility on ecology, wildlife and habitat, including avian and bat species discussed

further in Sections (III)(B)(a) and (b) of this brief. Specifically, in Exhibit 22 of the Application the Applicant inventoried and evaluated potential impacts to a broad range of plant and animal communities and habitats beyond those specifically discussed in Sections III(B)(1)(a) through (e), above (Hearing Exh. 2, Application Exhs. 4 and 22, Figures 22-1 [Vegetation Cover Types], 22-3 [Wetlands and Streams], 22-4 [Breeding and Migrating Birds Survey Locations], Application Appxs 22-A [Plant Inventory List], 22-C [Avian and Bat Survey Work Plans], 22-D [Avian and Bat Survey Reports], 22-E [Wildlife Inventory List], 22-F [Agency Correspondence], 22-G [Habitat Fragmentation Analysis], 22-H [Cumulative Effects Analysis], 22-K [Wildlife Protection Report Outline]; Hearing Exhs 8, 13 & 15). Impacts to plant communities from construction and operation of the Facility include vegetation clearing and disturbance from construction and permanent loss of vegetated habitats by conversion to built facilities. Landowners can continue to use areas of the Facility Site other than built areas for compatible uses once construction is complete (Hearing Exh. 2, Application Exh. 22(b)).

The Applicant avoided, minimized and mitigated impacts to vegetation through careful site planning, including siting access roads on existing roads, farm lanes, logging roads and utility rights-of-way wherever possible and confining areas of disturbance to the smallest feasible area (Hearing Exh. 2, Application Exhs. 4 and 22). In addition, the Applicant will implement an SWPPP and other measures to avoid, minimize and mitigate impacts to vegetation associated with erosion and sediment (Hearing Exh. 2, Application Exh. 22(c) and Appx 23-C [Preliminary Stormwater Pollution Prevention Plan]). Long term, vegetation will be managed in accordance with a Facility and Corridors Management Plan (see Hearing Exh. 304, Condition 63; Hearing Exh. 305, SEEP Guidelines Sections A(12) and B(2)). In addition, an Environmental Monitor will conduct inspections of all areas requiring environmental compliance during construction activities, with an emphasis on activities occurring in sensitive areas (Hearing Exh. 304, Conditions 40, 75-76; Hearing Exh. 305, SEEP Guidelines Section

B(2)). These measures will ensure that Facility construction and operation does not adversely impact protected plants, significant ecological communities or vegetation generally.

Construction-related impacts to wildlife will be limited to incidental injury/mortality due to construction activity, habitat disturbance/loss and displacement associated with clearing and earth-moving activities, and displacement of wildlife due to noise and human activities (Hearing Exh. 2, Application Exh. 22(f)(2)). In addition, aquatic species may be impacted as a result of silt and sedimentation (Hearing Exh. 2, Application Exh. 22(g) and Exh. 23(b)(5) and (e)(2)). However, these impacts are not expected to significantly affect wildlife populations (*Id.*).

Once construction is complete, the Facility may cause minor disturbance/displacement due primarily to habitat loss (Hearing Exh. 2, Application Exh. 22(f)(3)(i)). Again, however, these impacts are not expected to significantly affect wildlife populations (*Id.*). Operation-related impacts to birds include direct habitat loss, habitat degradation through forest/grassland fragmentation, disturbance/displacement due to wind turbines, and avian mortality as a result of collisions with operating turbines (Hearing Exh. 2, Application Exh. 22(f)(3)). The impact of habitat disturbance/displacement on forest-breeding birds, water birds, raptors and game birds is not anticipated to result in population level impacts (Hearing Exh. 2, Application Exh. 22(f)(2)(v) through (3)(iii) and Appx. 22-F). The Application includes an analysis of the impacts of construction and operation of the Project on all special status birds (Hearing Exh. 2, Application Exh. 22(f)(6), Table 22-8 and Appx. 22-F).

To ensure that impacts to bird populations are avoided, minimized or mitigated to the maximum extent practicable, the Applicant, DEC, and DPS have agreed to the following Certificate Conditions (Hearing Exh. 304):

- Development of a Post-Construction Avian and Bat Monitoring and Adaptive Management Plan (Certificate Condition 62);

- Implementing grassland bird protection measures (Certificate Condition 91);
- Requiring recording/reporting of all observations of threatened and endangered species (Certificate Condition 92); and
- Requiring reporting of the discovery of an active nest of any federally or State-listed threatened or endangered bird species and implementation of posted area requirements (Certificate Condition 93).

Subject to compliance with the aforementioned Certificate Conditions, the adverse environmental effects of the construction and operation of the Facility specifically related to birds have been avoided or minimized to the maximum extent practicable.

Under these circumstances, the Siting Board can reasonably conclude that adverse environmental effects of the construction and operation of the Facility related to ecology generally, and to plants, wildlife, birds and habitats as described above will be avoided or minimized to the maximum extent practicable in accordance with PSL § 168(2)(a), (2)(b) and (3)(c).

ii. *Invasive Species*

ECL Article 9 provides DEC with the authority to review projects for any risks posed by invasive species to the State's environment, including the detrimental effect upon the State's "fresh and tidal wetlands, water bodies and waterways, forests, agricultural lands, meadows and grasslands, and other natural communities and systems." ECL § 9-1701. Invasive species are addressed in Exhibits 22(b)(3)-(4) and (p) and 23(e) of the Application, as well as the Invasive Species Baseline Report and Preliminary Control Plan (hereinafter "ISCP") (Hearing Exh. 2, Application Exhs. 22 and 23 and Appx 22-B [Invasive Species Baseline Report and Preliminary Control Plan]). Baseline invasive species surveys were performed concurrently with wetland and stream delineations in September-October 2017, and June-July and September 2018 (Hearing Exh. 2, Application Exh. 23(b)(3). While in the Facility Area, observers did not detect occurrences of invasive insects or potential evidence of invasive

fungi, algae, or cyanobacteria (*Id.*). Figure 22-2 includes a preliminary identification of invasive species concentration areas on the Facility Site, based on the Applicant's baseline surveys (Hearing Exh. 4, Figure 22-2; see also, Hearing Exh. 2, Application Appx. 22-B). Parties to this proceeding stipulated that the Applicant would include wind parsnip in its invasive species surveys (Hearing Exh. 1, Stipulation 23(b)(3)), as that species may warrant specific management and control measures, however wild parsnip was not detected in the baseline invasive species survey (Hearing Exh. 2, Application Exh. 22(b)(3). Data collected during these surveys will serve as a baseline against which post-construction conditions will be compared (*Id.*).

