

BEFORE THE OHIO POWER SITING BOARD

In the Matter of the Application of)	
Carroll County Energy LLC for a)	
Certificate of Environmental)	Case No. 13-1752-EL-BGN
Compatibility and Public Need to)	
Construct an Electric Generation Facility)	
in Carroll County, Ohio)	

DIRECT TESTIMONY OF MICHAEL D. THERIAULT

Q.1. Please state your name, title and business address.

A.1. My name is Michael D. Theriault. I am President and Principal Consultant for Michael Theriault Acoustics, Inc. ("MTA"). My business address is 401 Cumberland Avenue, Suite 1205, Portland, Maine 04101.

Q.2. Would you please summarize your educational background and professional experience?

A.2. I hold a Bachelor of Science in Electrical Engineering from the University of Maine (1986) with a concentration in Electro-Acoustics and Environmental Noise Control. I have been involved in acoustics my entire 27 year career, and for more than two decades have specialized in environmental noise control and noise impact assessment for combustion-turbine power projects. From 1998 to the present, I have been employed as President and Principal Consultant for MTA. In this capacity, I have advised clients on noise from hundreds of energy facilities, ranging in size from 1 to 2000 megawatts, many from conceptual design through final testing. I have been retained by owners and developers to prepare environmental noise impact applications; by architectural engineering firms to design and implement large-scale noise control programs; by construction contractors to perform noise testing; and by financial underwriters and

municipalities to perform noise control due diligence reviews. I have either testified or have prepared written testimony regarding noise from industrial facilities for projects located throughout the Country including Arizona, Connecticut, Delaware, Maine, Massachusetts, New Jersey, and Rhode Island. Moreover, I have appeared as an expert witness on noise before numerous state power siting boards, including the State of Massachusetts Energy Facility Siting Board; the New York State Board on Electric Generation Siting and the Environment; the Wisconsin State Public Service Commission and the California Energy Commission. I am a member of the Institute of Noise Control Engineering and the Acoustical Society of America – Greater Boston Chapter. Prior to forming MTA in 1998, I was employed as a project engineer by Brüel & Kjaer Instruments, the world’s leading manufacturer of sound level measurement instrumentation, and then by Stone & Webster Engineering Corporation, at that time a worldwide-based architectural/engineering/construction firm specializing in electric power generation.

Q.3. On whose behalf are you testifying?

A.3. I am testifying on behalf of the Applicant, Carroll County Energy LLC (“CCE”).

Q.4. What is the purpose of your testimony?

A.4. I will provide testimony supporting MTA’s report in Appendix K of the Application: “Noise Level Evaluation for Carroll County Energy”. I will also provide testimony addressing operational noise at seven nearby residences, and additional mitigation measures taken by CCE with respect to three of those residences.

Q.5. Would you please describe the studies you undertook for CCE?

A.5. MTA evaluated CCE noise levels and recommended mitigation measures to meet suitable noise level criteria. Our general scope consisted of: 1) selecting an appropriate noise level design goal for CCE; 2) developing a computer-generated acoustical model of the site; 3) predicting noise levels at property boundaries and residential locations; and 4) assessing any need for noise control measures in order to achieve the design goal.

Q.6. Can you summarize your findings contained in the Noise Level Evaluation for Carroll County Energy?

A.6. A design goal of 45 dBA at nearby residences was selected for CCE, since this limit is considerably lower than the most-restrictive levels approved for prior OPSB projects, and appreciably lower than many laws, ordinances, regulations and standards promulgated throughout the U.S. for the control of industrial noise at residential land uses. Moreover, the limit is consistent with: 1) outdoor levels historically recommended by acoustical consultants, which result in acceptable levels for indoor settings; 2) criteria for the avoidance of speech interference and sleep disturbance; and 3) general community noise guidelines.

Analysis results showed that noise levels for a ‘conventional’ outdoor facility would exceed the design goal at residential receivers by up to ten (10) decibels, and therefore an acoustical mitigation plan was developed to achieve modeling results of 45 dBA at these locations. Although the specific noise mitigation plan implemented will be selected during the detailed engineering phase of the project, a successful program would likely consist of high-performance silencers installed within the air intake ductwork of the combustion turbines; acoustically insulated combustion turbine air intake weather hoods; close-fitted acoustical barriers around the combustion turbine generators and duct burner

skids; silencers installed on fans providing ventilation air for the turbine compartments; combustion turbine exhaust noise attenuated via the HRSG units and HRSG stack silencers; acoustical shrouds and/or thicker walls for the HRSG transition ducts and boiler sections; low-noise air cooled condenser; low-noise air cooled heat exchanger; enclosures around boiler feedwater pumps; a building enclosing the steam turbine and associated equipment; acoustically treated ventilation openings for the steam turbine building; low-noise ammonia forwarding pumps; low-noise fuel gas metering and regulating equipment; and a building enclosing water treatment equipment.

