

**PUBLIC SERVICE COMMISSION
OF WEST VIRGINIA
CHARLESTON**

At a session of the PUBLIC SERVICE COMMISSION OF WEST VIRGINIA in the City of Charleston on the 26th day of November, 2008.

CASE NO. 08-0109-E-CS

AES Laurel Mountain, LLC, a limited liability company, Arlington, Virginia.

Application for a siting certificate to authorize the construction and operation of a wholesale electric generating facility in Barbour and Randolph Counties, West Virginia.

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COMMISSION ORDER

This Order addresses the application filed by AES Laurel Mountain, LLC (Laurel Mountain) for a siting certificate for the Laurel Mountain wind turbine project more fully described in this decision. Given the current political, statutory and regulatory climate regarding carbon-based generation, the need for alternative sources of "fuel" for electric energy, and the reported number of wind turbine projects that are investigating locating in West Virginia, these wind power cases (and possibly other sources of generation) by exempt wholesale generators will likely come before the Commission on an increasingly frequent basis. The Commission reviews each of these wind turbine proceedings in detail, not only because of the need for the alternative energy that they may promise, but just as importantly because of the significant and conflicting reaction to wind turbines.

It appears that no one is indifferent to wind turbines. Some people view wind turbines as stately, regal and attractive – a source of needed and essential tax revenue and employment for some of this State's struggling counties. Others view them as hulking, mechanical intrusions on the idyllic and majestic mountains of our State. Unfortunately, the Commission is called upon in these proceedings to make decisions that will not, regardless of our best efforts, satisfy these competing and conflicting views and interests.

We are not aided in our task by any statutory (or regulatory) prejudgment of the merits of wind turbine projects generally. Our task is not to side with one group or the other; rather, our charge is to apply the facts as developed in an extensive proceeding before this Commission against the statutory and regulatory framework that has been established for testing whether any given project should be certificated.

It is under that framework, and based upon a thorough review of the evidence, that the Commission will grant a siting certificate to Laurel Mountain for a wholesale electric generating facility consisting of up to 65 wind turbines and related interconnection facilities (the Project) in Randolph and Barbour Counties, subject to the terms and conditions set forth in this Order.

I. PROCEDURAL HISTORY¹

The Application

On January 31, 2008, Laurel Mountain filed an Application for a Siting Certificate² (Application), pursuant to W. Va. Code § 24-2-11c, to authorize the construction and operation of a \$250 million wind turbine wholesale electric generating facility, including related interconnection facilities. Laurel Mountain proposes to construct up to 65 wind turbines on an eight-mile stretch of the Laurel Mountain ridgeline about three miles east of Belington in Barbour County and three miles northwest of Elkins in Randolph County. Laurel Mtn. Ex. 1 pp. 1-1, 1-2.

Laurel Mountain stated that the Project will be located within 8,500 acres of leased land that consists primarily of mountainous timbered forest. About 75 acres will be required for the Project's final footprint. Laurel Mtn. Ex. 1 pp. 3-2. Laurel Mountain is leasing the land from several timbering companies and private landowners. Id. p. 11-2. Logging will continue during Laurel Mountain's lease of the property. Id. p. 14-1.

There are four residences within one-half mile of the Project. More than 2,000 feet separate the closest home and turbine. Laurel Mtn. Ex. BES-D pp. 7-8.

According to the Application, Laurel Mountain selected this particular site because it has an excellent wind resource; the Project can meet the growing demand for electricity in the PJM³ service territory; the landowners support the Project; the Project is located away

¹ The Table of Contents and Headings are provided purely as a convenience to the reader. Material or discussion under one heading may also relate to material or discussion under another heading. In all events, the substantive content of the Commission's order, and not the wording or placement of any heading, controls.

² Laurel Mountain's Application consisted of 3 volumes in excess of 1,300 pages, including 11 tables, 27 figures and 21 appendices, and was filed in accordance with the Commission's Rules Governing Siting Certificates for Exempt Wholesale Generators (Siting Rules), 150 C.S.R. Series 30. Laurel Mountain numbered the pages of its Application and related materials beginning with a section and then the specific page of that particular section. Thus, page 1-2 refers to Section 1, page 2, and not to pages 1 through 2. For the sake of consistency, the Commission will follow the same numbering format when referring to the Application.

³ PJM Interconnection Association, a regional transmission organization (RTO), coordinates the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia; operates a wholesale electricity market; and manages a long-term regional electric transmission planning process to maintain the reliability of the power supply system.

from sensitive receptors such as residences and recreational areas and near an existing electric transmission line; the Project is compatible with continued timber harvesting; and environmental impacts are expected to be minimal. Laurel Mtn. Ex. 1 p. 7-3; Laurel Mtn. Ex. BES-D pp. 9-10.

Laurel Mountain asserted that neither the Project nor the related interconnection facilities is a utility providing service to the public, and there will be no direct financial impact to West Virginia ratepayers from the construction and operation of the Project. Laurel Mtn. Ex. 1 App. B (Form 2, p. 2). Rates charged for electricity from the Project will be subject to regulation by the Federal Energy Regulatory Commission (FERC), and Laurel Mountain intends to file a market-based rate schedule with FERC for negotiated rates. Id.

According to the Application, the Project will be capable of generating between 125 and 132.5 megawatts (MW⁴) to an existing Allegheny Power 138 kilovolt (kV) overhead transmission line that crosses Laurel Mountain about midpoint between the Belington and Lough's Lane substations of Allegheny Power. Laurel Mtn. Ex. 1 pp. 1-2, 1-3.

A collector system of buried cables will conduct electricity from each of the wind turbines to a new substation. New interconnecting lines will convey the Project's electricity from the new substation to the existing 138 kV transmission line where it crosses the Project. Laurel Mtn. Ex. 1 p. 4-1. Laurel Mountain will bear all of these costs and the costs for any other upgrades necessary for the Project to deliver its electricity to the Allegheny Power transmission line. Tr. p. 56 (B. Sweitzer) (Aug. 4, 2008); Laurel Mtn. Ex. BES-D pp. 8-9; Laurel Mtn. Ex. 1 p. 1-3.

Laurel Mountain will enter into agreements with PJM to govern the Project's operation and interconnection with the 138 kV transmission line. The terms of the PJM Open Access Transmission Tariff, on file with FERC, will govern the transmission of the Project's electricity across PJM's facilities. According to the Application, the PJM feasibility study indicates that there is adequate line capacity to accept 125 MW from the Project. Laurel Mtn. Ex. 1 p. 1-3 & App. H p. 5.

According to the Application, Laurel Mountain will obtain 40 to 60 percent of the Project funding through equity, and the remainder of its funding will be borrowed. No public funds will be used, and there are no agreements with public entities regarding the Project. Laurel Mtn. Ex. 1 p. 12-1.

After construction is complete, Laurel Mountain expects to be one of the largest taxpayers in these counties, contributing more than \$450,000 per year in taxes and payments to the two counties and approximately \$340,000 per year in State taxes. Laurel Mtn. Ex. 1 p. 12-3.

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A megawatt is enough electricity to power 800-1,000 homes.

The Project will result in about 150 construction jobs and eight or nine permanent jobs when the generating facility is operational. Laurel Mtn. Ex. 1 p. 12-2; Form 1 p. 2. Laurel Mountain currently plans to construct the Project in 2009 and begin commercial operation by the end of 2009. Laurel Mtn. Ex. 1 p. 1-4.

Under the requirements of W. Va. Code § 24-2-11c(b), the Commission must issue its final order in this proceeding by November 26, 2008.

Initial Public Notice & Comment Letters

The Commission received hundreds of letters in support of and in opposition to the Project after Laurel Mountain filed the Application. By the end of October, 2008, the comment letters in support of the Project numbered nearly 600, and the number of comment letters in opposition approached 300.

Laurel Mountain published notice of the Application on February 13, 2008, in Kanawha County in *The Charleston Gazette*, in Randolph County in *The Inter-Mountain*, and in Barbour County in the *Barbour Democrat*. See Affidavits of Publication (filed February 25, 2008).

Laurel Mountain also placed a copy of the Application at the Elkins-Randolph County Public Library and the Belington Public Library. Laurel Mtn. Ltr. p. 1 (Feb. 28, 2008).

Request for Waiver of Filing Requirements; Interventions

On April 9, 2008, the Commission granted a request of Laurel Mountain for a waiver of certain certificate application filing requirements. Because the Commission's jurisdiction, by law, is limited regarding the operations of the Project, the Commission did not require Laurel Mountain to file information that relates to the traditional public utility model under which the Commission establishes rates for service based on the cost to the utility to provide that service. Comm'n Order pp. 3, 11-12.

On April 9, 2008, the Commission granted the petitions to intervene filed on February 8, 2008, by the West Virginia State Building and Construction Trades Council, AFL-CIO (Trades Council) and on February 22, 2008, by the Laurel Mountain Preservation Association, Inc. (LMPA). Comm'n Order p. 12.

Motions for Protective Treatment

Rule 3.1.1.2 of the Siting Rules requires Laurel Mountain to file certain financial statements for each year of the start-up phase and for the first five years of project operation, and these financial statements must disclose all assumptions. Laurel Mountain filed part of the financial data under seal, arguing that the information was confidential and proprietary

and constituted trade secrets because it provides insight into the business plans and strategies of Laurel Mountain to implement the Project. On April 9, 2008, the Commission agreed that the information constituted trade secrets under W. Va. Code § 29B-1-4(1) and granted the request for protective treatment to Laurel Mountain. Comm'n Order pp. 6, 10, 11-12.

With the Application, Laurel Mountain filed a preliminary Transportation Study that contained recommendations for access roads to transport and install Project equipment and estimated costs to improve existing roads and construct new ones, but the names of certain tracts of land and some of the costs were redacted. See Laurel Mtn. Ex. 1 App. G. Thereafter, Laurel Mountain provided the redacted information to LMPA pursuant to a protective agreement. In response to discovery requests, Laurel Mountain also provided raw wind data to LMPA pursuant to a protective agreement.

On June 9, 2008, Laurel Mountain requested protected treatment of the raw wind data and the information redacted from the preliminary Transportation Study, arguing that the information has substantial commercial and competitive value and that the information is a trade secret that should be protected from public disclosure under West Virginia law. On July 31, 2008, the Commission concluded that Laurel Mountain's raw wind data and the information redacted from the preliminary transportation study constituted trade secrets and granted Laurel Mountain's second motion for protected treatment. Comm'n Order pp. 7, 8-9.

Public Comment Hearings and the View by the Commission

Laurel Mountain published notice of the public comment hearings on April 29, 2008, in Kanawha County in The Charleston Gazette, and on April 30, 2008, in Randolph County in The Inter-Mountain and in Barbour County in the Barbour Democrat. See Affidavits of Publication (filed May 20, 2008). The Commission conducted public comment hearings in Elkins and Philippi on May 7, 2008.. A total of 36 people commented at the two hearings, with 22 people speaking in Elkins and 14 people speaking in Philippi. At the Elkins hearing, public comment and reaction were equally mixed, with speakers about evenly split for and against the Project. At the Philippi hearing, the majority of the public speakers favored the Project, citing both the Project's economic benefits as well as the country's need for clean, renewable energy.

On May 8, 2008, the Commission participated in a View of the Project area, beginning at 10 a.m., at the Train Depot Station in Elkins. Representatives of Staff, LMPA, Laurel Mountain and Trades Council conducted and participated in the View, which lasted until mid-afternoon.

The Commission went to Viewpoints that were jointly recommended on April 22, 2008, by Laurel Mountain, Staff, LMPA and Trades Council:

1. Train Depot Area in Elkins
2. Randolph County Courthouse

3. Montrose Post Office
4. Allegheny Highland Bike and Hike Trail (beginning at Montrose and continuing along Route 219 until Elkins)
5. Crest of Laurel Mountain (by way of Laurel Mountain Road)
6. Approximate midpoint of Project Area on Laurel Mountain
7. Laurel Hill Battlefield
8. Belington
9. Hunter Fork Road
10. Church parking lot near intersection of Stringtown and Route 92
11. Industrial Park near Belington
12. Proudfoot Road
13. Return to the Train Depot in Elkins

From Elkins, the Commission traveled north on U.S. Route 219 to the Montrose Post Office. During the View, LMPA suggested that instead of returning south on U.S. Route 219 from the Montrose Post Office to the next Viewpoint, the Commission could travel on a more rural road, County Route 1. No one objected, and the View proceeded on the route proposed by LMPA. The Commission and each of the parties traveled in separate vehicles during the View.

At each Viewpoint, one of the parties read a description of the Viewpoint that had been filed on May 5, 2008. The descriptions were required to be prefiled to provide appropriate information to the Commission and to limit significant extemporaneous discussions among the Parties during the View. At each Viewpoint, the Commission asked only clarifying questions about the Viewpoint that were answered by the parties. None of the questions addressed the merits of the Project. A court reporter was not present during the View.

Pre-filed Testimony

On March 26, 2008, Laurel Mountain prefiled the direct testimony of its witnesses:

1. Barry E. Sweitzer - siting application and policy decisions;
2. Samantha Hard - environmental issues, permits, and authorizations;
3. Trevor Peterson - bird and bat studies;
4. Judith Bartos - viewshed mapping and photosimulations;
5. Anthony Agresti - noise;
6. Robert D. Wall, Ph.D. - archaeology and relations with the State Historic Preservation Office (SHPO);
7. Geoffrey Henry - architecture and SHPO; and
8. Patricia D. Fleischauer - energy generation and economic modeling.

On June 13, 2008, Trades Council pre-filed its direct testimony:

1. Darwin Snyder - local worker agreement; and
2. Michael Jin - Project's economic impacts (IMPLAN study).

Also on June 13, 2008, LMPA prefiled the direct and rebuttal testimony of its witnesses:

1. Arthur W. Dodds, Jr. - Association's purpose, viewshed and omitted landmarks;
2. Pamela Dodds, Ph.D. - surface and groundwater effects;
3. Charles Simmons - the need for new generation;
4. Michael R. Gannon, Ph.D. - bats;
5. Richard R. James - noise; and
6. Patricia Balamenti - noise from Backbone wind project.

On July 3 and 7, 2008, Staff prefiled the direct and rebuttal testimony of its witnesses:

1. Dixie Kellmeyer - financial review; and
2. Wayne Perdue - engineering review.

On July 25, 2008, Laurel Mountain prefiled the rebuttal testimony of the following witnesses addressing issues raised by LMPA and to some extent Staff: Barry E. Sweitzer, Trevor Peterson, Samantha Hard, Kenneth Cormier, Robert Polcyn⁵, Anthony Agresti, and Judith Bartos.

Evidentiary Hearing

In this case, the Commission has reviewed 25 prefiled direct and rebuttal testimonies and exhibits of twenty witnesses, consisting of more than 450 pages of record evidence. The Commission also conducted the evidentiary hearing on August 4, 5 and 6, 2008, which resulted in a 622-page transcript. In this Order, the transcripts are cited by the page number and the date of the hearing. References to prefiled direct and rebuttal testimonies of witnesses are cited to the page number and the exhibit identification that appears in the transcripts.

Laurel Mountain published notice of the evidentiary hearing on July 24, 2008, in Randolph County in *The Inter-Mountain*, on July 25, 2008, in Kanawha County in *The Charleston Gazette*, and on July 30, 2008, in Barbour County in the *Barbour Democrat*. See Affidavits of Publication (filed Aug. 1, 2008).

⁵ Messrs. Cormier and Polcyn were rebuttal witnesses only. Laurel Mountain did not prefile direct testimony from these two witnesses.

Briefing

Trades Council filed its initial brief on September 11, 2008. Laurel Mountain, Staff and LMPA filed their initial briefs on September 12, 2008.

Trades Council filed its reply brief on September 25, 2008. Laurel Mountain, Staff and LMPA filed their reply briefs on September 26, 2008.

II. DISCUSSION OF ISSUES AND EVIDENCE

A. Statutory Test

W. Va. Code § 24-2-11(c) provides as follows:

In deciding whether to issue, refuse to issue, or issue in part or refuse to issue in part a siting certificate, the commission shall appraise and balance the interests of the public, the general interests of the state and local economy, and the interests of the applicant. The commission may issue a siting certificate only if it determines that the terms and conditions of any public funding or any agreement relating to the abatement of property taxes do not offend the public interest, and the construction of the facility or material modification of the facility will result in a substantial positive impact on the local economy and local employment. The commission shall issue an order that includes appropriate findings of fact and conclusions of law that address each factor specified in this subsection. All material terms, conditions and limitations applicable to the construction and operation of the proposed facility or material modification of the facility shall be specifically set forth in the commission order.

The Commission views this statute as setting forth a two-part balancing test that the Commission more fully explained in Longview Power LLC, Case Number 03-1860-E-CS (Comm'n Order Aug. 27, 2004) (Longview Project⁶). The Commission explained its two-part analysis on page 102 of its June 26, 2006 approving the Longview Project:

In Part One of the analysis, the Commission performs its duty to appraise and balance: (a) an applicant's interest to construct an electric wholesale generating project; (b) the State's and region's need for new electrical generating plants; and (c) the economic gain to the State and the local

⁶ Longview Power LLC, Case Nos. 03-1860-E-CS & 05-1467-E-CN (Comm'n Order June 26, 2006); see also, Liberty Gap Wind Force, LLC, Case No. 05-1740-E-CS (Comm'n Order pp. 39-40 June 22, 2007).

economy, against: (i) community residents' interest in living separate and apart from such project; (ii) a community's interest that a project's negative impacts be as minimally disruptive to existing property uses as is reasonably possible; and (iii) the social and environmental impacts of the proposed project on the local vicinity, the surrounding region, and the State.

The Commission performs Part Two of its analysis only if it determines in Part One that, taken as a whole, positive impacts relating to the various interests outweigh the negative impacts on the various interests. (See *West Virginia Code* § 24-2-11c(c)). In Part Two the Commission decides whether a project's public funding, if any, and property tax abatement, if any, offends the public interest. (*West Virginia Code* § 24-2-11c(c)).

Within the second part of Part One, the Commission considers issues such as the Project's impact on viewshed, wildlife, ambient sound levels and water resources.

B. The Commission's Application of Part One

1. Part One (a) - The Interest of Laurel Mountain to Construct the Project

Laurel Mountain argues that it has established a significant interest in developing the Project by providing the Commission with detailed information concerning the Project; devoting substantial resources to obtaining a Siting Certificate, various permits and the real estate interests necessary to construct and operate the Project; committing to make a \$255 million investment to construct the Project in West Virginia; and committing to coordinate its activities with the Commission and other state and federal agencies. Laurel Mountain Initial Brief at pp. 7-8.

As mentioned earlier, Laurel Mountain submitted a "substantial" Application. See Fn. 2 above. This Application is the seventh filing at the Commission related to wind turbine projects. Each filing becomes more comprehensive and seems to improve on the last, at least as to format. In fact, Staff commended Laurel Mountain for filing a thorough and complete application and argued that Laurel Mountain has demonstrated sufficient interest by continuing to pursue its application for a Siting Certificate. Staff's Initial Brief p. 5.

LMPA argued, however, that Laurel Mountain has not established a pressing need to construct the Project and that the Project is not crucial to the financial health of the parent corporation of Laurel Mountain. LMPA also argued that the lack of a contract to sell the Project electricity reflects that Laurel Mountain does not have a sufficient interest in constructing the Project. LMPA Initial Brief p. 4.

In response, Laurel Mountain argued that it need not demonstrate that constructing the Project is crucial to the financial health or construction plans of its parent corporation. Laurel Mountain Reply Brief p. 4. Laurel Mountain also asserted that the current lack of a

power purchase agreement for the Project has never been a determinative component of the Commission's analysis. Id.

The Commission concludes that Laurel Mountain has demonstrated a sufficient interest in constructing the Project. Laurel Mountain retained various technical experts and developed detailed information in support of its Application; it has expended substantial time and economic resources to apply for a siting certificate, to pursue various other required permits and to obtain the real estate interests necessary to construct and operate the Project; it is prepared to make a significant investment to construct and operate the Project in West Virginia; and it has committed to coordinating its activities with the Commission and other state and federal agencies. Laurel Mountain does not need to establish that the Project is crucial to the construction plans or financial health of its parent corporation. Laurel Mountain has demonstrated that it has a legitimate business purpose in undertaking the Project. Further, it is not necessary for Laurel Mountain to contract for the sale of the Project electricity prior to Laurel Mountain even obtaining a Siting Certificate to authorize the Project's construction and operation. As discussed below, with or without a contract at this point of project development, there can be no doubt that there is demand for the generation.

2. Part One (b) - The Need for Generating Plants in the State and Region

Generation Fueled by Renewable Resources

Laurel Mountain argues that, under the federal policy on wholesale power, market forces guide where and when investments in electric generation facilities should and will be made. If there was no demand for the particular mix of energy, capacity, and other attributes that the Project offers, Laurel Mountain would not be developing it. Laurel Mtn. Ex. BES-R p. 16. Commission Staff also argues that the Commission should encourage the development of electricity generation from renewable resources, consistent with the federal Energy Policy Act and the tremendous public pressure to critically examine carbon-based generation. Staff Initial Brief p. 4.

The Energy Policy Act of 2005, P.L. 109-58, among other things, amended certain sections of the United States Code to encourage the use and development of renewable energy resources. See Title II of P.L. 109-58. Moreover, no West Virginia statutes or legislation suggest that wind turbines are either an inappropriate or unwarranted source of new electric generation in this State.

As indicated, the Commission is aware of the considerable public interest in the development of generating facilities that use renewable energy sources. Several states, but not yet West Virginia, have adopted Renewable Portfolio Standards that require a certain percentage of electricity sold to customers come from green sources of generation.