Because some invasive species, such as Japanese knotweed, can spread rapidly, the ISCP indicates that a second pre-construction survey will be performed (Hearing Exh. 2, Application Exh. 22(b)(4)). This will occur within the growing season prior to the commencement of construction to verify the distribution of invasive species documented in the Baseline Report (*Id.*). The ICSP outlines the measures the Applicant will implement to avoid and minimize spread of invasive species during construction, such as through the cleaning and inspection of equipment and materials arriving and departing from the Facility Site (Hearing Exh. 2, Application Exh. 22(b)(4) and Appx. 22-B). Post-construction monitoring will also take place once the Facility is operational (Hearing Exh. 304, Condition 64; Hearing Exh. 305, Section (B)(18)).

The Applicant has agreed to various Certificate Conditions to address invasive species concerns. As noted above, the Applicant will finalize and implement the ISCP for the Project (Hearing Exh. 304, Condition 64, 88-89) and fund an independent third-party Environmental Monitor to oversee compliance with environmental commitments, including those related to invasive species control during construction (Hearing Exh. 304, Conditions 75-76; Hearing Exh. 305, SEEP Guidelines Section (A)(11) and (B)(18)). As set forth in Certificate Conditions 64, a post-construction monitoring program ("MP") will be conducted in year 1, year 3, and year 5 following completion of construction and

restoration to collect information to facilitate evaluation of the ISCP effectiveness (Hearing Exh. 304, Condition 64; see also, Condition 119). At the conclusion of the MP, a report will be submitted to DPS Staff, DEC, the Towns and DAM, and filed with the Secretary, that assesses how well the goal of no net increase of invasive species has been achieved (Hearing Exh. 304, Condition 64). If a report concludes that ISCP goals are not being met, the Certificate Holder, DPS, DEC and DAM will meet to review treatment measures to achieve the goal of no net increase of invasive species and develop a plan for implementing remedial actions to treat and control for invasive species if appropriate (*Id.*).

Under these circumstances, the Siting Board can reasonably find that the adverse environmental effects of the construction and operation of the Facility related to invasive species have been avoided or minimized to the maximum extent practicable consistent with PSL § 168(2)(a) and (3)(c).

iii. Surface Water and Groundwater

The Applicant has set forth in detail the nature of the probable impact of construction and operation of the Facility on ground and surface water (Hearing Exh. 2, Application Exh. 23, Figures 23-1 [Bedrock], 23-2 [Groundwater Aquifer and Water Wells], 23-3 [Surface Water Resources], and Appxs 23-B [Preliminary Spill Prevention, Control and Countermeasure Plan] and 23-C [Preliminary Stormwater Pollution Prevention Plan]). Direct impacts to surface water resources have been avoided to the extent practicable through Facility design (Hearing Exh. 2, Application Exh. 23(b)(5). Unavoidable impacts have been minimized by placing crossings at the narrowest point and utilizing open-bottom or other appropriate culverts to maintain the natural stream substrate and hydrologic connectivity (*Id.*). To the extent practicable, clearing of vegetation adjacent to surface waters, including crossings has been minimized, and erosion control devices will be installed and appropriately maintained throughout the construction process until the site is stabilized or restored (*Id.*). Further, during construction, the Applicant has committed to numerous measures to avoid and minimize impacts

to surface waters (Hearing Exh. 2, Application Exh. 23(b)(5); Hearing Exh. 304, Condition 78 (c)-(d), 79, 85, 94 through 118).

It is not anticipated that the Facility will significantly impact groundwater resources under either normal or drought conditions (Hearing Exh. 2, Application Exh. 23(a)(5)). Construction of most Facility components, including installation of buried electrical collection lines, will typically involve relatively shallow excavations and should not intercept and/or affect groundwater supplies (*Id.*). On a landscape level, the Facility will add a relatively small amount of impervious surface, which will be distributed over a wide area (*Id.*).

The Applicant is proposing two possible onsite concrete batch plants but only one will operate at any given time (Hearing Exh. 2, Application Exh. 23(a)(5)). The surface or groundwater withdrawal system(s) used to supply water to the concrete batch plant(s) will have a withdrawal capacity of less than 100,000 gallons per day (*Id.*). As a result, no water withdrawal permit will be required under 6 New York Codes, Rules and Regulations (NYCRR) Part 601. Operation of the Facility will have a relatively low demand for groundwater (*Id.; see also* Hearing Exh. 2, Application Exh. 32).

As discussed in Exhibit 38, it is anticipated that the Operations and Maintenance (O&M) building will have a private water well installed to meet water supply needs, including for potable water and fire suppression (Hearing Exh. 2, Application Exhs. 23(a)(5) and 38). This well should not significantly affect area groundwater resources (Hearing Exh. 2, Application Exh. 23(a)(5)). The O&M building also will have an onsite wastewater treatment system (i.e., septic system) (*Id.*; see also Hearing Exh. 2, Application Exh. 39). This onsite wastewater system will be installed by an experienced contractor in accordance with 10 NYCRR 75.5, Minimum Standards for Individual Onsite Wastewater Treatment Systems (Hearing Exh. 2, Application Exh. 23(a)(5)). Proper installation and maintenance of this system will help protect area groundwater and surface water from potential contamination (*Id.*).

With regard to drinking water sources, the Applicant consulted with the NYSDOH and NYSDEC to identify public drinking water intakes in the Facility area (Hearing Exh. 2, Application Exh. 23(a)(2) and Figure 23-1) and performed a private well survey to identify private drinking water wells (Hearing Exh. 2, Application Exh. 23(a)(3)). No known public water supply wells occur within 2,000 feet of proposed Facility components (Hearing Exh. 2, Application Exh. 23(a)(2)). The nearest public drinking water well is located approximately 3 miles north of the Facility in the Village of Copenhagen (*Id*.). No known groundwater recharge areas or well heads and aquifer protection zones were identified (*Id.*). Turbines were sited to avoid known locations of private wells to avoid and minimize potential impacts (Hearing Exh. 2, Application Exh. 23(a)(5)).

