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August 26, 2016

Mr. Eric Miller
Project Developer
Invenergy
One South Wacker Drive, Suite 1800
Chicago, IL 60606
emiller@invenergyllc.com

Re: Case 15-F-0377 - Application of Bull Run Energy LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 to Construct a 300 MW Wind Energy Project.

Dear Mr. Miller:

Please find attached the comments of Staff of the Department of Public Service relating to the Preliminary Scoping Statement filed by Bull Run Energy LLC in the above captioned case on July 27, 2016. These comments are sent in accordance with 16 NYCRR §1000.5(g).

If you have any questions or need additional information regarding the attached DPS Staff recommendations, please contact me at (518) 473-4628 or by e-mail at Graham.Jesmer@dps.ny.gov.

Sincerely,

/s/

Graham Jesmer
Assistant Counsel

Cc (via e-mail): Kathleen H. Burgess, Secretary to the Commission
Parties

DPS REVIEW OF PRELIMINARY SCOPING STATEMENT

CASE 15-F-0377 – BULL RUN ENERGY LLC

GENERAL COMMENTS

1. In addition to the specific comments on many topics below, Staff advises that the Application must also contain all of the informational requirements included in 16 NYCRR §1001.
2. Terminology used in pre-application and future application phases should be standardized. For example, the PSS document uses the terms “POI substation” and “POI switchyard” interchangeably. DPS recommends that the Point of Interconnect component of the proposed major transmission facility subject to PSL Article VII be referred to as the ‘POI switchyard’ (as described at PSS p. 92); and that the “Project substation” should refer to the component site and equipment that includes both low voltage and high voltage components, and which defines the delineation between the proposed major generating facility and the proposed major electric transmission facility. The substation is expected to include step-up transformers and related equipment to increase voltages from 34.5 kV to 230 kV or similar.
3. The PSS includes various descriptions of the Project and the Facility, which are not consistent and should be clarified to distinguish the Article 10 Siting Board jurisdictional “Generating Facility” from the Article VII Public Service Commission jurisdictional “Major Transmission Facility.” The PSS also fails, however, to acknowledge the requirement of Public Service Law Article 10 to address cumulative impacts of the Generating Facility and related facilities including those of the Major Transmission Facility. See PSL §168.2 and §168.4. DPS advises that analysis should address Project facilities as appropriate, such as operational noise assessment of the wind generators and the substation transformers.

EXHIBIT-SPECIFIC COMMENTS

Exhibit 1 – General Requirements

1. Page 1 refers to the proposed interconnection switchyard and states that this Project component will be transferred to the New York Power Authority upon completion of the project. DPS notes that the interconnection will be to the Moses-Willis-Plattsburgh transmission facilities that were issued a CECPN pursuant to Public Service Law Article VII in Case 26680. A modification or amendment of that CECPN may be necessary. (See also, comment below re: Exhibit 32.)

Exhibit 2 – Overview and Public Involvement

1. Section 2.1, page 3 – DPS advises that the Project outreach should include efforts to engage with stakeholders and identify interests in the transmission line as well as the wind generating facilities and related facilities.

2. Section 2.3, page 4 generally describes Application and PSS Contents. DPS advises that a description of studies to be made of the related Article VII facility should be characterized and summarized to enable concurrent Article 10 and Article VII project reviews.
3. Section 2.4 - The Applicant refers to the PIP in this section; however, makes no mention of where the PIP and/or related information can be found.
 - a. The Applicant should include information on the Article VII piece of the project, and describe the public outreach the Applicant has undertaken to keep the public informed about this part of the project as well.
 - b. The Applicant should make clear that there are local repositories with information of the project documents including the PIP and the PSS, in addition to materials presented at its public outreach events.

Exhibit 3 – Location of Facilities

1. Section 3.1 - The Applicant should clarify that the local repositories have received paper copies of the project documents including the PIP and PSS and any other materials presented at outreach events.

Exhibit 4 - Land Use

1. The PSS does not address lands enrolled in long-term forest management programs administered by NYSDEC under Section 480-a Forest Tax Law. DPS recommends consulting with Project participating landowners and NYSDEC regarding properties enrolled in this program and addressing potential effects of the facilities on continued enrollment.
2. Section 4.11 – Project Compatibility with Existing and Planned Land Uses (pg. 9) refers to “recent documents...by the North Country Economic Development Council, and...the North Country Planning Consortium.” Please provide citations to these documents or provide copies to DPS for review.

Exhibit 5 - System Reliability Impact Study

1. DPS Staff advises the Applicant that pursuant to 16 NYCRR 1001.5(a) this exhibit must contain a System Reliability Impact Study (SRIS). Failure to include the SRIS with the application may result in the application being deemed incomplete.

Exhibit 6 – Wind Power Facilities

1. Section 6.1 – Setback Requirements- indicates that local laws in the project area establish setback requirements and turbine tip height limits. As indicated in PSS Table 6.1 (pg. 14), the tip heights of proposed turbines for the Project exceed required setback distances to Property Boundaries and roads for three Towns in the Project Area. DPS advises that minimum setback distances are generally related to maximum heights for tall infrastructure including large-scale wind turbines. The relation of height-to-setback in two of these local laws is 1:1.25; thus the corresponding setback for a 590 feet tall turbine would be 738 feet. In establishing facility design and layout criteria, consideration of greater setback

distances is recommended, to comport with the intent of provisions of local law that preclude siting turbines within fall-down distance of neighboring properties and public roads, and to assure public safety is not compromised.

