

August 4, 2016

Via Federal Express/Electronic Mail

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

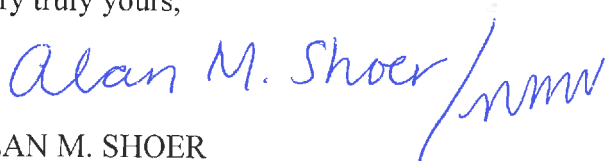
Re: Invenergy Docket No. SB-2015-06

Dear Mr. Bianco:

On behalf of Invenergy Thermal Development LLC (“Invenergy”), enclosed please find an original and 10 copies of Invenergy’s Response to the Department of Environmental Management’s Third Set of Data Requests, in connection with the above docket.

Please let me know if you have any questions.

Very truly yours,

Handwritten signature of Alan M. Shoer in blue ink, with a stylized flourish at the end.

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
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3-1 Provide a project overlay on aerial photographs depicting the general project footprint and associated clearing, including work associated with the proposed power plant itself, substation, utility corridors (including any additional clearing required for the new transmission line/towers along the new ROW from the CREC switchyard to the existing National Grid ROW and along the existing ROW to the Sherman Switching Station), Sherman Road Switching Station expansion, construction laydown and stockpiling areas (including any proposed off-site laydown areas), the access road, the water treatment system proposed at the site of the contaminated well proposed to be used as a cooling water source, the pipeline to be installed from the PUD water supply well field to the Facility, and dedicated sewer line from the site to the Burrillville Wastewater Treatment Facility.

RESPONSE 3-1: National Grid will be filing a separate Energy Facility Siting Board ("EFSB") license request as the owner/operator of the proposed transmission line, on the National Grid ROW, pursuant to R.I. Gen. Laws § 42-98-1 et seq. and the EFSB rules related to the construction of new transmission lines. The transmission line will be owned and operated by National Grid. Power Engineers, an engineering contractor, is developing the design details to support the National Grid transmission EFSB application and provide the other supporting information necessary for the project to file other associated permit applications. Since a separate EFSB application will be provided, there will be an associated separate request for opinion that the EFSB will request of the Rhode Island Department of Environmental Management ("RIDEM") on the transmission line. At this point in time we do have preliminary information on the transmission line. Figures 1-5 in Exhibit 1 and Exhibit 3 depict the limit of disturbance associated with the Project and the transmission line. Expansion or additional disturbance at the Sherman Road Substation will not be needed to support transmission.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-2 The Drawing Package, detail sheets, and application text should also consistently include all of the proposed elements of the project and related work. Please provide an amended Drawing Package or plan sheets that include all aspects of the project. Examples include:

- a. The Drawing Package does not include the substation on sheets depicting the proposed work or limits of disturbance.
- b. Limits of disturbance are only included in the difficult to read site grading plan (scale: 1" --> 400').
- c. The expansion of the existing ROW should be shown, and the new 345 kV transmission line and ROW should be depicted and distinguished from the existing lines and ROW on all relevant plan sheets and referenced alongside the existing ROW whenever transmission lines are discussed.
- d. The Wetlands are numbered 1-4 in the text, but these numbers/labels are not included in any of the Drawing Package Sheets.
- e. The more southerly lay-down area is completely surrounded by wetlands, yet no access to it is shown on the plans. Unless this area will be accessed remotely (i.e. via crane or some other equipment that would eliminate the need for ground access), please show the proposed access and account for it in impact calculations.
- f. Site contours should be labeled at intervals, and plans should be at a sufficient scale to interpret existing and proposed grades. Also, the site topography is omitted in the footprint of the proposed ROW.

RESPONSE 3-2:

- a) The Sherman road substation expansion will be limited to within the existing fence line and more information will be provided when the separate EFSB application is submitted.
- b) The Exhibit 2 which is the revised site grading plan provides more information and detail on the limits of disturbance. A full

- sized plan will be provided.
- c) Exhibit 3 delineates the preliminary engineering design for the entire transmission line along with cross sections through the right of way.
 - d) Figure 4 in Exhibit 1 annotates the different wetlands.
 - e) The southern-most laydown surrounded by wetlands on all sides will not be used as laydown as a part of the wetland mitigation plan.
 - f) Exhibit 2 has a better resolution than the previous drawing attached to the EFSB application.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

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3-3 Provide a Drawing Package or other plan sheets depicting consistently all on-site wetlands and streams (e.g. Dry Arm Brook, Iron Mine Brook, and their unmapped tributaries) and any associated culverts carrying flow.

RESPONSE 3-3: Exhibit 2 contains the plan entitled "Proposed Site Layout, Grading, Drainage and BMP Plan", which shows the wetlands and streams and current design of the stormwater culverts. See also Figure 4 in the list of figures in Exhibit 1.

RESPONDENT: Dan Mitas, HDR Inc.
Michael Feinblatt, ESS Group, Inc.

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3-4 Provide details of the location, type, length, and width of any culverts or bridges to be utilized to allow unimpeded flow of water and free access for wildlife travel under the proposed access road. If a culvert is not proposed under the proposed access road east of Stormwater Retention Pond 1, please explain why.

RESPONSE 3-4: Three (3) natural bottom arch type culverts will be utilized to allow unimpeded flow of water and free access for wildlife travel under the proposed access road as indicated in the revised drawing package, Exhibit 2. The height of each culvert will be a minimum of approximately three (3) feet with a width of approximately nine (9) feet (final geometry to be determined in final design). The length of each culvert will vary from approximately thirty (30) to one hundred (100) feet depending on the location along the access road.

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3-5 Provide details of the location, type, length, and width of all culverts or bridges to be utilized to allow unimpeded flow of water and free access for wildlife travel where the proposed construction access road along the planned overhead transmission line would cross several streams.

RESPONSE 3-5: The culverts or bridges for the proposed construction access road along the planned overhead transmission line in the National Grid ROW are currently in place and no new culverts or bridges are planned. The design of the road for the section of the new transmission line over the Spectra property to the existing National Grid ROW are still being developed and will be included in the separate EFSB application for the transmission line as indicated in the response to question 3-1.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

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3-6 Provide any survey for rare plants/animals that has been conducted for the site or explain why none has been conducted. There are a fair number of rare plants documented in site vicinity, but the list of species includes only common/dominant species.

RESPONSE 3-6: According to the Rhode Island Natural History Survey ("RINHS") database no known occurrences or records of rare plant/animals are documented within the project area. No specific rare plant/animal surveys were completed and no rare plant/animal species were observed in the course of other field work.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-7 Provide the protocol for inventory of fauna on site. Provide a survey which determines the full suite (or at least a more complete list) of species that would be impacted by the project and the nature and extent of those impacts. This includes impacts to rare (e.g. Black-throated Blue Warbler and Wood Turtle) and other area sensitive (e.g. Canada Warbler, Northern Water Thrush, Eastern Box Turtle, etc.) species already known to occur in the project area.

RESPONSE 3-7: Typically, rare plant/animal surveys are only conducted when the RINHS database indicates the presence of a rare or threatened species in the area to be impacted. According to the RINHS database, no known occurrences or records of rare plant/animals are documented within the project impact area. Therefore, no specific rare plant/animal surveys have been conducted.

According to the Rhode Island Wildlife Action Plan, the rare and area sensitive species noted above have been identified in the vicinity of the project impact area. Accordingly, there could be some impacts to rare and area sensitive species resulting from the clearing of forest and other vegetation within the project impact area. The nature and potential extent of these impacts will be assessed in detail in the wetlands applications to be submitted for the project to the USACE and RIDEM, as required. The project has already been designed to minimize impacts to forested habitat areas. Invenenergy will work with the USACE and RIDEM to identify mitigation measures to further minimize the impacts of the project to rare and sensitive species both during construction and during operation.

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3-8 Provide more detail on the specific means of detection for each bird species noted as a probable breeder at the site (i.e. what evidence of breeding was noted for each and where). Section 6.6.2.2 provides this information for black-throated blue warbler, but not other species. Additionally, provide details of the survey protocol and level of effort.