During consultations, the Town of Pinckney raised an issue regarding potential impacts to private drinking wells (Hearing Exhs 183 & 184). The Applicant proposed and revised a Facility Communication and Complaint Resolution Plan (Hearing Exh. 2, Application Exh 12 and 23 and Appx 2-A; Hearing Exh. 109; Tr.924, L4-10) and Site Engineering and Environmental Plan specifications, to address a variety of issues, including complaints related to impacts to drinking water wells (Hearing Exh. 184 & 278). The Applicant conducted well surveys for the Application, and will field verify known water well locations prior to the start of construction (Hearing Exh. 2, Application Exh. 23(a)(4). While the Applicant does not propose blasting for this Facility, the Applicant's SEEP includes requirements for a Blasting Plan in the event blasting is needed, and specifies that the SEEP must discuss how the Applicant will protect groundwater wells in the event blasting is to be used (Hearing Exh. 278, pp. 16-17). Further, the Applicant has proposed Certificate Condition 38 related to water supply protection, which imposes setbacks from wells and water supplies, testing requirements and mitigation, if needed (Hearing Exh. 109).

The Applicant also prepared and submitted an Inadvertent Return Plan for the protection of water resources in the event it utilizes Horizontal Directional Drilling ("HDD") or other trenchless

utility installation techniques which involve drilling fluids that could be inadvertently released to the environment through a "frac-out" incident (Hearing Exh. 8, Appx. X).

Based on the Record, the Siting Board can reasonably conclude that adverse environmental effects of the construction and operation of the Facility related to surface and groundwater as described above (and in Section III(B)(1)(d) on streams) will be avoided or minimized to the maximum extent practicable in accordance with PSL § 168(2)(a) and (3)(c).

g. Infrastructure Impacts

PSL § 168(2)(d) requires the Siting Board to make the required findings regarding the nature of the probable environmental impacts of the construction and operation of the Facility on transportation, communication, utilities and other infrastructure. Section 168(3)(c), in turn, requires the Siting Board to determine that any adverse environmental effects of the construction and operation of the facility will be avoided or minimized to the maximum extent practicable before it issues a Certificate under Article 10. This section addresses these impacts as they relate to the U.S. Army Garrison at Fort Drum, specifically, as well as generally to transportation, communications and utility infrastructure. Decommissioning and construction related impacts to roads and transportation are discussed in sections III(B)(5) and III(B)(7)(c), respectively. Taken together with those sections and the below, the Record supports the Siting Board finding the nature of impacts on transportation, communications, utilities and other infrastructure, and the mitigation or avoidance of those impacts, as required by PSL § 168(2)(d) and (3)(c).

i. *Fort Drum*

Given the DRWF's location approximately 10 miles south of the U.S. Army Garrison at Fort Drum ("Fort Drum"), the Applicant engaged with the U.S. Department of Defense ("DoD") to evaluate potential impacts from the Facility on military resources and operations (Hearing Exh. 2, Application Exhs. 25 & 26; Hearing Exh. 277). In addition to these consultations, the Applicant utilized a number

of tools to identify potential transportation or communications impacts to Fort Drum, including the DoD's Radar screening tool and National Telecommunications and Information Administration ("NTIA") review process to determine potential impacts to air traffic control and/or weather radar (Hearing Exh. 2, Application Exh. 26(a)(9)-(11), (c) and (f) and Appxs. 26-F, 26-G and 26-H; Hearing Exh. 4, Figure 26-3); as well as the DoD Siting Clearinghouse and Federal Aviation Administration ("FAA") hazard review processes to determine potential impacts to military and civilian aviation, military airspace and operations (Hearing Exh. 2, Application Exh. 25(f) and Appx. 25-C; Tr.251, L1 through Tr.253, L10).

In the early stages of development, the Applicant had proposed constructing the Facility in the Town of Montague as well as the current host towns of Pinckney and Harrisburg but eliminated Facility components in Montague due to the presence of the a National Weather Service ("NWS") NEXRAD radar there (Hearing Exh. 2, Application Exh. 9(a)). Consultations with Fort Drum and the NWS regarding the Montague NEXRAD radar station led to the removal of three turbines—I2, M1 and M2—from the 48-turbine layout considered in the Applicant's alternatives analysis (Hearing Exh. 2, Application Exh. 9) because those turbines were located within NWS's "No Build Zone" around the radar station (I2 and M2), and because of the general proximity to those resources (Hearing Exh. 2, Application Exh. 26; Hearing Exh. 4, Figure 26-3). Figure 26-3 identifies the No Build Zone around the Montague radar station (Hearing Exh. 4, Figure 26-3), and identifies three specific turbines which were removed from the Facility layout due to their location in the NWS No Build Zone and/or in consultation with these stakeholders (see also Hearing Exh. 2, Application Exh. 26).

During consultations, the DoD identified other issues related to Fort Drum, through the contents of those discussions are confidential at this time (Hearing Exh. 277; Tr.930, L3-11). The Applicant resolved some of these issues by making a number of changes to the proposed Facility layout (Hearing Exh. 2, Application Exh. 9(b)(2), 25(f) and 26 (f)); agreeing to the use of two different turbine heights

to avoid certain elevation angles of flight paths and radar (Tr.931, L16 through Tr.933, L9; Hearing Exh. 2, Application Exh. 9(b)); and entering into negotiations with the DoD on a proposed mitigation agreement to address impacts (Hearing Exh. 2, Application Exh. 25(f) and 26(f) and Appxs. 26-G and 26-F; Hearing Exh. 4, Figure 26-3; Tr. 869, L15-20; Hearing Exh. 277). For example, three turbines had to be eliminated from consideration due to their location within or near a National Weather Service No Build Zone for a weather radar station in Montague (Hearing Exh. 2, Application Exh. 9(b)(2)(ii); Hearing Exh. 4, Figure 26-3).