Further, even in this State, with its strong ties to coal-fired generation, local electric utilities are examining "green power" options. Appalachian Power Company, for instance,

recently submitted, and the Commission approved, a "green power" tariff option for its customers. See, Appalachian Power Co., Case No. 08-0493-E-T (Comm'n Order Sept. 8, 2008). About one year ago, the Commission approved APCo's entry into two contracts for wind power. Appalachian Power Co., Case Nos. 07-1731-E-PC & 07-1848-E-PC (Comm'n Order Dec. 21, 2007). Furthermore, APCo has recently filed an application to buy electric energy from wind turbines which recently received a Siting Certificate. Appalachian Power Co., Case No. 08-1600-E-PC, citing Beech Ridge Energy, LLC, Case No. 05-1590-E-CS.

This Commission should not be expected to check its common sense at the door or to otherwise ignore the common and everyday pressures and influences that shape public policy in this state and in the nation. Based on our experience, and as a matter of public policy, the Commission concludes that, absent statutory guidance to the contrary, it is reasonable to encourage the development of diversified sources of fuel to generate electricity, and it is reasonable to include renewables, such as wind, among those diversified sources. Unlike some other natural resources, when wind is used to generate electricity, wind supplies are not depleted.

Capacity to Meet the Needs of the Region

In its Application, Laurel Mountain noted that the PJM 2007 Load Forecast Report predicted an average summer peak load growth of 1.6 percent per year during the next ten years and 1.5 percent per year each of the five years thereafter. As a result, the PJM summer peak is predicted to reach 159,822 MW in 2017 and 171,295 MW in 2022. The PJM winter peak load is projected to increase 1.1 percent per year over the next fifteen years, with the winter peak load forecast to reach 126,135 MW in 2015-16 and 132,686 MW in 2021-22. Laurel Mtn. Ex. 1 p. 2-1. As operating and maintenance costs escalate and environmental regulations evolve, pressure to retire older fossil-fueled facilities is expected to increase. Id. Laurel Mountain argued that its project would help fill the expected needs.

LMPA challenged the need for the project because PJM recently announced that it has 159,780 MW of committed capacity for summer 2008, which essentially is equal to the demand projected for 2017. LMPA Ex. CS-D p. 4 (C. Simmons).

Laurel Mountain argues, though, that the LMPA position presumes no units would be retired and those wholesale generators, who have access to other markets, will not choose to sell in those other markets. Laurel Mtn. Ex. BES-R p. 14.

In response, LMPA noted that Laurel Mountain could not identify a single generating facility in the PJM region currently slated for retirement. LMPA Initial Brief p. 5, citing Tr. p. 64 (Aug. 4, 2008) (B. Sweitzer). LMPA also asserted that older units, instead of being retired, are commonly retrofitted to extend their useful lives. LMPA Initial Brief p. 5 n. 1.

In our estimation, it is reasonable to expect that federal environmental regulations will be enacted to control and monitor greenhouse gases, including carbon emissions, but there

is not yet agreement about how the federal government will address those emissions. Until that policy has been enacted, the Commission cannot begin to estimate whether retrofiting will continue to contribute to added capacity. Instead the primary benefit of retrofiting could be to allow existing plants to remain productive. It simply is too early to tell.

Again, while the current downturn in economic activity and the dismal performance of the financial market indicate some difficult "sledding" ahead for the state and nation over the near term, the long term need for "renewable resources" fired generation, both to meet the need for new generation and to ease some of the concerns about carbon-based generation pending further technological development, is clear.

The Commission finds that the LMPA criticism of the need for additional generation does not reflect that PJM must secure committed capacity that considerably exceeds any particular summer expected peak. The PJM press release, upon which LMPA relies, states in pertinent part

The projected weather-adjusted highest demand for electricity in summer 2008 is 137,950 megawatts (MW) . . . PJM has 159,780 MW of committed capacity for the summer.

Thus, to adequately plan to meet the electricity needs of the region for summer 2008, PJM secured 159,780 MW of committed capacity, or considerably more MW than the 137,950 MW that was projected as the summer peak need. It follows, then, that to deliver 159,822 MW in summer 2017, PJM will need to secure considerably more than 159,822 MW of capacity for 2017.

Despite Laurel Mountain's inability to name a specific unit that will be taken from service, it is true that some older generating units may be expected to be retired, particularly if they cannot be reasonably and economically retrofitting. It likewise is true that generating units are sometimes retrofitting, to extend their useful lives. It has been our experience that retrofitting units can be helpful in providing additional generating capacity to meet future needs, but retrofitting units has not, to date, been sufficient to keep up with increasing demand.

For all of these reasons, the Commission concludes that the allegations of LMPA in this regard do not rebut Laurel Mountain's showing of need for the Project.

LMPA further argued that PJM does not need new capacity to provide reliable service within its service area, and particularly within West Virginia. LMPA Ex. CS-D p. 4 (C. Simmons). The group argued that West Virginia possesses a surplus of generation capacity as compared to the amount of electricity consumed within West Virginia, and the surplus is expected to persist well into the future. LMPA Ex. CS-D at pp. 7-8 (C. Simmons); LMPA Initial Brief pp. 4-5.

As noted by Laurel Mountain and Staff, the Commission has consistently recognized that this state is part of a regional integrated electricity grid. Staff's Initial Brief pp. 5-8; Laurel Mtn.'s Initial Brief p. 10, citing Comm'n Order p. 76, Beech Ridge, Case No. 05-1590-E-CS (Aug. 28, 2006) (Concl. of Law 14) (“[I]t is not in the public interest for this Commission to isolate West Virginia from the region. The power grid is interconnected, and to safeguard the availability of productive, well-maintained resources to our state’s residents, West Virginia must participate in the interconnected electric system.”); see also Comm'n Order p. 11, Trans-Allegheny Interstate Line Co., Case No. 07-0508-E-CN (Aug. 1, 2008). Laurel Mountain also makes the point in a slightly different way: “It would be difficult to assert that West Virginia should halt the manufacture of glass or the harvesting of timber simply because these businesses create goods in excess of the particular demand in West Virginia.” Laurel Mtn. Reply Brief p. 10.

The Commission has previously rejected arguments such as those raised by LMPA. Whenever West Virginians need to draw power from outside of the state, for whatever reason, West Virginia facilities must be an active part of the national grid; moreover, in a recent order the West Virginia Supreme Court recognized the legitimacy of the Commission’s approach: “The Commission recognized the long term benefits to the State's residents in having West Virginia participate responsibly in the electric industry as well as ensuring the future availability of electricity to the State's residents.” MCRE v. PSC, Docket Nos. 33375 & 33376, per curiam opinion p. 4 (June 23, 2008). In the pending case, LMPA has presented no reason for the Commission to depart from that policy.

Contribution to Meet Highest Annual Hourly Peak

In this proceeding, LMPA has asserted that the need for generation capacity should be calculated by adding an adequate reserve to the highest annual hourly peak demand. Because wind generation is typically at low levels during the hottest times of the year when the highest annual hourly peak demand occurs, LMPA asserted that wind power’s contribution to meeting the need for peak generation capacity is limited. LMPA Ex. CS-D p. 5 (C. Simmons).

Everyone involved in this proceeding, including the Commission, appreciates and understands some of the practical limitations of wind power, but as argued by Staff and Laurel Mountain the Commission considers more than the highest annual hourly peak demand in assessing whether there is need for a generating plant. Staff Initial Brief pp. 5-8; Laurel Mtn. Initial Brief pp. 11-12, citing Comm'n Order p. 76, Beech Ridge, Case No. 05-1590-E-CS (Aug. 28, 2006) (Concl. of Law 15). In Beech Ridge we said that these concerns do not change the fact that wind turbines can power thousands of homes, even at their lowest productivity, and that the output of the project will assist in meeting the peak summertime demands.

Laurel Mountain established that even when the wind is not at its strongest, the Project will operate, and the Project will likely generate significant amounts of power during

other peak load situations. Laurel Mountain also presented in rebuttal evidence that the maximum annual peak hour is not the only “peak” load that the PJM region experiences, as there are peaks that occur based on fluctuations in demand every day, and certainly on many of these days, the Project will operate at a significant load or even at full load during the daily peak hours. Laurel Mountain also established that there will also be other seasonal peaks – especially the winter peak – during which the Project can be expected to generate at high levels. Laurel Mtn. Ex. BES-R pp. 12-13 (B. Sweitzer). As we concluded in Beech Ridge, the Laurel Mountain Project output is well-suited to deliver electricity in the winter, when demand peaks due to heating.

Effect Upon Coal-Fired Units

LMPA also argued that delivering wind-generated supplies to the grid can contribute to load management problems for coal-fired generation units. LMPA Ex. CS-D p. 12 (C. Simmons). Operating coal-fired units much below one-half of their rated capacity can be problematic unless the flame can be stabilized by supplemental oil firing. Although a coal-fired unit can be removed from service, removing a unit could also require oil firing for a portion of the re-start period, which can range from eight to twenty-four hours. Id. LMPA thus suggested that the addition of wind-generated supplies could be detrimental overall. Tr. p. 189 (Aug. 5, 2008) (C. Simmons).

In response, Laurel Mountain agreed that a coal-fired facility may burn some oil for flame stabilization when operating at minimum levels, but argued that the addition to the grid of electricity generated by a wind facility would not drive a large base-load coal plant to such minimum levels. Laurel Mountain also asserted that if any generation levels must be reduced because of the delivery of wind-generated electricity supplies, the reduction would affect several facilities, including gas-fired plants, and not a single generation plant. Furthermore, Laurel Mountain argued that wind energy projects are not constructed to serve a peak hourly output on a given day, but rather to provide energy generation from a clean, renewable resource that has no fuel cost component, which insulates wind projects from fuel price escalation during their operating lives. Laurel Mtn. Ex. BES-R p. 12 (B. Sweitzer).

The Commission is not persuaded that the addition to the grid of electricity generated by this Project will drive a large base-load coal plant to minimal operational levels and require that plant to consume oil for flame stabilization or re-start. The Laurel Mountain Project is anticipated to have an annual capacity factor of 27-34%. Virtually all of West Virginia’s electricity demand is met by coal-fired generating units owned by West Virginia utilities. The Commission can find no basis in this record to be concerned that this Project would drive down a large coal-fired generating plant to minimal operational levels.

As explained more fully herein, it is in the public interest to develop diversified sources of fuel to generate electricity, including renewables such as wind; additional generation capacity is needed to meet PJM’s projected load forecast; it is in the public interest for West Virginia to participate in the interconnected electric system; the Project will

power thousands of homes at its lowest level of productivity, and its output is well-suited to deliver electricity in the winter, when heating demand peaks, and may assist in meeting the peak summertime demands. For all of these reasons, the Commission concludes that Laurel Mountain has demonstrated sufficient need for this Project.

3. Part One (c) - The Economic Gain to the State and the Local Economy

Laurel Mountain asserted that the Project would have a significant positive impact on the economy during construction, generating \$17 million to \$28 million in state and local economic activity and supporting up to 279 jobs, with 151 of them being for construction workers. Laurel Mtn. Initial Brief pp. 8-9, citing Laurel Mtn. Ex. PDF-D pp. 5-6 (P. Fleischauer).

Laurel Mountain evaluated the Project's impact using the Job and Economic Development Impact (JEDI) model designed by the National Renewable Energy Laboratory in 2002 to estimate the economic impacts associated with the construction of wind power projects in the United States. Laurel Mtn. Ex. PDF-D p. 3 (P. Fleischauer). Ms. Fleischauer testified that the assumptions she used in the JEDI model are conservative. Id. pp. 4-6. For example, the Project was assumed to have a capacity of 97.5 megawatts. Id. She testified that the economic benefits would continue for the life of the Project, expected to be approximately 30 years. Id.

Laurel Mountain also noted that it has entered into a Memorandum Agreement with the local unions that provides reasonable assurances that local workers will be hired to construct the Project. Laurel Mtn. Initial Brief pp. 8-9, citing Building Trades Ex. 2 p. 2.

During operations, Laurel Mountain estimated that the Project would employ about nine people and generate \$1.5 million to \$2.68 million annually for the local economy. Laurel Mtn. Initial Brief pp. 8-9, citing Laurel Mtn. Ex. PDF-D p. 6. Laurel Mountain also estimated that it would be one of the area's largest taxpayers, paying more than \$450,000 per year in Randolph and Barbour Counties and approximately \$340,000 per year in State taxes. Laurel Mtn. Ex. 1 p. 12-3; see also Laurel Mtn. Ex. BES-D p. 13.

Based on this information, Laurel Mountain argued that this Project would have positive economic benefits for the citizens of Randolph and Barbour Counties and for the state. Laurel Mtn. Initial Brief pp. 8-9.

Trades Council witness, Michael Jin, testified the Project would result in a substantial positive impact on the local economy and local employment and positively impact the state economy as the result of substantial increases in sales, taxes, business activities and jobs. Trades Council Ex. 1 p. 6 & attached Report (M. Jin). Mr. Jin's report sets out the economic impact in terms of direct, indirect and induced effects for new business sales, new jobs, new wages, income for the self-employed, corporate profits and new taxes generated. His report was developed using economic simulation software called IMPLAN, which is an

input-output model program developed by the United States Forest Service and maintained by The Minnesota IMPLAN Group. Id.

Mr. Jin testified that during the ten-month construction period, the Project would require about 150 workers and generate \$43.1 million in business sales for West Virginia companies. Report p. 1, attached to Trades Council Ex. 1 (M. Jin). In addition, Project construction would create 158 more jobs in the trucking, wood products, business and professional services, retailing and wholesale industries. Id. The new wages for the construction and other new jobs would total \$14.4 million. Jin Report p. 2. Profits for the self-employed would be \$0.9 million, and corporate profits would be \$2.8 million. Id. State government would receive \$1.4 million in taxes, and the federal government would take in \$3.3 million. Id.

Darwin Snyder, president of the North Central West Virginia Building and Construction Trades Council, AFL-CIO, testified that Memorandum Agreement entered with Laurel Mountain in May of 2008 “ensures to the greatest extent reasonably possible” that local workers will be hired to construct the Project. Trades Council Ex. 2 p. 2 (D. Snyder) & Attachment. He testified that the construction would be a lot of work for union members and that the size of the Project would have a positive impact on the local economy and local employment.

Trades Council argued that, based on the evidence, the Commission can only come to one conclusion – that this Project is in the best interests of the state and local economy and that the construction would have a substantial positive impact on the local economy and local employment. Building Trades Initial Brief pp. 4-7.

Commission Staff did not present any specific economic evidence that urged the Commission to conclude that the Project had significant economic benefits. Staff’s Initial Brief pp. 8-10.

LMPA also did not present any evidence regarding economic impact, but in briefing challenged the studies and testimony of Laurel Mountain and Trades Council as speculative and argued that any economic gain, after the initial construction period, would be minimal and largely temporary. LMPA Initial Brief pp. 8-12.

In reply, Laurel Mountain argued that the economic evidence in this case was uncontested and criticized LMPA for refusing to acknowledge the existence of positive economic attributes from this Project. Laurel Mtn. Reply Brief p. 3. Both Laurel Mountain and Trades Council argued that there was no evidence to support the economic allegations set forth in LMPA’s Initial Brief. Id.; Trades Council Reply Brief pp. 2-3.

The Commission finds that evidence regarding economic impact was provided from two different economic simulation models and the results were consistent and uncontested. Therefore, it is reasonable for the Commission to conclude that there will be a significant

economic gain to both the state and local economy. Not only will the Project create some 150 local construction jobs and several permanent jobs thereafter, the Project will provide significant tax revenues for local governance and public education.

4. Part One (i) – Community Residents’ Interest in Living Separate from the Project
- Part One (ii) – The Project’s Negative Impacts be Minimally Disruptive to Existing Uses
- Part One (iii) – The Project’s Social and Environmental Impacts

The parties (not surprisingly) differ on whether aspects of the Project involving viewshed, noise, bats and water result in negative social and environmental impacts, and if so, whether those impacts are minimally disruptive to the local residents and whether they can live separate from the impacts of the Project. While the Commission weighs each of the three considerations listed above when assessing the community concerns, an overall analysis is more helpful, as was reflected by the approach taken by the parties in their briefs. The Commission analysis, therefore, will be presented in a comprehensive fashion.

a. Viewshed

Up to 65 turbines, between 389 feet and 427 feet tall, will be placed on Laurel Mountain in Randolph and Barbour Counties. Laurel Mtn. Ex. BES-D pp. 6-7 (B. Sweitzer); Laurel Mtn. Ex. No. 1 p. 3-1. As the Commission has recognized in previous cases and in this Order, to some degree the visual impact of wind turbines is a subjective and personal opinion; in other words "beauty" truly is in the eye of the beholder and seems to be (again understandably) a function of proximity to, and to some extent, an economic interest in the Project.

Laurel Mountain’s Visibility Analysis Report provided the expected impacts on viewshed within a one-, five-, and twenty-mile radius of the Project. Laurel Mountain concluded that relatively few locations exist within one mile where the public would be able to see the Project because those views would have to occur either from private land or would be limited because of the few roadways in the area, the screening effects of tall trees and the local topography. Laurel Mtn. Ex. 1 App. L pp. 3-2, 4-1.

Laurel Mountain does not contend the wind turbines will not be visible, but has asserted that in most instances in which the Project would be visible, it would be from one to five miles away. Laurel Mtn. Ex. 1 App. L p. 3-2. The most evident views may be had from the valleys east and west of the Laurel Mountain ridgeline between two to three miles away from the Project, with some panoramic views extending four miles or more. Id. Laurel Mountain asserted that at distances of five miles or greater, the effects of distance and atmospheric perspective make the turbines less visible. Id.

Within the twenty-mile radius, Laurel Mountain suggested that potential views of the Project would be limited to the highest elevations along adjacent ridges or hilltops, or in

valleys where views were not impeded by other hills and knobs. Laurel Mtn. Ex. L App. L p. 4-1.

Overall, Laurel Mountain suggested that the turbines are most likely to be seen from open areas along adjacent ridge tops and hilltops and from valley areas not obstructed by trees, buildings, or hills. Laurel Mountain argued that dense tree cover along adjacent ridgelines, coupled with the rolling topography of the area, will shield most of the sensitive receptor locations from any visible impact. Laurel Mtn. Ex. JB-D p. 7 (J. Bartos). By and large, this was confirmed by the View taken by the Commission of the proposed Project site.

The Project can be seen from some national register sites in Elkins, but vegetation, housing, and other structures will limit some of those views. Laurel Mtn. Ex. JB-D pp. 7-8 (J. Bartos). Laurel Mountain asserted that the Project will not be visible from the Monongahela National Forest, Audra State Park, Tygart Lake State Park, or the Pleasant Creek Wildlife Management Area because of the long distance from the Project, topography, and dense tree cover. Id. pp. 8-9.

Laurel Mountain suggested that its viewshed analysis was conservative, with Laurel Mountain choosing sites to provide Project views that would be most representative and evident to the public. Laurel Mtn. Ex. JB-D p. 7 (J. Bartos). Laurel Mountain asserted that its photographs represented worst case views because they reflect "leaf off" conditions. Id. p. 14. Laurel Mountain analyzed for visibility at the maximum blade tip height and at the hub height for both the GE and Clipper turbines. Consistent with its conservative approach, Laurel Mountain considered as "visible" in its analysis any turbine, even if only a two-foot section of the turbine blade would be visible at a distance of three miles. Laurel Mtn. Ex. JB-R pp. 1-2 (J. Bartos).

In addition to reviewing all of the evidence regarding visibility and viewshed, the Commission conducted a view of the Project area in May 2008. The Commission visited twelve sites that were selected jointly by Laurel Mountain and LMPA, including the approximate midpoint of the Project on Laurel Mountain and locations in Elkins, Belington, along Route 250 and near the Allegheny Highlands Trail from Montrose to Elkins.

LMPA's witness, Mr. Dodds, testified that Laurel Mountain's viewshed analysis could have included other historical points, but it was neither inaccurate nor misleading. Tr. p. 150 (Aug. 5, 2008) (A. Dodds).

Cumulative impact

LMPA argued that the Project's visual impacts would significantly disrupt community residents' quiet enjoyment of their property. LMPA Initial Brief p. 3. LMPA argued that the viewshed and the historical resources surrounding Laurel Mountain would be permanently marred by the Project and the natural character of the landscape would be destroyed. Id. p. 22.

There are certain archaeological sites located within five miles of the proposed Project site that are currently listed on the National Register of Historic Places. LMPA testified that several other archaeological sites are eligible for listing, including the Hornbeck Farmstead, Poe Run School House, Laurel Hill fortification and Laurel Hill Confederate cemetery. *Id.* pp. 22-23, citing Laurel Mtn. Ex. RDW-D at pp. 7-8 (R. Wall). Twelve architectural properties and historic districts listed in the National Register of Historic Places or as a National Historic Landmark are located within five miles of the Project, including the Graceland Inn mansion, the Davis & Elkins College Historic District, and nine properties were identified with the potential to be eligible for listing on the National Register. *Id.* pp. 23-24. LMPA argued that the cumulative visual impact from the Project upon the vicinity's historic resources would be profound and that no other wind project has been proposed for a ridgeline overlooking so many sites of historic and cultural value in West Virginia. *Id.* p. 24.

Laurel Mountain argued that because a turbine may be visible from a historic resource from three miles away does not necessarily diminish the historical nature of that site. Further, the fact that these resources potentially involve a view of a turbine or turbines does not suggest that the Project is inappropriate. Laurel Mountain argued (correctly we think) that the Commission has never held per se that a wind project or any other energy project cannot be visible from public places. Laurel Mtn. Reply Brief p. 16. Although a particular project could be objectionable because of view based on its unique facts, that is not the case for this particular Project.