2. The PSS also indicates that Exhibit 6 of the Application will include setback guidelines of potential manufacturers. However, there is no information pertaining to Applicant setback requirements or recommendations. There is also no indication of setback requirements from transmission lines. The PSS does include reference to facility setbacks from “aboveground utilities.” Additionally, there is no information provided regarding setbacks from areas of public gathering. Per NYCRR §1001.6(a), provide the following:
 - a. General setback requirements and/or setback recommendations of the Applicant. If none exist, Staff advises the Applicant explain its rationale;
 - b. Any local, Applicant, or manufacturers’ setback requirements and/or setback recommendations for turbines from areas of public gathering;
 - c. Any Applicant or manufacturers’ setback requirements and/or setback recommendations for turbines from barns and other unoccupied structures;
 - d. Setback information from transmission lines, or if applicable, provide a definition of aboveground utilities, as referenced in Table 6.1.¹
3. Page 14 states that “[t]he PSS Project layout complies with the local laws’ setback requirements for roads, residences, and aboveground utilities, with the following clarifications: Locations of residences, roads, and above-ground utilities are preliminary and have not been field-verified; Road setbacks are assumed to apply to year-round roads, but not to seasonal roads, private roads, or roads no longer maintained by the towns, or county; and because landowner discussions are ongoing, no properties are considered to be non-participating.” Staff advises that the following information should be provided:
 - a. An indication of the approximate number of residences, roads, and above-ground utilities that will not comply with the noted local setbacks after field verification;
 - b. Any Applicant, local, or manufacturers’ setback requirements and/or recommendations applicable to seasonal roads, private roads, or roads no longer maintained by the towns or county;

¹ DPS advises that the Public Service Commission has stipulated to a standard setback distance of 1.5 times maximum blade tip height from major transmission facilities, which would include the ‘high side’ of the proposed Collection Substation. (See Case 07-E-0213, Sheldon Energy LLC, Order Granting Certificate of Public Convenience and Necessity and Providing for Lightened Regulation (issued January 17, 2008); note 5, page 12: “In the future, we may, as conditions warrant require a minimum setback distance of 1.5 times maximum turbine blade tip height from the edge of the right-of-way of any electric transmission line designed to operate at 115 kV or more.”)

- c. There is no separate setback information cited for “non-participating” and “participating” properties. Include setback requirements and/or recommendations for “non-participating” properties and provide a discussion and definition of the two terms.

Exhibit 9 – Alternatives

1. DPS recommends that this exhibit include consideration of alternative setback considerations, as discussed above in comments regarding Exhibit 6.

Exhibit 11 – Preliminary Design Drawings

1. Section 11.6 – Lighting Plan – The Applicant should provide more specific information regarding the types of permanent lighting fixtures to be installed than “general types of fixtures.” Explanations of the need for and design criteria of exterior lighting should be provided.
2. Section 11.9 – Electrical Collection System Drawings – The Applicant should show locations of individual collection system lines, indicating the number and location of individual circuits including where multiple circuits are co-located in close proximity.
3. Section 11.10 – Project Substation Drawings- The Applicant suggests that only typical substation design will be provided. DPS recommends that design consideration should be site-specific to the extent that design will be appropriate for consideration in the Project-associated Article VII application.
4. Section 11.11- POI Switchyard Drawings – see comment re: Section 11.10 above.

Exhibit 15 – Public Health and Safety

1. Section 15.5 of the PSS provides a very limited discussion of the potential from flicker shadows to trigger seizures in people with photosensitive epilepsy. DPS notes that:
 - a. The discussion of flicker impacts in the PSS should be expanded sufficiently to support the statements. The Applicant should explain whether the assessment of health effects from frequency of flicker will be based on the number of cycles per unit of time for a single turbine only (Hz) or on the combination of the cycles per unit of time (Hz) of a greater number of turbines, if they are aligned in such a way that they can simultaneously produce flicker on the same receptor location.
 - b. A thorough literature review of adverse impacts and health effects from flicker should be included in the Application under 16 NYCRR §1001.15 - Exhibit 15, Public Health. The Application should also provide a discussion about potential health effects from flicker with consideration of potential for annoyance, stress or any cognitive, physical or health effects.
 - c. The analysis and assessment of shadow flicker impacts should include any sensitive receptor and also apply to any officially-announced, planned land use developments, such as residential sites or community buildings,

under review or already approved for site plan development or building permit issuance at the time of filing the Article 10 application.

2. Section 15.6 (Audible Frequency Noise) refers to Exhibit 19 for assessment of potential impacts on health from audible noise. DPS recommends to include the discussion of Health effects under 16 NYCRR §1001.15 -Exhibit 15, Public Health, with consideration of the findings of 16 NYCRR §1001.19 -Exhibit 19, Noise and Vibration. DPS notes that the scope in Section 19.5 doesn't include consideration of other potential health impacts from noise such as sleep disruptions, stress or cardiovascular disease.
3. Section 15.7 states: "Modern wind turbines, including the types BRE proposes for this Project, incorporate the upwind rotor design, which greatly decreases the generation of low-frequency sound. Such modern, upwind-rotor wind turbines generate no more low-frequency sound than what is already present in windy rural areas as background noise. Therefore, there is no expected impact of low-frequency noise from the proposed facility (Snow 1997; Bollin et al 2011; O'Neal et al 2011)." In addition, Section 19.6 states: "Although BRE is not aware of scientific literature supporting a direct link between wind turbine noise and actual health outcomes, a potential exists for community complaints regarding wind turbine noise. BRE anticipates that careful siting of the turbines will minimize negative subjective noise impacts."
 - a. DPS notes that the discussion of adverse impacts in the PSS does not provide a sufficiently detailed basis to support the statements. A thorough literature review of adverse impacts and health effects from noise, low frequency sound, infrasound and vibration should be included in the Application under 16 NYCRR §1001.15 -Exhibit 15, with consideration of the findings of 16 NYCRR §1001.19 -Exhibit 19, Noise and Vibration. The review should include government, scientific and professional studies and peer reviewed publications, and the guidelines and recommendations of the World Health Organization (WHO). DPS notes that Exhibit 15 requires "A statement and evaluation that identifies, describes, and discusses all potential significant adverse impacts of the construction and operation of the facility, the interconnections, and related facilities on the environment, public health, and safety, at a level of detail that reflects the severity of the impacts and the reasonable likelihood of their occurrence, identifies the current applicable statutory and regulatory framework, and also addresses: ...(e) for wind power facilities, impacts due to blade throw, tower collapse, audible frequency noise, low-frequency noise, ice throw and shadow flicker." DPS also notes that 16 NYCRR §1001.19 -Exhibit 19(e) requires: "an analysis of whether the facility will produce significant levels of low frequency noise or infrasound."
 - b. In addition, the PSS does not propose a methodology, reference or guideline for the evaluation of health effects from noise including low frequency noise and infrasound for the project. DPS recommends at a minimum, comparing the noise levels from the project with the guidelines and recommendations from the World Health Organization:

- i. World Health Organization. Night Noise Guidelines for Europe. 2009.
 - ii. World Health Organization. Guidelines for Community Noise. 1999.
4. Section 15.11 of the states: “[i]mpacts associated with operations, noise, visual and flicker will be minimized by careful siting and screening where needed and will be monitored for continued compliance with certificate condition requirements.” DPS notes that avoidance and minimization measures should be expanded to include additional options for mitigation. DPS comments above regarding Exhibit 15 should be taken into consideration in revising proposed scope of studies including impact minimization and mitigation measures.