RESPONSE 3-8: In the course of conducting field work to support the EFSB and wetlands application multiple site visits were completed during various seasons and years (2014, 2015, and 2016). Incidental observations of avian species at the site were made by visual or auditory detection. Species listed as probable breeding species at the site in EFSB Table 6.6-1 were those species observed at the site during the breeding season within the appropriate habitat and for which some evidence of breeding was observed. For most species, evidence of breeding was the presence of singing males during multiple site visits. In some cases, other evidence of breeding was observed, such as a male/female pair together, a bird with nest-building material, or a nest. Species listed as possible breeders were those that were observed in appropriate habitat, but for which no specific behavioral or physical evidence of breeding was observed.

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3-10 In the applicant's responses to the Town of Burrillville's 5th set of data requests, Item 5-8 the applicant states that Section 6.5.2 describes impacts to vegetation and Section 6.6.2.2 details the expected impacts of project construction on wildlife and ecology. Given the limited survey of flora and fauna on-site and the brief treatment of each in the application, these sections are presently inadequate to assess either. Please provide a thorough accounting of biodiversity impacts from the project.

RESPONSE 3-10: There will be some impacts to biodiversity resulting from the clearing of forest and other vegetation within the project impact area. The nature and potential extent of these impacts will be assessed in detail in the wetlands applications to be submitted for the project to the USACE and RIDEM, as required. The project has already been designed to minimize impacts to forested habitat areas. Invenergy will work with the USACE and RIDEM to identify mitigation measures to minimize the impacts of the project to biodiversity both during construction and during operation.

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3-11 Provide the total acreage of forest clearing to-date in Burrillville and forecasted future (planned) clearing associated with these natural gas projects.

RESPONSE 3-11: No forest clearing has been completed to date on the CREC Project. The CREC project has been designed to minimize land impacts. The estimated impacted acres of land are as follows:

- For not only the construction of the power plant, but the construction of the staging area and the new site access road the cleared area is approximately 50 acres.
- The clearing required for the construction of a new gas line is included in the power plant cleared area.
- The construction of the 150-foot wide overhead transmission line right of way cleared area on Spectra property is approximately 14.4 acres.
- The water and wastewater lines do not require additional cleared area.
- The new power line installed on the National Grid right of way will impact approximately 57.3 acres.

Based on these estimates, the current total for direct impacts is approximately 121.7 acres.

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3-12 Section 6.6.2.2, Impacts to Wildlife and Ecology, indicates that construction of the proposed facility is anticipated to directly alter approximately 67 acres and indirectly impact another 83 acres (total = 150 acres), while the applicant's Responses to the Town of Burrillville's 5th Set of Data Requests (Response 5a-2) lists the acres of impacted land as 50 acres for the power plant and new gas line, 14 acres for the new line on new ROW, and 57 acres for the new line on existing ROW (total = 121 acres). Assuming the latter calculations are of direct impacts only, and since the majority of the project is presently forested upland and wetland, the substantial discrepancy between the 67 acres in the application and the 121 in the follow up is unclear. Please clarify whether both sets of numbers are correct and, if so, what habitats/land uses will be impacted by the additional 54 acres.

RESPONSE 3-12: The discrepancy between the two totals for direct impacts is primarily related to the impacts associated with the new power line to be installed on the National Grid right of way (approximately 57.3 acres). As indicated in the response to question 3-1, there will be a separate EFSB application for the transmission line that will be owned and operated by National Grid. This direct impact was not included in the EFSB application.

Section 6.6.2.2 did not include an analysis of impact of the proposed new power line along the existing ROW (57 acres).

The 3-acre difference of direct impacts between the EFSB Section 6.6.2.2 of 67 acres and Response to the Town of Burrillville's 5th Set of Data Request of 64 acres (50 acres for the power plant and new gas line, 14 acres for the new line on new ROW) was a result of a reduction in the proposed limit of disturbance.

The estimated indirect project impacts to wildlife and ecology, based on the project design at the time of submittal, were detailed in Section 6.6.2.2 of the EFSB Application. A revised estimate of the project's indirect impacts to wildlife and ecology will be included in the wetlands applications to be submitted to the USACE and RIDEM.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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- If the line has sufficient available capacity then new generation can be added to the line without creating the need for costly and possibly prohibitive upgrades
2. Available gas capacity on the gas pipeline was examined based on discussions with the owner/operator of the pipeline;
 - If the pipeline is already fully subscribed then additional capacity would be needed (which may require upgrades that also involve additional clearing and related environmental impacts).
 - If the pipeline is a lateral from the main line and is fully subscribed, it may require upgrades or replacement of the lateral from the main line to the point of interconnect (which may also involve additional clearing and related environmental impacts).
 - As the main pipelines get closer to Boston (NEMA/Boston) they become further constrained and the availability of gas transportation is far more restrictive, thus requiring upgrades in areas that have higher population densities, and for this reason, these areas were not examined.
 3. Land areas (sufficient acreage) that may be suitable for a power generation facility
 4. Zoning of any possible suitable sites.

The sites that were evaluated failed to meet one or more of the above metrics and in all cases did not have the required zoning that would accommodate a new power generation facility.

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3-15 Section 3.5.5 Appurtenant Equipment notes that, as an alternative to sending wastewater to the Burrillville Sewer Authority wastewater treatment system, "a zero liquid discharge system may be used." What are the environmental costs and benefits of this alternative (e.g. would it increase water recycling /reduce drawdown of area streams and wetlands/)? Why is the zero liquid discharge system only being contemplated if permission to discharge to the Burrillville Wastewater Treatment plant isn't granted?

RESPONSE 3-15: Wastewater from the CREC facility will need to be discharged under a RI Industrial Wastewater Discharge Permit ("IWDP") that will define all pre-treatment requirements for discharges from the facility into the Town's existing sewer system. The CREC facility will discharge into the Town's sewer system through a new dedicated force main to be installed connecting into the Town's sewer system at the corner of Wallum and Old Wallum Lake Roads. CREC will also pay for the entire installation cost for the force main sewer line interconnecting into the Town's sewer system and will as a result of its discharge and associated discharge fees add a new revenue source to the Town to help defray the operating cost of the Town's Wastewater Plant. Additional revenue from the CREC facility discharges will help mitigate user rate increases in the future.

A Zero Liquid Discharge System ("ZLD") is typically installed when there are no alternatives for discharge or in the case where the wastewaters needing disposal cannot be discharged because of high concentrations of contaminants or overall salt concentration. In the case of the CREC facility, salt concentrations are relatively low, and thus there is an alternative to the installation of a ZLD which is discharging into the existing Town of Burrillville Sewer System which CREC believes can accommodate the future wastewater discharges from the CREC facility.

Discharging wastewater from an electric generating facility to a Publicly Owned Treatment Works ("POTWs") is not an unusual practice provided that the generating facility is gas or distillate oil fired and has been

designed to meet the pre-treatment discharge criteria required by the POTW. There are other gas fired combined cycle electric generating facilities in Rhode Island that operate and discharge their wastewater to POTWs as is planned by CREC.

The recent “Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category”; 40 CFR Part 423 published in the Federal Register November 3, 2015 was issued by USEPA after an extensive review of wastewaters generated by electric generating facilities using a full range of fuels and technologies. Under those regulations wastewaters from the CREC facility are categorized as “Low Volume Wastes” the sources of which are specifically identified in the regulation except that Low Volume Wastes defined under that regulation also include other wastewater sources not present in the CREC facility. To illustrate that discharging to a POTW is not unusual for a properly configured electric generating facility, 40 CFR Part 423 includes specific pre-treatment standards that are required for new electric generating facilities discharging to POTWs.

CREC understands that a specific review of its wastewaters and sources will be required during the review of its IWDP application when submitted. CREC also expects that any IWDP issued by RIDEM will identify specific discharge limits and an average month discharge volume of wastewater that can be discharged from the CREC facility. Since the CREC facility has not been constructed or operated, CREC expects that sampling of CREC’s wastewater discharges will be conducted after operation of the facility to confirm that the wastewater characterization provided by CREC in its IWDP application is consistent with the actual wastewater composition discharged when the CREC facility is placed into operation.