The Commission View of the area confirmed the basic premise suggested by Laurel Mountain – that the Project will be seen, particularly at distances between two to four miles away, but that intervening terrain, development, and vegetation will likely inhibit some of the views. The turbines will be visible from some national register sites in Elkins, but the testimony also established that the Project will not be visible from important park and wildlife areas. Although the Commission understands LMPA's concern about the cumulative visual impacts of the turbines from several historical points, no testimony was provided in this regard and LMPA has not persuaded the Commission to reject Laurel Mountain's viewshed analysis. As we have previously stated, the visual impact of wind turbines is by and large subjective. Based upon the record in this proceeding, the Commission concludes that the cumulative visual impact upon historic and cultural sites is neither unreasonable nor burdensome.

Compliance with Siting Rules

Subparts B.3 and C.3 of Siting Rule 3.1.m.3 require Beech Ridge to describe the expected visual impacts, within a 20-mile radius of the Project, of the construction and operation of structures higher than 100 feet. LMPA argued that several scenic areas located within 20 miles from the Project area – Blackwater Falls State Park, Canaan Valley State Park, and Otter Creek Wilderness Area – would be affected by views of the Project and that Laurel Mountain did not provide photo simulations from these scenic areas. LMPA urged

the Commission to find that the Laurel Mountain statement that “[d]ue to the long distance away from the site, and dense tree cover, views of the Project would essentially be nonexistent from these areas” was insufficient. LMPA Initial Brief p. 25.

Siting Rule 3.1.j. requires Laurel Mountain to provide still renderings “from all scenic overlooks and project views that will be most evident to the public” (emphasis added). LMPA argued that Blackwater Falls State Park, Canaan Valley State Park, and Otter Creek Wilderness Area contain scenic overlooks and Laurel Mountain did not provide the required still rendering for these scenic overlooks. LMPA argued that the Commission has previously found that similarly prominent public viewpoints much farther away from a proposed wind site would be impacted by views of the proposed facility. LMPA Initial Brief pp. 25-26, citing, Liberty Gap Wind Force, LLC, Case No. 05- 1740-E-CS (Comm’n Order June 22, 2007, Findings of Fact 50-54 and 56).

Laurel Mountain disputed LMPA’s assertion. Laurel Mtn. Reply Brief pp. 16-19. In the Application, Laurel Mountain suggested that because of the long distance away from the site, dense tree cover and topography, views of the Project would essentially be non-existent from these areas. Laurel Mountain Ex. 1 App. L p. 2-3. Laurel Mountain asserted it confirmed this information through field investigations and its viewshed mapping. Laurel Mtn. Ex. App. L Figure 2-C. Laurel Mountain argued that it considered potential visibility from state parks and historic sites, including Blackwater Falls, Canaan Valley, Otter Creek, Audra State Park, Tygart Lake and the Pleasant Creek Wildlife Management Area, and that LMPA did not challenge, either through direct testimony or through cross-examination at the hearing, the accuracy of Laurel Mountain’s viewshed analysis. Tr. p. 150 (Aug. 5, 2008) (A. Dodds); Laurel Mtn. Ex. 1 App. L p. 2-3. Laurel Mtn. Ex. BES-R pp. 22-23.

Furthermore, Laurel Mountain disputed whether there are scenic overlooks that are “most evident to the public” that would necessitate a photo simulation or still rendering and noted that LMPA did not challenge Laurel Mountain’s position that views of the Project were essentially non-existent from those areas. Further, while apparently concerned about these specific areas, none of the photographs provided by LMPA through witness Arthur Dodds were from any of those particular locations. Laurel Mtn. Ex. BES-R pp. 23-24; Laurel Mtn Ex. JB-R pp. 4-5.

We agree with Laurel Mountain. LMPA presented no evidence in this regard, nor did it suggest any of these locations for the Commission view. Moreover, unlike in Liberty Gap, LMPA has not provided specific evidence about the scenic locations at issue.⁷

⁷ It should be noted that the sites in Liberty Gap including Reddish Knob, a well-known National Forest Service site, were tourist attractions principally because of their elevation and “view.” While not determinative, this certainly was a consideration in the Commission’s discussion in Liberty Gap, although the principal basis for the decision in Liberty Gap related to the adequacy of the Application in several respects.

In summary, the Commission understands that viewshed of a wind turbine project is the most subjective (and likely most visceral) disputed issue in the Application. There is just as obviously no "bright line" test for viewshed, and as we indicated earlier, the Commission's decision will be met with consternation and skepticism, regardless of which way we rule – but rule we must. In this situation, while individual turbine units will be visible from various locations (as demonstrated from the View and the photo evidence presented at the hearing), we conclude that the impact of the presence of the Project and view of the Project or its turbines will be minimally disruptive to the community.

Airport concern

Because of Federal Aviation Administration requirements, some of the towers must be lit for airline safety. Laurel Mtn. Ex. 1 p. 10-3 (Generally, Laurel Mountain expects to place lights on the first and last turbines and about every third turbine in between.) In an agreement with Staff, Laurel Mountain committed to "use Project lighting as required by the Federal Aviation Administration and any applicable fire or safety code, regulation, or accepted good utility practice," but would otherwise limit lighting for the Project. Joint Applicant/Staff Exhibit 1; Laurel Mtn. BES-D pp. 20-22. (B. Sweitzer).

The Elkins-Randolph County Airport is five miles from the Project. During the course of public comment, the Commission received a letter from a member of the Elkins-Randolph County Airport Authority expressing concern that in periods of low visibility, there is a "cut" between the mountains in the area of the Airport, about five miles from the Project, that is sometimes used to approach the Airport. Tr. p. 129 (Comm'n Ex. 1) (Aug. 4, 2008). In response to questions from the Commission at the evidentiary hearing, Laurel Mountain witness Mr. Sweitzer testified that, with or without lights on the turbine towers, such aircraft would be flying below the tops of the mountains in the area. He also testified that the Federal Aviation Administration had given the Project a determination of "no hazard" and that he had met with the members of the Elkins-Randolph County Airport Authority and that the Authority itself had not taken any action to object to the Project or provide him with any belief that the Project would cause problems for the Airport. Tr. pp. 130-132 (Aug. 4, 2008).

The Commission notes that neither the Elkins-Randolph County Airport Authority as a body nor any individual from the Authority elected to intervene at the hearing in Elkins or Charleston. Based upon the Airport Authority's decision not to object and the FAA's determination of "no hazard," the record does not suggest that the Project could adversely affect air traffic at the Elkins-Randolph County Airport and the Commission concludes that the concern raised by a member of the Airport Authority has been sufficiently addressed.

b. Noise

Noise, like view, is another elusive and to some extent subjective factor in our deliberative process concerning the Application. Numerous factors affect the noise levels

from wind turbine projects, including the type of turbine, weather, ground cover, distance, ambient noise, leaf and foliage cover, elevation, wind direction, and the state of technology as applied to wind turbines and the detection of sound from wind turbine projects.

Wind turbines obviously make noise. The question presented in this case, like prior cases before the Commission, is determining the expected degree of noise impact upon nearby residents and whether that impact is acceptable. We are required at this stage of the proceeding in these wind turbine certification applications to assess the noise impact from a wind turbine Project that is not yet certificated, let alone constructed or operating, in an industry with rapidly changing technology, upon certain possible “receptors,” receiving the noise in varying circumstances (wind, weather, foliage cover, ground cover and so forth) at multiple distances from the wind turbines within the Project area.

As we indicated in the Liberty Gap case, during the Application process we can only react to the evidence and questions presented in this proceeding. See Comm’n Order p. 31, Liberty Gap Wind Force, LLC, Case No. 05-1740-E-CS (June 22, 2007).

With its Application, as required by Siting Rule 3.1.m.4, 150 C.S.R. Series 30, Laurel Mountain filed a noise study conducted by TRC. Laurel Mtn. Ex. 1 App. S; Laurel Mtn. Exs. AA-D & AA-R (A. Agresti). Our rule 3.1.m.4.c requires a noise study of the Project’s expected operations up to one mile from the generating facility property lines. The top of Laurel Mountain is relatively sparsely populated, only thirty-eight residences are located within one mile of the Project, and only four of those are located within one-half mile of the Project. The nearest residence to a turbine is in the northeast corner, about 2,200 feet away. Tr. pp. 62-63 (Aug. 5, 2008) (A. Agresti). Because of the area’s topography, however, the residence that would experience the greatest sound from the Project is 2,500 feet away from the closest turbine, and that residence is under lease with Laurel Mountain. Id. p. 63; Laurel Mtn. Ex. 1 App. S p. 3-1.

Ambient noise levels – From April 19-26, 2007, TRC conducted an ambient noise monitoring program at three residential locations – Cranfield Hollow, Crystal Springs and Stringtown – within a one-mile radius of the Project. Laurel Mtn. Ex. AA-D pp. 5, 8-9 (A. Agresti); Tr. pp. 47-59 (Aug. 5, 2008) (A. Agresti).

TRC found that the ambient noise levels varied widely depending on the time of day, wind speeds and location. The existing day-night average noise levels (DNL)⁸ were from 34 to 52 decibels (dBA), with the most frequent range being 44 to 48 dBA. The next most frequent range was 39 to 43 dBA. Laurel Mtn. Ex. AA-D p. 9 (A. Agresti). Ambient noise

⁸ The Day-Night Average Sound Level (DNL), expressed in decibels, is a 24-hour average noise level used to define the level of noise exposure on a community. The DNL represents the average sound exposure during a 24-hour period and does not represent the sound level for a specific noise event.

levels, as well as operational and construction sound levels, increase or decrease with increasing or decreasing wind speeds. Laurel Mtn. Ex. AA-D p. 13.

While LMPA did not conduct a noise study of the Project, LMPA witness Richard James challenged the Laurel Mountain noise study in several respects. At the hearing, Mr. James conceded that most of his acoustic experience was in assessing noise levels outside of automotive or other manufacturing plants. He first studied operational noise from wind turbines in 2008, and he has not conducted any preconstruction noise studies at wind projects. Tr. pp. 37-38, 42-43 (Aug. 6, 2008).

Mr. James testified that there is a big difference between being able to perceive sound and sound being objectionable. Objectionable sound is more a subjective state. He testified that the objectionable annoyance factor begins at about 32 dBA because of the characteristics of wind turbine sound. Other common industrial noises such as railroads, vehicles, and airplanes must be 42 decibels to reach the same level of annoyance. Tr. pp. 27-29 (Aug. 6, 2008).

L90/Leq – Mr. James asserted that the Laurel Mountain study should have measured the ambient noise level using the L90 descriptor.⁹ LMPA Ex. RRJ-D p. 4. Laurel Mountain correctly asserted, however, that the Commission, like the EPA, requires the use of average day-night sounds levels for both ambient and operational noise with the Leq¹⁰ descriptor. Laurel Mtn. Ex. AA-R pp. 3-4, citing USEPA, 1974 (A. Agresti); see also Tr. pp. 93, 96-97 (Aug. 6, 2008) (W. Perdue).

10 dBA nighttime penalty – Mr. James asserted that Laurel Mountain applied the 10 dBA penalty on “noise events” to all nighttime sounds, which improperly increased the nighttime background sound levels. LMPA Ex. RRJ-D pp. 4-5. Mr. Agresti responded for Laurel Mountain that the Commission rules do not exclude any nighttime noises from the requirement to add 10dBA for “noise events.” The Federal Transit Administration also indicates that noise events as used in the calculation of LDN refers to all noise that occurs at night. Id. p. 5. Laurel Mtn. Ex. AA-R p. 4-5. We conclude that Laurel Mountain is correct. Under Siting Rule 3.1.m.4, 150 C.S.R. Series 30, to account for increased annoyance

⁹ The L90 noise descriptor has been rejected by Federal Aviation Administration for statistical analysis of monitored ambient data in low-level noise environments. L90 is a statistical measure that represents the quietest 10 percent of data, and the quietest 10 percent of data excludes the full range of natural sounds. In effect, the L90 represents a minimum noise level, not an average or prevailing noise level and produces an unreasonably low statistical evaluation of an ambient noise environment. FAA Docket No. 16-01-15 (Mar. 10, 2003).

¹⁰ Equivalent Noise Level (Leq) is a cumulative metric that averages noise levels over time – an hour, day, month or quarter.

due to noise during the night hours, it is appropriate to apply the 10 dBA penalty to all noise that occurs at night.

Wind noise artifacts – Mr. James asserted that the Laurel Mountain study was likely contaminated with wind noise artifact – any noise produced by the pressure of the wind as it crosses the diaphragm of the microphone. LMPA Ex. RRJ-D pp. 5-7. Although Mr. Agresti agreed that wind in excess of five miles per hour across the microphone can result in artificially high readings if no wind screen is used, he testified that Laurel Mountain used an appropriate wind screen and followed the applicable standard from the American National Standards Institute. Laurel Mtn. Ex. AA-R pp. 5-6. We conclude that the Laurel Mountain actions appropriately addressed the contamination that Mr. James alleges may have occurred.

Wind speed during study – Mr. James asserted that the Laurel Mountain study should have recorded sound levels with wind speeds of less than five miles per hour, but in no event greater than ten miles an hour. LMPA Ex. RRJ-D pp. 5-7. Because wind turbines do not operate during periods of light wind, Laurel Mountain argued that conducting an ambient noise study only with light winds would not provide meaningful data. Moreover, both ambient sound levels and wind turbine noise vary with changing wind speeds, so the noise analysis must cover a range of wind speeds. Laurel Mtn. Ex. AA-R pp. 8-9 (A. Agresti). We agree with Laurel Mountain.

Sound level meters – Mr. James alleged that the sound level meters used in the Laurel Mountain study were not designed to evaluate background sound levels in rural communities. LMPA Ex. RRJ-D pp. 6-7. Mr. Agresti testified, however, that the Rion NL-21 and NL-31 sound level meters were appropriate for all types of settings, including rural settings, and were accepted by the New York State Department of Public Service, the State of Connecticut siting council, the State of Massachusetts siting council and the Federal Energy Regulatory Commission, among others. Laurel Mtn. Ex. AA-R p. 6. Further, Mr. Agresti testified that the meters recorded a majority of the ambient levels within a range of 44 dBA to 48 dBA, which Mr. James' materials indicate is typical for rural settings and which is consistent with the ANSI standards and the 1974 EPA publication that states that the typical rural ambient sound is about 45 dBA as a DNL. Tr. p. 40 (Aug. 5, 2008). Moreover, the sound meters are calibrated and certified to the National Institute of Standards and Technology standards annually by a certified laboratory and are calibrated before and after each noise monitoring study. For the reasons presented by Laurel Mountain, we find no fault with the sound level meters used in the noise study.

CadnaA model – Mr. James alleged that CadnaA software does not accurately predict wind turbine noise when the sound source is more than 30 meters above the ground, the terrain is not flat, or for predictions at great distances. Therefore, he argued that the results from the CadnaA program should have been “corrected.” LMPA Ex. RRJ-D pp. 8-10.

Mr. Agresti testified that CadnaA is a sophisticated model used extensively by acoustical consulting firms and regulatory agencies for wind power projects, and that

Acentech used CadnaA for the Beech Ridge wind power proceedings before this Commission. Laurel Mtn. Ex. AA-R p. 11, citing Beech Ridge Energy LLC, Case No. 05-1590-E-CS; see also Tr. pp. 111-113 (Aug. 6, 2008) (W. Perdue). Mr. Agresti also testified that the CadnaA model is able to include the effect of topographic features in the calculations and that the factors listed in “Wind Turbine Acoustical Noise” (Rogers et. al., 2006), which Mr. James provided in support of his testimony, were incorporated into the CadnaA model. Laurel Mtn. Ex. AA-R pp. 13-14.

LMPA has not persuaded us that results from a noise study using the CadnaA model should be “massaged.” It was appropriate for the Laurel Mountain study to employ the CadnaA software, as it was for Beech Ridge.

Operational sound levels – In addition to an ambient noise study, TRC also conducted noise modeling studies of both construction and operational sound levels using the CadnaA model. Id. TRC built several assumptions into its operational sound study that result in a more conservative calculation, e.g., result in higher sound levels. In conducting the Laurel Mountain operational noise study, TRC assumed: (1) that the ground cover would only be partially acoustically absorptive (although TRC presented testimony that the area’s ground cover is highly absorptive); (2) standard atmospheric conditions that are favorable to sound propagation; (3) all turbines within a five-kilometer radius would be operating at the same time; (4) that there was not extensive tree cover (although tree cover acts to further reduce noise); (5) a range of wind speeds that would result in the minimum to the maximum turbine noise levels; and (6) that all receptor locations were downwind of all turbines at all times (a physical impossibility). Laurel Mtn. Ex. AA-D p. 6 (A. Agresti). TRC obtain the maximum sound levels from the manufacturers of each turbine and used these sound levels in the operational model. Laurel Mtn. Application App. S p. 4-3. Mr. Agresti noted the technological advances made in sound control for wind turbines and testified that modern wind turbines do not generate a significant amount of operational noise as compared to older wind turbines. Older turbines had low frequency noise, aerodynamic noise and mechanical noise problems. Laurel Mtn. Ex. AA-D pp. 15-16.

The ambient day-night noise levels at most residences near the Project ranged from dBA levels in the 30s to the 40s. The Laurel Mountain operational noise modeling study results in a maximum day-night noise level for the most affected residence at 46.7 dBA DNL for the GE turbine at full load and 48.3 dBA DNL for the Clipper turbine at full load. At one half load for the Clipper unit and one quarter load for the GE unit, all residences are expected to experience operational noise levels below 46 dBA DNL. Laurel Mtn. Ex. AA-D p. 12 (A. Agresti).

Mr. Agresti testified that the United States Environmental Protection Agency recommends an outdoor noise level of 55 dBA DNL for any residential areas, farms or areas where people spend time outdoors to both protect public health and welfare and provide a safety margin. The Project’s maximum calculated operational noise level – 48.3 dBA – is

significantly below the EPA protective criterion of 55 dBA. Laurel Mtn. Ex. AA-D pp. 14-15.

We know from early siting cases that sound is curious. Mr. Agresti explained that two ambient sounds that are the same are not directly cumulative, but will, instead, result in a three decibel increase in noise. For example, if the ambient noise level is 35 dBA and the Project operational noise level is 35 dBA, the total noise level would be 38 dBA. He added that increases of 3 dBA or less are generally considered to be imperceptible changes in noise. Based on these findings, Mr. Agresti testified that operational noise levels are expected to be similar to existing ambient noise levels and noise impacts are not expected to be objectionable because of Project operations. Therefore, mitigation measures are not needed. Laurel Mtn. Ex. AA-D p. 14; Laurel Mtn. Ex. 1 App. S p. 4-4.

Wind speeds at ground/hub height – Mr. James criticized the operational noise modeling and testified that differences in the wind speed at ground height and turbine height, typically in the evening, produce pronounced increases in the operational noise levels. LMPA Ex. RRJ-D p. 11. Laurel Mountain witness Mr. Agresti agreed that at times the wind is strong enough at hub height to operate the turbine, while winds are calm at ground level. The Laurel Mountain study, however, compared measured ground level ambient sounds to wind speeds that occurred simultaneously at the 50-meter level (the highest measurement level on the onsite meteorological tower) specifically to correlate near hub height wind speed to ground level ambient sound. Laurel Mtn. Ex. AA-R p. 10. We again conclude that Laurel Mountain's actions effectively addressed the concern raised by Mr. James.

Results of operational modeling – Patricia Balamenti lives in Parsons, about three-quarters of a mile from one of the turbines located on Backbone Mountain in Tucker County. LMPA Ex. PB-D p. 1. She testified that the Backbone Mountain turbines produce “a rumbling noise that increases and decreases in intensity” for fifteen to thirty seconds, and she can hear the sound inside her home when all of the doors and windows are closed. Although there are occasions when the noise does not surface for a few weeks, sometimes the sound persists for weeks at a time. LMPA Ex. PB-D p. 2. She cannot pinpoint a particular time of day, night, season, or weather condition when the noise occurs. Id.

Mr. James testified that Ms. Balamenti accurately described what it is like to live close to wind turbines. LMPA Ex. RRJ-D p. 12. Based on his analysis, though, Laurel Mountain witness Mr. Agresti testified that he does not expect any type of low frequency, rumbling noise from this Project like Ms. Balamenti discussed. Tr. pp. 93-94 (Aug. 5, 2008). Laurel Mountain also noted that Ms. Balamenti did not testify that the Backbone Mountain project is emitting higher operational sound levels than were predicted. Laurel Mtn. Reply Brief p. 12.

On the stand during cross-examination, Mr. James provided anecdotal reports of residents in Michigan and Wisconsin objecting to low-frequency sounds emanating from wind projects, but he did not provide any scientific measurements of the noise levels predicted for those projects, experienced during operations or for the Project for that matter.

LMPA Ex. RRJ-D p. 11; Tr. pp. 20-24, 29-30 (Aug. 6, 2008) (R. James). At the hearing, the Commission learned that Mr. James has been reviewing operational wind turbine noise for less than a year. Mr. James' testimony was pre-filed before he visited the Project site, and he did not go to Laurel Mountain until the day before he testified at the evidentiary hearing. Tr. p. 41 (Aug. 6, 2008) (R. James). The information that Ms. Balamenti provided was specific to her location, the surrounding topography and the specific turbines used at the Backbone Mountain. The Commission cannot predict that the same effect would occur at the Laurel Mountain Project. We conclude that the anecdotal statements by Mr. James, based on less than a year of experience with wind projects, and Ms. Balamenti are insufficient to rebut the Laurel Mountain noise study.