Exhibit 17 – Air Emissions

1. Discussion of the Project does not consider emissions from any emergency generator(s) associated with the proposed substation or switchyard. Provide indication of the size and operating and emissions characteristics of any emergency power generators that may be associated with Project operation.

Exhibit 18 – Safety and Security

1. There is a reference to additional security measures, such as lighting, cameras, or roving security patrols that could be employed if security problems occur. Please advise how long it would take to deploy those additional measures if they were required.
2. The security plan filed with the application should the entity that is specifically responsible for monitoring to ensure that locks and fences are locked “at all times.” “Staff” is used as a broad term to denote responsibility, however a more systematic approach would be preferred.

Exhibit 19 – Noise and Vibration (Noise Impact Assessment Protocol)

1. Section 2.2. of the PSS, page 4 states: “Studies in the application will use the most conservative assumptions about turbine characteristics and impacts, e.g., tip height and noise emissions will be the highest and loudest of turbines BRE considers likely candidates.” DPS notes that although the evaluation of turbines with the highest and loudest noise emissions proposed for the Project may provide an estimate of the maximum sound impacts, the scope should also include an evaluation of quieter wind turbine options and alternatives layouts with greater setbacks, as assessment of alternatives that may avoid or minimize noise impacts from the project. DPS notes that the intent of Article 10 regulations is avoiding or minimizing environmental impacts. In addition, 16 NYCRR §1001.19 - Exhibit 19 (j) requires an “identification and evaluation of reasonable noise abatement measures for the final design and operation of the facility including the use of alternative technologies, alternative designs, and alternative facility arrangements.”
2. Section 19.3 states that “the discussion of construction noise will include reasonable noise abatement measures to be implemented and steps that can be taken to respond to any noise complaints that might be received during

construction.” DPS recommends specifying in the PSS whether construction noise surveys will be included as part of the scope for monitoring construction noise levels or in response to any construction noise related complaints.

3. Section 19.4 refers to blasting noise. The scope should be expanded to include potential for structural damage on existing buildings and infrastructure from blasting. In addition, the scope should include evaluation of the potential for some construction activities (such as pile driving, excavation, horizontal directional drilling (HDD) or rock hammering, if any) to produce any cracks, settlements or structural damage on any existing proximal buildings, including any residences and historical buildings.
4. Section 19.5 propose a “discussion on whether the Project will generate significant levels of low-frequency sound or infrasound”. DPS recommends to expand the scope to include the potential for air-borne induced vibrations from the operation of the facility to generate annoyance, cause rumbles or vibration and rattles in windows, walls or floors of sensitive receptor buildings. The applicant may want check the Hubbard’s Methodology to evaluate this issue or, the outdoor criteria established in annex D of ANSI standard S12.9 -2005/Part 4. Applicable portions of ANSI 12.2 (2008) may be used for the evaluation of frequency bands where ANSI 12.2 (2008) may be a more restricting criteria or if it is expected ANSI S12.9-2005/Part 4- Annex D guidelines being met but still represent a potential for perceptible vibrations at indoor locations of sensitive sound receptors, if any.
5. Section 19.6 states: “BRE is not aware of any technical, industrial, or medical activities in the Study Area that would be affected by wind turbine sounds.” DPS advises to include in the scope the following potential impacts that may need to be evaluated separately:
 - a. Potential of low-frequency noise including infrasound and vibration from operation of the facility to cause any interference with the closest seismological and infrasound monitoring systems. For this subject DPS Staff recommends that the Application include a map in proper size and scale to show the location of the closest seismological and infrasound stations on both sides of the border between US and Canada in relation to the Project site, and a table with approximate GPS coordinates and distances from identified stations to the Project site. For a discussion about potential issues the Applicant may want to consult, among others, the following references:
 - i. Technological Information and Guidelines on the Assessment of the Potential Impact of Wind Turbines on Radio Communication, Radar and Seism Acoustic Systems. Radio Advisory Board of Canada (RABC). Canadian Wind Energy Association (CanWEA). April 2007.
 - ii. Micro Seismic and Infrasound Monitoring of Low Frequency Noise and Vibrations from Wind farms. Recommendations on the siting of Wind Farms in the vicinity of Eskdalemuir, Scotland. Styles,

Stimpson, Toon, England, Wright. Applied and Environmental Research Group. Earth Sciences and Geography. School of Physical and Geographical Sciences. Keele University. 18 July 2005.

- iii. For information about Seismic Stations in the U.S. that are part of the USGS monitoring system, the Applicant may want to consult the USGS website.
 - iv. For information about seismic stations in Canada, the Applicant may want to consult the NRCAN website.
 - v. For information about the existing and planned infrasound and seismic stations that are part of the International Monitoring System (IMS) the Applicant may want to visit the CTBTO (Comprehensive Nuclear Test Ban Treaty Organization) website www.ctbto.org.
- b. Potential for ground-borne transmitted vibrations from the operation of the Facility to reach a noise sensitive receptor and cause vibrations on the floors or on building envelope elements that may be perceived by the occupants. The Applicant may want to illustrate the discussion with findings from other projects with consideration of the technical variables related to the ground borne transmission of vibrations such as oscillating/rotating masses, frequencies of rotation, vibration isolation, type of foundation, soil type and set-backs. The Applicant may want to consider the criteria and procedures discussed in the following national and international standards:
- i. ANSI S2.71-1983 (Guide to the Evaluation of Human Exposure to Vibration in Buildings (R 2012)).
 - ii. ISO 2631-2-2003 (Evaluation of Human Exposure to Whole-body Vibration Part 2: Vibration in buildings (1 Hz to 80 Hz)).
 - iii. Additional information may also be found in ASHRAE Handbook-HVAC Applications 2011, chapter 48, Noise and vibration control, Vibration Criteria p.p. 48.43-48.44.
6. Section 2 of the Noise Impact Assessment Protocol (NIAP) considers only “year-round” residences as noise-sensitive receptors. DPS recommends that, for the purposes of Exhibit 19, any residence be considered as a noise-sensitive receptor.
7. Section 2 of the NIAP list several receptors that are considered noise-sensitive receptors. DPS recommends to expand the list to include libraries, commercial buildings, outdoor public facilities and public buildings.
8. Section 2 of the NIAP states: “Attachment 1 maps the noise-sensitive receptors in the areas expected to be within one mile or less of proposed wind turbines or the project substation. Invenergy developers familiar with the local area identified these receptors by review of aerial photographs”. DPS recommends that the

Applicant compare the inventory of noise sensitive receptors with local authorities as well.

