ADLER POLLOCK & SHEEHAN P.C.

One Citizens Plaza, 8th floor
Boston, MA 02110-2210

May 12, 2016

Via Federal Express/Electronic Mail

Todd Anthony Bianco, EFSB Coordinator
RI Energy Facilities Siting Board
89 Jefferson Blvd.
Warwick, RI 02888

Re: Invenergy Docket No. SB-2015-06

Dear Mr. Bianco:

On behalf of Invenergy, enclosed please find an original and ten copies of Invenergy Thermal Development LLC's Responses to The Conservation Law Foundation's 4th Set of Data Requests.

Please let me know if you have any questions.

Very truly yours,

ALAN M. SHOER
ashoer@apslaw.com

Enclosures

cc: Service List

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

IN RE: INVENERGY THERMAL DEVELOPMENT LLC	**:**	
APPLICATION TO CONSTRUCT AND	**:**	
OPERATE THE CLEAR RIVER ENERGY	**:**	**SB-2015-06**
CENTER, BURRILLVILLE, RHODE ISLAND	**:**	

INVENERGY THERMAL DEVELOPMENT LLC'S RESPONSES TO CONSERVATION LAW FOUNDATION'S FOURTH SET OF DATA REQUESTS

REQUEST 4.1: Pertains to the following sentence that appears in Invenergy's October 29, 2015 submission to the EFSB, Appendix E (addressing Noise Level Evaluation) Section 1.0, at the bottom of page 1, continuing on the top of page 2: "Although achieving the broadband portion of the code (43 dBA) was feasible with extensive controls, including placing the combustion turbines within buildings, attaining the unusually restrictive octave-band limits was found to require extraordinary mitigation measures commercially untenable and even beyond engineering feasibility."

4.1.(a) Please describe in detail both the "extensive controls" and "extraordinary mitigation measures" referenced in the sentence above.

4-1.(b) Please include in your answer exactly what additional equipment is necessary to implement the "extensive controls" and "extraordinary mitigation measures" referenced in the sentence above, including manufacturer names and model numbers.

4-1.(c) Please include in your answer the full cost of implementing each of the "extensive controls" and "extraordinary mitigation measures."

4-1.(d) Please identify which, if any, of the above "extensive controls" and "extraordinary mitigation measures" Invenergy plans to implement at the Clear River Energy Center.

RESPONSE 4.1:

4.1.(a) For clarity, use of the term "extensive controls" in Invenergy's October 29, 2015 submission to the Energy Facility Siting Board ("EFSB") Appendix E, Section 1.0, at the bottom of page 1, wholly refers to mitigation required for compliance with the overall, A-weighted portion of the code (43 dBA) during normal operation of the Clear River Energy Center ("CREC"), whereas the term "extraordinary mitigation measures" wholly refers to mitigation required for compliance with the octave band portion of the code during normal operation of the CREC.

Compliance with the broadband portion of the code (43 dBA) during normal operation can be achieved using "extensive controls" including ;

- installation of the combustion turbines and steam turbines within buildings;
- high-performance silencers installed within the air intake ductwork of

the combustion turbines to reduce high-frequency (spectral) compressor and turbine blade aerodynamic noise;

- silencers installed on fans providing ventilation air for the combustion turbine enclosure compartments;
- low-noise air cooled condensers and closed cooling water heat exchangers;
- combustion turbine exhaust diffuser is located within the building;
- combustion turbine exhaust noise attenuated via the SCR/HRSG units and high-performance exhaust stack silencers;
- auxiliary boiler FD fan intake silencer banks;
- low-noise GSU transformers; thicker casings for the HRSG boilers and transition ducts;
- buildings enclosing the auxiliary boiler, gas compressors, boiler feed water pumps and water treatment equipment;
- acoustical enclosures over the duct burner skids; acoustically louvered ventilation openings for the auxiliary boiler and generation buildings;
- the installation of a low-noise steam bypass system including low-noise valves and steam discharge stack resisters (disk stack); and
- silencers on startup vents, blowdown and drains tank vents; and silencers on safety release vents.

Compliance with the broadband portion of the code (43 dBA) for transient operations such as startup and shutdown can be achieved using all "extensive controls" listed above, in addition to installation of a low-noise steam bypass system using low-noise valves and steam discharge stack resistors (disk stack); high-performance silencers on startup, blowdown and drains tank vents; acoustical lagging of ACC ducts; and increasing the transmission loss of the generation building walls and roof.

Compliance with the octave band portion of the code was found to require "extraordinary mitigation measures" (i.e., potentially beyond the realm of engineering feasibility) for certain noise sources (most notably the combustion turbine air intake filter face, which required attenuation beyond that offered by even the manufacturer's lowest-noise options) or when considering design margin as typically employed in Good Engineering Practice ("GEP") by Engineering, Procurement and Construction ("EPC") contractors.

4-1.(b) Additional equipment necessary to implement "extensive controls" includes buildings enclosing the combustion turbine and steam turbine generators; specially-designed low-noise fans for the air-cooled condenser and closed cooling water heat exchangers; combustion turbine exhaust diffuser noise walls; high performance HRSG exhaust baffles/stack silencers; silencer banks for the auxiliary boiler FD fan intake; specially-designed low-noise GSU transformers in addition to 4 -sided transformer fire walls; thickened plating for the HRSG boiler and transition ducts; buildings enclosing the auxiliary boiler, gas compressors, boiler feed water pumps and water treatment equipment; and acoustical louvers for ventilation openings of the generation buildings.

The final design and construction of the CREC will be awarded to an Engineering, Procurement and Construction ("EPC") Contractor who will specify and purchase equipment such that noise generated during operation of

the CREC will comply with limits imposed by regulatory agencies such as the EFSB. Moreover, the EPC Contractor will be contractually required to guarantee that operation of the Facility conforms to applicable noise limits. The EPC Contractor has yet to be selected for the Project, and therefore specific manufacturer names and model numbers of equipment and mitigation designs are not yet available. The bypass control valves are being provided by General Electric ("GE") who have advised Invenergy Thermal Development LLC ("Invenergy") that they will be supplied by CCI.

4-1.(c) The full cost of implementing the extensive noise controls described in 4-1.(a) and 4-1.(b) has not been separately broken out as line items by the EPC bidders. Based on information provided by GE and from other projects that Invenergy has been involved with, we estimate that the total cost of the noise control program is in the range from $7 to $10 million dollars at a minimum.

4-1.(d) Invenergy, through its EPC Contractor, proposes to implement the controls necessary to achieve 43 dBA during normal, startup and shutdown operating conditions.

RESPONDENTS: Mike Theriault, President and Principal Acoustical Consultant, Michael Theriault Acoustics, Inc.
Amit Nadkarni, Project Manager, Invenergy Thermal Development LLC
John Niland, Director, Business Development, Invenergy Thermal Development LLC

DATE: May 12, 2016

INVENERGY THERMAL DEVELOPMENT LLC
By its Attorneys,

/s/Alan M. Shoer
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Dated: May 12, 2016

CERTIFICATE OF SERVICE

I hereby certify that on May 12, 2016, I delivered a true copy of the foregoing responses to Conservation Law Foundation's Data Requests via electronic mail to the parties on the attached service list.

/s/ Alan M. Shoer