To minimize overall water use and associated wastewater generation the CREC facility has made a significant investment in a dry cooling system. The dry cooling system was specifically selected to mitigate water use and reduce both the total volume and overall salt concentration of wastewater discharged from the CREC facility. Invenergy understood that to site the CREC facility into the community would require this overall investment. As a result, CREC’s overall water use was significantly reduced from what it would have been if a wet cooling tower system had been selected for heat rejection from the facility as is practiced by most electric generating facilities in New England.

If the CREC facility had proposed to use a wet cooling tower for its heat rejection, which is more common in New England, then in that case the CREC facility water use would have been considerably more and the facility’s wastewater would have been high in overall salt concentration.

Installation of a ZLD would eliminate the wastewater discharge from the CREC facility and increase recycling of water within the plant but would also generate a solid waste requiring disposal in a licensed landfill designed to accept that type of waste. Use of a ZLD would also result in a loss of revenue that will help in the operation of the Town's Wastewater Treatment Plant.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
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3-16 Section 6.2.1.2 Potential Impacts to Ground Water mentions dewatering, but it does not detail the projected extent and schedule of dewatering or the anticipated dewatering impacts to adjacent wetland habitats/wildlife during the proposed four-year construction phase. Please clarify.

RESPONSE 3-16: As noted in the EFSB application, dewatering may be necessary to control surface or subsurface water to allow the necessary construction activities to be performed. For example, dewatering may be necessary to install a foundation or a subsurface utility where the excavation to install that item encounters groundwater. Dewatering would only be performed long enough to complete the construction of the particular item, there will be no widespread dewatering of the construction site. Dewatering is anticipated for most of the major equipment foundations located within the power plant proper as depicted on the site plans. The need to dewater to support foundation construction will start within two to four months after mobilization of the project site, and is expected to last from twelve (12) to fifteen (15) months thereafter. The requirements for any dewatering would be specified under a RIPDES General Permit or similar. Water generated during any dewatering would be treated, as required under the permit, prior to discharge to the hydrologic system as close as possible to the dewatering location. This approach would minimize any impacts to wetland habitats/wildlife. No significant impacts are anticipated as a result of these activities.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
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3-18 In section 6.2.4 Water Supply — Impacts of Withdrawals on Clear River, the applicant asserts that the Project referred to the RIDEM's 2010 Rhode Island Streamflow Depletion Methodology (SDM) to conclude that the Clear River had a remaining withdrawal allowance of 0.4 MGD during summer conditions from which CREC could withdraw 0.22 MGD. Was the extensive network of on-site streams and wetlands considered in this analysis? All on-site streams are stated to cease flow under present conditions, which could imply a very specific macroinvertebrate and/or amphibian community dependent upon the existing water regimes in these streams (or perhaps already stressed by increases in extremes).

RESPONSE 3-18: Based on discussions with RIDEM representatives, a revised Stream Depletion Analysis has been completed and will be submitted as an addendum to the EFSB application. The network of on-site streams and wetlands was not considered as the proposed water withdrawal using PUD Well #3A is located approximately 2.5 to 3 miles downstream and will have no impact on the hydrologic conditions in the on-site streams and wetlands.

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3-19 In addition to the drawdown at well #3A (assumed to represent a one for one reduction in the Clear River flow), have calculations been performed to estimate water quantity impacts to on-site wetlands/streams from loss of infiltration associated with the "Land Use with Higher Potential Pollutant Load (LUHPPL)" designation for the majority of the project area?

RESPONSE 3-19: Stormwater runoff from the proposed site area classified as a LUHPPL will be directed to a treatment and rate mitigation facility and discharged to on-site wetlands/streams. The effects of the loss of infiltration over the LUHPPL area on on-site streams and wetlands have been mitigated by proposing to discharge stormwater into on-site streams and wetlands following treatment. Specific calculations to estimate the quantity are currently being prepared and will be included in the Stormwater Management Report.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
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**IN RE: INVENERGY THERMAL DEVELOPMENT LLC :
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3-20 Section 6.4 Stormwater indicates that the 67-acre parcel is not adjacent to a named waterbody. The parcel is adjacent to two named waterways that drain directly to the Clear River and then to Wilson Reservoir. Given the direct surface water connection, the intent and/or utility of this assertion are unclear. Please clarify.

RESPONSE 3-20: Section 6.4 acknowledges the presence of these tributaries and there was no particular intent associated with not including the names of these tributaries. The Project will include the names of the two tributaries (Dry Arm Brook, Iron Mine Brook) in future submittals and plans.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-21 Were light impacts to wildlife considered? Was light pollution considered in the calculation of a buffer distance into the forest from indirect impacts? Is lighting minimized to the greatest extent practicable?

RESPONSE 3-21: The CREC lighting plan is required to ensure the safety of the facility's operating staff. The CREC facility is an industrial facility that has many areas of high energy equipment that must be visually checked during operation and maintenance activities, both during the day and at night. As such nighttime lighting is a critical aspect of plant safety. The onsite lighting plans will be evaluated to minimize lighting impacts concerning wildlife.

The CREC lighting design will be the minimum necessary to ensure plant safety. The lighting will be designed to minimize un-needed off-site impacts to the extent practical. This will include selection of light fixtures that are designed to direct light down as long as that allows the plant equipment in that area to be fully lighted during operation to support visual inspections. Lighting will not be installed in areas that do not require it to the extent practical. Light impacts to the community and wildlife should be addressed by this approach.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

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3-22 Provide details of required site lighting, and describe what steps will be utilized to minimize lighting impacts or avoid light spillover into adjacent forested habitats from both the plant and the access road. Details should include, but not be limited to, lighting schedules, lumen output (based on need assessment); Correlated Color Temperature (CCT); fixture shields; and adaptive controls such as dimmers, timers, and/or motion sensors. Include all outdoor lighting, including any necessary on the stacks.

RESPONSE 3-22: The CREC lighting plan is required to ensure the safety of the facility's operating staff. The CREC facility is an industrial facility that has many areas of high energy equipment that must be visually checked during operation and maintenance activities, both during the day and at night. As such nighttime lighting is a critical aspect of plant safety. The onsite lighting plans will be evaluated to minimize lighting impacts concerning wildlife.

The CREC lighting design will be the minimum necessary to ensure plant safety. The lighting will be designed to minimize un-needed off-site impacts to the extent practical. This will include selection of light fixtures that are designed to direct light down as long as that allows the plant equipment in that area to be fully lighted during operation to support visual inspections. The final lighting design will address the extent that design features such as adaptive controls can be used. Lighting will not be installed in areas that do not require it to the extent practical. Light impacts to the community and wildlife should be addressed by this approach.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-23 Has the applicant considered noise impacts (i.e.. those brought in by the existing facility and those proposed to be added during both the lengthy construction period and post-construction operation) to area wildlife, including an assessment of the kind of impacts the expected average and episodic broadband and octave decibel levels will have on area-sensitive species?

RESPONSE 3-23: The site of the proposed CREC facility is within a parcel on which a natural gas compressor station operates as required to maintain gas pressure in the natural gas pipeline system. As a result, wildlife on or near the property has been exposed to the on/off operation of the gas compressor station both during daytime and nighttime operation for many years. With the construction and operation of the CREC facility, wildlife on or near the property will be exposed to additional noise at similar levels to that which has been experienced by the wildlife over many years.

Most of the studies regarding noise impacts to wildlife that have been conducted focus on military aircraft overflights, and therefore involve much higher levels of noise, and that have a significant "startle effect" (i.e. a very quick onset). The CREC and existing gas compressor station noise levels are much lower in level, and while they do cycle on and off the onset of noise from the start-up of the CREC is relatively slow and has been significantly mitigated. Also, many of the wildlife noise impact studies found in the literature have focused on specific species in specific locations, and from sources such as traffic, large scale oil and gas field development, aircraft etc., and are therefore not directly relevant to the CREC situation.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
Mike Hankard, Hankard Environmental

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3-24 Was noise considered in the calculation of a buffer distance into the forest from indirect impacts?

RESPONSE 3-24: The siting of the CREC facility and the identified buffer distances were not set based on impacts of noise on wildlife. *See* Response 3-23.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-25 What is the distance into the forest that the impacts from both plants do not contribute to an increased noise level? If the answer to this is greater than 300 feet, it may be more accurate to adjust the buffer used for disturbance to interior forest species/indirect impacts to forest habitat.