Neither the governing statute nor the Siting Rules contain any operational noise limitations or guidelines. Instead, they require us to balance various project impacts and their effect on the community. We agree with Staff that the Laurel Mountain study complied with Commission requirements, accurately portrayed ambient noise levels that are typical for a rural community and employed a variety of conservative assumptions to allow us to assess the "worst case" scenario for the Project's noise impacts. Even under all of the conservative assumptions, the highest level of predicted operational noise was 48.3 dBA. Laurel Mtn. Ex. 1 App. S p. 1-1. We are not required to conclude that the Project would never impact existing ambient noise levels, nor would that be a reasonable thing to do. Based upon the totality of the evidence presented to us, we conclude that the Project will emit some noise, but the operational noise levels should not be objectionable. We further conclude that, to the extent that operational noise results in negative impacts, those negative impacts are expected to be as minimally disruptive to existing property uses as is reasonably possible.

Staff's proposed operational condition – Because the Laurel Mountain study concluded that no noise impacts are expected from the Project's operation, Mr. Perdue recommended that any siting certificate issued for the Project contain the following condition:

Operational noise shall be limited to preconstruction ambient DNL sound levels plus 3dB such that the operational noise at the nearest receptors is not increased above preconstruction levels.

On cross-examination, he explained that his proposal was intended to limit the level of any operational noise to a level considered to be a barely perceived increase in noise above the preconstruction ambient DNL sound levels. In other words, the sound recorded at any existing sensitive noise receptor cannot be higher than 3dBA above the level at the most representative ambient noise monitoring station found in the study located at Appendix S of the Application. Tr. pp. 88-89 (Aug. 6, 2008) (W. Perdue); Staff Ex. WMP-D at p. 21. Mr. Perdue testified that his approach was similar to a condition that was developed in Longview Power, LLC, Case Number 03-1860-E-CS, in which the operator of a coal-fired base load generating plant agreed to limit operational noise to the ambient level plus 0.9 dBA. Id. p. 101-102. Mr. Perdue recommended allowing a change of up to 3 dBA because the EPA

identified a 3 dBA increase as “barely perceptible, in other words little intrusion.” *Id.* pp. 93, 98. (Aug. 6, 2008). Mr. Perdue testified that his recommendation essentially means that the noise measured at the sensitive noise receptor cannot be perceptible over ambient conditions as were measured in 2007.

The Laurel Mountain noise study contains data for seven days, including six DNL numbers, from the three monitoring stations. Mr. Perdue testified that the DNL numbers fluctuated considerably and that ambient sound levels can change with the seasons. Tr. p. 115 (Aug. 6, 2008). Instead of using any of the high or low DNL numbers, he suggested developing the average DNL at each station, but he did not recommend how to calculate the average. *Id.* pp. 88-96 (Aug. 6, 2008).

He is not recommending a “no noise” impact. Tr. pp. 96-97 (Aug. 6, 2008). Mr. Perdue testified that the turbines will be heard at times, but Staff wants to limit the operational sound level to one that will not tend to annoy the area residents. He proposed the 3 dBA level as a reasonable way to evaluate whether the Project will have an unreasonable impact to the community. *Id.* pp. 98-99, 100.

He agreed that noise generators, such as nearby traffic, children playing, insect noise and logging operations may arise after the ambient noise study was completed. Mr. Perdue conceded that Laurel Mountain may have a justified concern about whether new noise or noise unrelated to the Project can be segregated. *Id.* pp. 117-120.

Mr. Perdue also agreed that his suggestion of a limit of up to 3 dBA as a “barely perceptible increase in sound” is not contained in the Siting Rules and is not a “standard” that he uses in his recommendations. Instead, Mr. Purdue testified that Staff looks at this issue on a case-by-case basis. Tr. p. 100 (Aug. 6, 2008).

In the Commission’s estimation, the significant difference between Longview and the Project is that Longview could reduce the noise impact of the fossil fuel generator through engineering practices. Mr. Perdue agreed that wind power facilities are different and that he did not know how to address the noise from wind turbines other than through set backs from sensitive noise receptors. *Id.* pp. 102-104 (Aug. 6, 2008). In Beech Ridge, Staff did not recommend an operational noise limitation because the turbines were generally sited with sufficient setbacks of 4,000 feet or greater. In Laurel Mountain, 38 residences are within a one-mile buffer zone of the Project, but the closest is about 2,000 feet from the Project. Staff indicated that from its review of the noise study, it cannot be certain that some of these homes will not hear the Project some of the time. *Id.* pp. 107-109.

Laurel Mountain argued that there is no reason for the Commission to impose a noise condition that essentially forbids all perceptible operational noise. Laurel Mountain argued that its data was reliable because the Noise Study was based on numerous conservative assumptions, the projected noise levels are not likely to be obtained under actual operating conditions, and even the anticipated noise levels are not expected to be objectionable or

unreasonable. Laurel Mtn. Reply Brief pp. 7-13; Laurel Mtn. Ex. AA-D pp. 6, 14 (A. Agresti); Tr. p. 90 (Aug. 5, 2008) (A. Agresti).

Despite the relatively low noise levels anticipated by this Project, Laurel Mountain said it was likely that the Project could temporarily violate the Staff condition, if only for a brief time and by a brief amount. Laurel Mountain argued that it makes little sense to adopt a condition likely destined to result in the litigation of minor violations. Laurel Mtn. Reply Brief pp. 9-10. Laurel Mountain also argued that the Staff approach could make the long-term validity of a siting certificate less certain and complicate or even completely frustrate financing efforts.

Mr. Agresti testified that an operational condition like the one Staff suggested would significantly limit the ability to operate any power generation project and particularly is not practical for wind projects because the condition essentially says the Project cannot be audible. Mr. Agresti testified that there will be times that the Project will be heard, but emphasized that the operational sound level is expected to be very low. Tr. p. 90 (Aug. 5, 2008) (“I would say for the majority of the time, the sound levels would be lower than what we calculate and show here, the vast majority of the time even.”) He also testified that the condition should not be adopted because the Project operational and ambient sound levels change when the wind speed changes. *Id.* pp. 88-90.

Laurel Mountain also noted that Staff acknowledged several weaknesses to its position, including the potential fluctuations in ambient sound, the potential for increased sound from new sources of generation, and the unspecified manner by which to derive the average ambient level at the three monitoring locations. Laurel Mtn. Reply Brief p. 10, *citing* Tr. pp. 94-96 117-120 (Aug. 6, 2008) (W. Perdue).

Laurel Mountain also argued that Longview involved a fossil fuel plant, where noise controls appeared to be reasonably feasible and available, eleven residences were within one-quarter mile of the Longview plant, and the ambient noise level exceeded 55 dBA. Laurel Mtn. Reply Brief pp. 10-11, *citing* Comm’n Order pp. 55-56, 80, 163, 183, Longview Power, LLC, Case No. 03-1 860-E-CS (Aug. 27, 2004) (Findings of Fact 132 & 197). In contrast, only four residences are within one-half mile of the Laurel Mountain Project; the most affected residence is under lease agreement with Laurel Mountain and agreed to accept the Project’s impacts; and both the anticipated operational noise and the ambient noise levels at Laurel Mountain are considerably lower than the ambient noise level at Longview.

Laurel Mountain asserted that neither the *Siting Rules* nor the statute prohibits a facility from having a perceptible noise impact, at any time or at any noise sensitive receptor. By suggesting that all perceptible sound be prohibited, Staff has inappropriately changed its focus from preventing unreasonable sound levels. Laurel Mountain argued that perception of sound does not equal objectionable noise, particularly with the relatively low sound levels at issue in this proceeding and given the measured ambient conditions. Laurel Mtn. Reply Brief pp. 8-9.

Laurel Mountain witness Mr. Sweitzer also testified that compliance with preconstruction ambient noise levels during operation will be impossible for Laurel Mountain because he understands the Staff recommendation to mean the Project could make no increase in noise – in other words the Project noise could not be heard at any time. Laurel Mtn. Ex. BES-R p. 34; Tr. pp. 78-80 (Aug. 4, 2008) (B. Sweitzer). Mr. Sweitzer testified that the ambient background noise component of the Staff condition is very difficult because ambient noise levels change depending on the time of year and with wind speeds and new noise sources may be added to the environment. He is not aware of any other project, in West Virginia or any other state, with a similar operational constraint. *Id.* pp. 80-81. He asserted that an average conversational sound level is around 55 dBA, and the maximum operational noise level at any of the receptors is around 48 dBA at full load. *Id.* pp. 81-82. Mr. Sweitzer also testified that Laurel Mountain wants to build and operate the Project without causing disturbances and Laurel Mountain does not want the Project to be a source of contention with the people in the area. Tr. p. 83 (Aug. 4, 2008).

The Commission appreciates the Staff effort to arrive at a condition that would prevent annoying noise levels for local residents. Upon review, however, we conclude that the Staff proposal in this case was incomplete in several respects: 1) Staff did not provide a method to calculate the averaged ambient noise level, 2) ambient noise levels can change with the seasons and with increases and decreases in wind speeds, and Staff did not propose how such variations would be handled, and 3) there is no mechanism to account for new sources of noise. We agree with Laurel Mountain that neither the statute nor the Siting Rule require a facility to operate without adding any noise and the Staff proposal could make the long-term validity of a siting certificate less certain and complicate or even completely frustrate financing efforts. Rather, our determination must concentrate on whether “predicted” noise levels are reliable and whether they adversely affect the public. For all of these reasons, we decline to adopt the Staff proposed operational condition relating to noise.

Construction Sound Levels and the Staff Construction Conditions – For the construction noise model for the Project, TRC used the same conservative assumptions from the operational sound model plus one more – that five adjacent turbine sites would be under construction simultaneously and all would produce the maximum amount of construction noise. Laurel Mtn. Ex. AA-D p. 7 (A. Agresti).

Mr. Agresti testified that construction noise would not cause a significant impact for the community. Laurel Mtn. Ex. AA-D pp. 10-12. Even under the “five adjacent turbines under construction simultaneously test,” the maximum predicted construction noise level at the nearest residence is 49.4 dBA, and the maximum predicted noise level for any residence during construction is 50.8 dBA. This is a relatively low noise level as compared to the 50 dBA level of a typical suburban setting. The calculated construction noise levels for all but three residences are below 50 dBA. *Id.* pp. 11-12. Mr. Agresti also testified that the construction noise will not be permanent and that ambient levels were at times within the range of or greater than 50.8 dBA. *Id.* Mr. Agresti also stressed that these maximum noise levels were not likely to be achieved because the analysis was based on several conservative

assumptions, among them, the extremely unlikely circumstance that three excavators will be operating at full load at five turbine sites simultaneously.

Commission Staff proposed two conditions for construction noise:

- 1) Construction noise shall be limited to DNL + 5 at the nearest receptors.
- 2) During construction, the Applicant shall:
 - (a) Require contractors to use standard noise buffers on all construction equipment and trucks;
 - (b) Require contractors to use pile driving equipment which have the least noise impact;
 - (c) Perform construction activities mostly during the daylight hours;
 - (d) Not have a noise impact at certain noise sensitive locations, such as a church, during the weekend church activities and services and during other normally scheduled church weekday activities; and
 - (e) Limit any dynamiting to daylight hours and follow all State and Federal rules, regulations and laws.

Laurel Mountain proposed to avoid noise impacts at certain noise sensitive locations and otherwise did not object to the recommendations in the second Staff construction condition listed above. Laurel Mtn. Ex. BES-R pp. 34-35 (B. Sweitzer); Laurel Mtn. Ex. AA-R p. 21; see also Tr. pp. 83- 84 (B. Sweitzer). Generally, the Commission agrees that those Staff conditions are reasonable. Therefore, the Commission will adopt Staff's proposal, modifying condition 2(d) to state "Avoid noise impacts" instead of "Not have a noise impact."

Laurel Mountain objected to the first Staff construction condition, continuing to argue that it is unreasonable to tie noise conditions to ambient noise levels because ambient noise levels change and levels established in 2007 would not take into account any new sources of noise. For the same reasons as appear above regarding the Staff operating condition, the Commission shall not adopt the first Staff construction condition relating to noise.

c. Bats and Birds

In support of its Application, and as required by the Rule 3.1.m.2 of the Commission's Siting Rules, Laurel Mountain filed the following surveys and assessments prepared by Stantec Consulting:

1. Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Laurel Mountain Wind Energy Project near Elkins, West Virginia;
2. Fall 2007 Bird and Bat Migration Survey Report; and
3. Laurel Mountain Bird and Bat Risk Assessment: A Weight-of-Evidence Approach to Assessing Risk to Birds and Bats at the Proposed Laurel Mountain Wind Energy Project, West Virginia.

Laurel Mtn. Ex. TP-D & TP-R; Laurel Mtn. Ex. 1pp. 13-7 through 13-9 & App. R. The West Virginia Division of Natural Resources (WVDNR) and the U.S. Fish and Wildlife Service (USFWS) agreed to the specific scope of work for these pre-construction bird and bat surveys. Staff Cross-examination Exs. 1-3. Throughout the studies, Stantec communicated periodically with USFWS and WVDNR to provide updates regarding survey progress and to confirm the sufficiency of the manner in which the surveys were conducted. Laurel Mtn Ex. TP-D p. 4. Not only were the scope of the studies accepted by the USFWS, the USFWS did not indicate in its correspondence that the Project had any particular or significant threat to Threatened or Endangered species as the USFWS did in a previous wind power siting case. Laurel Mtn. Ex TP-R pp.10-11; See Staff Cross-examination Exs. 1-3; Comm'n Order pp. 34-36, Liberty Gap Wind Force, LLC, Case No. 05-1740-E-CS (June 22, 2007).

Raptors – The surveys documented relatively low levels of raptor migration, as compared to other regional sites that were simultaneously monitored. Laurel Mountain witness Trevor Peterson testified that raptors appear to be at low risk of collision with the Project's turbines. Although small numbers of eagles appear to migrate above the Project area during spring and fall, eagles are not known to nest within the Project area or vicinity, and eagle mortality has not been documented at any existing wind facility in the eastern United States. Laurel Mtn. Ex. TP-D pp. 13-14 (T. Peterson).

Breeding Birds – The surveys documented a variety of species typical of the region, but the Project area does not support large numbers of any rare bird species. While a small number of breeding birds will likely collide with turbines, population level impacts for any single species are not expected as a result of the Project. Laurel Mtn Ex. TP-D pp. 21-22 (T. Peterson).

Nocturnal Migration Activity – Most night-flying birds pass over Laurel Mountain in a broad front pattern, flying high above the ridgeline and the height of proposed turbines. They are not adjusting their flight path or being funneled by topography on or around Laurel Mountain. Laurel Mtn. Ex. TP-D pp. 10 (T. Peterson).

Bats – The potential impacts to bats are expected to generally follow patterns similar to those documented at other facilities, and will consist largely of collision mortality during the spring and particularly the fall migration seasons, with bat mortality potentially higher

on warm, calm nights when long distance migratory species are expected to be the most vulnerable to collision mortality. Laurel Mtn. Ex. TP-D p. 18-19 (T. Peterson).

Mist netting surveys were conducted at thirteen different sites on Laurel Mountain between May 3 and 17; between June 13 and 26; and between September 3 and 14, 2007; equating to 228 nights of mist-netting. Laurel Mtn. Ex. 1 App. R. In order to maximize the likelihood of capturing endangered Indiana bats, mist sites were located not only on the ridgeline near proposed turbine locations but also at lower elevations and near water sources and other habitats not represented along the ridgeline. No Threatened and Endangered species were captured through the mist-netting surveys. Laurel Mtn. Ex. SH-D p. 9 (S. Hard); Laurel Mtn. Ex. TP-D pp. 7-8, 16, 19 (T. Peterson).

The USFWS Recovery Plan Guidelines require studies to be conducted between May 15 and August 15 when Indiana bats are at their summer breeding range. Although LMPA witness Dr. Gannon acknowledged that part of Laurel Mountain's studies were conducted then, he argued that more than 52 days of mist-netting should have been conducted within that time period. LMPA Ex. MRG-D pp. 12, 25-26. Laurel Mountain witness Trevor Peterson testified, though, that the USFWS recommended the additional spring and fall mist netting studies that were conducted outside of the May 15-August 15 time period. Laurel Mtn. Ex. TP-R pp. 11-12.

Mr. Peterson also testified that the USFWS Recovery Plan requires one net site for every kilometer of habitat. Laurel Mountain consulted with the USFWS and distributed 13 mist-net sites to sample all habitats within the Project area to maximize the possibility of capturing Indiana bats along the Project's 13 kilometers. Moreover, Laurel Mountain surveyed 82 net-nights in the spring, 72 net-nights in the summer, and 74 net-nights in the fall. Laurel Mtn. Ex. TP-R p. 12-13.

Stantec conducted desktop and field surveys to document potential bat hibernacula within five miles of the Project area and obtained the locations of known hibernacula within fifteen miles of the Project from the USFWS and WVDNR. Laurel Mtn. Ex. TP-R p. 21. Dr. Gannon suggested, however, that a study of caves and mine openings within 50 miles of the Project site should have been conducted. LMPA Ex. MRG-D pp. 17-18. Laurel Mountain argued that the nearest hibernacula known to contain Indiana bats and Virginia big-eared bats is ten miles east of Laurel Mountain, but the fact that bats are capable of flying long distances does not mean that Threatened or Endangered species are likely to be present in the Project area. Based on the results of the background investigation, both Stantec and the USFWS concluded that further research for hibernacula was not warranted. Laurel Mtn. Ex. TP-R pp. 21-22 (T. Peterson).

Dr. Gannon also suggested that Laurel Mountain should have used additional survey techniques, such as night vision, thermal imaging, and radio telemetry. LMPA Ex. MRG-D p. 26. Mr. Peterson countered that Stantec used night vision on a trial basis, but only a small number of bat images were recorded. Further, the bat species could not be readily identified

and the range of that equipment is limited. He also testified that thermal imaging surveys would not provide useful data during pre-construction surveys because there would be no turbines or behavioral interactions to observe. Stantec would have conducted radio telemetry surveys to document locations and sizes of roosts had any Indiana bats or Virginia big-eared bats been captured. Laurel Mtn. Ex. TP-R pp. 14-15.

Based on the record, it is clear to us that the USFWS reviewed and did not object to Laurel Mountain's study plans, and Laurel Mountain conducted additional studies at the USFWS's request. The Commission concludes that Laurel Mountain's surveys were reasonable and sufficient.

USFWS Recommendations – Laurel Mountain has agreed to several other recommendations from the Fish and Wildlife Service, among them limiting the amount of forest removal as much as possible to reduce impacts to birds and bats; following the Bald Eagle Management Guidelines of the USFWS if nesting bald eagles are found at any time during the life of the Project; not placing turbines in the “saddle” or low point along the Laurel Mountain ridgeline in order to reduce impacts to migratory raptors; and studying whether, depending on economic feasibility, the turbines should or could be stopped or free-wheeled during certain parts of the year to minimize bat mortality. Tr. pp. 90, 113, 116 (Aug. 4, 2008) (B. Sweitzer).

Threatened or Endangered Species¹¹ – There is no evidence that a wind power project has resulted in the death of a Threatened or Endangered bat in the United States. Tr. pp. 165-166 (M. Gannon) (Aug. 5, 2008). Laurel Mountain advised the Commission that it is possible that a Threatened and Endangered Species may occasionally pass through the Project site, but Laurel Mountain does not believe that a federal taking of a protected species that could require an incidental take permit was likely to occur or that an incidental take permit was warranted. Laurel Mtn. Ex. TP-D pp. 7-8; Tr. pp. 196-199 (Aug. 4, 2008) (T. Peterson). Dr. Gannon suggested, however, that the threat to Threatened and Endangered species was higher. LMPA Ex. MRG-D p. 7. Commission Staff agreed with Laurel Mountain's interpretation of the studies. Staff Ex. WP-D pp. 10-12 (W. Perdue).

¹¹ Laurel Mountain's surveys also considered protected threatened and endangered plant species. In coordination with the USFWS and the WVDNR, TRC conducted field surveys in June and September 2007 and observed five separate patches of running buffalo clover on the Project site. In January 2008 TRC submitted a report on its survey to the USFWS. As a result of the survey, AES Laurel Mountain has modified the Project to include buffer zones (with widths of fifty to two-hundred feet) around each of the running buffalo clover patches in which no disturbance will be allowed. Laurel Mtn. Ex. SH-D pp. 9- 10 (S. Hard). On February 21, 2008, the USFWS responded with a letter indicating that the survey was performed “in accordance with accepted survey protocols and provided valuable information that will assist with the recovery of running buffalo clover.” Staff Cross-Examination Ex. 1 p. 2.

A year ago in Liberty Gap, the Commission recognized that it was faced with conflicting evidence about the impact of turbines on all bats. Evidence at that time had consistently indicated that turbines in the eastern United States cause substantially higher rates of bat mortality than in other regions of the country, and that, based upon a limited time period of study, the Mountaineer wind farm in West Virginia has the highest recorded per turbine collision mortality rate in the world. We noted that, while the bat experts have different theories on why the turbines cause higher mortality for bats than for other avian species, the experts do not know why bat mortality rates have been so high at the wind farms in the eastern United States, including the wind farm in West Virginia.

