STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

IN RE: INVENERGY THERMAL DEVELOPMENT LLC's APPLICATION TO CONSTRUCT THE CLEAR RIVER ENERGY CENTER IN BURRILLVILLE, RHODE ISLAND

DOCKET No. SB-2015-06

PRE-FILED DIRECT TESTIMONY OF JOHN NILAND

(JUNE 30, 2017)

SUMMARY

John Niland is the development director and representative for Invenergy Thermal Development LLC ("Invenergy") and provides an overview of the Clear River Energy Center project ("CREC" or "Project"), as well as testimony to support the pending Application as supplemented, explaining how the Project meets the requirements of the EFSB statute including but not limited to the need for new, clean and efficient electric generation in the region. Mr. Niland identifies the individual experts that have been gathered to provide testimony and evidence regarding various sections of the Application, which together will demonstrate compliance with R.I. Gen. Laws § 42-98-11(1)-(3). Mr. Niland describes the revised water supply plan for the Project and discusses the site selection process and the alternative site analysis. Mr. Niland updates the Board as to developments and revisions to the Project that have occurred since the Application was filed. Mr. Niland describes the agreements reached with the Town with regard to taxes, Project decommissioning and a property value guarantee plan. Mr. Niland responds to certain statements in Advisory Opinions.

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INVENERGY THERMAL DEVELOPMENT LLC'S PRE-FILED DIRECT TESTIMONY OF JOHN NILAND, INVENERGY THERMAL DEVELOPMENT LLC

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS TITLE AND BUSINESS ADDRESS.

A. John Niland, Director of Business Development for Invenergy Thermal Development LLC, One South Wacker Drive, Suite 1800, Chicago, IL 60606.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. My testimony is on behalf of the applicant, Invenergy Thermal Development LLC and the company formed for this project, Clear River Energy LLC (collectively "Invenergy"), in support of the application for a license (the "Application") from the Rhode Island Energy Facility Siting Board ("EFSB" or "Board") to construct the Clear River Energy Center project in Burrillville, Rhode Island ("Clear River" or "CREC" or "Facility" or "Project").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I have a degree in Mechanical Engineering from Northeastern University. I have over thirty five (35) years of experience in power project engineering, development and energy markets. I have experience with all manner of power generation technologies, including nuclear, coal fired, gas fired combined cycle and peaking facilities, solar and wind. For Invenergy, I am responsible for development activities for some of Invenergy's thermal development projects in the United

States. My experience in the energy and utilities industry includes roles in business and project development, engineering, equipment procurement, project management, permitting, financing and construction. I have worked for Invenergy for over three years. Prior to Invenergy, I worked for (in reverse order) Pure Energy Resources, a small development business that developed the Bayonne Energy Center in Bayonne NJ where I was Vice President of Business Development; Great Point Energy, a start-up firm focused on commercializing a catalytic coal gasification process where I was Director of Business Development; NRG Inc. where I was Vice President of Business Development responsible for power development activities in the Northeast (CT and MA); Calpine Corporation where I was Director of Project Development for Calpine thermal projects located in the Eastern portion of the US and Ontario; and Stone & Webster where I was a Project Engineering Manager.

I have managed and participated in many power generation projects, resulting in over 5,000 MW of projects being developed and constructed in New York, Maine, Rhode Island, Pennsylvania, South Carolina, Ohio, Florida, Texas and Ontario, Canada. I have market knowledge and experience in multiple markets and NERC regions including: NY ISO (NYPA, LIPA), PJM (FirstEnergy), and NE ISO (CT DPUC), FRCC (TECO, FPL), SERC and Ontario, (OPA). I have routinely acted as the direct interface with government and regulatory agencies involved in the permitting and contracting for energy facilities.

From a design and construction experience standpoint, I was the Project Engineering Manager responsible for the design of the Tiverton combined cycle project located in Tiverton, RI (along with its sister unit the Rumford Combined cycle project that was designed and constructed simultaneously in Rumford, Maine) when I was working for Stone & Webster Engineering Corporation. During my tenure at Stone & Webster, I was a project engineer

involved with the design and construction of two nuclear power plants, Beaver Valley Unit 2 in Shippingport, Pennsylvania and Comanche Peak in Glen Rose, Texas.