9. Section 3.1 of the NIAP specifies “two weeks” as the minimum period where ambient sound data was and will be collected. The Applicant should include in the scope the estimate of temporal accuracy for the final number of days of testing at each position. DPS notes that ANSI/ASA Standard S12.9-1992 (R 2013)/Part 2 contains procedures to determine temporal accuracy based upon a 95% confidence interval, results of data collections, and the number of samples that were collected.
10. Section 3.2. of the NIAP states that six community locations were selected to continuously measure ambient sound data. The Applicant should provide justification for selection of six locations for characterization of the pre-construction ambient noise levels within the project area and include in the scope determination of spatial accuracy. DPS notes that ANSI/ASA Standard S12.9-1992 (R 2013)/Part 2 has several recommendations and procedures to either determine the number of sites that are required for achieving a specific spatial accuracy (Survey Class) or to determine the spatial accuracy based upon a 95% confidence interval, results of data collections, and the number of locations that were selected.
11. Section 3.2. of the NIAP reports the six locations that were selected to continuously measure ambient sound data. The Applicant should provide justification for selection of all positions especially for noise monitoring locations “along the highway corridors” where noise levels “are likely higher”. DPS notes that as per 1001.19, Exhibit 19(c), ambient preconstruction baseline noise conditions shall be evaluated “at representative potentially impacted noise receptors.” Please provide AADT traffic information along with traffic composition and posted speeds, as available, for testing positions in proximity of the roadways.
12. Sections 3.2 and 3.3 of the NIAP lists the positions that were selected for long-term and short-term evaluations of pre-construction ambient sound levels. Please provide GPS coordinates for all selected and evaluated positions.
13. Section 3.4 of the NIAP reports the one-third octave band frequency band of 12.5 Hz as that the lowest band that will be collected. DPS recommends to include in the scope a collection of baseline infrasound levels in the area which may be later compared to estimates of infrasound levels from the Project at sound sensitive receptors. DPS notes that 1001.19 Exh. 19 (e) requires an evaluation of whether the facility will produce significant levels of low frequency noise or infrasound. Some Sound Level Meters can be adapted with software and infrasound microphones that can measure from or even below 1 Hz.
14. Section 3.5 of the NIAP lists two ANSI standards that the instrumentation complies with. The Applicant should specify whether the Sound Level Meters comply with ANSI S1.43-1997 (R March 16, 2007). Specifications for Integrating-Averaging Sound Level Meters. In addition, the Applicant should specify a Class for acoustical calibrators and whether they comply with ANSI S1.40-2006 (R

October 27, 2011) (Revision of ANSI 1.40-1984) Specifications and Verification Procedures for Sound Calibrators.

15. Section 3.5 of the NIAP include specific models for sound level meter instrumentation. Please report specifications such as sound floor, temperature and humidity ranges of operation, and whether the sensitivity checkers (field acoustical calibrators) were calibrated by an independent accredited laboratory within a year prior to its use for the sound surveys. Please also provide types, makes and models of wind screens that were used or are proposed to be used for sound collections with information from the manufacturer or independent laboratory to include attenuation effects (insertion losses) and wind induced noise levels.
16. Section 3.6 of the NIAP specifies that the L90 noise descriptor will be collected in 10-minute intervals and that 1/3 octave band sound pressure levels will be collected for every second interval. The Applicant should explain how the collected information will be processed to calculate the L90 noise descriptor as required by 1001.19 Exh. 19, section (f).
17. Section 3.6 of the NIAP mentions that wind speed sensors will be installed in the vicinity of several noise monitoring stations. Please specify brand, make and model of anemometers, accuracy as stated by the manufacturer and whether the anemometers comply with the recommendations from ANSI standards for accuracy of weather stations. DPS recommends using at a minimum a portable weather station at a representative noise sensitive location to continuously document temperature, relative humidity, wind speed, wind direction, precipitation, and barometric pressure (optional) during the periods of sound collections. Accuracy for the portable weather stations or any hand held anemometers should be as recommended by ANSI Standards. The Applicant should report how measured data will be excluded based upon weather conditions such as, wind speed including gusts, precipitation and relative humidity. In addition, the protocol should specify how seasonal noise, animal sounds, wind noise, etc., will be filtered. DPS notes that 1001.19 Exh. 19 (b) requires the ambient pre-construction baseline sound levels to be filtered to exclude seasonal and intermittence noise. The Applicant may want to consider the provisions in ANSI/ASA S3/SC1.100-2014/ANSI/ASA S12.100-2014 (Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas), for filtering animal, seasonal sounds and pseudo-noises on the sound microphones.
18. Section 3.7 of the NIAP specifies that the monitoring stations will be visited during the monitoring period for equipment checks. Please specify that the Application will provide notations of any acoustical calibrations that are performed during these inspections.
19. Section 3.8 of the NIAP specifies the scope for documenting, reporting and commenting the collected data. DPS advises that collected information should be analyzed, at a minimum, by following the requirements of 1001.19 Exh. 19

regulation. As such, the scope of NIAP should be expanded to include all the requirements of 1001.19 Exh. 19.