In the pending case, the Commission again faces conflicting evidence concerning the impact of turbines on bats. The Commission ultimately rejected the Application in Liberty Gap, only partly because of Liberty Gap's demonstrated unwillingness to pursue a "section 10" or "incidental take" permit in the face of a strong recommendation to do so from USFWS. The USFWS had made known its serious concerns about endangered species of bats¹² at that location and recommended that Liberty Gap pursue an incidental take permit. Liberty Gap had been quite reluctant to adopt the USFWS's recommendations. Comm'n Order pp. 34-36, Liberty Gap Wind Force, LLC, Case No. 05-1740-E-CS (June 22, 2007).

Unlike the situation in Liberty Gap, Laurel Mountain has consulted and cooperated with the USFWS and the USFWS has not expressed a similar concern about the likelihood of this Project resulting in mortality for endangered bat species. Upon our considered review, we conclude that the evidence submitted by Laurel Mountain concerning Threatened and Endangered Species is credible because the studies undertaken were complete, reasonable and conducted in consultation and cooperation with the USFWS and WVDNR. No Threatened or Endangered species were detected through the mist-netting surveys, and as confirmed by WVDNR, the Project area is not located in the immediate vicinity of hibernacula containing Threatened or Endangered bat species. Therefore, we agree that no Federally Threatened or Endangered species are expected to breed, reside in, or use the Project area as primary habitat or breeding area.

LMPA witness Dr. Gannon testified that three years of preconstruction studies should be conducted to evaluate the potential impact of the Project on bats. LMPA Ex. MRG-D pp.

¹² In a September 2006 letter to Liberty Gap's counsel, USFWS concluded that "the proposed project would have a reasonable certainty of resulting in take of species protected by the ESA," that "the risk of mortality of listed bats is significantly higher at the Liberty Gap site than at other studied sites in the eastern forest region," that "we conclude with reasonable certainty that during the operational life of the project, federally-listed species will be taken," that "the Service continues to recommend that Liberty Gap pursue a section 10 permit" and generally disagreed with Liberty Gap's experts who concluded the Project would have little impact on listed bats. USFWS letter to Linda Bouvette, September 28, 2006, at pp. 1, 2, 7, 8; Staff Exhibit No. 2; FOBPC Cross Exhibit 1, Liberty Gap, Case No. 05-1740-E-CS.

25-26. Laurel Mountain witness Trevor Peterson testified that USFWS, as a general matter, recommends three years of pre-construction studies, but USFWS specifically reviewed and approved the plans for the spring, summer, and fall of 2007 studies that Laurel Mountain conducted. Tr. p. 164 (Aug. 4, 2008).

In Beech Ridge, the Commission was persuaded that multi-year preconstruction studies generate volumes of data that are not particularly useful to studying bat mortality. See Comm'n Order p. 85, Beech Ridge Energy LLC, Case No. 05-1590-E-CS (Concl. of Law 38) (Aug. 28, 2006). In the pending case, Dr. Gannon admitted on cross-examination that additional pre-construction studies could not eliminate the possibility of bat mortality or the risk to Threatened or Endangered species. Tr. pp. 159-160 (M. Gannon) (Aug. 5, 2008). In our estimation, LMPA has provided no reason in this proceeding for the Commission to direct Laurel Mountain to change its approach.

Additionally, the Commission will address Dr. Gannon's recommendation that, regardless of current statutory and regulatory requirements, it would be appropriate to "prohibit all new wind turbine development in the region until science has tested" the recommendations proposed by USFWS. LMPA Ex.MRG-D p. 24. The Commission is not aware of any legal requirement that would prohibit the construction and operation of all wind energy projects in the region until further studies of any kind are undertaken, and the Commission has not imposed such a prohibition in the past. Moreover, our West Virginia statute is specific that the Commission must balance the "interests of the public, the general interests of the state and local economy, and the interests of the applicant" when assessing an application for a siting certificate. For these reasons, it would be inappropriate for the Commission to adopt an absolute prohibition as Dr. Gannon suggests. The Commission must and will continue to review each application in detail, based upon the evidence provided in support of each proposal.

Post-construction studies – Laurel Mountain has committed to an agreed framework with Staff for post-construction studies. Laurel Mtn./Staff Joint Ex. 1. Laurel Mountain will consult with representatives from the Staff, USFWS and WVDNR to develop at least one year of post-construction studies. If those studies show that the Project causes significant levels of bat mortality, Laurel Mountain commits to consider in good faith the implementation of any adaptive management strategies that are effective and economically feasible from Laurel Mountain's perspective. Id.

More specifically, AES Laurel Mountain agreed to consult with the representatives of Staff, USFWS and WVDNR as a Consulting Team on the scope, development, and implementation of post-construction studies (Studies). Laurel Mountain agreed to commence the Studies within one year after commercial operations begin. Laurel Mountain also agreed that

- a. The Studies will assess the Project's impact on bat life, the potential for adaptive management strategies to mitigate those impacts, the expected cost

of those strategies over a range of mitigation effectiveness levels, and any other aspects of bat/wind turbine interactions identified and agreed to between Laurel Mountain and the Consulting Team.

- b. To the extent that Laurel Mountain and the Consulting Team agree that the Project's risk profile requires it, the Studies will also assess the impact of the Project on birds, including raptors.
- c. Laurel Mountain commits to conduct at least one year of Studies. To the extent Laurel Mountain and the Consulting Team determine, based upon the results of the Studies undertaken during the first year of commercial operation, that the Project would benefit from additional study and analysis, Laurel Mountain will conduct additional Studies during part or all of the next two years of commercial operation. Although it may choose to do so, Laurel Mountain will have no obligation to conduct any Studies beyond the third year of commercial operation.
- d. Laurel Mountain will file copies of each Study with the Commission and provide copies to each member of the Consulting Team within 30 days of its completion.
- e. Laurel Mountain "is committed to environmental stewardship and to minimizing the Project's impact on migratory bats" and that, "if the Studies demonstrate that the Project causes significant levels of bat mortality and that adaptive management strategies are proven to be effective and economically feasible from Laurel Mountain's perspective, Laurel Mountain commits in good faith to consider the implementation of those strategies."

See Joint Laurel Mtn./Staff Ex. 1.

The Commission finds these proposals to be reasonable and will adopt them.

d. Water

Water budgets – LMPA argued that Laurel Mountain did not provide water budgets, surface flows and water tables for 10 years for each surface water body and sub-surface water sources likely to be directly affected by the Project as required by Siting Rule 3.1.k.1. LMPA Ex. PD-D pp. 7, 9 (P. Dodds); LMPA Initial Brief p. 28.

Laurel Mountain witness Samantha Hard testified that the Laurel Mountain Application complied with Siting Rule 3.1.k.1 because the Project will not consume water and thus will not affect current water tables. Laurel Mtn. Ex. SH-R p. 2 (S. Hard). As previously stated, Staff has recommended that the Commission conclude that the Laurel Mountain Application is sufficient and complete. Staff's Initial Brief p. 5. We agree that as this

particular Project is proposed, it is not necessary for the Commission to review water budgets, surface flows and water tables.

Sufficiency of hydrology study – LMPA argued that the Laurel Mountain study should have been supported by strike and dip measurements to determine the orientation of the bedrock so that the Commission could properly assess whether the Project would inhibit the flow of rainwater into aquifers, destroy or degrade wetland areas and watercourses, and negatively impact groundwater levels. LMPA Initial Brief pp. 26, 28.

Laurel Mountain witness Kenneth Cormier testified that there are various ways to evaluate whether groundwater recharge on Laurel Mountain will continue to occur and the groundwater aquifer will continue to feed springs and streams on Laurel Mountain. Laurel Mtn. Ex. KC-R p. 8. For the hydrology study, TRC surveyed USGS maps, conducted field observations and reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (formerly the Soil Conservation Service) soil map units for the Project area. Laurel Mtn. Ex. 1 pp. 13-3, 13-4. Mr. Cormier did not agree that the strike and dip measurement referenced by Laurel Mountain was essential for the Commission review. Tr. pp. 230-231 (K. Cormier) (Aug. 4, 2008).

The Commission is not persuaded that strike and dip measurements are essential in its evaluation of this Project, but we recognize that LMPA is concerned that the Project particularly blasting, could affect the local groundwater. In the Reply Brief, Laurel Mountain argued that any effect by blasting would be localized, it was unlikely that the groundwater aquifer would be affected and “even if an aquifer was affected, such an occurrence could be readily resolved with no lasting impact.” Laurel Mtn. Reply Brief p. 20. Upon review, we conclude that Laurel Mountain has provided a sufficient and complete water study in support of its Application. We also conclude that it is reasonable to hold Laurel Mountain to its promise to readily resolve any impacts upon the groundwater aquifer, and will condition the siting certificate to require Laurel Mountain to do so.

Location of wetlands – LMPA argued that Laurel Mountain did not provide the location and elevation of five wetlands and four watercourses that were located in June 2008 and that this information is important because Laurel Mountain’s wetlands appear to be driven primarily by groundwater discharge seeping from the side of the hill slope adjacent to the wetland. LMPA Ex. PD-D pp. 6, 9-10; LMPA Initial Brief p. 27.

Laurel Mountain explained that it described each of the wetlands and watercourses in its Application materials and in its report submitted to the U.S. Army Corps of Engineers (USACE), but that neither the Commission nor the USACE requires exact coordinates for every single wetlands identified. Laurel Mtn. Ex. SH-R pp. 6-7. TRC wetland delineation crews surveyed the proposed Project area using the Federal Routine Determination Method presented in the USACE Wetlands Delineation Manual (USACE 1987). Laurel Mtn. Ex. 1 p. 13-1. Specifically, wetland scientists utilized a multi-phased approach consisting of a review of existing USFWS National Wetlands Inventory (NWI) Geological Information

System (GIS) Datalayers and Natural Resource Conservation Service Soil Surveys, followed by an on-site determination of the wetland boundary based on technical criteria established for hydric soils, hydrophytic vegetation, and hydrology.

Ms. Hard testified that after the initial wetlands delineation was prepared in 2007, Laurel Mountain re-evaluated the Project's expected layout to maximize output and to minimize the amount of disturbance on Laurel Mountain. To ensure that the revised layout was appropriate, new areas were reviewed. It was during the review of these new areas that the additional wetlands were detected. Tr. p. 239 (S. Hard) (Aug. 5, 2008); Laurel Mtn. Ex. SH-R p. 8.

The Commission concludes that Laurel Mountain's reason for updating the wetlands information is reasonable. Moreover, witnesses for both Laurel Mountain and LMPA recognized that the area experienced a drought in summer and fall 2007 when Laurel Mountain initially conducted its study. Furthermore, LMPA witness Dr. Dodds conducted two days of field observations on the mountain in 2008. See LMPA Ex. PD-D p. 5. Because it was reasonable to update the wetlands survey as a result of the 2007 drought conditions and to consider changes in the Project layout and because Dr. Dodds was able to conduct her own review of the mountain's water features, the Commission will deny the LMPA argument regarding the updated wetlands information from Laurel Mountain.

Public Support and Opposition for the Project

Finally, the Commission will briefly discuss the public support and opposition for the Project. Laurel Mountain asserted that landowner support for the Project was evidenced by Laurel Mountain having secured leases for the overwhelming majority of the land needed for the Project by the hearing date. We agree with Laurel Mountain that its acquisition of nearly all of the necessary real estate leases by the hearing reflects local support for the Project. Laurel Mtn. Initial Brief p. 4. Laurel Mountain also argued that there was significant local support for the Project by way of public comment and letters submitted to the Commission. We previously summarized that at the public comment hearings in Elkins and Philippi, Project supporters outnumbered those speaking against certification, citing both the economic benefits as well as the country's need for clean, renewable energy. Although, by their nature, letters of support and opposition are frequently of limited probative value to the Commission, by the end of October, 2008, the comment letters in support of the Project numbered nearly 600, and the number of comment letters in opposition approached 300, with significant levels of support coming from the nearby communities of Elkins, Belington, Philippi and Montrose. LMPA urged the Commission to pay particular attention to the local opposition to the Project that appeared in many of the comment letters and was voiced at the public hearings. LMPA Initial Brief p. 12, citing Laurel Mtn. Ex. BES-D p. 15 (B. Sweitzer) & Laurel Mtn. Ex. BES-R p. 7 (B. Sweitzer).

Although the numerical levels of support and opposition may be a consideration in our "balancing" efforts, the "community of interest in living separate and apart from the Project"

means more to the Commission than which side "gets out the vote." The Commission, in recognizing this factor in the balancing test, is more concerned with the "intrusive" nature of the facility on the everyday life in and around the communities rather than the numerical (and sometimes illusory) tally of those "for" and "against" the Project. In this case, the Commission spent an entire day touring around, over, and up and down Laurel Mountain, the surrounding communities and a portion of the property that is the site of the Project. It is hardly a concrete or definitive yardstick, but the Commission is of the opinion that the Project is largely isolated from the community and limited to the private property near the top of Laurel Mountain. For the reasons stated below, the Project is not in our opinion intrusive in the day-to-day community life of the area.

In Liberty Gap, we recognized that West Virginia has become a popular location for the proposed installation of wind turbine projects. To date, the windy tops of this State's highest ridges have been chosen as the location for these projects. Clearly, there can be circumstances where and when the location of a wind turbine project and the project's location and proximity to the community residents completely and inappropriately changes the community. We do not believe that is the case in this instance because the Project will be constructed upon the ridge line of a sparsely populated area, i.e., only four residences are located within one-half mile of the Project. Furthermore, intervening hills, mountains and trees will block views of the Project in many instances. As previously described, the wind turbines and portions of the Project will be visible at a distance, but the Commission does not believe that they significantly and adversely impact the community residents' interest in living separate from the Project.

5. Remaining Staff Conditions

Staff has recommended several other conditions, identical or similar to conditions that the Commission has imposed in other Siting Certificate cases. Laurel Mountain proposed minor changes to a few of them, objecting most strongly to the Staff decommissioning recommendation. Laurel Mtn. Ex. BES-R p. 29 (B. Sweitzer). Staff and Laurel Mountain's agreement to several conditions is reflected in Joint Applicant/Staff Exhibit 1, that was admitted into evidence on the third day of the hearing in Charleston. Earlier in this Order, the Commission decided not to adopt one of the Staff noise recommendations, and we will now consider the remaining conditions as they were presented by Staff. For convenience, any conditions that are proposed to be modified appear below in bold type.

General Preconstruction and Construction Certificate Issues:

- (1) Prior to commencing construction, the Applicant must file a verified statement indicating that all pre-construction conditions and requirements of the certificate have been met.

- (2) The Applicant must not dispose of excavated rock and/or any bedding material during or following construction of the facility by spreading the material on agricultural land.
- (3) The Applicant must dispose of all contaminated soil and construction debris in approved landfills in accordance with appropriate environmental regulations.
- (4) The Applicant must design and install any needed fire protection systems in accordance with the National Fire Protection Association or other accepted standards.
- (5) The Applicant must coordinate with fire, safety and emergency personnel during all stages of the Project to promote efficient and timely emergency preparedness and response.
- (6) The siting certificate shall become invalid if the Applicant has not commenced a continuous course of construction within five years of the date the final certificate is granted or has not completed construction by the tenth year without petitioning the Commission for approval to expand these time frames.

No party objected to any of the six conditions listed above. The Commission imposed such conditions in the Beech Ridge proceeding, and there is no reason to depart from that approach for the Laurel Mountain Project.

- (7) **The Applicant must file evidence of all necessary environmental permits and/or certifications prior to commencing construction (including letters from United States Fish and Wildlife Service, West Virginia Division of Natural Resources, West Virginia Division of Cultural and History and West Virginia State Historic Preservation Office) indicating either that the Applicant does not need to take further action or outlining what action the Applicant needs to take to be in compliance with that agency's rules/laws prior to any grading, soil excavation, and/or habitat removal or causing a similar action by others.**

Staff proposed that Laurel Mountain be required to file evidence of *all* necessary environmental permits and/or certifications. Staff Ex. WMP-D p. 19. Laurel Mountain asked, however, that the language be changed to reflect that Laurel Mountain is willing to acquire *any* necessary letters from the other agencies, as was required in the Beech Ridge proceeding, so that Laurel Mountain can avoid possible delay from being asked to seek letters from agencies that have no statutory or regulatory duty to provide one. See Comm'n Order p. 83, Beech Ridge Energy, LLC, Case No. 05-1590-E-CS (Aug. 28, 2006). Staff did not object to this modification. Staff Reply Brief pp. 2-3.

Laurel Mountain is correct that the condition contained in the Beech Ridge order required *any* necessary permits and certifications. Because it generally is reasonable for conditions of this sort to be consistent in siting certificate orders and, because we have not been convinced that *all* is preferable to protect the public interest, we will modify the Staff condition as Laurel Mountain requests in this regard.

Laurel Mountain also asserted that the phrase “prior to any grading, soil excavation, and/or habitat removal or causing a similar action by others” is redundant because the condition already requires permits to be filed prior to construction and asked the phrase to be stricken. Staff opposed this change because the Commission specifically did not construe certain activities as construction activities in Longview. Staff Reply Brief p. 3, citing Comm’n Order p. 131 n. 23, Longview Power, LLC, Case Nos. 03-1860-E-CS-CN & 05-1467-E-CN (June 26, 2006).

The Commission understands Laurel Mountain’s position, but, in an abundance of caution, and with a desire to avoid future litigation about whether grading, excavating or habitat removal constitute construction activities for this Project, the Commission will not strike the phrase.

- (8) The Applicant must file a copy of the Wetlands Survey and Delineation, evidence of approval and/or acceptance of the wetlands delineation, final endangered species study with any mitigation plans, and historical/archeological significance study with mitigation plans prior to commencing construction.**

Laurel Mountain proposed to modify this condition to add *required* before the first use of *mitigation* and *any required* before the second use of *mitigation* because it is not certain that mitigation plans will be required. Laurel Mtn. Initial Brief p. 30. Laurel Mountain asserted that with this modification, the condition would more closely track the condition imposed in Beech Ridge. Id. Staff did not object to Laurel Mountain’s request. Staff Reply Brief pp. 3-4.

Laurel Mountain is correct that the condition contained in the Beech Ridge order described *any required* mitigation. For the same reasons that are set forth above, we shall modify the Staff condition as Laurel Mountain requests in this regard.

- (9) The Applicant must file copies of the final Interconnection Agreements between the Applicant and PJM prior to commencing operation.

No party objected to the condition listed above. The Commission imposed this condition in the Beech Ridge proceeding, and there is no reason to depart from that approach for the Laurel Mountain Project.

- (10) The Applicant must comply with the Endangered Species Act (16 U.S.C. § 1531 et seq.), the Migratory Bird Treaty Act (16 U.S.C. § 701 et seq.), and the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 et seq.) in both the construction and operation of the Project. If any authorized governmental agency or court with competent jurisdiction finds that the Applicant is not complying with any one of the above three acts in either the construction or the operation of the Project, then the Applicant must notify the Commission in writing in this case of any such finding within ten (10) days of any such finding being made. Furthermore, the Commission may seek any legal remedies it has jurisdiction to seek, including injunctive relief, to address any such findings.**

In this condition, Staff would require Laurel Mountain to comply with the Endangered Species Act, the Migratory Bird Treaty Act, and the National Environmental Policy Act in both the construction and operation of the Project. Staff Ex. WMP-D p. 20 (W. Perdue). Because NEPA does not apply to the Project, Laurel Mountain asked that *if applicable* be inserted before *National Environmental Policy Act*, as was done in Beech Ridge. Staff did not object to Laurel Mountain's request. Staff Reply Brief p. 4.

Laurel Mountain is correct that *if applicable* appeared before *National Environmental Policy Act* in the Beech Ridge order. For the same reasons that are set forth above, we will modify the Staff condition as Laurel Mountain requests in this regard.

- (11) The Applicant must file evidence of its EWG status from FERC prior to commencing operation.**

No party objected to the condition listed above. The Commission imposed this condition in the Beech Ridge proceeding, and there is no reason to depart from that approach for the Laurel Mountain Project.

- (12) Prior to commencing construction, the Applicant must provide an independent expert report on the amount needed to decommission the facility and place such amount in an escrow fund.**

The wind turbines are designed to have a life span of more than 30 years. Laurel Mtn. Ex. 1 p. 7-14. At the end of that period, the turbines could be replaced with the latest technology to continue the use of the valuable wind resource at Laurel Mountain. If the wind turbines are not updated, Laurel Mountain stated that all towers, blades, nacelles, and transformers will be removed and properly disposed off-site, and the land will be reclaimed through grading and seeding of disturbed areas. Id.

In the Application, Laurel Mountain also stated that, prior to the start of *operations*, a decommissioning fund would be put in place to cover the cost of dismantling of the

turbines and towers and for land reclamation. Laurel Mtn. Ex. 1 p. 7-14. The size of the fund would be determined initially and periodically by a qualified independent third party taking into consideration resale or salvage value of the Project. The fund would be established in an escrow account, bond or surety held by an independent party. Id.

In her prefiled direct testimony, Staff witness Dixie Kellmeyer recommended that Laurel Mountain be required to provide an independent expert report on the amount needed to decommission the facility and place such amount in an escrow fund prior to beginning *construction*. Staff Ex. DLK-D pp. 3-4. Staff witness Mr. Perdue also suggested that the decommissioning fund be established prior to *construction*. Staff Ex. WMP-D p. 6. On cross-examination, Ms. Kellmeyer testified that the independent expert should not be employed by Laurel Mountain or anyone with a financial interest in the Project. Tr. p. 63 (Aug. 6, 2008) (D. Kellmeyer).