The Record demonstrates that the Applicant has avoided and minimized potential impacts from the Facility on military operations and resources and will mitigate remaining impacts through a proposed Mitigation Agreement currently under negotiation (Tr.930, L3-11; Hearing Exh. 277). The Applicant will provide the Siting Board with a copy of the Mitigation Agreement with Fort Drum once that agreement is executed and publicly available (Hearing Exhs. 111 and 277; Tr.929, L17 through Tr.930, L11).

ii. Communications and Utilities

The Applicant set forth in detail the nature of the probable impacts of construction and operation of the Facility on communications and utilities (Hearing Exh. 2, Application Exh. 26, Appxs 26-A through 26-H). Specifically, the Record in this matter shows that the Facility will not have a potential impact on communications other than off-air television stations. Any adverse impacts to communications have been avoided or minimized to the maximum extent practicable and will be mitigated in accordance with the Applicant's Complaint Resolution Plan (Hearing Exh. 2, Application Exh. 12(d) & Appx. 2-C).

During consultations, the Town of Pinckney identified a potential issue related to Facility impacts to local communications and television service (Tr.542, L123-39; Tr.543, L149 through Tr.544, L169). In particular, local residents had raised concerns about impacts to television service

(Tr.543, L158-59), and THARP members raised concerns about potential impacts to local internet service (Tr.913, L1-12). The Applicant addressed these issues in its studies and analysis of impacts to communications (Hearing Exh. 2, Application Exh. 26 and Appx 26-C) and Complaint Resolution Plan (Hearing Exh. 2, Application Appx 2-C) and by agreeing to follow up with a specific local internet provider, North Country Broadband, and to perform additional investigations to rule out impacts from the Facility (Hearing Exh. 108; Tr.913, L1-12). The Applicant has also proposed Certificate Conditions which address potential complaints related to television service, as well as SEEP Guidelines which require that Atlantic Wind investigate methods of addressing television service degradation and, if warranted, provide equivalent service to affected residents, if such impacts do occur (Hearing Exh. 304, Condition 43; Hearing Exh. 305, p. 11). Both Exhibit 12 and the preliminary QA/QC Plan also identify measures the Applicant will take to avoid impacts to buried utility infrastructure during construction, such as by calling the Dig Safely program and working with utility companies to identify the location(s) of buried infrastructure (Hearing Exh. 2, Application Exh. 12(b)(1) and (c), Appx 18-B).

The preliminary QA/QC Plan, the Facility Communication and Complaint Resolution Plan, and the agreed upon Certificate Conditions allow the Siting Board to find that impacts to communications and utilities have been avoided and minimized to the maximum extent practicable.

h. Geology, Seismology and Soils

As required by 16 NYCRR § 1001.21, the Applicant evaluated the geological and related implications of the Project, including, but not limited to: evaluating existing slopes and contours; assessing cut-and fill activities, including whether materials would need to be imported onto or removed from the Facility Site and describing temporary cut and fill scenarios that will occur during construction; identifying the excavation techniques proposed, including the need for blasting; evaluating the overall suitability of the site for the Facility; assessing the regional geology, tectonic

setting and seismology of the area; and evaluating soil types within the Facility Site and conducting a bedrock analysis. As part of that review, the Applicant conducted a Preliminary Geotechnical Assessment to evaluate the surface and subsurface soils, bedrock and groundwater conditions in the vicinity of the Facility that included collecting test borings at sites in and near the Facility Area. Information relating to soil, cut and fill, and steep slopes is contained primarily in Hearing Exhibit 2, Application Exhibit 21, Appendix 21-A, Project Geotechnical Investigation Report (see also Hearing Exh. 2, Application Figure 21-1 [existing slopes] and Appx. 11-A [preliminary design drawings]; Hearing Exh. 8, Appx. O and Figure 23-1 [Bedrock]). In addition, preliminary cut and fill locations, existing and proposed grading, and proposed limits of work are identified in the Preliminary Design Drawings (Hearing Exh. 2, Application Exh. 21(c) and Appx. 11-A). The Applicant does not anticipate blasting during construction of the Facility (Tr.136, L11-12; Hearing Exh. 2, Application Exh. 21(i).

In Direct Testimony, NYSDPS identified a potential issue related to karst geology (Tr.349, L13-20; Tr.351, L17 through Tr.355, L19). In Rebuttal Testimony, the Applicant provided substantial additional information and analysis to confirm that karst was not likely to be present in the Facility Site (Tr.132, L13 through Tr.136, L15), but also committed to utilize additional measures to avoid or minimize impacts in the event that the final geotechnical investigation performed for the Facility's individual turbine sites identify karst features as a risk (Tr.135, L1 through Tr.137, L7). These issues were resolved through adoption of a Certificate Condition related to karst, if final geotechnical analyses determine this condition is applicable to the Facility (Hearing Exh. 304, Conditions 55), and in SEEP Guidelines on final geotechnical reporting requirements (Hearing Exh. 305, Section B(11)-(13)).

IV. State and Local Laws and Regulations – PSL § 168(3)(e)

A. State Law Compliance

1. State Law Compliance Matters

Consistent with 16 NYCRR § 1001.32, the Applicant has set forth all procedural and substantive State laws that may apply to the construction and operation of the Facility (Hearing Exh. 2, Application Exh. 32). Discussion of issues elsewhere in this brief demonstrates that the construction and operation of the Facility will comply with all applicable State laws, supporting a finding by the Siting Board under PSL § 168(3)(e).

The Applicant has requested that the Siting Board authorize the New York State Department of Transportation ("DOT") to issue special hauling and highway work permits if required, and no Party has raised concerns with this request (Hearing Exh. 2, Application Exh. 32).

2. Section 401 Water Quality Certification

The Applicant intends to file a Joint Permit Application with the United States Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act, including a request for a Water Quality Certification (WQC) under Section 401 of the Clean Water Act from the Siting Board (see generally, Hearing Exh. 2, Application Exh. 33). Notices and service of the WQC application will be made in accordance with 16 NYCRR 1000.8, and the materials will be submitted to the Siting Board's website and posted to the Project Website for members of the public to review.