20. Section 4.1 of the NIAP specifies 50 dBA as the maximum L10 noise level required by local laws at non-participant residences. DPS notes that local law from the Town of Ellenburg seems to have different provisions. In addition, if the ambient noise levels exceed 50 dBA, the Towns of Altona and Clinton have requirements in terms of 5 minutes per hour which approximates to the L8 statistical noise descriptor (sound level that is exceeded only 8% of the time in an hour). Please revise section 4.1 and provide a summary of relevant provisions of local laws including noise limits and prominent tone requirements.
21. Section 4.2 of the NIAP seems to propose the NYSDEC Noise Policy DEP-00-1 as a single methodology for evaluation of impacts for the project. DPS advises that 1001.19 Exh. 19 (k) requires an evaluation of various potential community noise impacts such as hearing damage, indoor and outdoor speech interference, interference with use of outdoor public facilities, community complaint potential, potential for structural damage, and potential for interference with activities that are sensitive to vibration and infrasound. In addition, 1001.19 Exh 19 (e) requires evaluation of prominent tones, amplitude modulated sound and analysis of low frequency noise and infrasound. Although related to Exh 15, DPS also advises that 1001.15 Exh 15 requires evaluation effects of noise on Public health. DPS requests that the Applicant specify in the scope the different methodologies, standards and guidelines that are proposed to be used for the analysis of the project and identify any topics that are proposed to be analyzed under the NYSDEC noise policy DEP-00-1 with a justification about whether the proposed criteria is also consistent with applicable methodologies, standards or guidelines to evaluate the noise impacts in question. The Application should include design goals for the Facility for issues that will be evaluated in terms of absolute noise guidelines (e.g.: sleep disruptions, outdoor and indoor speech interference, hearing loss, annoyance, complaint potential and health issues). The Applicant should explain whether the analysis of annoyance and complaints may also require an additional evaluation in terms of relative noise guidelines and include the references for such methodologies/guidelines. Should the Applicant select the DEP-00-1 noise policy to evaluate any of the topics required by 1001.19 Exh. 19, the NIAP should specify how the policy is planned to be applied including the noise descriptors that will be used to describe ambient and operational sounds along with a summary of the procedures that will be followed for its application.
22. Section 5.1. of the NIAP lists methods of analysis for construction noise. DPS recommends, at a minimum, following the guidelines and recommendations of the FHWA Highway Construction Noise Handbook (FHWA-HEP-06-015) that are applicable to the project. Although developed mainly for roadway projects, the handbook is applicable to many construction projects and provides guidance in measuring, predicting, and mitigating construction noise and developing noise criteria. The Handbook also reflects substantial improvements and changes in the way highway construction noise has been addressed since the 1977 FHWA Special Report. The Applicant may also want to consult the noise database for

construction equipment listed in the FHWA Highway Construction Noise Handbook and determine whether these emissions or any other, resembles the noise emissions of the construction equipment that is proposed to be used. The PSS should specify whether selected noise emissions will also be used as criteria for selection or rejection of construction equipment during the construction phase.

23. Section 6.1 of the NIAP lists the Cadna/A computer software as the noise model selected for the project. The PSS should briefly describe the specifications of the computer model that is proposed to be used for evaluation of operational noise impacts including range of frequencies that will be evaluated and whether the model calculations will be performed in full octave or one-third octave bands. The applicant should also specify how the meteorological corrections will be assumed or calculated. Since Cadna/A may not be available to some parties including DPS, modeling software specification should be expanded to include other similar computer programs that also comply with ANSI S12.62-2012 or follow ISO-9613-2.
24. Section 6.1 of the NIAP specify that “All wind turbines will be assumed to be operating simultaneously at the sound power levels specified by the turbine manufacturer.” DPS Staff recommends that this section be expanded with considerations for wind speed magnitude.
25. Section 6.1 of the NIAP mentions that turbines will be considered as point sources consistent with the IEC-61400-11 standard for determination of sound power levels for the turbines. Please also specify whether the sound power levels, and tonal information from the wind turbines following IEC 61400-11 2012 Part 11, “Acoustic Noise Measurement Techniques,” are available from potential manufacturers and if so, specify that they will be provided with the Application. The Applicant should also inform whether Sound Power Level information, as reported by using IEC TS-61400-14 Part 14 (Declaration of apparent sound power level and tonality values), is currently available for potential turbine options and if so, provide it with the Application.
26. Section 6.1 of the NIAP states that the transformer(s) will be “modelled as sound point sources using a sound power level equal to or louder than the specification intended to be used during equipment procurement.” DPS recommends to model the transformers with sound power information provided by the manufacturers.
27. Section 6.1 of the NIAP provides a discussion about the ground absorption values selected for computer noise modeling of the project. DPS recommends that the scope be expanded to include a general discussion about the effects in accuracy regarding the assumptions for ground absorption values (e.g. 0, 0.5, 1) in conjunction with the proposed propagation standards proposed for the project (ISO/Concawe), with illustration of correlations between computer noise predictions and actual post-construction measurements for documented cases.
28. Section 6.2 of the NIAP states that “[t]he report will present results from the project sound model that employs the standard Cadna/A configuration. In addition, the report will discuss results from a model that employs the

CONCAWE configuration and compared with those of the standard model". The PSS should explain how many combinations of scenarios (operational noise and meteorological conditions such as wind speed, wind magnitude and atmospheric stability) are proposed to be modeled for the project so that the operational noise levels as required by 16 NYCRR §1001.19 - Exhibit 19 and by local regulations can be properly calculated. DPS Staff notes that 16 NYCRR §1001.19 - Exhibit 19, requires worst case (L10) and typical (L50) operational noise levels either for a year, summer, winter, daytime or nighttime. The PSS should also specify how the meteorological corrections will be calculated (e.g., ISO 9613, CONCAWE, etc.) and provide a brief discussion about the advantages or disadvantages of the use of the proposed corrections as compared to other alternatives.