A more detailed description of my educational background and experience is attached

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I will provide a general overview of the CREC Project, the subject of the pending Application, as supplemented. I will also identify the individual experts that have been gathered to provide testimony and evidence regarding the various sections of the Application, which together will demonstrate compliance with the following provisions of R.I. Gen. Laws § 42-98-11:

1. Construction of the proposed facility is necessary to meet the needs of the state and/or region for energy of the type to be produced by the proposed facility.
2. The proposed facility is cost-justified, and can be expected to produce energy at the lowest reasonable cost to the consumer consistent with the objective of ensuring that the construction and operation of the proposed facility will be accomplished in compliance with all of the requirements of the laws, rules, regulations, and ordinances, under which, absent this chapter, a permit, license, variance, or assent would be required, or that consideration of the public health, safety, welfare, security and need for the proposed facility justifies a waiver of some part of the requirements when compliance cannot be assured.
3. The proposed facility will not cause unacceptable harm to the environment and will enhance the socio-economic fabric of the state.

I will identify and describe the materials comprising the Application, including the supplementations and addendums made to the Application; (2) The revised water plan that was

submitted on January 11, 2017; (3) Invenergy's alternatives analysis; (4) Invenergy's analysis regarding CREC's compliance with the Rhode Island Energy Plan; and (5) Invenergy's response to certain Advisory Opinions. I will also summarize steps the Project has taken to respond to concerns and issues raised by other Parties and the public in order to mitigate environmental or other impacts or concerns. Finally, I will describe the agreements reached with the Town of Burrillville with regard to taxes, Project decommissioning and a property value guarantee plan.

Q. PLEASE IDENTIFY THE SPECIFIC SECTIONS OF THE APPLICATION FOR WHICH YOU ARE SPONSORING TESTIMONY IN THIS PROCEEDING.

A. I can testify to several sections of the Application, including the Introduction Letter, Section 1 (Project Overview); Section 2 (Identification/Description of Applicant); Section 3 (Project Description/Support Facilities); Section 4 (Project Cost); Section 10 (Alternatives), among others.

II. OVERVIEW OF PROJECT

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROJECT.

A. As explained in more detail in Section 1 of the Application, as supplemented, the Facility will be configured as a two-unit one-on-one (1x1), combined-cycle generation station. Each unit will consist of an advanced class combustion turbine operated in a combined-cycle configuration with a heat recovery steam generator ("HRSG"), a generator and a steam turbine and each unit or train will have its own an air cooled condenser ("ACC"). The combustion turbine, steam turbine, and generator of each unit will be connected via a common shaft (otherwise referred to as a single shaft machine). Each gas turbine will fire natural gas as a primary fuel and ultra-low sulfur diesel ("ULSD") fuel as a backup fuel to be supplied via a two million gallon oil storage tank, for the limited periods where natural gas is unavailable.

The CREC Facility will have a nominal power output at base load of approximately 850-1,000 megawatts ("MW") while firing natural gas. Natural Gas will be supplied via a new

dedicated pipe from the adjacent Algonquin Gas facility. The electrical power generated by the Facility will be transmitted through a new 345-kV transmission line to be installed from the Facility through a new right of way across Algonquin property to an existing National Grid right-of-way ("ROW") to the Sherman Road Substation in Burrillville, Rhode Island. The details of the new 345 kV transmission line are presented in detail in the National Grid transmission filing, pending with the Board in Docket SB-2017-01.

The CREC will utilize air cooling with an air cooled condenser which reduces water consumption by more than 90 percent as compared to a traditional water cooled plant. The water supply for the Facility, as explained in the Revised Water Supply Plan, will be provided by truck from our water supply facility located in Johnston, RI. Wastewater from the Facility will be segregated into septic discharge which will be sent to an on-site treatment system (leeching field) and process waste water which will be stored in a wastewater storage tanks and then hauled off site for disposal/treatment by a qualified contractor.

The Facility will be equipped with state-of-the art air emissions control and sound abatement systems and has been designed to minimize and avoid impacts to the environment to the greatest extent technologically and economically feasible. The details of these items will be provided by other expert witnesses.