In his prefiled rebuttal testimony, Mr. Sweitzer stated that Laurel Mountain remains committed to a decommissioning fund as was described in the Application, but is concerned that Ms. Kellmeyer's recommendation could be read to require that an initial sum be deposited into the fund prior to construction, without taking into account factors such as the market value and the salvage value of the facility, especially during the early years of the operation. Laurel Mtn. Ex. BES-R pp. 29-30; Tr. pp. 138-139 (Aug. 4, 2008) (B. Sweitzer). As stated in the Application, Laurel Mountain is willing to have the fund amount be based on a report by a qualified independent third party acceptable to the County Commissions of Barbour County and Randolph County. The fund amount will vary over time depending on changes in the estimated market or salvage value of the Project, the estimated cost of dismantling and removing the turbines, and the expected ongoing life of the Project. The report of the qualified independent third party will provide the analysis and set the fund amount and be prepared before operations begin and thereafter as mutually agreed between Laurel Mountain and the County Commissions, but no less frequently than every five years thereafter. Laurel Mountain said it would fund the required amount within 90 days of the initial report, or on a time frame agreeable to Laurel Mountain and the County Commissions, by either i) a performance bond, a surety bond, or a letter of credit with Randolph and Barbour Counties as pro rata beneficiaries (based on the number of turbines in each county), or ii) an escrow account held by an agent acceptable to Laurel Mountain. Id.

Mr. Sweitzer also testified that Laurel Mountain would accept Staff's recommendation for the fund to be in place before *construction* begins, but Laurel Mountain was concerned about any impression that the initial funding report would necessarily require a contribution to be made at the outset. Laurel Mtn. Ex. BES-R p. 31. He testified that Laurel Mountain expects that any independent analysis, at least in the first several years of operation, may conclude that the estimated value of the Project, either as a going concern or as salvage value, would exceed the cost of decommissioning the Project, and that no funding would be necessary at that point. Under Laurel Mountain's commitment in the Application, fund contributions are required only when the independent analysis shows that the estimated cost of decommissioning the Project exceeds the estimated market or salvage value. Laurel

Mountain expects that the amount required to be contributed to the fund would make up the difference.

Mr. Sweitzer testified that Laurel Mountain believes that it is an unwise use of resources to fund a decommissioning fund years before an independent financial analysis concludes that the public interest requires the availability of funds sufficient to decommission the Project. Laurel Mtn. Ex. BES-R p. 32. He asserted that any required funding amount early in the Project's life would be an arbitrary figure that bears no semblance to the amount required to decommission the Project, and therefore would represent the loss of use of a significant amount of funds. He also noted that there has been no testimony that initial funding in any specific amount is required. Id. Laurel Mountain believes that using an evaluative expert who will periodically assess the size of the fund needed, taking into consideration resale or salvage value, is consistent with the Commission-approved approach in the Beech Ridge case and would adequately protect the public interest. Laurel Mtn. Ex. BES-R p. 32, citing Comm'n Order pp. 66, 82, Beech Ridge Energy, LLC, Case No. 05-1590-E-CS (Concl. of Law 50) (Aug. 28, 2006).

Staff witness Kellmeyer, though, was not persuaded to change her recommendation. Tr. p. 64 (Aug. 6, 2008). She understood Laurel Mountain to have proposed to establish a fund that would contain the estimated decommissioning cost in excess of the salvage value, if any, but the salvage value itself would not be secured for the purpose of decommissioning. Id. She was concerned that a creditor could place a lien on the salvage value, effectively making the salvage value unavailable for the decommissioning work. Id. p. 65.

Laurel Mountain disagreed, suggesting that if a lender took over the Project as a result of a default, the lender would take the Project under the same conditions as Laurel Mountain and be required to meet the decommissioning requirements. Moreover, if the independent expert believed that a default and then a takeover of the Project by a lender would affect decommissioning, the expert could take that into account in determining the amount necessary for the decommissioning fund. Tr. pp. 166-167 (Aug. 4, 2008) (B. Sweitzer)

Based on the record before us, we conclude that the decommissioning approach suggested by Laurel Mountain is reasonable and should be adopted by the Commission, with a few modifications. Laurel Mountain agrees to a schedule of regular review and reports by the independent expert, and we conclude that such periodic reviews and updates will protect the public interest. In Beech Ridge, the Commission required reviews "from time to time," the Commission prefers the regular schedule agreed to by Laurel Mountain.

Beech Ridge was required to obtain the Commission's approval of the independent expert, but in this case it is proposed that the approval be obtained from the Randolph and Barbour County Commissions. That approach is acceptable to us. The Commission shall also require each expert report to be filed with the Commission as a closed entry in this matter. The Commission retains the right to hire its own evaluative expert to review any of

the periodic reports and to take such further action within its jurisdiction as the Commission determines is necessary to protect the public interest.

Because performance bonds, surety bonds and letters of credit must be renewed from time to time, with attendant costs at such renewal, the Commission will require Laurel Mountain to establish and use an escrow account for the decommissioning fund and to submit the proposed form of the escrow agreement to the Commission as is frequently required in other Commission cases. In addition to being agreeable to Laurel Mountain, the escrow agreement and agent also must be agreeable to the Randolph and Barbour County Commissions. Furthermore, the escrow account must clearly reflect the role of the Randolph and Barbour County Commissions and state that the obligations set forth in the escrow agreement apply to and are binding on Laurel Mountain, its successors and assigns.

General Operational Phase Certificate Issues:

- (1) The Applicant shall have a valid Interconnection Service Agreement.
- (2) This condition applies at anytime—not just in the operational stage: If the Applicant should transfer its certificate, the Applicant is required pursuant to Siting Rule 7.1 to notify the Commission in writing of the identity of the transferee and submit an affidavit from the transferee attesting to its willingness to abide by the terms of a siting certificate as issued.
- (3) The Applicant will consult with the representatives of Commission Staff, the U.S. Fish & Wildlife Service, and the West Virginia Division of Natural Resources (collectively the Consulting Team) on the scope, development, and implementation of post-construction studies (Studies) to commence within a reasonable time, and in any event no later than one year following the commercial operations date of the Project.
 - (a) The Studies will assess the Project's impact on bat life, the potential for adaptive management strategies to mitigate those impacts, the expected cost of those strategies over a range of mitigation effectiveness levels, and any other aspects of bat/wind turbine interactions identified and agreed to between the Applicant and the Consulting Team.
 - (b) To the extent that the Applicant and the Consulting Team agree that the Project's risk profile requires it, the Studies will also assess the impact on the Project on birds, including raptors.
 - (c) The Applicant commits to conduct at least one year of Studies. To the extent the Applicant and the Consulting Team determine, based upon the results of the Studies undertaken during the first year of commercial operation, that the Project would benefit from additional study and

analysis, the Applicant will conduct additional Studies during part or all of the next two years of commercial operation. Although it may choose to do so, the Applicant will have no obligation to conduct any Studies beyond the third year of commercial operation.

- (d) The Applicant will file copies of each Study with the Commission and provide copies to each member of the Consulting Team within thirty days of its completion.
- (4) The Applicant is committed to environmental stewardship and to minimizing the Project's impact on migratory bats. Consistent with this commitment, if the Studies demonstrate that the Project causes significant levels of bat mortality and that adaptive management strategies are proven to be effective and economically feasible from the Applicant's perspective, the Applicant commits in good faith to consider the implementation of those strategies.
- (5) The Applicant will minimize the visibility of the Project by using as little lighting as possible. The Applicant may use Project lighting as required by the Federal Aviation Administration and any applicable fire or safety code, regulation, or accepted good utility practice.

Staff and Laurel Mountain filed an agreement regarding several of the General Operational Phase Certificate Issues, and no party objected to any of these conditions. See Laurel Mtn./Staff Joint Ex. 1. The Commission imposed similar conditions in the Beech Ridge proceeding, and the Commission concludes that conditions set forth above under the heading General Operational Phase Certificate Conditions are reasonable and should be adopted for the Laurel Mountain Project.

6. Preconstruction Compliance

Although the Commission has limited continuing jurisdiction over entities that receive a siting certificate, the Commission does have continuing jurisdiction to entertain complaints related to a project's compliance with material terms and conditions that have been established in a siting order. See W. Va. Code § 24-2-11c(c). For the first and only time in an EWG siting order, the Commission, in its discretion, established and conducted a compliance hearing in Beech Ridge to determine whether the project had complied with the preconstruction conditions established in the Commission's siting order, although neither the statute nor the regulations require that hearing. The final siting order in Beech Ridge was issued January 11, 2007. The compliance hearing was conducted in last month, more than one-and-a-half years later. A final order has not yet been issued by the Commission, and it is likely that a party may try to appeal the Commission's compliance order. At the time we established a compliance proceeding, the Commission considered a compliance hearing to be an efficient concept. However, given the length of time involved in completing the compliance hearing phase, the efficiency of that process could be questioned.

Laurel Mountain plans to begin construction in 2009 and opposes a compliance hearing because of the likely delay in construction caused by further hearing and possible further appeal. Upon consideration, the Commission will not require a compliance hearing for the Project subsequent to this order. Instead, the Commission will require Laurel Mountain to file a verification that it has met the preconstruction conditions together with supporting detail demonstrating such compliance. This procedure obviously does not obviate the need for Laurel Mountain to comply with all conditions established in this order. Furthermore, as indicated, the Commission has continuing jurisdiction to entertain disputes over whether compliance has been accomplished.

Finally, in conducting the compliance proceedings in Beech Ridge, it came to our attention that the pre-construction conditions were not separated from construction and operational conditions in that proceeding. In this Order, the Commission shall reorganize the conditions to identify the pre-construction conditions.

C. The Commission's Application of Part Two

As is explained in Part One above, the Commission concludes that taken as a whole, the positive impacts relating to the various interests outweigh the negative impacts on the various interests in this matter. See *W. Va. Code* § 24-2-11c(c). In Part Two the Commission decides whether a project's public funding, if any, and property tax abatement, if any, offends the public interest.

Laurel Mountain testified that no public funding or property tax abatement was involved with this Project. Laurel Mtn. Ex. BES-D p. 13 (B. Sweitzer). LMPA disagreed, arguing that Laurel Mountain's likely use of the federal production tax credit amounts to public funding. Laurel Mountain Initial Brief pp. 10-11.

LMPA provided the same argument that the Commission rejected in Beech Ridge. See Comm'n Order p. 71, Beech Ridge, Case No. 05-1590-E-CS (Aug. 28, 2006) (Finding of Fact No. 14). The Commission concludes that tax credits, which only become available after a project has been constructed, represent the state or federal government's decision through tax policy to encourage certain types of development and cannot be equated with public funding or property tax abatement. Because there is neither public funding nor property tax abatement with the Laurel Mountain Project, no further analysis is needed. Based on the record then, the Commission concludes that Laurel Mountain should be issued a Siting Certificate for this Project.

III. FINDINGS OF FACT

1. On January 31, 2008, Laurel Mountain filed an Application for a Siting Certificate, pursuant to W. Va. Code § 24-2-11c, to authorize the construction and operation of a \$250 million wind turbine wholesale electric generating facility, including related interconnection facilities. Laurel Mountain will construct up to 65 wind turbines, between

389 feet and 427 feet tall, on an eight-mile stretch of the Laurel Mountain ridgeline about three miles east of Belington in Barbour County and three miles northwest of Elkins in Randolph County. Laurel Mtn. Ex. 1 pp. 1-1, 1-2, 3-1; Laurel Mtn. Ex. BES-D pp. 6-7 (B. Sweitzer).

2. The Project will be located within 8,500 acres of leased land that consists primarily of mountainous timbered forest. About 75 acres will be required for the Project's final footprint. Laurel Mtn. Ex. 1 pp. 3-2. Logging will continue during Laurel Mountain's lease of the property. Laurel Mtn. Ex. 1 p. 14-1.

3. Four residences are within one-half mile of the Project. More than 2,000 feet separate the closest home and turbine. Laurel Mtn. Ex. BES-D pp. 7-8.

4. Rates charged for electricity from the Project will be subject to regulation by FERC. Id.

5. The Project will be capable of generating between 125 and 132.5 MW. Laurel Mtn. Ex. 1 pp. 1-2, 1-3.

6. A collector system of buried cables will conduct electricity from each of the wind turbines to a new substation.

7. New interconnecting lines will convey the Project's electricity from the new substation to an existing Allegheny Power 138 kV overhead transmission line that crosses Laurel Mountain at about the midpoint of the Project. Laurel Mtn. Ex. 1 p. 4-1. In addition to the costs to construct the wind turbines, Laurel Mountain will pay all of the costs of the interconnecting lines and substation, as well as the costs for any other upgrades necessary for the Project to deliver its electricity to the 138 kV transmission line. Tr. p. 56 (B. Sweitzer) (Aug. 4, 2008); Laurel Mtn. Ex. BES-D pp. 8-9; Laurel Mtn. Ex. 1 p. 1-3.

8. The Project will not require the construction of a new transmission line. Id.

9. Laurel Mountain will enter into agreements with PJM to govern the Project's operation and interconnection with the 138 kV transmission line. Laurel Mtn. Ex. 1 p. 1-3 & App. H p. 5.

10. No public funds will be used, and there are no agreements with public entities regarding the Project. Laurel Mtn. Ex. 1 p. 12-1.

11. After construction is complete, Laurel Mountain will pay more than \$450,000 per year in taxes and payments to Randolph and Barbour Counties and approximately \$340,000 per year in State taxes. Laurel Mtn. Ex. 1 p. 12-3; Laurel Mtn. Ex. BES-D p. 13.

12. The Commission conducted public comment hearings in Elkins and Philippi on May 7, 2008. At the Elkins hearing, public comment and reaction were equally mixed. At the Philippi hearing, the majority of the public speakers favored the Project, citing both the Project's economic benefits as well as the country's need for clean, renewable energy.

13. By the end of October, 2008, comment letters filed with the Commission in support of the Project numbered nearly 600, and the number of comment letters filed in opposition approached 300.

14. On May 8, 2008, the Commission conducted a View of the proposed Project from about a dozen locations in the Project area.

15. On August 4, 5 and 6, 2008, the Commission conducted an evidentiary hearing in Charleston.

16. Unlike some other natural resources, when wind is used to generate electricity, wind supplies are not depleted.

17. PJM predicts an average summer peak load growth of 1.6 percent per year during the next ten years and 1.5 percent per year each of the five years thereafter, with the summer peak predicted to reach 159,822 MW in 2017 and 171,295 MW in 2022. The PJM winter peak load is projected to increase 1.1 percent per year over the next fifteen years, with the winter peak load forecast to reach 126,135 MW in 2015-16 and 132,686 MW in 2021-22. Laurel Mtn. Ex. 1 p. 2-1.

18. In 2008 PJM announced that it secured 159,780 MW of committed capacity for summer 2008, which essentially is equal to the demand projected for 2017. LMPA Ex. CS-D p. 4 (C. Simmons).

19. As operating and maintenance costs escalate and environmental regulations evolve, pressure to retire older fossil-fueled facilities is expected to increase. Laurel Mtn. Ex. 1 p. 2-1.

20. Adding electricity generated by the Project to the grid will not require a coal-fired base-load generating plant to operate below one-half of the plant's rated capacity. Laurel Mtn. Ex. BES-R p. 12 (B. Sweitzer).

21. The Project will have a significant positive impact on the economy during the ten-month construction period, generating \$17 million to \$43.1 million in state and local economic activity and supporting 151 jobs for construction workers. Laurel Mtn. Ex. PDF-D pp. 5-6 (P. Fleischauer); Trades Council Ex. 1 p. 6 & attached Report (M. Jin). In addition, Project construction would create 158 jobs in the trucking, wood products, business and professional services, retailing and wholesale industries. Trades Council Ex. 1 p. 6 & Jin Report p. 1. The new wages for the construction and other new jobs would total \$14.4

million. Jin Report p. 2. Profits for the self-employed would be \$0.9 million, and corporate profits would be \$2.8 million. Id. State government would receive \$1.4 million in taxes, and the federal government would take in \$3.3 million. Id.

22. The economic benefits of the Project will continue for the life of the Project, expected to be approximately 30 years. Laurel Mtn. Ex. PDF-D p. 3 (P. Fleischauer).

23. Laurel Mountain has entered into a Memorandum Agreement with the local unions that provides reasonable assurances that local workers will be hired to construct the Project. Trades Council Ex. 2 p. 2 (D. Snyder).

24. During operations, the Project will employ about nine people and generate \$1.5 million to \$2.68 million annually for the local economy. Laurel Mtn. Ex. PDF-D p. 6.

25. Relatively few locations exist within one mile where the public would be able to see the Project because those views would have to occur either from private land or would be limited because of few area roadways, the screening effects of tall trees and the local topography. Laurel Mtn. Ex. 1 App. L pp. 3-2, 4-1.

26. The most evident views may be had from the valleys east and west of the Laurel Mountain ridgeline between two to three miles away from the Project, with some panoramic views extending four miles or more. Laurel Mtn. Ex. 1 App. L p. 3-2. In most instances in which the Project would be visible, it would be from one to five miles away. Id. At distances of five miles or greater, the effects of distance and atmospheric perspective make the turbines less visible. Id.

27. From about twenty miles away, the potential views of the Project would be limited to the highest elevations along adjacent ridges or hilltops, or in valleys where views were not impeded by other hills and knobs. Laurel Mtn. Ex. L App. L p. 4-1.

28. The turbines are most likely to be seen from open areas along adjacent ridge tops and hilltops and from valley areas not obstructed by trees, buildings, or hills. Dense tree cover along adjacent ridgelines, coupled with the rolling topography of the area, will shield most of the sensitive receptor locations from any visible impact. Laurel Mtn. Ex. JB-D p. 7 (J. Bartos).

29. The Project will not be visible from the Monongahela National Forest, Audra State Park, Tygart Lake State Park, or the Pleasant Creek Wildlife Management Area because of the long distance from the project, topography, and dense tree cover. Laurel Mtn. Ex. JB-D pp. 8-9 (J. Bartos).

30. Because of the long distance away from the site and dense tree cover, views of the Project would essentially be nonexistent from Blackwater Falls State Park, Canaan

Valley State Park, and Otter Creek Wilderness Area. Laurel Mountain Ex. 1 App. L p. 2-3 & Figure 2-C.

31. The Laurel Mountain viewshed analysis was conservative in several respects, among them that the photographs represented worst case views because they reflect "leaf off" conditions, the visibility was analyzed at the maximum blade tip height and at the hub height for both the GE and Clipper turbines, and any turbine was considered to be visible if only a two-foot section of the turbine blade could be seen at a distance of three miles. Laurel Mtn. Ex. JB-D p. 7 (J. Bartos); Laurel Mtn. Ex. JB-R pp. 1-2 (J. Bartos).

32. The Project will be seen from some national register sites in Elkins, but vegetation, housing, and other structures will limit some of those views. Laurel Mtn. Ex. JB-D pp. 7-8 (J. Bartos).

33. Some archaeological sites located within five miles of the Project site are listed on the National Register of Historic Places, and other archaeological sites are eligible for listing, including the Hornbeck Farmstead, Poe Run School House, Laurel Hill fortification and Laurel Hill Confederate cemetery. Laurel Mtn. Ex. GBH-D at pp. 5-8 (G. Henry).

34. Twelve architectural properties and historic districts listed in the National Register of Historic Places or as a National Historic Landmark are located within five miles of the Project, including the Graceland Inn mansion, and the Davis & Elkins College Historic District. Nine properties within five miles of the Project were identified with the potential to be eligible for listing on the National Register. Laurel Mtn. Ex. GBH-D at pp. 5-8 (G. Henry).

35. The Commission View of the area confirmed generally that the Project will be seen, particularly at distances between two to four miles away, but that intervening terrain, development, and vegetation will likely inhibit some of the views.

36. Some of the towers must be lit for airline safety. Laurel Mountain will use lighting as required by the FAA and any applicable fire or safety code, regulation, or accepted good utility practice, but otherwise will limit lighting for the Project. Joint Applicant/Staff Exhibit 1; Tr. pp. 99-101 (Aug. 4, 2008) (B. Sweitzer); Laurel Mtn. BES-D pp. 20-22. (B. Sweitzer).

37. A member of the Elkins-Randolph County Airport Authority expressed concerns regarding the effect of the Project on airport traffic. Tr. p. 129 (Comm'n Ex. 1) (Aug. 4, 2008).

38. The Federal Aviation Administration has given the Project a determination of "no hazard." Tr. pp. 130-132 (Aug. 4, 2008) (B. Sweitzer).

39. The Elkins-Randolph County Airport Authority itself has not taken any action to object to the Project or provide Mr. Sweitzer with any belief that the Project would cause problems for the Airport. Tr. p. 126 (Aug. 4, 2008) (B. Sweitzer)

40. The top of Laurel Mountain is relatively sparsely populated, and only thirty-eight residences are located within one mile of the Project. The nearest residence to a turbine is in the northeast corner, about 2,200 feet away. Tr. pp. 62-63 (Aug. 5, 2008) (A. Agresti).

41. Because of the area's topography, the residence that would experience the sound from the Project is 2,500 feet away from the closest turbine. Tr. p. 63. (Aug. 5, 2008) (A. Agresti).

42. From April 19-26, 2007, TRC conducted an ambient noise monitoring program at three residential locations – Cranfield Hollow, Crystal Springs and Stringtown – within a one-mile radius of the Project. Laurel Mtn. Ex. AA-D pp. 5, 8-9 (A. Agresti); Tr. pp. 47-59 (Aug. 5, 2008) (A. Agresti).

43. Ambient noise levels varied widely depending on the time of day, wind speeds and location. The existing day-night average noise levels were from 34 to 52 dBA, with the most frequent range being 44 to 48 dBA. The next most frequent range was 39 to 43 dBA. Laurel Mtn. Ex. AA-D p. 9 (A. Agresti).