RESPONSE 3-25: The CREC will contribute to an increase in noise level at a distance greater than 300 feet into the forest. Siting of the CREC facility and setting of the identified buffer distances were not set based on impacts of noise on wildlife. *See* Response 3-23. Also, as described in the response to 3-27, significant investments are being made to reduce noise levels at nearby residences, and these measures will also reduce noise levels in the forest habitat areas near the project.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
 Michael Hankard, Hankard Environmental

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3-27 Are venting/blowdowns and any other intermittent high-noise events factored into the noise projections, and if so how (LCEQ)? If not, how much louder than the average noise levels are these events on the existing site and in adjacent forest, and how much louder than average can they expected to be on the new site and in adjacent forest?

RESPONSE 3-27: The design of the CREC includes significant investments in noise mitigation measures to reduce noise levels at nearby residences, and these measures will also reduce CREC noise levels in the forest. All regularly occurring venting has been silenced such that all plant operations, including venting, will be no louder than 43 dBA at residences at any time. Emergency venting has been silenced as well, as identified in Tables 7 and 8 of the Transient Noise Level Evaluation report (March 2016). (Report attached as Exhibit 6.)

RESPONDENT: Mike Hankard, Hankard Environmental

DATE: August 4, 2016

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3-28 While the existing compressor facility is generally noisier than the proposed facility, any additional sound within 10 decibels of the existing source(s) will raise the total noise level from 1-3 decibels. Is this decibel addition "rule of thumb" specific to the human ear? Has the applicant considered studying the noise impacts of the existing facility on area wildlife? If yes, provide those studies.

RESPONSE 3-28: The decibel "rule of thumb" is specific to the human ear. *See* Response 3-23 with regard to noise impacts on wildlife.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
Mike Hankard, Hankard Environmental

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3-29 The application indicates that Noise levels during Project construction are expected to be near or below current daytime ambient noise levels (LAEQ). Is this as measured at nearby Noise Sensitive Areas (NSAs)? What about on site and in immediately adjacent forested areas?

RESPONSE 3-29: Yes, this statement is made based on levels expected at residences, not in the forest. We did not conduct existing measurements in the forest per se, other than the fact that the two sites along Jackson Schoolhouse Rd were, effectively, in the forest. In the forest, closer to the CREC, noise levels will be louder and may exceed existing daytime levels. Noise regulations are specific to human impacts and make no mention of or reference to wildlife impacts. *See* Response to 3-23.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
Mike Hankard, Hankard Environmental

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3-30 Under Section 7.2.4 Analysis of Need — Impact on Rhode Island Emissions Goals, the applicant projects a favorable short-term impact for the region, but does not address the state in particular. Changes in emissions/air quality are relevant to all biodiversity and to sensitive species in particular. Did the applicant calculate the change to RI's emissions specifically, as this is what would be most relevant to local plants and animals? What is the timeline for which emissions reductions were calculated (i.e. at what point would emissions from MWs provided via natural gas exceed the average emissions from the energy pool)?

RESPONSE 3-30: The operation of the CREC will result in decreased emissions and improved air quality throughout the region, including within Rhode Island. It is not practical to quantify these benefits for Rhode Island specifically, as the New England energy market is a regional market, and the potential benefits to air quality at any location within the region will vary depending on the mix of resources online and the meteorological conditions at the time. The time line for the estimated emissions reduction were calculated from 2019 through 2025. Over time, these net decreases in emissions and improvements in air quality will decrease as the energy efficiency for the regional pool increases and it is not know at what point in time the emissions from MWs provided via natural gas exceed the average emissions from the energy pool.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-31 Are there industry studies of local air quality and wildlife impacts from similar facilities? If yes, please provide references to those studies. Additionally, has the applicant considered studying impacts at the existing compressor station (under normal and venting conditions)? If yes, please provide those studies.

RESPONSE 3-31: The CREC facility has been designed with modern emission controls to fully meet the National Ambient Air Quality Standards ("NAAQS") set by USEPA under the conditions of full load operation and firing either natural gas or ultra-low sulfur distillate oil. USEPA set the NAAQS to be fully protective of human health and the environment, including wildlife. USEPA set the NAAQS based on relevant studies conducted by USEPA and other researchers. By meeting the NAAQS, local air quality will be fully protected. The impacts from the proposed project, the existing ambient conditions and the existing compressor station were included in the multi-source air modeling analysis completed for the CREC facility. This modeling analysis demonstrated compliance with the NAAQS.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-32 Do the air, cost-benefit, and/or alternatives assessments factor in the negative environmental and climate change impacts from the proposed loss of forest (e.g. loss of environmental services, such as soil carbon storage, CO2 storage in biomass, temperature mitigation, and water storage capacity/mitigation)? If not, provide an analysis factoring in such negative impacts.

RESPONSE 3-32: The proposed CO2 impacts from loss of forest associated with the project is expected to be greatly offset by the significant positive CO2 reductions resulting from the decrease in regional emissions, including greenhouse gas emissions which will result from the CREC's operation.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-33 The application correctly asserts that the creation of new edge habitat will inhibit the growth of shade tolerant species and encourage disturbance specialists, likely including invasive species. Are any non-native species, and invasive species in particular, currently on site? If yes, provide a list of those species. Are there nearby sources for• invasive species? If yes, provide a list of species and their location.

RESPONSE 3-33: Since the proposed project site is a largely intact, mature forest, there are currently few non-native, invasive species present at the site. A full botanical inventory of the site has not been conducted, however no significant concentration of invasive species have been observed at or in the vicinity of the site.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

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3-34 Have wildlife impacts from increased vehicle traffic been considered, including road kill associated with higher traffic volumes on 23 roads, many of which are rural? If yes, please explain.

RESPONSE 3-34: Data collected from the Burrillville Animal Control Department indicates that there are approximately 100 road kill incidents per year within the town limits. We have applied this number to the percentage of roadways within the town limits that are included in the project scope to make a conservative estimate that approximately 50 roadkill incidents occur within the study area roadways each year. This number does not include road kill involving deer as those instances are handled by the Department of Environmental Management ("DEM"). However, from the crash data collected from the Burrillville Police Department, seven crashes over the past three years (an average of less than three per year) involved a vehicle hitting a deer along the study area roadways. Using this information along with the projected increase in daily traffic volumes between 2021 No-Build and Build conditions, it can be estimated that the traffic increase due to the construction of the power plant will result in an increase of less than one roadkill incident (both deer and non-deer related) per year.

RESPONDENT: Maureen Chlebek, McMahan Associates

DATE: August 4, 2016

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3-35 The application states that "Figure 6.81 shows the Heavy Haul and Main Road, Wallum Lake Road, the New Entrance Road, proposed parking and the equipment laydown area," but the Heavy Haul and Main Road are not labeled. Are they synonymous with Wallum Lake Road and new entrance?

RESPONSE 3-35: Yes, the Heavy Haul and Main Road are synonymous with Wallum Lake Road and the Proposed Entrance Road on Figure 6.8-1.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

b. The calculated magnetic-field levels have been checked and they are correct. The reason for the apparent discrepancy is due to phase optimization. When both the 341 and 347 lines are projected to carry their average load, the direction of load flow is in the same direction as the proposed CREC line (included in the calculations as carrying a peak load). At peak loading, however, the direction of flow on the 341 and 347 lines reverse to flow in the opposite direction relative to the CREC line. As discussed in Exhibit 7 (Revised) (pg. 5), an optimal phasing design for the CREC was selected to produce the lowest magnetic-field level at the edge of the ROW for *average loading* which is their expected operating condition for the majority of the time. At peak loading, which occurs for limited periods of time (hours, a few days) on the 341 and 347 lines, the direction of current flow is projected to reverse, and this causes the magnetic field cancellation at the ROW edge to be suboptimal, increasing the magnetic field levels at the ROW edge and slightly reducing the maximum magnetic field on the ROW relative to other phasing configurations.

RESPONDENT: Benjamin Cotts, Exponent, Inc.

DATE: August 4, 2016

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3-37 Has the applicant consulted the existing literature or otherwise considered the impacts of electric and magnetic fields (EMF) comparable to those currently proposed on area wildlife? To the extent that existing literature was consulted, please provide a list of all references reviewed or an explanation as to why existing literature was not consulted. As with noise, the access limitations, time of day distinctions, and buffering of impact from distance and buildings do not generally apply to wildlife.