Q. WILL THERE BE ANY RATEPAYER FUNDING ASSOCIATED WITH THIS PROJECT?

A. No. As described in Section 4 of the Application, this is a privately financed project, without seeking any ratepayer funding, and is proposed in response to the competitive market mechanisms initiated with the Utility Restructuring Act in Rhode Island that began in the 1990s. Invenergy will seek project financing, as it deems necessary, from third parties and will not be seeking any assistance from ratepayers.

Q. HAVE YOU PROVIDED THE BOARD WITH THE REQUIRED DETAILS ON THE ANTICIPATED COSTS OF THE PROJECT?

A. Yes. Section 4 of the Application also describes the initial estimate for the total costs associated with the equipment and construction for the Project only. Initially our forecast estimated these costs at approximately $700 million dollars. However, this estimate did not include other costs such as the interconnection costs for the transmission line and electric facility upgrades, the costs associated with the water supply plan and new facility in Johnston, RI, impact fees payable to the Town of Burrillville, and did not include financing costs and security requirements. Additionally, the costs that it did include have been updated to incorporate bid estimates and firm quotes for equipment and construction. These costs have been adjusted, as we pointed out in Invenergy's Response to the Town's Set of Data Requests, No. 22-19 and in a confidential attachment to Invenergy's Supplemental Response to the Division of Planning's March 2017 Data Requests, where the total costs have been adjusted up to approximately one billion dollars. .

Q. ARE THE DETAILS OF THESE COSTS CONFIDENTIAL?

A. Yes. As a result of the competitive electric wholesale market, and the fact that we are not looking to ratepayers to fund this Project, the details of our estimated costs for the Project are proprietary and commercially protected information. The Board has granted protective treatment to the details of Invenergy's cost information.

Q. LET'S TURN TO THE SUPPLY OF WATER TO THE PROJECT. PLEASE SUMMARIZE THE REVISED WATER SUPPLY PLAN.

A. As described in detail in the Revised Water Supply Plan, and in Mr. Bacon's testimony, on January 11, 2017, Invenergy supplemented Sections 1.0, 3.1, 3.2, 3.10 and 6.2 its application, naming the Town of Johnston as its new water supplier for the Project. Invenergy reconfigured the CREC water treatment systems to further reduce the water needs of the Project. Since CREC is an air cooled unit its water needs are primarily for stem system make up. The reduction was primarily

accomplished by replacing the reverse osmosis ("RO") system with mobile demineralized water treatment trailers. This change eliminated the waste water that would have come from the RO unit and we added new equipment to recycle and reuse water from the steam cycle, (as opposed to just discharging as a waste water).

Water for use at the Facility will be supplied from the Town of Johnston, Rhode Island under a long term water supply agreement between the Town and Invenergy and delivered to CREC via state public roads by trucks operated by a licensed trucking contractor under a long term contract. CREC will also have an approximately two million gallons of water storage tank on site, which will allow for several months of continuous water supply when the Project is operating at full load on an average day (i.e. average ambient temperature of about 51 degrees F).

I should point out that this water supply arrangement with Johnston brings significant financial and economic benefits to that community. These benefits include an economic development package that has payments to the Town of Johnston, a PILOT agreement for the trucking facility and the total of these payments to the Town is slightly over eighteen million dollars for the twenty year term.

Q. AS YOU KNOW, THE TOWN AND THE CONSERVATION LAW FOUNDATION HAVE CHALLENGED THE LEGALITY OF THE WATER SUPPLY CONTRACT WITH THE TOWN OF JOHNSTON IN PENDING LITIGATION. DO YOU HAVE ANY COMMENTS THAT YOU WOULD LIKE TO MAKE CONCERNING THAT LITIGATION TO THE BOARD.

A. While we believe that the challenge will ultimately be unsuccessful, out of an abundance of caution, Invenergy has identified redundant and contingent water supply from Benn Water & Heavy Transport Corp.,[1] and is still considering additional/contingent/redundant sources to supply water to the Facility

[1] Benn Water & Heavy Transport Corp was previously identified as a redundant and contingent supplier in Invenergy's Revised Water Supply Plan, filed with the Board on January 11, 2017.

Q. HAVE YOU CONTRACTED WITH ANY WATER TRUCK COMPANIES FOR THIS PURPOSE?

A. Yes. Benn Water & Heavy Transport Corp., a long standing Road Island company, has agreed to transport water to the Facility. CREC will own the truck filing station located in Johnston, Rhode Island. The truck filling station is for the purpose of providing a location to fill water trucks supplying water to CREC.