44. Ambient noise levels and operational and construction sound levels increase or decrease with increasing or decreasing wind speeds. Laurel Mtn. Ex. AA-D p. 13 (A. Agresti).

45. Most of Richard James' acoustic experience is in assessing noise levels outside of automotive or other manufacturing plants. He first studied operational noise from wind turbines in 2008, and he has not conducted any preconstruction noise studies at wind projects or at the Project. Tr. pp. 37-38, 42-43 (Aug. 6, 2008) (R. James).

46. Being able to perceive sound is different from sound being objectionable. Objectionable sound is more a subjective state. The objectionable annoyance factor begins at about 32 dBA because of the characteristics of wind turbine sound. Other common industrial noises such as railroads, vehicles, and airplanes must be 42 decibels to reach the same level of annoyance. Tr. pp. 27-29 (Aug. 6, 2008) (R. James).

47. Laurel Mountain used a wind screen and followed the applicable ANSI standards when conducting the ambient noise study. Laurel Mtn. Ex. AA-R pp. 5-6.

48. Wind turbines do not operate during periods of light wind. Laurel Mtn. Ex. AA-R pp. 8-9 (A. Agresti).

49. The Rion NL-21 and NL-31 sound level meters are accepted by the New York State Department of Public Service, the State of Connecticut siting council, the State of Massachusetts siting council and the Federal Energy Regulatory Commission, among others. Laurel Mtn. Ex. AA-R p. 6.

50. The Rion NL-21 and NL-31 sound level meters recorded a majority of the ambient levels at the Project within a range of 44 dBA to 48 dBA, which is typical for rural settings and consistent with the ANSI standards and the 1974 EPA publication that states that the typical rural ambient sound is about 45 dBA. Tr. p. 40 (Aug. 5, 2008) (A. Agresti).

51. The Rion NL-21 and NL-31 sound level meters are calibrated and certified to the National Institute of Standards and Technology standards annually by a certified laboratory and are calibrated before and after each noise monitoring study. Laurel Mtn. Ex. AA-R p. 7.

52. CadnaA is a sophisticated model used extensively by acoustical consulting firms and regulatory agencies for wind power projects. Acentech used CadnaA for the Beech Ridge wind power proceedings before this Commission. Laurel Mtn. Ex. AA-R p. 11, citing Beech Ridge Energy LLC, Case No. 05-1590-E-CS; see also Tr. pp. 111-113 (Aug. 6, 2008) (W. Perdue). CadnaA is able to include the effect of topographic features in the calculations. The factors listed in “Wind Turbine Acoustical Noise” (Rogers et. al., 2006) were incorporated into the CadnaA model. Laurel Mtn. Ex. AA-R pp. 13-14.

53. TRC conducted noise modeling studies of both construction and operational sound levels. Laurel Mtn. Ex. 1 App. S; Laurel Mtn. Exs. AA-D & AA-R (A. Agresti).

54. TRC built several assumptions into its operational sound study that result in a more conservative calculation, e.g., result in higher sound levels: (1) that the ground cover would only be partially acoustically absorptive instead of highly absorptive; (2) standard atmospheric conditions that are favorable to sound propagation; (3) all turbines within a five-kilometer radius would be operating at the same time; (4) that there was not extensive tree cover (although tree cover acts to further reduce noise); (5) a range of wind speeds that would result in the minimum to the maximum turbine noise levels; and (6) that all receptor locations were downwind of all turbines at all times (a physical impossibility). Laurel Mtn. Ex. AA-D p. 6 (A. Agresti).

55. TRC obtained the maximum sound levels from the manufacturers of the GE and Clipper turbines and used these maximum sound levels in the operational model. Laurel Mtn. Application App. S p. 4-3.

56. Technological advances have been made in sound control for wind turbines, and modern wind turbines do not generate a significant amount of operational noise as compared to older wind turbines. Older turbines had low frequency noise, aerodynamic noise and mechanical noise problems. Laurel Mtn. Ex. AA-D pp. 15-16 (A. Agresti). Low

frequency rumbling noises are not expected from the GE or Clipper turbines proposed for the Laurel Mountain Project. Tr. pp. 93-94 (Aug. 5, 2008) (A. Agresti).

57. The maximum operational noise level for the most affected residence is 46.7 dBA DNL for the GE turbine at full load and 48.3 dBA DNL for the Clipper turbine at full load. At one half load for the Clipper unit and one quarter load for the GE unit, all residences are expected to experience operational noise levels below 46 dBA DNL. Laurel Mtn. Ex. AA-D p. 12 (A. Agresti).

58. To both protect public health and welfare and provide a safety margin, the EPA recommends an outdoor noise level of 55 dBA DNL for any residential areas, farms or areas where people spend time outdoors. Laurel Mtn. Ex. AA-D pp. 14-15 (A. Agresti).

59. The Project's maximum calculated operational noise level – 48.3 dBA – is significantly below the EPA protective criterion of 55 dBA. Laurel Mtn. Ex. AA-D pp. 14-15 (A. Agresti).

60. Two ambient sounds that are the same are not directly cumulative, but will result in a three decibel increase in noise. For example, if the ambient noise level is 35 dBA and the Project operational noise level is 35 dBA, the total noise level would be 38 dBA. Laurel Mtn. Ex. AA-D p. 14; Laurel Mtn. Ex. 1 App. S p. 4-4.

61. Increases of 3 dBA or less are generally considered to be imperceptible changes in noise. Laurel Mtn. Ex. AA-D p. 14; Laurel Mtn. Ex. 1 App. S p. 4-4.

62. By agreements with the owners of three of the 38 nearby residences, Laurel Mountain was granted the right to go onto the properties, and the owners agreed to accept any impacts from the entire scope of the Project, including noise. Tr. pp. 73-74 (Aug. 4, 2008) (B. Sweitzer). All three of the agreements are for locations that are for potential turbines sites. Id. pp. 74-75.

63. The Laurel Mountain acoustical study compared measured ground level ambient sounds to wind speeds that occurred simultaneously at the 50-meter level (the highest measurement level on the onsite meteorological tower). Laurel Mtn. Ex. AA-R p. 10.

64. Patricia Balamenti lives about three-quarters of a mile from one of the turbines located on Backbone Mountain in Tucker County and is annoyed by rumbling noise from that project from time to time. LMPA Ex. PB-D p. 1. She did not testify that the Backbone Mountain project emits higher operational sound levels than were predicted or provide any sound level measurements.

65. Mr. James' testimony was pre-filed before he visited the Project site. He did not go to Laurel Mountain until the day before he testified at the evidentiary hearing. Tr. p. 41 (Aug. 6, 2008) (R. James).

66. Commission Staff recommended that any siting certificate issued for the Project limit the level of operational noise to 3dBA above the average ambient noise level as recorded in 2007. Tr. pp. 88-89, 93, 98 (Aug. 6, 2008) (W. Perdue); Staff Ex. WMP-D at p. 21.

67. The Laurel Mountain noise study contains data for seven days, including six DNL numbers, from the three monitoring stations. The DNL numbers fluctuated considerably and ambient sound levels can change with the seasons. Tr. p. 115 (Aug. 6, 2008) (W. Perdue).

68. Instead of using any of the high or low DNL numbers, Staff suggested developing the average DNL at each station, but Staff did not recommend how to calculate the average. Tr. pp. 88-96 (Aug. 6, 2008) (W. Perdue).

69. Noise generators, such as nearby traffic, children playing, insect noise and logging operations may arise after the ambient noise study was completed. Tr. pp. 117-120 (Aug. 6, 2008) (W. Perdue).

70. No other wind project in West Virginia or in any other state operates under an operational noise constraint similar to the one Staff proposed. Tr. pp. 80-81 (Aug. 4, 2008) (B. Sweitzer).

71. For the construction noise model, TRC used the same conservative assumptions from the operational sound model plus one more – that five adjacent turbine sites would be under construction simultaneously and all would produce the maximum amount of construction noise. Laurel Mtn. Ex. AA-D p. 7 (A. Agresti).

72. The maximum predicted construction noise level at the nearest residence is 49.4 dBA, and the maximum predicted noise level for any residence during construction is 50.8 dBA, which is a relatively low noise level as compared to a typical suburban setting which generally has a noise level of 50 dBA. The calculated construction noise levels for all but three residences are below 50 dBA. Laurel Mtn. Ex. AA-D pp. 10-12 (A. Agresti).

73. The construction noise will not be permanent and the ambient levels were at times within the range of or greater than 50.8 dBA. Laurel Mtn. Ex. AA-D pp. 10-12 (A. Agresti).

74. Commission Staff proposed to limit construction noise to 5 dBA above the average ambient noise levels recorded in 2007 at the nearest receptors. Staff Ex. WMP-D at p. 21 (W. Perdue).

75. Laurel Mountain agreed to

- (a) Require contractors to use standard noise buffers on all construction equipment and trucks;
- (b) Require contractors to use pile driving equipment which have the least noise impact;
- (c) Perform construction activities mostly during the daylight hours;
- (d) Avoid a noise impact at certain noise sensitive locations, such as a church, during the weekend church activities and services and during other normally scheduled church weekday activities; and
- (e) Limit any dynamiting to daylight hours and follow all State and Federal rules, regulations and laws.

Laurel Mtn. Ex. AA-R p. 21 (A. Agresti); See also Tr. pp. 83- 84 (B. Sweitzer).

76. Stantec Consulting performed the following bird and bat studies for the Project:

- (a) Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Laurel Mountain Wind Energy Project near Elkins, West Virginia;
- (b) Fall 2007 Bird and Bat Migration Survey Report; and
- (c) Laurel Mountain Bird and Bat Risk Assessment: A Weight-of-Evidence Approach to Assessing Risk to Birds and Bats at the Proposed Laurel Mountain Wind Energy Project, West Virginia.

Laurel Mtn. Ex. TP-D & TP-R (T. Peterson); Laurel Mtn. Ex. 1pp. 13-7 through 13-9 & App. R.

77. WVDNR and USFWS agreed to the specific scope of work for the Project pre-construction bird and bat surveys. Staff Cross-examination Exs. 1-3.

78. Throughout the studies, Stantec communicated periodically with USFWS and WVDNR regarding survey progress and to confirm the sufficiency of the manner in which the surveys were conducted. Laurel Mtn Ex. TP-D p. 4 (T. Peterson).

79. USFWS did not indicate that the Project had any particular or significant threat to Threatened or Endangered species, as the USFWS did in a previous wind power siting case. Laurel Mtn. Ex TP-R pp.10-11 (T. Peterson); See Staff Cross-examination Exs. 1-3;

Comm'n O. pp. 34-36, Liberty Gap Wind Force, LLC, Case No. 05-1740-E-CS (June 22, 2007).

80. The level of raptor migration at the Project site is relatively low as compared to other regional sites that were simultaneously monitored. Although small numbers of eagles appear to migrate above the Project area during spring and fall, eagles are not known to nest within the Project area or vicinity, and eagle mortality has not been documented at any existing wind facility in the eastern United States. Laurel Mtn. Ex. TP-D pp. 13-14 (T. Peterson).

81. A variety of breeding bird species typical of the region were documented in the Project. The Project area does not support large numbers of any rare bird species. Laurel Mtn Ex. TP-D pp. 21-22 (T. Peterson).

82. Most night-flying birds pass over Laurel Mountain in a broad front pattern, flying high above the ridgeline and the height of proposed turbines. They are not adjusting their flight path or being funneled by topography on or around Laurel Mountain. Laurel Mtn. Ex. TP-D pp. 10 (T. Peterson).

83. Mist netting surveys were conducted at thirteen different sites on Laurel Mountain between May 3 and 17; between June 13 and 26; and between September 3 and 14, 2007; equating to 228 nights of mist-netting. Laurel Mtn. Ex. 1 App. R. In order to maximize the likelihood of capturing endangered Indiana bats, mist sites were located not only on the ridgeline near proposed turbine locations but also at lower elevations and near water sources and other habitats not represented along the ridgeline. Laurel Mtn. Ex. TP-D pp. 7-8 (T. Peterson).

84. No Threatened and Endangered species were captured through the mist-netting surveys. Laurel Mtn. Ex. TP-D pp. 7-8, 16, 19 (T. Peterson).

85. USFWS Recovery Plan Guidelines require studies to be conducted between May 15 and August 15 when Indiana bats are at their summer breeding range, and part of Laurel Mountain's studies were conducted then. USFWS recommended additional spring and fall mist netting studies outside of the May 15-August 15 time period, and Stantec performed such additional studies. Laurel Mtn. Ex. TP-R pp. 11-12 (T. Peterson).

86. USFWS Recovery Plan Guidelines require one net site for every kilometer of habitat. Upon consulting with USFWS, Laurel Mountain distributed 13 mist-net sites to sample all habitats within the Project area to maximize the possibility of capturing Indiana bats along the Project's 13 kilometers. Laurel Mountain surveyed 82 net-nights in the spring, 72 net-nights in the summer, and 74 net-nights in the fall. Laurel Mtn. Ex. TP-R p. 12-13 (T. Peterson).

87. Stantec conducted desktop and field surveys to document potential bat hibernacula within five miles of the Project area and obtained the locations of known hibernacula within fifteen miles of the Project from the USFWS and WVDNR. Laurel Mtn. Ex. TP-R p. 21 (T. Peterson).

88. The nearest hibernacula known to contain Indiana bats and Virginia big-eared bats is ten miles east of Laurel Mountain, but the fact that bats are capable of flying long distances does not mean that Threatened or Endangered species are likely to be present in the Project area. Laurel Mtn. Ex. TP-R pp. 21-22 (T. Peterson).

89. Based on the results of the background investigation, both Stantec and USFWS concluded that further research for hibernacula was not warranted. Laurel Mtn. Ex. TP-R pp. 21-22 (T. Peterson).

90. Stantec used night vision on a trial basis, but only a small number of bat images were recorded, the bat species could not be readily identified and the range of the equipment is limited. Laurel Mtn. Ex. TP-R pp. 14-15 (T. Peterson).

91. Thermal imaging surveys do not provide useful data during pre-construction surveys because there would be no turbines or behavioral interactions to observe. Laurel Mtn. Ex. TP-R pp. 14-15 (T. Peterson).

92. Stantec would have conducted radio telemetry surveys to document locations and sizes of roosts if any Indiana bats or Virginia big-eared bats had been captured. Laurel Mtn. Ex. TP-R pp. 14-15 (T. Peterson).

93. Laurel Mountain agreed to several other recommendations from USFWS, among them limiting the amount of forest removal as much as possible to reduce impacts to birds and bats; following the Bald Eagle Management Guidelines of the USFWS if nesting bald eagles are found at any time during the life of the Project; not placing turbines in the "saddle" or low point along the Laurel Mountain ridgeline in order to reduce impacts to migratory raptors; and studying whether, depending on economic feasibility, the turbines should or could be stopped or free-wheeled during certain parts of the year to minimize bat mortality. Tr. pp. 90, 113, 116 (Aug. 4, 2008) (B. Sweitzer).

94. There is no evidence that a wind power project has resulted in the death of a Threatened or Endangered bat in the United States. Tr. pp. 165-166 (M. Gannon) (Aug. 5, 2008).

95. LMPA witness Dr. Gannon recommended that, regardless of current statutory and regulatory requirements, it would be appropriate to "prohibit all new wind turbine development in the region until science has tested" the general recommendations of USFWS. LMPA Ex. MRG-D p. 24.

96. Dr. Gannon also recommended that three years of preconstruction studies be conducted to evaluate the potential impact of the Project on bats. LMPA Ex. MRG-D pp. 25-26.

97. Additional pre-construction studies could not eliminate the possibility of bat mortality or the risk to Threatened or Endangered species. Tr. pp. 159-160 (M. Gannon) (Aug. 5, 2008).

98. USFWS specifically reviewed and approved the plans for the Laurel Mountain bird and bat studies conducted in the spring, summer, and fall of 2007. Tr. p. 164 (Aug. 4, 2008) (B. Sweitzer).

99. Laurel Mountain has agreed to a framework for post-construction studies. Laurel Mtn./Staff Joint Ex. 1 (Aug. 6, 2008).

100. For the hydrology study, TRC surveyed USGS maps, conducted field observations and reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (formerly the Soil Conservation Service) soil map units for the Project area. Laurel Mtn. Ex. 1 pp. 13-3, 13-4. Laurel Mountain did not record strike and dip measurements of Laurel Mountain's bedrock. LMPA Ex. PD-D p. 7 (P. Dodds).

101. TRC wetland delineation crews surveyed the proposed Project area using the Federal Routine Determination Method presented in the USACE Wetlands Delineation Manual (USACE 1987). Laurel Mtn. Ex. 1 p. 13-1. Specifically, wetland scientists utilized a multi-phased approach consisting of a review of existing USFWS National Wetlands Inventory (NWI) Geological Information System (GIS) Datalayers and Natural Resource Conservation Service Soil Surveys, followed by an on-site determination of the wetland boundary based on technical criteria established for hydric soils, hydrophytic vegetation, and hydrology. Id.

102. After the initial wetlands delineation was prepared, Laurel Mountain re-evaluated the Project's expected layout to maximize output and continue to minimize the amount of disturbance on Laurel Mountain. Tr. p. 239 (S. Hard) (Aug. 5, 2008); Laurel Mtn. Ex. SH-R p. 8 (S. Hard).

103. When the initial wetlands survey was conducted the area was suffering a drought. Tr. p. 239 (S. Hard) (Aug. 5, 2008); Laurel Mtn. Ex. SH-R p. 8 (S. Hard); LMPA Ex. PD-D p. 5 (P. Dodds).

104. In 2008, Laurel Mountain detected additional wetlands. Tr. p. 239 (S. Hard) (Aug. 5, 2008); Laurel Mtn. Ex. SH-R p. 8 (S. Hard).

105. Because the Project will not consume water and thus will not affect the current water tables, Laurel Mountain did not provide water budgets, surface flows and water tables for any water sources likely to be directly affected by the Project. Laurel Mtn. Ex. SH-R p. 2 (S. Hard).

106. At the end of their 30-year lifespan, the turbines could be replaced with the latest technology to continue the use of the valuable wind resource at Laurel Mountain. If the wind turbines are not updated, all towers, blades, nacelles, and transformers will be removed and properly disposed off-site and the land will be reclaimed through grading and seeding of disturbed areas. Laurel Mtn. Ex. 1 p. 7-14.

107. Prior to the start of operations, Laurel Mountain proposed to have a decommissioning fund in place to cover the cost of dismantling of the turbines and towers, as well as land reclamation. Laurel Mtn. Ex. 1 p. 7-14. The size of the fund would be determined initially and periodically by a qualified independent third party taking into consideration the resale or salvage value of the Project. The fund would be established in an escrow account, bond or surety held by an independent party. Id.

108. Staff recommended that Laurel Mountain be required to provide an independent expert report on the amount needed to decommission the facility and place such amount in an escrow fund prior to beginning construction. Staff Ex. DLK-D pp. 3-4 (D. Kellmeyer); Staff Ex. WMP-D p. 6 (W. Perdue).

109. Laurel Mountain agreed to receive a decommissioning fund report before construction begins, but Laurel Mountain was concerned about any impression that the initial funding report would necessarily require a contribution to be made at the outset. Laurel Mtn. Ex. BES-R p. 31 (B. Sweitzer).

IV. CONCLUSIONS OF LAW

1. The Project will provide wholesale electric service and there will be no direct financial impact to West Virginia retail ratepayers.

2. Laurel Mountain filed a thorough and complete Application that satisfied the requirements of the Siting Rules of the Commission.

3. Laurel Mountain has demonstrated a sufficient interest in constructing the Project by retaining various technical experts and developing detailed information in support of its Application; expending substantial time and economic resources to apply for a siting certificate, to pursue various other required permits and to obtain the real estate interests necessary to construct and operate the Project; preparing to make a significant investment to construct and operate the Project in West Virginia; and committing to coordinate its activities with the Commission and other state and federal agencies.

4. As part of the Commission Siting Certificate process Laurel Mountain has to demonstrate its interest in the Project, but Laurel Mountain does not need to establish that the Project is crucial, as argued by LMPA, to the construction plans or financial health of its parent corporation.

5. It is not necessary for Laurel Mountain to contract for the sale of the Project electricity prior to Laurel Mountain obtaining a Siting Certificate to authorize the Project's construction and operation.

6. The Energy Policy Act of 2005, P.L. 109-58, among other things, amended certain sections of the United States Code to encourage the use and development of renewable energy resources. See Title II of P.L. 109-58.

7. No West Virginia statutes or rules suggest that wind turbines are an inappropriate or unwarranted source of new electric generation in this State.

8. Absent statutory guidance to the contrary, it is reasonable to encourage the development of diversified sources of fuel to generate electricity and to include renewables such as wind among those diversified sources.

9. It is reasonable to expect that federal environmental regulations will be enacted to control and monitor greenhouse gas emissions, including carbon emissions, but there is not yet agreement about how the federal government will address these emissions.

10. In order to provide safe, reliable and adequate service, PJM must secure committed capacity that considerably exceeds any particular forecasted summer peak.

11. Until a federal greenhouse gas policy has been enacted, the Commission cannot begin to estimate whether retrofitting will contribute to added capacity; instead, the primary benefit of retrofitting could be to allow existing plants to remain productive.

12. Additional generation capacity is needed to meet PJM's projected load forecast.

13. It is not in the public interest for this Commission to isolate West Virginia from the region. The power grid is interconnected, and to safeguard the availability of productive, well-maintained resources to our state's residents, West Virginia must participate in the interconnected electric system.