RESPONSE 3-37: In the EFSB Application and Appendix F, and in Exponent's REVISED and Report, dated August 4, 2016 (attached as Exhibit 7) the incremental effect of the CREC line on the EMF levels are calculated out to ± 500 feet of the centerline of the ROW, but the area in which field levels will change appreciably is confined to a much smaller area, approximately ± 200 feet of the proposed CREC centerline.

Section 6.6.2 Wildlife of the Application lists observed and expected wildlife species in the project site. None of these species has been confirmed to exhibit any identified sensitivity to the 60-Hertz (Hz) EMF present near the transmission line conductors during operation. Even for some species that have evolved to make use of the earth's static geomagnetic field with a frequency of 0 Hz, the frequency-specific nature of sensory detection mechanisms for static magnetic fields means that magnetic fields at a frequency of 60 Hz may not be sensed, or the strength of the 60-Hz magnetic field required to be sensed would be far higher than would be found under existing transmission lines or the proposed CREC line.

The prime example is bees. No direct effects of 60-Hz electric fields on bees have been demonstrated at levels below 100 kilovolts per meter (kV/m) (Bindokas et al. (1988). With respect to magnetic fields, bees have been shown to be very sensitive to detection of a change in a static magnetic field (e.g., the natural geomagnetic field of the earth), which they may use for orientation. A well-respected experimental study demonstrated that bees can be trained to detect a change of 26 nanotesla

(0.26 milligauss) in the earth's static magnetic field (Kirschvink et al., 1997). This sensitivity to static magnetic fields, however, is in sharp contrast to their lack of sensitivity to a time-varying field at a frequency of 60 Hz. Kirschvink et al. (1997) reported that a field of 4,300 mG was required for the bees to reach a detection threshold for 60-Hz magnetic fields. This threshold for detection to magnetic fields at 60 Hz is more than 4,000-fold higher than the threshold of sensitivity of bees to static magnetic fields, and an order of magnitude higher than the magnetic fields that are anticipated near or directly under the existing transmission lines or the proposed CREC project line. The absence of adverse effects of transmission lines on bee development and behavior has been confirmed in more recent studies (Russell et al., 2005; Russell et al., 2013).

Wildlife in the vicinity of high voltage transmission lines has also been studied. Movement patterns of elk and deer near 500kV lines, and migration, range use, grazing patterns, and behavior of wild and domesticated reindeer near high voltage transmission lines were examined (Goodwin, 1975; Picton et al., 1985; Reimers et al., 2007; Flydal et al., 2009). The authors of these studies concluded that the presence of transmission lines did not result in consistent changes in the behavior of the studied large mammals. Long-term monitoring studies were designed to assess potential ecological impacts of EMF produced by an antenna operated by the US Navy communication system at frequencies close to those of power lines and similar voltages. Specifically, 11 separate experiments examined the impact of EMF on ecosystems (e.g., wetlands, streams, aquatic ecosystems) and specific organisms. The US National Research Council reviewed the findings and concluded that "...the observations provide no statistically significant, wide-spread, adverse effects of EMFs associated with the ELF [extremely low frequency] antennas." (NAS, 1997, p. 138).

A further *post hoc* basis for an expected lack of an adverse effect on wildlife is provided by the informational advisory opinion submitted by the Rhode Island Department of Health on "the potential public health concerns relating to the Facility, including but not limited to biological responses to power frequency, electric, and magnetic fields associated with the operation of the Facility." That opinion was that "the health impact of CREC attributable to EMFs is negligible, and in fact may be non-existent" (p. 3).

References Cited

Bindokas V, Gauger J, Greenberg B. Mechanism of biological effects observed in honey bees (*Apis mellifera*, L.) hived under extra-high-voltage transmission lines: Implications derived from bee exposure to simulated intense electric fields and shocks. *Bioelectromagnetics* 9: 285-

301, 1988.

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Goodwin JG. Big Game Movement near a 500-kV Transmission Line in Northern Idaho. Prepared for the Bonneville Power Administration, Engineering and Construction Division, Portland, OR. Intern with the Western Interstate Commission for Higher Education (WICHE), Resources Development Internship Program (RDIP). Boulder, CO. June 27, 1975.

Flydal K, Korslund L, Reimers E, Johansen F, Colman JE. Effects of power lines on area use and behaviour of semi-domestic reindeer in enclosures. *Int J Ecol* 2009: 1-14, 2009.

Kirschvink J, Padmanabha S, Boyce K, Ogelsby J. Measurement of the threshold sensitivity of honeybees to weak, extremely low-frequency magnetic fields. *J Exp Biol* 200: 1363-1368, 1997.

National Academy of Sciences (NAS). An Evaluation of the U.S. Navy's Extremely Low Frequency Communications System Ecological Monitoring Program. National Academy Press, Washington, D.C., 1997.

Picton HD, Canfield JE, Nelson GP. The Impact of a 500-kV Transmission Line upon the North Boulder Winter Elk Range. US Forest Service, Contract 53-0398-30E-3. 1985.

Reimers E, Dahle B, Sindre E, Colman JE, Gaare E. Effects of a power line on migration and range use of wild reindeer. *Biol Cons* 13r: 484-494, 2007.

Russell KN, Ikerd H, Droege S. The potential conservation value of unmowed powerline strips for native bees. *Biological Conservation* 124: 133-148, 2005.

Russell K. Use of Transmission Line Easements for the Benefit of Native Bees. Palo Alto, CA: Electric Power Research Institute, 2013.

RESPONDENT: Benjamin Cotts, Exponent, Inc.

DATE: August 4, 2016

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3-38 The alternatives analysis presents numerous instances of circular logic. A pointed example includes dismissing hydropower in the Power Generation Alternatives section (and omitting it from all other sections) solely because it would not be appropriate on the proposed CREC site, which was selected for proximity to the gas line, and then dismissing alternative project locations because they do not have the desired natural gas infrastructure.

RESPONSE 3-38: Hydropower is not a feasible alternative to the Project within the SEMA/RI Zone even when using a much broader search area than the immediate vicinity of the Project. According to the U.S. Department of Energy's national assessment of potential hydropower resources, the state of Rhode Island has only 14 megawatts of potential hydropower capacity across 30 potential projects (Conner et al, 1998, p. 23). Massachusetts has only 325 megawatts of potential hydropower capacity across 130 potential projects, most of which are likely located outside of southeast Massachusetts. Therefore, even notwithstanding the difficulty of implementing hundreds of hydropower projects, the limited potential output would not meet Invenergy's objective of making a significant contribution to the replacement and demand needs in the region, particularly in the constrained SEMA/RI zone.

The same would hold true for other alternatives like biomass and geothermal energy. While the application referred to the 'immediate vicinity' of the Project site, the conclusions that the alternatives are not available or viable at a scale close the Project's would remain valid if considering the need within SEMA/RI zone.

References Cited: Conner AM, Francfort JE, and Rinehart BN. U.S. Hydropower Resource Assessment Final Report. US Department of Energy, Contract DE-AC07-94ID13223. 1998.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

DATE: August 4, 2016

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3-39 The emissions and cost-benefit (input-output, or I-0) analyses both primarily only list benefits. A proper analysis should include costs, yet there is no mention of loss of forests, biodiversity, ecosystem services (moderation of extreme heat/cold weather, climate change mitigation, water quality, health), etc. in this section. This seems particularly important since the application notes that the majority of the benefits outlined (e.g. construction jobs and energy costs savings) would be rather short-lived and the majority of the foreseeable costs would be long term or permanent. Provide an updated cost-benefit analysis that includes costs, such as those mentioned herein.