Through discussions with the NYSDPS, the Applicant has agreed to Certificate Conditions which require the provision of additional information to the Siting Board and parties relating to the ACOE and WQC submissions. Specifically, Certificate Conditions 7 and 120 will ensure that involved agencies and the Siting Board are provided with the appropriate application documents, notices of receipt (or denial) of federal permits, and a status update regarding federal wetland permitting in relationship to the Wetland Mitigation Plan for State-regulated wetlands (Hearing Exh. 304, Conditions 7 and 120).

B. Local Law Compliance

The Application included an identification of procedural and substantive provisions of local law, and an analysis of the Facility's compliance with applicable substantive requirements in the Towns of Pinckney, Harrisburg and Rodman (Hearing Exh. 2, Application Exh. 31 and Appxs 31-A and 31-B; Hearing Exh. 98). The Applicant engaged early and often with the Towns of Harrisburg and Pinckney, host municipalities for the proposed turbines, regarding their local laws, by providing an overview of potentially applicable laws in the Stipulations signed by the parties, including the Towns (Hearing Exh. 1, Stipulation 31), and through discussions prior to submission of the Application to ensure that all parties were in agreement on identification and interpretation of local laws (Tr.540, L87 through Tr.542, L122; Hearing Exh. 2, Application Exh. 31 and Appx 31-A). In 2018, the Applicant sent letters to the Towns and conferred with the Towns' respective Attorneys regarding applicable zoning laws (Hearing Exhibit 2, Application Appx 31-A; Tr.540, L87 through Tr.541, L101). In the Application, Atlantic Wind included applicable zoning laws for the Towns (Hearing Exhibit 2, Application Exh. 31 and Appx 31-B; see also Hearing Exhs 185-86). Attorneys for both Towns reviewed the local law-related materials and were in agreement that nothing further was required on this topic (Hearing Exh. 2, Application Exh. 31 and Appx 31-A; Tr.540, L87 through Tr.541, L101).

The Facility complies with substantive requirements of local laws and meets or exceeds applicable setbacks and noise emissions standards in the Towns (Hearing Exh. 2, Application Exh. 31; Tr.551, L82-84). The Applicant has not requested that the Siting Board decline to apply any substantive provisions of local law (Hearing Exh. 2, Application Exh. 31(e)) except to the extent that such action is required to resolve the setback to Turbine B13 from a participating property line, as discussed further below.

The Applicant has requested that the Siting Board authorize the Towns and County to address procedural or substantive requirements related to work performed on local roads and rights-of-way,

either through a Road Use Agreement with the Applicant and/or through the issuance of local highway work permits and special haul permits (Hearing Exh. 2, Application Exh. 31(b)). The Applicant has discussed with the County and Towns road-use issues, permits/approvals, and terms for a now-executed Road Use Agreement. Any remaining approvals will be obtained, but most likely the Balance of Plant (BOP) contractor will obtain road-related permits immediately prior to the start of Facility construction. Furthermore, the Applicant requested that the Siting Board authorize Lewis County to issue a septic system permit for the OM Building, which the Applicant will seek from the County at the time final building designs are available, consistent with the County's established requirements (Hearing Exh. 2, Application Exh. 31(b) and 39). The Siting Board's authorization of these locally issued permits are appropriate because the permits are ministerial in nature and are routinely issued by local municipalities so long as proposed work adheres to the rules and requirements established by local law. Further, the deferral of these permits to their respective municipalities ensures that the approvals can be obtained at the appropriate time, when the information and level of detail needed is more readily available from the BOP contractor ultimately hired for construction of the DRWF Project. NYSDPS raised an issue with regard to the Applicant's compliance with local setbacks in the Towns of Harrisburg and Pinckney (Tr.451, L5 through Tr.454, L9). Specifically, NYSDPS asserted that the Applicant was not in compliance with local setbacks because there appeared to be wind turbines closer to tax parcel boundaries than the Towns' respective boundary line setbacks would allow (*Id.*). On rebuttal, the Applicant provided corrections showing that the Facility generally complies with local laws (Tr.898, L9 through Tr.899, L10; Hearing Exhs. 96-98), as described more fully for each Town in sections (a) and (b) below. In one instance, for Turbine B13, the Applicant is requesting either that the Siting Board act in the stead of the Harrisburg Town Planning Board in confirming that a property line setback can be reduced, by operation of local law, or is proposing to relocate Turbine B13 in the event the Siting Board declines to take this action, as further described in section (b) below (Tr.899, L10 through

Tr.901, L4). Aside from the discrete setback items raised by NYSDPS, there is no other dispute among the parties that the Applicant complies with substantive requirements of local law.

a. ***The Facility Complies with Pinckney's Setbacks***

The Town of Pinckney enacted a wind law in 2006 (Tr.548, L14-17; Hearing Exh. 185), with minor amendments made in 2018 (T.548, L19 through T.549, L35; Hearing Exh. 186). The 2018 amendments clarified that the Town's setbacks are applicable to non-participating side and rear lot lines (Tr.898, L20-21; Hearing Exh. 98). The Applicant provided a demonstration that the Facility complies with this requirement by submitting an updated Facility map showing the participating parcels and the applicable setback distance from each turbine (Hearing Exh. 97; Tr.899, L1-3). Contrary to NYSDPS's testimony, in instances where turbines in the Town of Pinckney are located closer to adjacent properties than appears to be permitted by the setback, the Applicant has demonstrated that these adjacent properties are participants in the Project, and thus that the setbacks do not apply (Tr.899, L1-3; Hearing Exh. 97).

b. ***The Facility Generally Complies with Harrisburg's Setbacks, Except with Regard to Turbine B13; the Siting Board Should Apply Harrisburg's Local Waiver to Turbine B13***

The Town of Harrisburg has also adopted wind laws, which are codified at Section 665 of the Harrisburg Zoning Law (Hearing Exh. 2, Application Appx 31-B, p. 70). Under this section, setbacks are applicable to "lot" lines (*Id.*). A "lot" is defined in the Harrisburg Zoning Law as "[a] parcel of land, or contiguous parcels of land in one ownership" (Hearing Exh. 2, Application Appx 31-B, p. 38; Tr.899, L4-12). Where two or more parcels are in common ownership, the Town of Harrisburg measures "lot line" setbacks from the boundaries of the owner's collective land and his neighbors' parcels, but not between his parcels (Tr.899, L4-12; Tr.562, L32-35).