Q. ARE YOU FAMILIAR WITH ANY OTHER POWER PROJECTS THAT USE TRUCKED WATER AS THEIR MAIN SOURCE OF WATER SUPPLY?

A. I am aware that the Ocean State Power plant, ("OSP"), located in Burrillville, does rely on trucked water during certain times of the year to meet its water needs. OSP is a wet cooled plant, which means that it relies on a wet cooling tower that evaporates water in order to remove waste heat from the plant. This process uses substantially more water than is needed by CREC and most of OSP's water use is for cooling. The quantity of water they use is far more than what CREC requires, and as such when they need to augment their supply by use of trucked water, they use many more trucks than what is being proposed by CREC. Other than that, I am not familiar with any other facilities that rely solely on trucked water to meet their process needs. However, Mark Wiitanen of HDR, Inc. is aware and will explain in his testimony. Additionally, as explained by George Bacon of ESS Group, Inc., the Project's water needs have been greatly reduced, thereby making trucking a commercially feasible method to supply the Project.

Q. ARE THERE ANY OTHER BENEFITS THAT THIS REVISED WATER SUPPLY PLAN BRINGS TO THE PROJECT THAT YOU WANT TO DESCRIBE?

A. The new water plan will use much less water as compared to the original plan and, although it does not provide the benefit of cleaning up the contaminated water source, the low use of water does make available more sources and does not require that new water lines and waste water lines would not need to be installed in the roadway.

Q. PLEASE DESCRIBE YOUR PROCESS FOR SELECTING THIS SITE AS IT RELATES TO OTHER ALTERNATIVE LOCATIONS.

A. As explained in my response to RIDEM's Third Set of Data Requests, No. 3-14, Invenergy selected the location and the size of the project based on information provided by the ISO New England ("ISO-NE"), including the report "ISO New England Installed Capacity Requirement, Local Sourcing Requirements and Capacity Requirement Values for the System-Wide Capacity Demand Curve for the 2018/19 Capacity Commitment Period," dated Feb. 2015. This ISO report documented the assumptions and simulation results of the 2018/19 CCP ICR, Local Sourcing Requirements (LSR) and Capacity Requirement Values for the System.

For the 2018/19 Capacity Commitment Period, ISO-NE had identified three Load Zones that are import constrained and as a result, modeled as Capacity Zones in FCA9. For the 2018/19 Capacity Commitment Period, ISO-NE had identified three Load Zones that are import constrained and as a result, modeled as Capacity Zones in FCA9. An import capacity constrained zone is an area where there is insufficient existing qualified capacity above the zone's generation requirement (needed to meet the zone's load) that would allow for the loss of the zone's largest generator and cannot be met by any imports without exceeding the transmission systems capability to transport the required power. Said another way, import-constrained zones have a local sourcing requirement, where the loss of the largest generator in the zone would exceed its import capability. When a zone is import constrained, it is modeled to ensure there will not be a shortage of resources to meet demand in the future and as such requires new resources be located within the zone. These Capacity Zones are: Connecticut, Northeast Massachusetts/Boston ("NEMA/Boston") and the combined Load Zones of Southeastern Massachusetts and Rhode Island ("SEMA/RI"). For the 2019/20 CCP, ISO-NE combined the SEMA/RI and NEMA load zones in one new zone Southeast New England (SENE) which is still import capacity constrained.

Local Sourcing Requirement ("LSR") for import-constrained Capacity Zones involves calculating the amount of resources located within the Capacity Zone that are required to meet needs. For instances where there is insufficient generation within a zone, Proxy units are required to meet the resource adequacy planning criterion specified by ISO NE. For the FCA 9 SEMA/RI LSR analysis, an 800 MW proxy unit was needed to bring the zone and the system into compliance with the system requirements. Invenergy used this report to identify the project size needed and the specific geographic areas where locating a new facility would satisfy this need. Invenergy evaluated several alternatives to meet the need which included wind, solar, geothermal and the no-action alternative. A more detailed discussion of the alternatives can be found in my Pre-Filed Public Utilities Commission ("PUC") Direct Testimony on pages 4-19, a copy of which was also submitted to the EFSB on July 20, 2016.