RESPONSE 3-39: Both the emissions and input-output analyses were designed to determine both the positive and negative impacts of Clear River - in short, they reflect 'net' benefits (i.e., they are net of costs). In particular, both analyses are designed to consider how the addition of Clear River will impact the appropriate geography compared with a baseline without Clear River. The emissions analysis examines the regional footprint, since Clear River would operate within the broader ISO-NE electricity market and operate within the Regional Greenhouse Gas Initiative emissions market. The conclusions of the emission analysis determined that Clear River will displace less efficient generation throughout the region creating a net benefit to regional emissions. This is a full accounting of emissions costs from the power sector. The impacts to forests, biodiversity, and ecosystem services are not readily quantifiable, although expected to be negligible compared to the significant net reduction of regional emissions. An input-output analysis is a standard economic tool designed to determine how a change to one part of the economy (i.e., the addition of Clear River) will impact other aspects of the economy. We used industry standard input-output models to assess the impacts on Rhode Island's economy: IMPLAN and the National Renewable Energy Lab's Jobs and Economic Development Impact model (JEDI).

RESPONDENT: Ryan Hardy, PA Consulting, Inc.

DATE: August 4, 2016

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3-40 The proposed project should be compared to its alternatives in all aspects, and not just those with which it compares favorably. It is not sufficient, for example, to compare natural gas emissions and environmental impacts favorably to continued operation of older coal and oil-fired generators, but never to alternative energies. Similarly, the application notes the deleterious impacts to birds and bats from collision with wind turbines, but does not assess related collision concerns at other tall manmade structures (e.g. stacks) or the well-documented fatality risks from electrocutions along power lines. Provide an updated comparison of the proposed project to its alternatives in all respects.

RESPONSE 3-40: The alternatives analysis did in fact acknowledge and reasonably consider aspects of alternatives that were not favorable to the Project. For example, the analysis acknowledges that “air emissions are essentially eliminated for wind facilities.” With regard to bird and bat collision, such impacts of two stationary stacks that are less than 200 feet tall would be negligible compared to hundreds of spinning wind turbines with heights exceeding 300 feet. Furthermore, the approximately 7 miles of transmission line connecting the Project to the grid is trivial compared to the length required to connect hundreds of wind turbines, so any electrocution-related impacts to birds associated with power lines would be much greater for a wind alternative than the Project. Given that addressing these purported shortcomings of the alternatives analysis in fact only make the Project even more favorable, the analysis as presented is sufficient.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

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3-41 Costs and benefits should be calculated within the same geographic confines. Project benefits are calculated regionally, whereas environmental and other costs, where they are calculated at all, are limited to state lines (e.g. emissions reductions calculations include all of New England and New York, but costs do not include the crossing of wetlands, waterbodies or wildlife refuges in these states or other impacts across the region). Provide an updated cost-benefit analysis with costs and benefits calculated within the same geographic confines (Rhode Island only).

RESPONSE 3-41: The operation of the CREC will result in decreased emissions and improved air quality throughout the region, including within Rhode Island. It is not practical to quantify these benefits for Rhode Island specifically, as the New England energy market is a regional market, and the potential benefits to air quality at any location within the region will vary depending on the mix of resources online and the meteorological conditions at the time.

The emissions analysis examines the regional footprint, since Clear River would operate within the broader ISO-NE electricity market and operate within the Regional Greenhouse Gas Initiative emissions market. The conclusions of the emission analysis determined that Clear River will displace less efficient generation throughout the region creating a net benefit to regional emissions. This is a full accounting of emissions costs from the power sector.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

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3-42

Section 3.2 states the project's purpose and function as helping ISO-NE "meet its capacity, reliability, and operational requirements and needs for the regional electric transmission network", yet the proposed location was deemed the only option that meets the purpose of the project because the chosen starting point for the search was a location that meets the needs of a natural gas facility in RI rather than one that assists with the energy needs of the ISO-NE region. The premise that natural gas is the only way to meet demand is not borne out by the information provided. Specifically,

- a. It is false logic to imply that the results of the ISO-FCAs, which are supply-and-demand auctions designed to secure sufficient quantities of energy at the lowest cost (i.e. economic efficiency), demonstrate a need for CREC specifically and/or prove that it would have superior energy efficiency and/or environmental value/benefits over other sources. Provide an accounting of any environmental benefits that does not rely on current regional economics to justify the project.
- b. A thorough needs assessment should consider the current and projected energy portfolio as a whole rather than use retirements of outdated facilities to justify additional natural gas. Coal and oil generators were stated to be 28% of capacity, but only 6% of 2014 production in the region. Provide a demonstration of need that includes production numbers and estimated timelines for retirements to justify a large investment in a "bridge fuel" with its attendant environmental consequences.
- c. The application cites the assertion that "ISO-NE needs to balance the variable output from wind and solar resources in order for the power system to operate reliably" to eliminate full consideration of alternative energy sources to fulfill the currently stated need for more MW, yet less than 3% of the MWs entered into the start of the ISO-NE FCA-10 auction were intermittent, while nearly half were natural gas, and the

overwhelming majority of RI's electricity is presently supplied by natural gas. Why was this cited as the primary reason for dismissing alternative energy sources for the project when they are currently such a small fraction of the power supply?

RESPONSE 3-42: (a)(b)(c)

Selection of the unit in the ISO-NE FCA process is a demonstration of need, and the Public Utilities Commission is in the process of rendering its Advisory Opinion. The New England power market is a competitive industry where the risk of success of new development projects (for both conventional fuels and renewables) and the risks associated with the cost of construction is placed not on ratepayers, but on private investors. As described in Invenergy's expert witness Ryan Hardy's pre-filed and rebuttal testimonies and in the Public Utilities Commission ("PUC") and the Office of Energy Resources ("OER") expert witness Seth Parker's pre-filed testimony, need in New England is determined by the competitive market. The competitive market includes the development of new renewable resources. As described by DPUC and OER expert witness Seth Parker, the addition of Clear River will "will not interfere with Rhode Island's renewable resource programs." See <http://www.ripuc.org/eventsactions/docket/4609-DPU-Parker-Redacted-6-14-16.pdf>. Moreover, Mr. Parker identified that even if more renewables are built [in New England], their inherent intermittency would increase ISO-NE's need for flexible and responsive resources, like CREC." In other words, highly efficient natural gas generation, such as Clear River, can aid in the integration of new renewables to the New England power grid. See also the ISO-NE 2015 Outlook Report, at 27 (http://www.iso-ne.com/static-assets/documents/2015/02/2015_reo.pdf); ISO-NE 2016 Outlook Report, at 11 (http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf).

RESPONDENT: Ryan Hardy, PA Consulting, Inc.

DATE: August 4, 2016

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3-43 Provide a more balanced cost-benefit assessment of all viable energy sources and alternative sites in the SENE/RI area, including those that might avoid impact to a high priority conservation area. Citing considerations should include mapping of natural resources, including but not limited to surface and ground water and other environmentally sensitive areas, wildlife and habitat resources, conservation land, and other open space. The RIDEM Map Room is a good place to start.

RESPONSE 3-43: There we no other sites within the SEMA/RI that were found to be suitable. Invenergy evaluated several other sites in Rhode Island and in Massachusetts. Exhibit 5 is a map showing a few of the areas evaluated as possible locations. Please refer to Response 3-14 for additional discussion regarding alternative sites, and Response 3-38 for additional discussion regarding alternative energy sources.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.
John Niland, Invenergy Thermal Development LLC

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3-44

The application presents the 1000 MW proposed for CREC as the standard for the project and dismisses alternatives that do not achieve the full quantity from a single source on a single site. Where did the 1000 MW quantity come from and why must the entire quantity be met with one energy source at a single site? There are several important, low-impact energy sources that were eliminated from consideration by this logic, including items a, b, and c below.

- a. Provide a more thorough consideration of demand resources. The application indicates that there is limited room for additional efficiency, yet well over 10% of demand resources entered into the most recent FCA-10 auction were new sources amounting to well over 400 MW. Demand resources throughout the region should be given further and serious consideration until they have been completely expended, particularly given that they are the only option that can help meet demand without impact.
- b. Provide a more thorough consideration of solar. The application correctly notes the costs, including that it requires large land areas in order to generate the approximate 1,000 MW of electricity proposed to be supplied by the project. However, it ignores the benefit of solar in a state that can ill-afford to lose more forestland, which is that solar can take advantage of already developed/impacted areas (such as rooftops, carports, and garages on a small scale and ROWs on a larger scale) to avoid virgin land and does not need to be all in one place to add up to substantial generation/reduce demands on the grid.
- c. ISO-NE reports indicate that there is excess supply elsewhere within the region and that transmission is a barrier. Given the high environmental cost of energy production, provide an assessment of alternatives that also address transmission improvements.