The Applicant provided land control maps demonstrating that it met these setbacks in the Town of Harrisburg (Hearing Exhs. 96 and 97). Specifically, two parcels hosting Turbines G5 and H4 and the adjacent respective properties are in common ownership and are under contract with the Applicant

(Tr.898-99; Tr.561 L19 through Tr.562, L27). Given the common ownership of these lots, the Harrisburg setback does not apply to the internal parcel boundaries in common ownership (Tr.899, L4-12; Tr.562, L28-35).

The situation is different for Turbine B13, where the adjacent landowner is a participant in the project, but the landowner is a different individual from the landowner hosting Turbine B13 (Tr.899, L10-12). Ordinarily, the Harrisburg Zoning Law establishes a ministerial procedure whereby the Town Planning Board is authorized to waive the setbacks otherwise required under Section 665 if the Applicant can demonstrate that it has executed agreements with the adjoining landowner (Hearing Exh. 2, Application Appx 31-B, p. 70; Tr.562, L36 through Tr.563, L50). However, as the Siting Board held in the Number Three Wind decision (Case 16-F-0328), Article 10's preemption provisions strip the Town of Harrisburg of the authority to waive this setback, and the Applicant must rely on the Siting Board to grant the setback waiver which Atlantic Wind has otherwise established under the Town's Law (Tr.562, L36 through Tr.563, L50). The Town of Harrisburg has testified that it supports the Siting Board applying the Section 665(A) setback waiver in the Towns' place (Tr.562, L45 through Tr.563, L50), and that absent Article 10, the Town Planning Board would find that the Applicant had demonstrated it was entitled to this waiver under Harrisburg's Law (Tr.560-563).

The Applicant requests that the Siting Board stand in the Town's stead to issue the waiver for Turbine B13 at its proposed location (Tr.900, L9-12). In addition, the Record establishes that the Applicant is entitled to a "waiver" under 16 NYCRR 1001.31 because the application of the setback would be unreasonably burdensome. The Applicant believes that the location identified is the best placement of Turbine B13, in the interests of avoiding impacts to wetlands and agricultural fields to the north and west (Tr.900, L14-15). The adjacent landowner is participating in the DRWF and has a lease with the Applicant under which he is being compensated (Tr.900, L15-16; Hearing Exh. 97). Furthermore, there are no occupied structures on the adjacent parcel, and the waiver of the setback

would have minimal impact on the adjacent landowner (Tr.900, L16-20). If Turbine B13 were shifted to comply with the setback, it would need to be moved approximately 335 feet northwest into an active agricultural field – a relocation which NYSDAM is likely to oppose – to avoid placement of the turbine or associated work areas in regulated wetlands (Tr.900, L20 through Tr.901, L1; Hearing Exh. 96). This would also result in movement of the turbine closer to nonparticipating residences along River Road (Tr.901, L2). Forcing the Applicant to site the turbine to comply with the setback, where it would be a mere technicality at best, is patently unreasonably burdensome. On balance, the Applicant believes the benefits of avoiding impacts to wetlands, agricultural resources and nonparticipating residences outweigh strict compliance with the setback(Tr.901, L3-4), particularly since the Town supports and would otherwise grant the waiver of the setback under the circumstances (Tr.562, L36 through Tr.563, L50).

In the alternative, if the Siting Board finds that strict application of the setback is required in this case, the Applicant proposes to relocate Turbine B13 to the location depicted on Hearing Exhibit 96, approximately 335 feet northwest into an agricultural field, to comply with the setback (Tr.900, L13-21 and Tr.901, L1-4). This move would not result in an amendment to the Application, as the change is less than 500 feet and the impacts to sensitive resources such as wetlands are not increased.

For all of the above reasons, the Applicant believes that the Siting Board has sufficient information to make its required findings under PSL § 168(3)(e), that the Siting Board can stand in the Town of Harrisburg's stead to waive the setback to Turbine B13, and can otherwise find that the Facility is in compliance with substantive requirements of local law.

V. The Facility is a Beneficial Addition to the Electric Generation Capacity of the State and Will Serve the Public Interest – PSL § 168(3)(a) & (b)

Overall, the Record establishes that the Facility is in the public interest. The Applicant's design criteria and siting considerations have avoided potential negative effects from the Facility, and the proposed Certificate Conditions (Hearing Exh. 304) provide adequate mitigation for impacts that

cannot be avoided. Although some parties are not in full agreement on individual Certificate Conditions, these disagreements are sufficiently minor to allow the Siting Board to conclude that the Facility is in the public interest.

The Facility's environmental impacts (wetlands/streams, bats, grassland birds) and sound, shadow flicker, and visual impacts have been avoided and minimized through stringent standards and conditions. Given the significant air pollution/climate change, economic and public health benefits associated with the Facility, the Siting Board should determine that the Facility is in the public interest. The DPS Staff Policy Panel concurred that the Facility would serve the public interest subject to implementation of specific Certificate Conditions (Tr.398, L2 through Tr.399, L6).

PSL § 66-c(1) states "it has hereby declared to be the policy of this state that it is in the public interest to encourage… the development of alternate energy production facilities…" Numerous aspects of large-scale renewable energy projects, such as the Facility, are in the public interest, from the benefits to society, public health, and the environment, to the socioeconomic impacts which stem from renewable investments in New York State (CES Order, pp. 3-13; SEP Vol. 1, pp. 70-72, 111-113; Hearing Exh. 2, Application Exh. 10(a)-(f)). As a privately sponsored renewable energy project designed to be competitive in today's electric markets, the Facility serves the public interest and furthers these goals (Hearing Exh. 2, Application Exh. 10 and 27).

A. Regional Benefits, Air Quality and Greenhouse Gas Emission Reductions

As discussed more fully in the Record, climate change and air quality are regional issues. The Facility is in the public interest because it addresses both state and regional air pollution and greenhouse gas emission reduction goals, including the SEP's goal of reducing GHG emission in the State 40% by 2030 and the RGGI's GHG goal of reducing GHG emissions from the energy generation sector by an additional 30% below 2020 levels by 2030 in RGGI participating states (Hearing Exh. 2, Application Exh. 2, 10 and 17). Large-scale wind farms like the Facility produce significant quantities of electricity

without generating any direct GHG emissions. The Facility thus will contribute to the RGGI goal of reducing regional GHG emissions, as acknowledged by the DPS Staff Policy and Engineering Panels (Tr.311, L8-11; Tr.399, L2-6).