The SEMA/RI area encompasses all of Rhode Island and the Southeastern portion of Massachusetts. Within this area there are few locations to site a new facility of the size that the ISO was looking for.[2] The reason there are limited locations is that to locate a new power plant there needs to be access to gas and electric infrastructure, otherwise new rights of way would be required to obtain access to that infrastructure. Given the size of the project that the ISO NE was looking for (800 MW), it was necessary to find a location that had both gas and electric infrastructure, at a minimum, and that existing infrastructure had to have the ability to support the Project without creating the need to significantly modify the existing infrastructure in order to accommodate the new Project. There were no other sites within SEMA/RI that were suitable. Attached to Invenergy's Responses to RIDEM's Data Request No. 3-14, Exhibit 5, are further details on the alternative sites that Invenergy explored.

[2] A more detailed alternatives analysis was provided in my PUC Pre-Filed Testimony, submitted to the Board on July 20, 2016 and in Invenergy's Response to Town's Request No. 4-35.

It is important to note that the no-action alternative would mean that the existing, more inefficient oil and coal generation sources, would need to be further relied upon, and they would not be displaced by a new, more efficient, more flexible Project, such as CREC, and the environmental benefits associated with modernizing the generation infrastructure would not be realized, as confirmed in the Advisory Opinions of the Office of Energy Resource ("OER"), PUC and Division of Statewide Planning.

Q. DID YOU LOOK AT THE POTENTIAL TO MEET THE NEEDS FOR NEW ELECTRIC GENERATION USING RENEWABLE ENERGY RESOURCES?

A. Yes. Invenergy is a leading developer of renewable energy in the United States and understands the economics and land considerations of renewable energy as well as any company. Based on the limitations of land and wind resources, adding large scale blocks of renewable power is difficult, especially in a small state such as Rhode Island. While it is likely that both solar and wind will continue to be added to the generation mix, this will be occurring gradually, in smaller units, and will take substantially more time to install to meet the same MW of demand that ISO-NE requires.

However, even though the option of going just with alternatives of renewable energy was deemed not feasible in the short term, I want to emphasize that long-term development of renewables, especially of wind and solar resources in the region, should and will be pursued. In the future, with increasing investments in renewable energy resources (onshore and offshore wind and PV solar), the percentage of time that natural gas electric generation facilities will operate will likely be reduced, as a great percentage of the regions' energy supply will be met by increasing renewable energy resources. Invenergy is fully committed to joining this effort to grow more renewable energy resources to supply a greater amount of wholesale generation.

As a result, natural gas generating facilities must be designed to provide the future flexibility needed to provide high energy efficiency and quick startup capabilities. They must be load following features to balance the intermittency and variability of the growing renewable energy resources of the region. The CREC Project has been specifically and carefully designed to meet these future challenges, featuring fast start capabilities while under full emission control, allowing the CREC Project to fully integrate with the needs of the region by accommodating increasing renewable investments in the future.

OTHER DEVELOPMENTS AND UPDATES

Q. AFTER FILING INVENERGY'S APPLICATION BUT BEFORE THIS HEARING, THERE HAVE BEEN SOME AMENDMENTS AND SUPPLEMENTS TO THE APPLICATION, PLEASE BRIEFLY EXPLAIN THE AMENDMENTS AND SUPPLEMENTS TO THE BOARD.

A. The following changes, updates, amendments and supplements are identified by topic and discussed below:

Among other changes outlined in Invenergy's Response to RIDEM's Fourth Set of Data Requests, No. 4-46, Invenergy modified the layout of the facility to relocate some equipment, shorten the spacing between the two units, to lessen the impacts to wetlands, and changed the configuration of the oil storage tanks from two, one million gallon storage tanks to a single two million gallon storage tank and relocated the tank closer to the Facility. Mark Wiitanen, of HDR, Inc., will discuss the design of the Facility in more detail.

AIR

On September 19, 2016, Invenergy filed its Major Source Permit Application Addendum. Mike Feinblatt from ESS Group, Inc. will testify in more depth regarding the amendments. As Mr. Feinblatt will explain in his testimony, this addendum was prepared in response to comments received from RIDEM on our original application. The main changes to the application were to

reflect the reduced use of oil from 30 days per combustion turbine to 15 days for each turbine. This change was based on our evaluation of the expected number of times per year that CREC would run on oil and to adjust the inputs associated with the Algonquin Compressor station that we used in our air permit model.