29. Section 6.2 of the NIAP states that a map with contours of expected upper noise levels will be included in the report of modeling results. DPS recommends that noise contours be rendered at least out to 1 mile from any turbine location. Scale and incremental steps (e.g. dB, 5 dB) should be proposed. Sensitive receptors should be identified with land/tax ID numbers and property lines should be included.
30. Section 6.2 of the NIAP proposes reporting noise statistics and descriptor (L10, L50) for "one or more" noise sensitive receptor and typical and "greatest impact" non-participating parcels. DPS recommends reporting all predicted noise levels (L10 and L50) for all receptors including participating and non-participating receptors in tabular format. Forecasted noise levels at property lines can be reported in graphical format with noise contours in 1 dB increments.
31. Section 6.2 of the NIAP proposes tables with Leq and L90 background levels for "each of the above locations" DPS recommends reporting all measured and calculated pre-construction ambient noise levels for all evaluated receptors in tabular format. Since for the purposes of fulfilling the requirements of 1001.19 Exh 19.f.(5) (6) and (9) it is impractical to measure L90 and Leq ambient noise levels at all locations, these can be estimated based on the results of ambient noise surveys. If ambient sound levels for all receptors or groups of receptors are proposed to be characterized by single numbers using ambient sound results at all or some measurement locations, the associated spatial accuracy should be estimated by following the procedures included in ANSI S12.9-1992 (R2013)/Part 2. In this case, although Leq and L90 values may be represented by mean values, the lower and upper limits of the 95% interval should also be reported. The PSS should include specific provisions for calculation or estimate of each requirement from 1001.19 Exh 19.f. (1) to 1001.19 Exh 19.f. (9).
32. Section 6.2 of the NIAP proposes scope for modeling and reporting of low frequency noise levels. The scope should be expanded with consideration of the potential from airborne induced vibrations in sensitive receptor buildings and potential to generate annoyance, rattles and rumbles at interior spaces. The Applicant should also clarify whether the evaluation of infrasound impacts will be based upon sound data information from the manufacturer or from infrasound levels collected from wind turbine projects with the same potential turbine models operating at similar conditions.

33. Section 6.2 of NIAP should include a methodology for determination of tonality or prominent tones from the wind turbines and substation tonal noise sources. DPS Staff notes that Annex A from ANSI Standard S1.13-2005 has different methods for identification and evaluation of prominent tones. Additionally, Annex C from ANSI Standard S12.9- 2005/Part 4, has a simplified method for evaluation of sounds with tonal content that could be applied under some specific circumstances. In addition, section 9.5 of IEC 61400-11 (Wind Turbines –Part 11- Acoustic noise measurements techniques) has a method for determination on prominent tones for the wind turbines. Please specify definitions of tonality for the purposes of evaluation of tones under the requirements of 16 NYCRR §1001.19, Exhibit 19, and provisions for tones in local noise codes, if any.
34. Section 6.2 of the NIAP: Amplitude Modulation should be expanded to include more details about the scope and methodologies for evaluation. The PSS should specify any standards that are proposed for evaluation of wind shear and turbulence, such as IEC 61400- 11 Annexes B and D.

Exhibit 20 – Cultural Resources

1. The proposed Project Area extent and boundary has increased significantly since the Phase 1A work reported in the PSS was compiled in 2015. Updated Project Area maps and an expanded Phase 1A section are necessary for establishing the appropriate scope of studies for the evaluation of cultural resource impacts associated with the larger Project Area and layout.
2. The PSS does not refer to prior evaluation of Historic Resources in any portions of the Project Area made by developers of existing wind farms in the region, the Applicant should provide this information to advance scoping for Exhibits 20 and 24.

Exhibit 21 - Geology, Seismology and Soils

1. Section 21.2, Page 47 – The PSS states that one of the four main types of soils in Clinton County is acidic glacial till. Acidic soils can be corrosive to steel reinforcement and degrade concrete. The Application should include a description of the presence of acidic glacial till within the Project Area and a map at a scale of 1:24000 showing the locations of acidic soils, based on publically available data on the National Resources Conservation Service (NRCS) Web Soil Survey and the results of preliminary geotechnical investigations. Areas within the project boundary that are identified as having a moderate or high risk of corrosion of steel or concrete, as defined by the NRCS Web Soil Survey, should be identified and measures for reducing risk of degradation of foundation structures should be discussed. The potentially acidic soil conditions should also be considered when assessing the suitability of existing soils for re-use as fill
2. Section 21.3, Page 48 – The draft PSS states that “Exhibit 21 will include results from preliminary geotechnical testing performed at a range of sites....” The Application should include a Preliminary Geotechnical Investigation Plan in order to allow parties an opportunity to review and provide feedback to the Applicant regarding the scope of investigations. The Preliminary Geotechnical

Investigation Plan should provide a full description of the proposed geotechnical investigations for evaluating the subsurface conditions in the project area and include test borings in representative locations of turbine foundations, road construction, underground collection line and interconnection line installation, and areas where trenchless methods, including horizontal directional drilling (HDD) are considered.

3. Section 21.4, Page 48 – Exhibit 21 of the Application should identify all locations where cables are proposed to be installed via horizontal directional drilling (HDD). A frac-out contingency plan should be provided which identifies site specific potential receptors, a frac-out risk assessment based upon preliminary geotechnical investigations, and description of frac-out mitigation and response methods.
4. Section 21.6, Page 49-50 – The draft PSS indicates that the Applicant does not anticipate that any excavated fill will need to be removed from the project area. Given the anticipated shallow soil depths and the amount of bedrock excavation that is anticipated, it is unclear why the Applicant does not anticipate that transport of excavated bedrock offsite will be needed. Separate calculations of the amounts of topsoil, subsoil, and bedrock that will be disposed offsite should be provided in the Application. Designated areas for temporary storage of excavated materials should also be included in Site Plans provided in the Application. Additionally, the Application should include a discussion in Exhibit 21 assessing the suitability of existing soils in the project area for re-use as fill. Preliminary calculations of the amounts of cut and fill necessary to construct the facility should be based on the results of preliminary geotechnical investigations and the Applicant's assessment of the suitability of existing soils for re-use.
5. PSS Section 21.7, Page 50 – According to the PSS, the Applicant anticipates that project construction can be completed without blasting. The Application should provide a discussion assessing the potential need for blasting based on the results of preliminary geotechnical investigation. If the preliminary geotechnical investigations indicate that blasting will likely be necessary, the Blasting Plan included in the Application should provide impacts assessment and mitigation measures, including all informational requirements per 16 NYCRR §1001.21(i)-(k), specific to those locations where blasting is anticipated.

Exhibit 22 - Terrestrial Ecology

1. The PSS does not clearly discuss the potentially significant adverse impacts on terrestrial ecological resources. While some mention is made that the Project could affect birds (22.5) and bats (22.6), there is no discussion about possible impacts to other wildlife (i.e., other mammals, reptiles, amphibians, insects). While the PSS identifies bird and bat surveys the applicant did or will perform and that potential bird and bat impacts will be discussed, no mention is made of the methods or analyses the applicant plans to perform and present in the Application. A proposed scope of studies for additional evaluation of these resources and potential impacts should be provided.