The Facility will produce no direct emissions of other air pollutants such as nitrogen oxides and sulfur dioxide that contribute to regional air pollution problems such as smog and acid rain. The Facility thus will advance the State and regional goals of reducing total emissions of air pollutants resulting from fossil fuel combustion (Hearing Exh. 2, Application Exh. 17). While the NYSDPS and Applicant differed slightly, an in a reasonable manner, on the question of how much of a reduction the Facility would have on air pollutants in the state, the Parties agreed that the Facility would reduce emissions of pollutants such as NOx, in addition to carbon emissions (Tr.308, L13 through Tr.309, L3).

Exhibit 8 of the Application assesses the impact of the proposed Facility on the State's Electric System, specifically air emissions, energy prices, capacity, output capability, and energy dispatch, analyzing economic and environmental impacts from commercial operation of the Facility relative to a business as usual base case (with the Facility not in service) for the year 2022 (Hearing Exh. 2, Application Exh. 8; Tr.306, L12 through Tr.307, L16). The analyses were conducted using ABB PROMOD/Powerbase Versions 11.1 software after consulting with DPS and DEC staff concerning acceptable input data (Hearing Exh. 2, Application Exh. 8). Consistent with expectations, both DPS and the Applicant forecast a decrease in statewide wholesale energy market prices for the year 2021 (Tr.307, L18 through Tr.308, L3). With respect to air emissions, while the Applicant and DPS Engineering Panel reached different results regarding estimated emission reductions associated with the Project for nitrogen oxides, sulfur dioxide and carbon dioxide, DPS concluded that "[t]he differences between the Applicant and Staff's emission forecasts are not unexpected or unreasonable" in light of the "inherent differences in the production modeling and the respective electric system topology databases used" (Tr.309, L9-10). The DPS Engineering Panel went on to find that "the

Electric System Production Modeling provided by the Applicant is reasonable" (Tr.309, L18 through Tr. 310, L4). No Party has raised any issue with the conclusions in Application Exhibit 8.

Based on the result of the Electric System Production Modeling summarized in Exhibit 8, the Siting Board can reasonably determine that the Facility will have environmental and economic benefits and is therefore a beneficial addition to or substitution for the electric generation capacity of the State and will serve the public interest (PSL § 168(3)(a) and (3)(b)). NYSDPS agreed with the Applicant that the DRWF will support the State's clean energy policies, including the State Energy Plan, Reforming the Energy Vision (REV) Initiative, the Regional Greenhouse Gas Initiative (RGGI) and the Climate and Community Protection Act or "Green New Deal" signed by Governor Andrew Cuomo in June 2019 (Tr.310, L5 through Tr.312, L3; Hearing Exh. 2, Application Exhs. 5, 8 and 10).

B. Environmental Justice – PSL § 168(2)(d) and (3)(d)

Article 10 Applicants are required to conduct an environmental justice ("EJ") analysis to determine whether a proposed Facility will have a disproportionate impact on poor or minority communities relative to the population at large (PSL §168(2)(d); 6 NYCRR §497; 16 NYCRR § 1001.28). In order to conduct this review, Applicants evaluate an impact study area of 0.5 miles from the Facility Site, as recommended by NYSDEC's EJ regulations (6 NYCRR § 487.3), to determine whether a potential EJ area exists within close proximity to the Facility (Tr.92, L11-16). In performing this analysis, the Applicant determined that no potential EJ areas were present in the impact study area (Tr.92, L16-17; Hearing Exh. 55). In general, such a determination ends the analysis under Article 10; no further assessment of EJ communities was performed (Tr.92, L16-17; Hearing Exh. 2, Application Exh. 28). This is consistent with the Stipulations executed by Parties to this proceeding (Hearing Exh. 1, Stipulation 28).

THARP witness Gerald Smith testified generally that the Applicant did not adequately assess impacts to EJ communities because it relied on data from the 2000 Census, rather than a more recent

census (Tr.572 through Tr.574). However, as Applicant noted in Hearing Exhibit 55, Applicant reviewed additional data from the 2010 Census and 2012-2016 American Community Survey, available through the United States Environmental Protection Agency's EJSCREEN tool, and came to the same conclusions regarding the lack of EJ communities within 0.5 miles of the Facility Site (Tr.92, L3 through Tr.93, L4). The nearest potential EJ communities identified were at least 6.5 and 8.5 miles from the Facility Site (Tr.92, L14-15). Based on that information, the Applicant performed the required assessment of potential EJ impacts, no disproportionate adverse impacts to EJ communities are anticipated, and nothing further is required.

As noted in the SEP, fossil fuel-fired energy power generation facilities have often been located in EJ communities, which have borne a disproportionate share of the environmental impacts of these facilities (SEP Vol. 2, Impacts and Considerations, pp. 97-126). As a result, there are EJ benefits associated with transitioning away from fossil fuel generation to cleaner, renewable sources (SEP Vol. 1, p. 39). Reducing environmental impacts to EJ communities will also aid in reducing the adverse disproportionate public health impacts suffered by those populations, such as the higher incidence of asthma and breathing disorders among children and people of color in many urban neighborhoods where air pollution is a significant problem. In that sense, renewable energy development through facilities such as DRWF advances environmental justice by displacing major sources of air pollution which are frequently concentrated in EJ communities.

C. Consistency with State Energy Plan and State Energy Policy

In order to issue a Certificate, the Siting Board must find that the Facility would be a beneficial addition to or substitution for the electric generation capacity of the State (PSL § 168(3)(a)). Further, Article 10 requires that the Siting Board find that construction and operation of the Facility will serve the public interest (PSL § 168(3)(b)). These findings are made, in part, by considering the Facility's consistency with the most recent New York State Energy Plan ("SEP") and with the energy policies

and long-range planning objectives of the State (PSL § 168(4)(e)), as well as impacts to the State's electrical system and utilities (PSL § 168(4)(d)).