Q.7. Are you aware that Residential Receptors 2, 3 and 4 as identified in Figure 5 of your report, have executed Easement Agreements and Project Cooperation Agreements with CCE regarding construction and operational noise?

A.7. Yes. I have reviewed those Easement Agreements and Project Cooperation Agreements and my understanding of them is that the owners are allowing Facility construction and operation noise on their property by virtue of the agreements.

Q.8. Should mitigation measures proposed in the Application for operational noise take into account the Easement Agreements and Project Cooperation Agreements entered into with Residential Receptors 2, 3 and 4?

A.8. Yes. In my opinion, those agreements are individual mitigation measures which should be considered when developing the overall noise control design of the Facility. Doing so will avoid the addition of controls that are unnecessary and that may negatively affect Facility performance. I believe the following condition, as proposed by Mr. Winslow in his testimony, can be incorporated into the certificate to account for the

individual mitigation measures while ensuring the design goal is still met at all receptors without Easement Agreements and Project Cooperation Agreements.

Mitigation measures shall be incorporated into the Facility so that the estimated nighttime facility noise contribution as modeled does not result in a noise level greater than 45 dBA at the exterior of any currently existing sensitive receptor. This condition shall not apply to any sensitive receptor for which individual mitigation measures have been implemented including, but not limited to, project cooperation agreements or noise easements. After commencement of commercial operation, the Applicant shall review all facility-related noise complaints through its complaint resolution process. If upon investigation of a complaint it is found that noise due to facility operations results in a facility noise level greater than 45 dBA at the exterior of the affected existing sensitive receptor(s), except those with project cooperation agreements or noise easements, additional mitigation measures shall be implemented for the affected receptor(s).

Q.9 Will estimated noise levels at residences which are not currently subject to Easement Agreements or Project Cooperation Agreements, such as Receptors 1, 5, 6 and 7 as identified in Figure 5 of your report, be acceptable if the proposed condition is approved?

A.9. Yes, noise levels will be acceptable at these locations since the proposed condition limits Facility noise levels to 45 dBA, which is considerably lower than the most-restrictive levels approved for prior OPSB projects, as well as appreciably lower than many laws, ordinances, regulations and standards promulgated throughout the U.S. for the control of industrial noise at residential land uses. Moreover, the noise level of 45 dBA in the proposed condition is consistent with: 1) outdoor limits historically recommended by acoustical consultants, which result in acceptable levels for indoor settings; 2) criteria for the avoidance of speech interference and sleep disturbance; and 3) general community noise guidelines.

Q.10. Have you reviewed the Ohio Power Siting Board Staff's Report of Investigation filed on February 19, 2014?

A.10. Yes.

Q.11. Do you have any comments with respect to any of the Staff's recommendations in the February 19, 2014 Staff Report of Investigation?

A.11. Yes. Staff recommended at page 22 of its Staff Report of Investigation that CCE follow the noise mitigation measures proposed in its application, whereby the Facility operational noise would not contribute more than 45 dBA at the seven residences near the Facility. The recommendation however, did not appear to consider that three of the seven receptors have entered into Easement Agreements and Project Cooperation Agreements with CCE regarding construction and operational noise. In my opinion, those agreements are individual mitigation measures which should be considered when developing the overall noise control design of the Facility. Doing so will avoid the addition of controls that are unnecessary and that may negatively affect Facility performance. As stated in my answer A.8, I believe the condition proposed by Mr. Winslow in his testimony, can be incorporated into the certificate to account for the individual mitigation measures while ensuring the design goal is met at all receptors without Easement Agreements and Project Cooperation Agreements.

Q.12. Do you have any additional comments with respect to any of the Staff's recommendations in the February 19, 2014 Staff Report of Investigation?

A.12. Yes. Staff further recommended at page 22 of its Staff Report of Investigation that the Applicant implement the specific conceptual noise controls outlined in MTA's Noise Level Evaluation. This however, is not advised. The engineering, procurement

and construction phases of a major power project are complex and fluid and it would be unduly restrictive for the Applicant to install every control conceptually determined during the licensing phase of the project. The most successful noise mitigation program is best developed during the detailed engineering phase of the project, when individual vendor data is available for each major component, which can then be used in a continuously updated acoustical model to determine equipment noise mitigation allocations that are most effective. Moreover, acoustical models developed for licensing purposes may estimate equipment noise levels on the conservatively high side. This in turn may result in an overestimate of noise controls needed, as compared to the amount of mitigation determined using specific vendor data obtained during the detailed engineering phase of the project.

Q.13. Does this conclude your direct testimony?

A.13. Yes, it does. However, I reserve the right to offer testimony in support of any stipulation reached in this case.

CERTIFICATE OF SERVICE

I certify that a copy of the foregoing document was served via electronic mail on the following persons this 7th day of March, 2014.

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Summary: Testimony Direct Testimony of Michael Theriault electronically filed by Mr. Michael J. Settineri on behalf of Carroll County Energy LLC