RESPONSE 3-44: (a)(b)(c)

We based the size of the unit off of published reports from the ISO New England and on Invenergy's assessment of need within the ISO-NE market. One such report is included as Exhibit 8 is an informational report the ISO NE made to the Federal Energy Regulatory Commission ("FERC") on November 4, 2014. The public info filing from the ISO NE for FCA9 reported the Net installed Capacity requirement ("NICR") (34,189 MW) for the then upcoming auction number 9, (FCA 9) as well as the Existing Resources (32,555 MW). According to the filing, the existing resources included 464 MW of retirement requests.

Under a ISONE forward capacity construct, the intersection between supply and demand for capacity resources are determined by the market. The amount of capacity resources that clear in the market depends on the clearing price, but the difference between the NICR and the existing resource net of retirements indicates how many new resources may clear in the auction. For FCA 9, the NICR (34,189 MW) – Existing Resources (32,555 MW) + Retirements (464 MW) = 2,098 MW of potential new resources needed, it was this value that helped shape our view on how many MW of new capacity were needed.

As previously described, the New England power market is a competitive market that selects the lowest cost resources to meet the region's needs. Demand response and solar generation can and do participate within the Forward Capacity Market. In order to meet this need or a portion thereof, using solar, it should be noted that Solar PV requires five (5) to seven (7) acres per mile of production which has the potential to impact a significant land area.

The Forward Capacity Market is the competitive market mechanism that determines the need for new generation in ISO-NE. Moreover, ISO-NE accounts for expected increases in behind-the-meter demand resources and solar generation within its Forward Capacity Market mechanism. Clear River was selected as part of the most cost effective solution to meet the region's needs, which included demand response and solar alternatives. By clearing the auction, Clear River was assigned a capacity supply obligation ("CSO"). As described by DPUC and OER expert witness Seth Parker in his pre-filed testimony the "CREC unit 1 has a CSO and is therefore needed for system reliability."

RESPONDENT: John Niland, Invenergy Thermal Development LLC
Ryan Hardy, PA Consulting, Inc.

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3-45

Provide more detail about alternative alignments within the same site and associated resources/site constraints. Wetlands were apparently only field delineated south of Algonquin Lane., and the culverts through which two Iron Mine Brook tributaries pass under Algonquin Lane and the woods road are not depicted in the Drawing Package. While some of these undelineated features may be well outside of the work as proposed, the lack of field-verified information on adjacent areas under the same ownership makes assessment of the feasibility of alternative alignments difficult for reviewers and calls into question how the applicant arrived at their decision.

- a. Address the alternative placement of the facility on the north side of the existing ROW and using the existing Algonquin Way in lieu of constructing a new access road from Wallum Lake Rd. Avoiding impacts to wetland/stream is important, but all impacts/interests should be considered, including minimizing additional forest fragmentation and negative impacts to adjacent DEM conservation land. The application also cites the existing ROW as a reason for the proposed alignment. What are the issues involved with crossing the existing ROW?

RESPONSE 3-45: a.

The alternative site Invenergy examined was on the north side of the Algonquin Pipeline Row. This location was rejected by Spectra on the basis this:

1. Algonquin Lane cannot be used and a new access road would be required;
2. Given that a new access road would have to go across the Pipeline, the Pipeline may have to be modified to accommodate the new access road loading; and
3. Spectra would not accept any permanent road across the Pipeline.

Algonquin Road is owned by Spectra, which has indicated that they will not allow Invenenergy to use the road during construction or operation of the CREC due to concerns regarding conflicts with the use of the roadway to support their own facility. *See Exhibit 4.* Accordingly, access to the proposed site is only available via a new access road from Wallum Lake Road. Exhibit 1, Figure 4 demonstrates site constraints within the Spectra property with respect to wetlands, topography and access. Given these constraints, the proposed siting of the CREC within the Spectra property is the least damaging practicable alternative.

RESPONDENT: John Niland, Invenenergy Thermal Development LLC

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3-46 Section 10.1.2, Renewable Technology Alternatives: Wind Generation appears to include either a wind assessment for Pennsylvania or for the entire northeast. Please clarify.

RESPONSE 3-46: Section 10.1.2 should be revised as follows:

“Wind turbines also cause bird mortality (especially for raptors) resulting from collision with rotating blades. The rotating blades also affect bats and the Northern Long-Eared bat, a federally listed endangered species, inhabits almost all of Rhode Island. Recent opposition to wind farms has led to shutdowns and curtailments of operation for fear that bats might be killed.”

This revision will be included in a forthcoming addendum to the EFSB application.

RESPONDENT: John Niland, Invenergy Thermal Development LLC
Mike Feinblatt, ESS Group, Inc.

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3-47 In Section 3, two of the (three) reasons cited for Invenergy and AGT locating the project as proposed within the subject 730 acres were that it would not require a new access road that would cross over the pipeline and that it provided a "suitable buffer to nearby residential properties and to the AGT compressor station".

- a. Where are the alternate locations that were considered? They should be depicted and their costs/benefits documented.
- b. What is the issue with crossing over the pipeline with an access road and was it weighed against the intrusion of a new access road?
- c. Why would the project need to be buffered from the AGT compressor station?
- d. Why wasn't high priority wildlife habitat on the list of areas that merited buffering from the project?

RESPONSE 3-47:

- a. The alternate location with the Spectra property was west of the AGT pipeline. This location was not acceptable to Spectra and as such was not further considered, as discussed in response to Question 3-45.
- b. There would be a new access road regardless of the project location as Spectra did not allow Invenergy to use the existing Algonquin lane for access. Our understanding of the concern Spectra had with placing a new road over their pipeline is that the pipeline may need to be modified in order to accommodate the weight of truck on any road that would be permanently installed over the pipe.
- c. The project does not need a buffer from the AGT compressor station.
- d. According to the RIDEM Map Room, Rhode Island Conservation Opportunities-RI Wildlife Action Plan, there is no mapped High Value /High Vulnerability Habitat or Natural Heritage Area

within the project area.

RESPONDENT: John Niland, Invenergy Thermal Development LLC
Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

are used on Hydrogen cooled generators throughout the United States. The statistical likelihood of any such failure is very low based on the number of such events that have occurred and should such an event occur, the area impacted would be confined to the plant area around the generator.

The State of Rhode Island has a Hazardous Materials/Environmental Protection Plan in place in the event of an emergency situation as part of the *State of Rhode Island Emergency Operations Plan*, under Emergency Support Function (“ESF”) 10: Hazardous Material. Depending on the nature of the emergency, the Incident Command Structure is made up of any number of Federal, State, and Local officials, including but not limited to, the Rhode Island Emergency Management Agency (“RIEMA”), the RIDEM, Department of Transportation (“DOT”) and Local Public Safety officials. Under ESF 10, RIDEM is the lead agency, so any protocols and procedures for containment and cleanup of environmental impacts would need to follow the RIDEM detailed Emergency Response Plan (“ERP”) which covers a full range of environmental emergencies.

RESPONDENT: John Niland, Invenergy Thermal Development LLC
Maureen Chlebek, McMahan Associates

DATE: August 4, 2016

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3-49 Under the current plans a significant portion of the property where the Project is located will not be touched. What is the applicant's plans for the untouched 464 acres of property adjacent to state land?

RESPONSE 3-49: The Applicant only has control over 67 acres, the remaining acreage is owned by Spectra and we don't know of any plans Spectra has for the remaining acreage.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

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3-50 Could all tree cutting and vegetation removal at the proposed plant location and the proposed new gas line ROW be restricted to a fall/winter time frame to avoid the breeding season for most wildlife (and not just that of any threatened species identified in the areas to be cleared, as presently indicated by the applicant)?

RESPONSE 3-50: Through consultation with state and federal agencies, Invenergy will implement reasonable measures to limit impacts to wildlife during construction.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-51 How will the applicant restore wetlands and adjacent uplands to conditions "comparable to those that existed before construction" in mature forest/forested wetland? What size plantings would be used to re-establish temporary impact areas post-construction, what would the anticipated timeline be for substantial vegetation growth/re-establishment to occur in these areas?