To inform these determinations, the Siting Board's regulations require an assessment of impacts from the Facility on the State electric system, both from a technical standpoint (16 NYCRR 1001.5) as well as a market and electricity pricing standpoint (16 NYCRR 1001.8). Taken together, these analyses allow the Siting Board to find that Facility will not have any adverse effects on New York's electric system, will improve fuel diversity in the State, and therefore that the Facility is a beneficial addition to or substitution for the electric generation capacity of the State and that construction and operation of the Facility will serve the public interest, as required under PSL § 168(3)(a) and (3)(b)).

To assess the impacts from the Facility on the State electric grid and energy markets, the Application included Exhibit 5 on Electric System Effects, as well as Exhibit 8 on Electric System Production Modeling (Hearing Exh. 2, Application Exhs. 5 and 5, Appx 5-A[SRIS]). The Applicant prepared a System Reliability Impact Study ("SRIS") for the Facility on behalf of the New York Independent System Operator ("NYISO") in 2018 (Hearing Exh. 2, Application Exh. 5(a), Appx 5-A[SRIS]). The Facility is participating in the NYISO 2019 Class Year (Hearing Exh. 2, Application Exh. 5(a), Appx 5-A [SRIS]). DPS's Engineering Panel specifically declared that the "SRIS analysis showed that the Project does not cause any significant adverse impact to the New York Transmission System" (Tr.305, L20 through Tr.306, L2). The NYISO Operating Committee approved the SRIS in 2018, prompting the Panel to conclude that it did not have any concerns with the proposed Project's impact on the reliability of the New York State Transmission System (Tr.1306, L6-11). No Party has raised any issues with the conclusions of the SRIS.

Based on the result of the SRIS and the information provided by the Applicant in Application Exhibit 5, the Siting Board can reasonably determine that the Facility will not have any adverse effects on New York's electric system and will improve fuel diversity in the State and is therefore a beneficial

addition to or substitution for the electric generation capacity of the State and that construction and operation of the Facility will serve the public interest (PSL § 168(3)(a) and (3)(b)).

More broadly, the Applicant has demonstrated that the Facility will be a beneficial addition to the electric generation capacity of the State because it: increases the State's renewable energy generation capacity and helps the State meet the goal of the "Green New Deal" legislation mandating that 70% of the energy consumed in the State come from renewable sources by 2030; helps the State meet the SEP goal of reducing greenhouse gas ("GHG") emissions by 40% from 1990 levels by 2030 to address climate change concerns; and advances numerous other goals as spelled out in greater detail below (see, e.g., Hearing Exh. 2, Application Exh. 10). The NYSDPS Staff Policy Panel concurred that the Facility would be a beneficial addition to the electric generation capacity in New York (Tr.397, L19-22).

New York State has adopted a broad view of the benefits of renewable energy and carbon emissions reductions and has expressly declined to limit its consideration of public benefits to those "benefits experienced solely within New York" as advancing state policy goals (Order Adopting a Clean Energy Standard in Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, p. 71 (August 1, 2016) (hereinafter "CES Order")). As articulated in the CES Order, a narrow approach to assessing benefits "in the case of climate change… could lead to inaction not only in New York but in all other jurisdictions" (CES Order, p. 71). Thus, the SEP policies are not solely aimed at reducing New York's emissions or generating renewable energy consumed by New Yorkers, but are "part of the State's sweeping initiative to transform the way energy is produced, delivered and consumed," which "places New York in a leadership position among states" to meet these challenges (CES Order, pp. 6 and 10).

The Facility will add renewable energy generation capacity to aid in diversification of the regional grid by using wind resources within New York State instead of relying on imports of non-

renewable gas, coal or oil from other regions (Hearing Exh. 2, Application Exh. 10(c)). As a generation facility that does not rely on fuels which must be sourced and delivered from other parts of the country or the world, and which do not require mining, drilling, refining, or any other processing to be used, the Facility would also offer the ability to generate energy unencumbered by transportation problems, extraction-related complications or delays, or political unrest in foreign countries – all potential issues for traditional fossil fuel facilities which rely on price-volatile commodities, often sourced from outside the region[20] (Hearing Exh. 2, Application Exh. 10(c); CES Order, p. 76). This improves system resiliency and allows the region to recover more quickly from significant disruptions to the grid, such as large storms, extreme weather, or other incidents. Siting facilities throughout the State that are capable of recovering quickly, allows those facilities to operate independently of the central grid until the rest of the system is able to recover (SEP Vol. 1, pp. 34-37; Hearing Exh. 2, Application Exh. 10(b); CES Order, pp. 76-77). The battery storage component of the Facility will further enhance the resiliency and reliability of the State's energy by helping manage the variability of the intermittent wind resource. The batteries will store production when demand is lower and release electricity when demand is higher. The battery storage system also will potentially help the system manage peak demand by storing excess supply and deploying it during periods of greater demand (Hearing Exh. 2, Application Exh. 10(b)).

The Facility is consistent with State policies that encourage the development of renewable energy projects. The Facility, as proposed, will add up to 100.4 MW of clean, green New York-based renewable power into the grid. As set forth below, the Facility will aid in advancing the specific SEP/REV/Green New Deal goals of cutting State GHG emissions 40% by 2030 and increasing renewable energy generation to 70% by that date. It will also advance the State's goals of transforming

[20] *SEP Vol. 2, Sources*, pp. 83-87 and 169, noting that 97% of the natural gas supply required to supply New York is harvested outside of New York, primarily the Gulf Coast and Canada, and predicting that at least 30% of the electric generation displaced due to the addition of new renewables in New York will be from out-of-state sources.

the energy market, encouraging private sector investment, increasing fuel diversity, and improving system reliability and resiliency. NYSDPS Staff Policy Panel concurred that the Facility was consistent with the SEP and other state policy goals and programs, as well as long-range energy planning objectives (Tr.402, L16 through Tr.405, L1).

For all of these reasons, the Siting Board has ample evidence in the record to sustain its required findings under PSL § 168(3)(a) and (b).

VI. Conclusion

The Siting Board can make all of the findings and determinations required pursuant to Article 10 (PSL § 168(2) and (3)) and should issue a Certificate of Environmental Compatibility and Public Need to the Applicant for the Deer River Wind Farm Project.

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