2. Section 22.12 states that clearing or habitat fragmentation impacts should be compared to timber harvesting on Project properties, but no mention is made how this will be done in the Application. The applicant should discuss how forest fragmentation impacts and edge effects will be assessed in the Application for turbine sites, electrical connection facilities, access roads, and human activities both during construction and operation of the Project. Since no mention is made of any such studies at the Project location, a literature review should be undertaken and reported on in the Application to assess these types of ecological impacts (i.e., fragmentation, edge effect, displacement).
3. Section 22 makes no mention of cumulative ecological impacts from the proposed Project and the several other existing and proposed wind farms in the region. DPS advises that consideration of cumulative operational impacts should be included in the scope of studies for the Application.

Exhibit 23 - Water Resources and Aquatic Ecology

1. Section 23.5, Pages 59-60 – Based on the information provided in the draft PSS, a high number of residents and businesses in the project area rely upon groundwater as their primary water source. Additional groundwater data, including groundwater depth, quality and flow direction, should be obtained during the advancement of geotechnical test borings within the project area and the results of groundwater investigations should be included in the Application. Because of the generally anticipated shallow depth of the unconfined aquifer, it is expected that dewatering will be required during project construction. The Application should include a detailed description of the proposed dewatering practices and a demonstration of how the proposed dewatering will avoid and/or minimize flooding, surface water runoff, transport of fine-grained soils into existing surface water bodies, and impacts to local water well usages of the unconfined aquifer. Any locations where permanent dewatering will be required should be identified and permanent dewatering practices should be described in detail.
2. The Application should include the results of a private water well survey, distributed to local residents and businesses. The well survey should request information regarding the locations, depths, withdrawal rates and water quality of wells within one mile of the project area. Given that there are existing private wells that pull from the unconfined aquifer, the Application should include a plan for minimizing impacts to well usages in the area. Such a plan should include a complete inventory of all known shallow water wells near the project area, information on the depth and usages of these wells, as available from the well owners, and plans to minimize impacts to well productivity and water quality.
3. Plans for notifying well owners of blasting operations (if necessary) and plans for monitoring well productivity and ground water quality should be included in the Blasting Plan included in the Application. Additionally, any Blasting Plan should include measures for minimizing potential impacts to productivity and water quality of private and public water wells and provide 24 hour contact information

for well owners to report impacts to well productivity and water quality during and following blasting operations.

4. Exhibit 23 should identify the proximity of any proposed HDD operations to existing water supply wells and describe mitigation measures to minimize impacts of HDD operations on the hydrologic flow patterns of the unconfined aquifer.

Exhibit 24 - Visual Resources

1. Section 24.2 – Potential Aesthetic Resources – This section should include consideration of the federally-designated Lake Champlain Heritage Area, which as defined includes all of Clinton County, and any specific locations identified in the LCHA Management Plan, adopted in 2014 and administered primarily by the Lake Champlain Basin Program headquartered in Vermont.
2. Section 24.2 should also include consideration of known resources listed or eligible for listing on the National Register of Historic Places, including locations previously evaluated by other recent wind energy development activity in the Project Study Area.
3. DPS advises that the Route 11 Historic Military Trail is a designated NYS Scenic Byway, and should be considered pursuant to NYSDOT Scenic Byways program.
4. Lyon Mountain, the northern-most peak in the Adirondack Park, is acknowledged in the PSS. This location provides a panoramic view that provides a comprehensive long-distance vista of the multiple wind projects in the Clinton and Franklin Counties vicinity. This location should be identified as a candidate for cumulative visual impact assessment of the Bull Run Project in close relation to these other wind projects.
5. Potential for views of the Bull Run Project from the Lake Champlain area should be addressed in preliminary visual assessment, and visual study area expanded accordingly.
6. Section 24.4 – Viewshed Analysis – DPS advises that the scope should specify that viewshed maps will be produced at an appropriate scale, such as 1:24,000, to allow discernment of resource areas and close identification of viewpoint locations.
7. Section 24.4 - The basis for assuming forest vegetation height screening should be justified. Most visual assessments use a standard of 40 feet, rather than 50 feet as identified in the PSS (pg. 66).
8. Section 24.5 – Photographic Simulations – The scope should include consideration of cumulative impacts of the proposed generating facility with the proposed transmission facility; and also cumulative impacts with the several other existing and proposed wind energy projects in the region.
9. Section 24.8 – Impact Assessments – Provide documentation including description of method, rating forms and rating panelist instructions for the modified BLM Visual Resource Management methodology mentioned at page 68.

10. Section 24.9 – FAA Light Viewshed – This section should address locations where lighting is predicted to be visible based on viewshed analysis.
11. Section 24.10- Shadows - Provide a justification for only assessing residences occupied year-round as opposed to all residences within the specified study distance.
12. Section 24.10 – Shadows- Evaluation Criteria should be clarified to address the methodology for assessing actual shadow flicker impacts as likely receptor locations.
13. Section 24.10 states: “The primary concern with shadow flicker is the annoyance it can cause for adjacent residents. As discussed in PSS Exhibit 18, some people have postulated that wind turbines could trigger epileptic seizures in vulnerable individuals, but this has not been found to be a real impact.” DPS notes that the discussion of shadow flicker in the PSS does not provide a sufficiently detailed basis to support the statements. DPS also notes that section (a)(9) in 16 NYCRR §1001.24 Exhibit 24: Visual Impacts requires an “analysis and description of related operational effects of the facility such as visible plumes, shading, glare, and shadow flicker” and section 16 NYCRR §1001.24 (b)(8) requires analyses of the operational characteristics of the facility and related facilities, including shading, glare, shadow flicker, or related visible effects of facility operation, including an assessment of the predicted extent, frequency, and duration of any such visible effects created by the facility.
14. Section 24.10 only includes “locations of inhabited residential structures” in the scope. The PSS should include all flicker sensitive receptors and a justification for differentiation of “inhabited residential structures” from other residences as well as methods for determination.
15. Section 24.10 states that the flicker analysis will be performed on the Wind turbine dimensions for the tallest anticipated wind turbine. The scope should be expanded/clarified to include consideration of diameter of the blades.
16. Section 24.10 proposes a 30-hour/year threshold for assessment of flicker impacts.
 - a. The PSS should clarify whether the threshold is proposed for a “worst case” or a “real/expected-case” evaluation. Typically, worst-case evaluations assume that there is no cloud coverage so that the sun is always shining during the daytime. In addition, the wind direction is parallel to the direction of the sunrays so that the plane of rotation of the blades is always perpendicular to the sunrays and the area with flicker shadow is maximal. In an “expected case” evaluation, however, cloud coverage and wind direction are accounted for so that the sun is not always shining during the daytime and the wind turbines are not assumed to be always facing the sun.
 - b. In addition to the maximum number of hour of shadow flicker per year, the PSS should propose a threshold for the maximum number of minutes per day with considerations of potential health effects and whether the

proposed threshold corresponds to a “worst-case” or an “expected-case” evaluation.