RESPONSE: 3-51 Additional information on restoration will be included in the application to alter freshwater wetlands. While restoration plans are being developed, it anticipated that if required restoration planting will generally consist of locally sourced trees and shrubs planted 10-foot on center utilizing a triangular grid pattern. The project proponent will commit to a ten-year monitoring and management plan for both wetland and upland restoration activities.

Restoration success shall be measured based on the following criteria:

- Completion of wetland plantings in accordance with the approved plans and specifications
- Stabilization of all disturbed soils within the wetland mitigation areas
- Maintenance of at least an 85% survival rate of planted over two consecutive monitoring periods as documented during monitoring events
- Maintenance of at least 80% aerial cover of the entire site by native plant species (excluding open water and emergent marsh zones)
- Maintenance of a low occurrence of non-native, invasive species (as defined in the New England District Compensatory Mitigation Guidance)
- Proposed areas of wetland establishment meet the definition of a jurisdictional wetland by the end of the monitoring period based on presence of surface and

sub-surface hydrology, hydric soils, and a preponderance of hydrophytic vegetation

Certain adaptive management strategies may need to be implemented at the restoration sites. A summary of potential issues affecting the long-term success of the restoration areas which may occur, as well as proposed responses includes:

Deficiency	Remedial Measures
Final elevations not as planned	Regrade as necessary
Inadequate soil saturation/inundation within wetland establishment areas	Regrade only if there is not a predominance of OBL, FACW, and FAC species
Less than 50% hydrophytes	Supplement seeding/planting
Inadequate species composition	Supplement seeding/planting
Inadequate plant density	Fertilize, supplement seeding
Significant erosion	Install erosion control blankets or similar materials
Less than 85% survival of saplings over two consecutive biannual monitoring periods (4 years)	Replant as necessary
Marginal tree/shrub vigor	Fertilize
Substantial human disturbance	Access control, legal remedies
Significant wildlife damage	Additional wildlife deterrents/replanting
Significant presence of invasive plant species	Biocontrol, manual removal, systemic herbicide control
Presence of archaeological resources	Notify SHPO and contract with an archaeological consultant to conduct investigation
Presence of hazardous waste	Notify RIDEM and contract with a hazardous waste firm to determine extent of contamination

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

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3-52 How would the applicant guarantee re-establishment, particularly in areas outside of ACOE jurisdiction (and thus unlikely to be covered by Clean Water Act permit conditions)?

RESPONSE 3-52: Temporarily cleared forest areas will be planted with native tree and shrub species in accordance with a detailed restoration plan currently under development. The project proponent will commit to a ten-year monitoring and management plan for both wetland and upland restoration activities.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-53 Will all planting and seeding be with local (native to RI, no cultivars, preferably native stock) species?

RESPONSE 3-53: Planting proposed as part of the site restoration will consist of native species. To the extent possible, plant material will be locally sourced.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-54 How will the applicant avoid (or more likely mitigate) soil compaction in construction lay-down/staging areas and other areas designated for temporary impacts?

RESPONSE 3-54: As noted in the EFSB application, the construction phase of the Project will include site restoration activities. These site restoration activities will include the construction lay-down/staging areas and other areas designated for temporary impacts. As noted above, it is unlikely that soil compaction can be avoided, particularly within the construction lay-down/staging areas. Site restoration within these areas can include re-working of surficial soils to mitigate any soil compaction prior to any subsequent restoration activities (e.g, grading, plantings, etc).

It is anticipated construction lay-down/staging areas will include a geo-technical mesh as well as a fabric material below a layer of crushed stone. These measures will reduce soil compaction and aid in the removal of stone prior to restoration of the site.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

DATE: August 4, 2016

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
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OPERATE THE CLEAR RIVER ENERGY : SB-2015-06
CENTER, BURRILLVILLE, RHODE ISLAND :**

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3-55 Is there an invasive species protocol (equipment cleaning, specs for fill material, etc.) to avoid tracking new species in from offsite? Would the applicant be willing to establish an ongoing management plan and funds to address any species that do become introduced in a timely manner?

RESPONSE 3-55: To minimize the potential for introduction of invasive species to the project area, the proponent will require that contractor vehicles, equipment, and materials be inspected for and cleaned of any visible soil, vegetation, insects, and debris before bringing them to the project area. Cleaning methods will include, but not be limited to, brushing, scraping, and/or the use of compressed air to remove visible soils and vegetation. Contractors will be instructed to minimize ground disturbance and vegetation removal as much as possible, and to remain within designated access ways and work areas. All disturbed soils will be stabilized and seeded with a native seed mix immediately following completion of work in that area. Any invasive vegetation disturbed during construction will be stockpiled within the work area and removed from the site following completion of work in a given area to prevent spread of invasives from one portion of the work area to another.

The project proponent will commit to a ten-year monitoring and management plan for control of invasive species within the project area.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

DATE: August 4, 2016

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3-56 Has the installation of noise reduction measures at the existing facility been considered to reduce the overall noise impact from the site?

RESPONSE 3-56: The design of the CREC includes significant investments in noise mitigation measures to reduce noise levels at nearby residences, and these measures will also reduce CREC noise levels in the forest. All regularly occurring venting has been silenced such that all plant operations, including venting, will be no louder than 43 dBA at residences at any time. Emergency venting has been silenced as well, as identified in Tables 7 and 8 of the Transient Noise Level Evaluation report (March 2016), Exhibit 6.

RESPONDENT: Mike Hankard, Hankard Consulting, Inc.

DATE: August 4, 2016

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3-57 Will on-site lighting (existing and proposed) be evaluated to make sure that lighting is minimized to the greatest extent possible and that necessary lighting will be as wildlife-friendly as possible (The International Dark Sky Association is one organization that provides guidance on this)?

RESPONSE 3-57: Yes

RESPONDENT: John Niland, Invenergy Thermal Development LLC

DATE: August 4, 2016

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3-58 Section 6.12 Visual Impacts and Aesthetics states that, since the stack is 200 feet tall, the Federal Aviation Administration ("FAA") must be consulted to determine lighting needs. Will any such lighting decisions consider wildlife? Color and flash pattern of tower lighting is known to have a substantial impact on birds.

RESPONSE 3-58: The FAA has made its determination and lights will be required, as shown in Exhibit 9. We do not know to what extent the FAA takes into consideration wildlife in its determination of color or pattern of the lighting scheme.

RESPONDENT: Mike Feinblatt, ESS Group, Inc.

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3-59 Collision with glass is a leading cause of bird fatalities, and the proposed facility location within probable breeding habitat for numerous locally rare forest birds makes this of greater concern. Please provide details on any windows or glass exterior surfaces and proposed mitigating measures.

RESPONSE 3-59: The only buildings that will have glass are the administration building which will have some windows and the water treatment building which will only have a few. The main power house, auxiliary boiler, gas compressor building will not have windows.

RESPONDENT: John Niland, Invenergy Thermal Development LLC

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3-60 The existing wood road currently bisects Wetland 1 four times and the proposed access road bisects it three times. Why is only one culvert proposed in the Drawing Package (at the existing culvert/crossing closest to road). For the other large crossing at least (east of proposed Storm Water Detention Pond 1), the project should consider an additional culvert to reconnect this wetland system rather than make permanent the fracturing that was initiated by the wood road. The addition of traffic on this road makes a culvert that much more important, as a properly designed and sized culvert might avert some of the attrition of animals common to roads that bisect forested wetlands.

RESPONSE 3-60: The revised drawing package indicates three (3) proposed properly sized culverts for the purpose of allowing free passage of wildlife and wetland waters. The existing westerly-most fragmentation of a forested wetland by the existing wood road is proposed to be mitigated through the removal of the existing wood road at this location, and restoration of wetland species.

RESPONDENT: Dan Mitas, HDR, Inc.

DATE: August 4, 2016

INVENERGY THERMAL DEVELOPMENT LLC
By its Attorneys,

/s/Alan M. Shoer

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Dated: August 4, 2016

CERTIFICATE OF SERVICE

I hereby certify that on August 4, 2016, I delivered a true copy of the foregoing responses to the Energy Facilities Siting Board via electronic mail to the parties on the **attached service list**.

/s/ Alan M. Shoer