14. When considering the need for an electric generating facility, the Commission considers more than the highest annual hourly peak demand.

15. The Project, as proposed, can power thousands of homes, even at its lowest productivity.

16. The output of the Laurel Mountain Project will assist in meeting peak summertime demands and will contribute to meeting daily and seasonal peaks, particularly in winter when the heating demand peaks.

17. Two different economic simulation models provided consistent and uncontested results. Therefore, it is reasonable to conclude that there will be a significant economic gain to both the state and local economy. Not only will the Project generate up to \$43 million dollars in the state and local economic activity, some 150 local construction jobs, 150 jobs in related services and several permanent jobs thereafter, the Project will provide significant tax revenues for local governance and public education.

18. Although the numerical level of opposition may be one of a number of factors for consideration in the "balancing" efforts the Commission must perform, the "community of interest in living separate and apart from the Project" means more to the Commission than which side "gets out the vote." The Commission is more concerned with the "intrusive" nature of the facility on the everyday life in and around the communities rather than the numerical (and sometimes illusory) tally of those "for" and "against the Project."

19. Based on all of the evidence and after spending an entire day touring Laurel Mountain, the surrounding communities and a portion of the property that is the site of the Project, the Commission is of the opinion that the Project is largely isolated from the community and limited to the private property near the top of Laurel Mountain. The Project is not, in our opinion, unreasonably intrusive in the day-to-day community life of the area.

20. The fact that archaeological and historic resources exist in the Project area does not suggest that the Project is inappropriate. The Commission has never held per se that a wind project or any other energy project cannot be visible from public places.

21. The turbines will be visible from some archaeological and national register sites, but the Project will not be visible from important park and wildlife areas. Although the Commission understands the LMPA concern about the cumulative visual impacts of the turbines from several historical points, no testimony was provided in this regard, and the LMPA witness testified that Laurel Mountain's viewshed analysis was neither inaccurate nor incomplete. Tr. p. 150 (Aug. 5, 2008) (LMPA witness A. Dodds). The visual impact of wind turbines is by and large subjective, and based upon the record in this proceeding, the Commission concludes that the cumulative visual impact upon historic and cultural sites is neither unreasonable nor burdensome.

22. Siting Rule 3.1.j requires Laurel Mountain to provide still renderings "from all scenic overlooks and project views that will be most evident to the public" (emphasis added).

23. Because LMPA did not specify any particular scenic overlooks that Laurel Mountain allegedly omitted and that would be most evident to the public, nor did it suggest

any such locations for the Commission View, the Commission concludes that Laurel Mountain's viewshed analysis complied with Siting Rule 3.1.j.

24. The viewshed of a wind turbine project is the most subjective (and likely most visceral) disputed issue in the Application. There is no "bright line" test for viewshed. In this situation, while individual turbine units will be visible from various locations (as demonstrated from the View and the photo evidence presented at the hearing), we conclude that the impact of the presence of the Project and view of the Project or its turbines will be minimally disruptive to the community.

25. Based upon the Airport Authority's decision not to object and the FAA's determination of "no hazard," the Commission concludes that the concern raised by a member of the Airport Authority has been sufficiently addressed.

26. Noise, like view, is another elusive and to some extent subjective factor in the Commission deliberative process concerning a Siting Certificate Application. Numerous factors affect the noise levels from wind turbine projects, including the type of turbine, weather, ground cover, distance, ambient noise, leaf and foliage cover, elevation, wind direction, and the state of technology as applied to wind turbines and the detection of sound from wind turbine projects.

27. The Commission, like the EPA, requires the use of average day-night sounds levels for both ambient and operational noise with the Leq descriptor.

28. The Commission Siting Rules do not exclude any nighttime noises from the requirement to add 10dBA for "noise events." To account for increased annoyance due to noise during the night hours, it is appropriate to apply the 10 dBA penalty to all noise that occurs at night.

29. In conducting the ambient noise study, Laurel Mountain effectively addressed any issue of contamination that may have occurred from wind noise artifact by using an appropriate wind screen and following the applicable ANSI standards.

30. Because wind turbines do not operate during periods of light winds, conducting an ambient noise study only with light winds would not provide meaningful data. Because both ambient sound levels and wind turbine noise vary with changing wind speeds, the noise analysis for the Project must cover a range of wind speeds.

31. The Rion NL-21 and NL-31 sound level meters are appropriate for rural settings, such as the Project area.

32. CadnaA is a sophisticated model used extensively by acoustical consulting firms and regulatory agencies for wind power projects, including this Commission.

33. Because the ambient day-night noise levels at most residences near the Project ranged from dBA levels in the 30s to the 40s, the maximum operational noise level for the most affected residence is projected to be 46.7 dBA to 48.3 dBA, depending upon the particular turbine model selected, and because the EPA recommends a maximum level of 55 dBA DNL for rural areas, the operational noise levels are expected to be similar to existing ambient noise levels and noise impacts are not expected to be objectionable because of Project operations. Therefore, noise mitigation measures, are not required for the Project other than those agreed to by Staff and Laurel Mountain and adopted as conditions in this Order.

34. The Laurel Mountain acoustical study compared measured ground level ambient sounds to wind speeds that occurred simultaneously at the 50-meter level (the highest measurement level on the onsite meteorological tower) specifically to correlate near hub height wind speed to ground level ambient sound.

35. The information Ms. Balamenti provided was specific to her location, the surrounding topography and the turbines used at Backbone Mountain. The Commission cannot predict that the same effect would occur at Laurel Mountain.

36. Although Mr. James provided anecdotal reports of residents in Michigan and Wisconsin objecting to low-frequency sounds emanating from wind projects, he did not provide any scientific measurements of the noise levels predicted for those projects, experienced during operations or for the Project for that matter.

37. The anecdotal statements by Mr. James, based on less than a year of experience with wind projects, and Ms. Balamenti are insufficient to rebut the Laurel Mountain noise study.

38. Neither the governing statute nor the Siting Rules contain any operational noise limitations or guidelines; instead, they require the Commission to balance various project impacts and their effect on the community. The Laurel Mountain study complied with Commission requirements, accurately portrayed ambient noise levels that are typical for a rural community and employed a variety of conservative assumptions to allow the Commission to assess the "worst case" scenario for the Project's noise impacts. Based upon the totality of the evidence presented to us, we conclude that the Project will emit some noise, but the operational noise levels should not be objectionable. We also conclude that, to the extent that operational noise results in negative impacts, those negative impacts are expected to be as minimally disruptive to existing property uses as is reasonably possible.

39. Neither the governing statute nor the Siting Rules require a wind facility to operate without adding any noise to the environment.

40. The Staff proposal to limit operational noise was incomplete in several respects: 1) Staff did not provide a method to calculate the averaged ambient noise level, 2)

ambient noise levels can change with the seasons and with increases and decreases in wind speeds, and Staff did not propose how such variations would be handled, and 3) there is no mechanism to account for new sources of noise.

41. Because the Project will generate operational noise at low levels and rule or statute requires a wind facility to operate without adding any noise, the Staff proposal to limit the operational noise was incomplete in several respects. The Staff proposal could make the long-term validity of a siting certificate less certain and complicate or frustrate financing efforts, and the Commission will not adopt the Staff proposed operational condition relating to noise.

42. For the same reasons as appear above regarding the Staff operating condition, the Commission will not adopt the Staff recommendation to limit construction noise levels to 5 dBA above the ambient noise levels recorded in 2007.

43. Laurel Mountain agreed to avoid noise impacts during normally scheduled church activities, but otherwise did not object to the recommendations in the second Staff construction condition. Laurel Mtn. Ex. BES-R pp. 34-35 (B. Sweitzer); Laurel Mtn. Ex. AA-R p. 21; see also Tr. pp. 83- 84 (B. Sweitzer). Generally, the Commission agrees that those Staff conditions are reasonable. The Commission will accept the Laurel Mountain agreement to avoid noise impacts during normally scheduled church activities, rather than adopt Staff's "not have a noise impact" language

44. Raptors appear to be at low risk of collision with the Project's turbines.

45. While a small number of breeding birds will likely collide with turbines, population level impacts for any single species are not expected to result from the Project.

46. The potential impacts to bats are expected to generally follow patterns similar to those documented at other facilities and will consist largely of collision mortality during the spring and particularly the fall migration seasons, with bat mortality potentially higher on warm, calm nights when long distance migratory species are expected to be the most vulnerable to collision mortality.

47. Because USFWS reviewed Laurel Mountain's study plans and Laurel Mountain conducted additional studies at USFWS's request, the Laurel Mountain bird and bat surveys were reasonable and sufficient.

48. The evidence submitted by Laurel Mountain concerning Threatened and Endangered species is credible because the studies undertaken were complete, reasonable and conducted in consultation and cooperation with the USFWS and WVDNR. No Threatened or Endangered species were detected through the mist-netting surveys, and as confirmed by WVDNR, the Project area is not located in the immediate vicinity of hibernacula containing Threatened or Endangered bat species. There is no evidence that a wind power project has

resulted in the death of a Threatened or Endangered bat in the United States. No Federally Threatened or Endangered species are expected to breed, reside in, or use the Project area as primary habitat or breeding area.

49. There is no legal requirement that would prohibit the construction and operation of all wind energy projects in the region until further studies of any kind are undertaken, and the Commission has not imposed such a condition in the past. The Commission must balance the “interests of the public, the general interests of the state and local economy, and the interests of the applicant” when assessing an application for a siting certificate. For these reasons, it is inappropriate for the Commission to prohibit all new wind turbine development until science has tested the USFWS service recommendations. The Commission must and will continue to review each application in detail, based upon the evidence provided in support of each proposal.

50. In Beech Ridge, the Commission was persuaded that multi-year preconstruction studies generate volumes of data that are not particularly useful to studying bat mortality. See Comm’n O. p. 85 Beech Ridge Energy LLC, Case No. 05-1590-E-CS (Concl. of Law 38) (Aug. 28, 2006). Dr. Gannon admitted on cross-examination that additional preconstruction studies could not eliminate the possibility of bat mortality or the risk to Threatened or Endangered species. Tr. pp. 159-160 (M. Gannon) (Aug. 5, 2008). LMPA has provided no reason in this proceeding for the Commission to direct Laurel Mountain to change its approach.

51. The post-construction proposals set forth in Joint Laurel Mountain/Staff Exhibit 1 are reasonable and should be adopted.

52. It was reasonable for Laurel Mountain to update the wetlands information because the area experienced a drought in summer and fall 2007 when the initial survey was conducted. It also was reasonable for Laurel Mountain to consider whether to change the Project’s expected layout to maximize output and continue to minimize the amount of disturbance on Laurel Mountain.

53. Dr. Dodds conducted two days of field observations on the mountain in 2008 and was able to conduct her own review of the mountain’s water features. The LMPA’s objection regarding the timing and completeness of updated wetlands information from Laurel Mountain is not well taken.

54. The Project will not consume water and thus will not affect the current water tables, and the Application is sufficient and complete. As this particular Project is proposed, it is not necessary for the Commission to review water budgets, surface flows and water tables.

55. Conditions 1, 2, 3, 4, 5, 6, 9, 11 proposed by Staff under the heading “General Preconstruction and Construction Certificate Conditions” are reasonable and are adopted.

56. In Condition 7 proposed by Staff under the heading “General Preconstruction and Construction Certificate Conditions,” it is reasonable to require Laurel Mountain to obtain *any*, instead of *all*, necessary permits and certifications, consistent with a similar condition in Beech Ridge. It generally is reasonable for conditions of this sort to be consistent in siting certificate orders and we have not been convinced that *all* is preferable to protect the public interest.

57. The phrase *prior to any grading, soil excavation, and/or habitat removal or causing a similar action by others* should not be removed from Condition 7 proposed by Staff under the heading “General Preconstruction and Construction Certificate Conditions.” The Commission understands Laurel Mountain’s position, but, in an abundance of caution, and with a desire to avoid future litigation about whether grading, excavating or habitat removal constitute construction activities for this Project, the Commission will not strike the phrase.

58. In Condition 8 proposed by Staff under the heading “General Preconstruction and Construction Certificate Conditions,” Laurel Mountain’s request to add *required* before the first use of *mitigation* and *any required* before the second use of *mitigation*, as was done in the Beech Ridge order, is unopposed and will be granted.

59. In Condition 10 proposed by Staff under the heading “General Preconstruction and Construction Certificate Conditions,” Laurel Mountain’s request to insert *if applicable* before *National Environmental Policy Act*, as was done in Beech Ridge, is unopposed and will be granted.

60. It is reasonable to conclude, based on the record, that the decommissioning approach suggested by Laurel Mountain should be adopted by the Commission in large part.

61. It is reasonable to require Laurel Mountain to file each expert report on decommissioning with the Commission as a closed entry in this matter.

62. The Commission should reserve the right to hire its own evaluative expert to review any of the periodic reports and to take such further action within its jurisdiction as the Commission determines is necessary to protect the public interest.

63. Conditions 1, 2, 3, 4 and 5 proposed by Staff under the heading “General Operational Phase Certificate Conditions” are reasonable and will be adopted.

64. Tax credits that only become available after a project has been constructed represent the state or federal government’s decision to encourage certain types of development and cannot be equated with public funding or property tax abatement.

65. Taken as a whole, the positive impacts relating to the various interests outweigh the negative impacts on the various interests in this matter. See *W. Va. Code* § 24-2-11c(c).

66. Because there is neither public funding nor property tax abatement with the Laurel Mountain Project, analysis under Part Two is not needed.

67. Based on the entire record and the analysis contained in this Order, the Commission concludes that Laurel Mountain should be issued a Siting Certificate for this Project.

V. ORDER

IT IS THEREFORE ORDERED that the Commission grants Laurel Mountain a Siting Certificate, pursuant to W. Va. Code § 24-2-11c, for the Project summarized in this Order and more fully described in the Application, subject to these conditions:

Preconstruction Certificate Issues:

- 1) Prior to commencing construction, Laurel Mountain must file a verified statement indicating that all pre-construction conditions and requirements of the certificate have been met.
- 2) Laurel Mountain must not dispose of excavated rock and/or any bedding material during or following construction of the facility by spreading the material on agricultural land.
- 3) Laurel Mountain must dispose of all contaminated soil and construction debris in approved landfills in accordance with appropriate environmental regulations.
- 4) Laurel Mountain must design and install any needed fire protection systems in accordance with the National Fire Protection Association or other accepted standards.
- 5) Laurel Mountain must coordinate with appropriate fire, safety and emergency personnel during the pre-construction stage of the Project to promote efficient and timely emergency preparedness and response.

- 6) The siting certificate shall become invalid if Laurel Mountain has not commenced a continuous course of construction within five years of the date the final certificate is granted or has not completed construction by the tenth year without petitioning the Commission for approval to expand these time frames.
- 7) Laurel Mountain must file evidence that it has obtained any necessary environmental permits and/or certifications prior to commencing construction (including letters from United States Fish and Wildlife Service, West Virginia Division of Natural Resources, West Virginia Division of Cultural and History and West Virginia State Historic Preservation Office) indicating either that Laurel Mountain does not need to take further action or outlining what action Laurel Mountain needs to take to be in compliance with that agency's rules/laws prior to any grading, soil excavation, and/or habitat removal or causing a similar action by others.
- 8) Laurel Mountain must file a copy of the Wetlands Survey and Delineation, evidence of approval and/or acceptance of the wetlands delineation, final endangered species study with any required mitigation plans, and historical/archeological significance study with any required mitigation plans prior to commencing construction.
- 9) Laurel Mountain must comply with the Endangered Species Act (16 U.S.C. § 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. § 701 *et seq.*), and, if applicable, the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*) in both the construction and operation of the Project. If any authorized governmental agency or court with competent jurisdiction finds that Laurel Mountain is not complying with any one of the above three acts in either the construction or the operation of the Project, then Laurel Mountain must notify the Commission in writing in this case of any such finding within ten (10) days of any such finding being made. Furthermore, the Commission may seek any legal remedies it has jurisdiction to seek, including injunctive relief, to address any such findings.
- 10) Prior to commencing construction, Laurel Mountain shall have obtained a report from a qualified independent third party regarding a decommissioning fund to cover the dismantling of the turbines and towers and land reclamation. The report of the qualified independent third party will provide the analysis and set the fund amount. The report shall be updated thereafter as mutually agreed between Laurel Mountain and the Randolph and Barbour County Commissions, but no less frequently than every five years thereafter. The fund amount will vary over time depending on changes in the estimated market or salvage value of the Project, the estimated cost of dismantling and removing the turbines, and the expected ongoing life of the Project. Laurel Mountain

shall obtain the approval of the Randolph and Barbour County Commissions of the evaluative expert and of the each of the periodic reports. The decommissioning fund shall not be a part of Laurel Mountain's assets. Within 90 days of any report that requires a contribution to the decommissioning fund, Laurel Mountain shall make that contribution into an escrow account held by an agent pursuant to an escrow agreement between Laurel Mountain and the Randolph and Barbour County Commissions. The methods for deposits to and disbursements from the fund shall be established within and governed by the escrow agreement. Furthermore, the escrow agreement must clearly reflect the role of the Randolph and Barbour County Commissions and state that the obligations set forth in the escrow agreement apply to Laurel Mountain, its successors and assigns. The escrow agreement and each report of the qualified independent third party shall also be filed with the Commission as a closed entry in this matter. The Commission retains the right to hire its own evaluative expert to review any of the periodic reports and to take such further action within its jurisdiction as the Commission determine is necessary to protect the public interest.

General Construction and Operational Phase Certificate Issues:

- 1) During construction, Laurel Mountain shall:
 - a) Require contractors to use standard noise buffers on all construction equipment and trucks;
 - b) Require contractors to use pile driving equipment which have the least noise impact;
 - c) Perform construction activities mostly during the daylight hours;
 - d) Avoid noise impacts at certain noise sensitive locations, such as a church, during the weekend church activities and services and during other normally scheduled church weekday activities;
 - e) Limit any dynamiting to daylight hours and follow all State and Federal rules, regulations and laws.
- 2) Laurel Mountain must coordinate with appropriate fire, safety and emergency personnel during all other stages of the Project, including Construction and Operations, to promote efficient and timely emergency preparedness and response.

- 3) Laurel Mountain must file copies of the final Interconnection Agreements prior to commencing operation.
- 4) Laurel Mountain must file evidence of its EWG status from FERC prior to commencing operation.
- 5) If Laurel Mountain seeks to transfer its certificate, Laurel Mountain is required pursuant to Siting Rule 7.1 to notify the Commission in writing of the identity of the transferee and submit an affidavit from the transferee attesting to the transferee's willingness to abide by the terms of a siting certificate, as issued. This condition applies at anytime – not just in the operational stage.
- 6) Laurel Mountain will consult with the representatives of Commission Staff, the U.S. Fish & Wildlife Service, and the West Virginia Division of Natural Resources (collectively the Consulting Team) on the scope, development, and implementation of post-construction studies (Studies) to commence within a reasonable time, and in any event no later than one year following the commercial operations date of the Project.
 - a) The Studies will assess the Project's impact on bat life, the potential for adaptive management strategies to mitigate those impacts, the expected cost of those strategies over a range of mitigation effectiveness levels, and any other aspects of bat/wind turbine interactions identified and agreed to between Laurel Mountain and the Consulting Team.
 - b) To the extent that Laurel Mountain and the Consulting Team agree that the Project's risk profile requires it, the Studies will also assess the impact on the Project on birds, including raptors.
 - c) Laurel Mountain commits to conduct at least one year of Studies. To the extent Laurel Mountain and the Consulting Team determine, based upon the results of the Studies undertaken during the first year of commercial operation, that the Project would benefit from additional study and analysis, Laurel Mountain will conduct additional Studies during part or all of the next two years of commercial operation. Although it may choose to do so, Laurel Mountain will have no obligation to conduct any Studies beyond the third year of commercial operation.
 - d) Laurel Mountain will file copies of each Study with the Commission and provide copies to each member of the Consulting Team within thirty days of its completion.

- 7) Laurel Mountain is committed to environmental stewardship and to minimizing the Project's impact on migratory bats. Consistent with this commitment, if the Studies demonstrate that the Project causes significant levels of bat mortality and that adaptive management strategies are proven to be effective and economically feasible from Laurel Mountain's perspective, Laurel Mountain commits in good faith to consider the implementation of those strategies.
- 8) Laurel Mountain will minimize the visibility of the Project by using as little lighting as possible. Laurel Mountain may use Project lighting as required by the Federal Aviation Administration and any applicable fire or safety code, regulation, or accepted good utility practice. See Joint Applicant/Staff Exhibit 1.
- 9) In the unlikely event that the blasting associated with construction activities negatively affect the groundwater aquifer on Laurel Mountain, Laurel Mountain will take immediate steps to resolve such negative effects in accordance with the representations made in its Reply Brief.

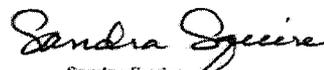
IT IS FURTHER ORDERED that the Commission hereby approves the Memorandum Agreement dated May 6, 2008 between Laurel Mountain and Trades Council. The Commission anticipates that all representations and commitments made by the parties therein shall be kept by the parties.

IT IS FURTHER ORDERED that the Commission's approval of the Memorandum Agreement does not mean the Commission is the proper forum to resolve any disputes that may arise from operating under such Agreement.

IT IS FURTHER ORDERED that upon entry hereof, this case shall be removed from the Commission's open docket.

IT IS FURTHER ORDERED that the Commission's Executive Secretary serve a copy of this Order upon all parties of record by United States First Class Mail and upon Commission Staff by hand delivery.

A True Copy, Teste:


Sandra Squire
Executive Secretary

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