Exhibit 25 – Effect on Transportation

1. Section 25.3 (pg. 71) - PSS states that “[t]o mitigate such damage (road), BRE intends to enter into road agreements with the towns and county that will require BRE to (i) check roadways after construction to verify that roadways are in a condition no worse than what existed immediately prior to Project construction, and (ii) repair or resurface roads that are shown to have been damaged by Project construction. Further, BRE proposes to conduct a road survey prior to construction to identify bridges or weak road spots where BRE may elect to install steel plating or other reinforcements to minimize road impacts during construction.”

Per requirements of 16 NYCRR 1001.25 (d) (5), provide a description of all road use and restoration agreements between the applicant and landowners, municipalities, or other entities, regarding repair of local roads damaged by heavy equipment or construction activities during construction or operation of the facility.

2. The Applicant states that “the Project could impact instrument flight paths and other navigation tools used by public-use airports.” In light of this, Staff recommends that the affected airport(s) be added to the stakeholder list. In the original PIP, the Plattsburgh International Airport was noted as not being an affected agency in its potential stakeholders list. There is also no mention of the Malone-Dufort Airport; however, according to the PSS the project should serve no impact.

Exhibit 27 - Socioeconomic Effects

1. Section (a) of the regulations state that this exhibit shall contain an estimate of the peak construction employment level. Section (b) of the regulations state that this exhibit shall contain an estimate of the annual construction payroll, by trade, for each year of construction. Please provide this information.

Exhibit 29 - Site Restoration and Decommissioning

1. Page 85 states that “BRE will decommission the Project at the end of its useful life, which BRE estimates will be 40 years or more after the start of commercial operation.” However, there is no indication that a statement will be provided of the performance criteria proposal for site restoration in the event the facility cannot be completed. Per 16 NYCRR §1001.29 (a), provide a statement of the performance criteria for this particular scenario.

Exhibit 31 – Local Laws and Ordinances

1. The PSS does not provide a description or indication of the location of the proposed step-up substation that would mark the intersection of the major generating facility and the major electric transmission facility. This location should be defined since there are other provisions in local codes than the Wind Energy laws cited that are likely to apply to the collection and step-up substation.

Allowable uses, area requirements such as height restrictions, lot size and coverage and setbacks requirements, sign ordinances, and related provisions are included in local codes separate from the Wind Energy laws. DPS advises that both the Article 10 and the Article VII applications will need to address the substation location, since there are low-voltage components of the substation that apply to the facilities subject to Article 10, and high-voltage components that apply to Article VII facility. Regardless of the distinction, Public Service Law §168(2) requires that the Siting Board make findings regarding “the nature of the probable environmental impacts of the construction and operation of the facility, including the cumulative environmental impacts of the construction and operation of related facilities such as electric lines....”

2. The PSS does not address substantive local law provisions other than those included in the various local Wind Energy laws. As an example, DPS notes that the Town of Ellenburg Zoning Law at *Section 440 - Stream Protection*, requires that all structures shall be set back at least 50 feet from streams. This provision would potentially apply to electrical collection system poles, the O&M building, pad-mount transformers or other facility component equipment. Provisions from Ellenburg Zoning Law *Section 510 – General Standards for Conditional Use* specify sight distance at access road entry and exit point on public roads are potentially applicable. Local Flood Hazard Area review and design provisions may also be applicable to facility location and design. DPS advises that the applicant should provide a more robust assessment of local code applicability for all involved municipalities.

Exhibit 32 – State Reviews, Permits and Approvals

1. The project is likely to require issuance of a Clean Water Act §401 Water Quality Certification for both the Article 10 facilities and the Article VII facilities. The Siting Board and/or the Public Service Commission would be the issuing agency(ies). DPS will advise the applicant of appropriate timing for requesting such Certification upon advancement of project development and the pre-application process.
2. Any facility interconnection to the NYPA 230 kV Moses- Willis-Plattsburgh transmission line is likely to require an amendment to the Certificate of Environmental Compatibility and Public Need issued to NYPA by the PSC in Case 26680; and potentially a change to the approved Environmental Management and Construction Plans for that facility. Staff will discuss this with the Applicant as project scoping advances.

Exhibit 33 – Other Applications and Filings

1. Section 33.2 – Other Approvals – This section does not describe the Applicant’s efforts to participate in the clean energy market in New England States (Connecticut, Massachusetts and Rhode Island as “The Wind and Hydro Response” (as described at project website <http://vermontgreenline.com/faqs>)). Applicant should provide unredacted copies of its submittals from that proceeding. Also, the Applicant should identify any needed tariffs, approvals,

permits or contracts with federal or state agencies or regional system operators for the proposed Project.

Exhibit 35 - EMF Study

1. Staff expects the Applicant will complete an EMF study for the Application at summer normal rating (by the manufacturer) for the conductor and the winter normal rating (by the manufacturer) for the conductor. The electro static study shall be done at a voltage 1.05 time the normal line rating.

Letter to the PSC from Applicant

1. The Applicant states that copies of the PSS were mailed to those individuals on the service list (Attachment 1) but it is unclear as to whether all stakeholders were mailed a copy of the PSS. Please confirm this.

Attachment A - Service List

1. Mr. James Denn is noted as the contact person for DPS as the Public Information Officer. Mr. Denn should be listed as the contact for inquiries. This contact should be updated to include Kathleen H. Burgees, Secretary to the Commission to whom comments should be submitted.
2. A master stakeholders list should be added to include and reference those parties on the service list.

Attachment 3

1. Staff notes that the Applicant did not include the case number on correspondence to Assemblywoman Duprey nor Senator Little. The case number should be referenced on all documents so it can be easily identified with the specific case. This is essential information that should be included in all the Applicant's correspondence and outreach efforts (including to DPS Staff, Stakeholders and interested parties).