WETLANDS

On August 29, 2016, Invenergy supplemented its application, attached a Wetlands Addendum, titled "Clear River Energy Center – Rhode Island Energy Facility Siting Board Application – Addendum – Wetlands", prepared by ESS Group, Inc. Additionally, on March 4th, 2017 Invenergy and National Grid filed a Freshwater Wetland Alteration Permit ("FWAP") with RIDEM for the CREC site as well the electric transmission line for the CREC plant. Jason Ringler from ESS Group, Inc. will testify in more depth regarding the FWAP.

RATEPAYER SAVINGS/JOBS/EMISSIONS

Ryan Hardy of PA Consulting Group, Inc. and Edinaldo Tebaldi have prepared updates regarding these areas, which were provided in Invenergy's Supplemental Responses to the Division of Planning's March 2017 Data Requests and OER's Third Set of Data Requests. Ryan Hardy and Edinaldo Tebaldi will testify in more depth regarding their updated analysis.

SCHEDULE IMPACTS

The changes to the water supply, which led to a postponement of the EFSB proceedings along with the FCA auction results have caused Invenergy to re-evaluate the Project's schedule. Given that the first train already has a Capacity Supply Obligation ("CSO") and we expect a second CSO for the second unit, (assuming it clears FCA 12), that will result in a scheduling change that will result in the potential staggered installation of the second train to meet the on line date of for the FCA 12 CSO, with on line date of June 1, 2021, assuming no additional permitting or other

delays. The first unit's on line date required for FCA 10 was June 1, 2019 which, given the delays in permitting, cannot be met and we are currently targeting a June 1, 2020 on line date.

Q. SINCE YOU NOW HAVE A CSO THAT COMMENCES ON JUNE 1, 2019 AND A COMMENCEMENT DATE PROPOSED FOR JUNE 1, 2020, HOW DO YOU PROPOSE TO DEAL WITH THE CHANGE IN THAT CONTRACTUAL OBLIGATION?

A. There are no contractual obligations as CREC does not execute a contract with ISO-NE. Instead, Invenergy takes an obligation under the ISO-NE Tariff to provide capacity starting June 1, 2019. There are explicit remedies and penalties built into the Tariff for missing certain deadlines. Otherwise, a willful violation of the Tariff is subject to enforcement action by the Federal Energy Regulatory Commission, including fines of up to $1 million/day. The avenues for clearing the CSO for a delay of one year are:

1. CREC can fill an expected shortfall through bilateral agreements or purchases in early reconfiguration auctions;
2. Submit a Demand bid into the ISO's Annual Reconfiguration Auction (ARA) for all or a portion of its first year CSO;
3. If the Company is late and does not fill any anticipated shortfall in its capacity supply obligation by March, 2019, then ISO-NE may purchase replacement capacity in the final reconfiguration auction (March 2019) and charge CREC the net cost. Under this scenario, CREC would be paid the clearing price of the original FCM auction but pay back at the Reconfiguration Auction clearing price;
4. Under certain circumstances (e.g. a short, unanticipated delay, or inability to purchase sufficient covering capacity in the last reconfiguration auction), CREC would be required to enter the monthly ARA;

5. If the shortfall is not covered under one of the above mechanisms, then ISO-NE may terminate the CSO, revoke the rate-lock, and could force CREC to forfeit its posted Financial Assurance; and
6. There is only a single mechanism to available under the ISO-NE Tariff to extend an in-service date without the need for covering transactions discussed above.

III. RHODE ISLAND ENERGY PLAN

Q. PLEASE EXPLAIN HOW CREC SUPPORTS THE GOALS OF THE R.I. ENERGY 2035 PLAN.

A. On October 8, 2015, Rhode Island's State Planning Council adopted the latest State Energy Plan: "Energy 2035: Rhode Island State Energy Plan" ("Energy 2035"),[3] with a planning horizon extending out to 2035. Energy 2035 is described as a product of a collaborative effort over a number of years by numerous private and public stakeholders. As stated in the Statewide Planning Advisory Opinion, Invenergy's CREC Project supports the goals and policies of Energy 2035, particularly as a means to support the rapid introduction of more renewable energy resources into the generation mix. PUC's Advisory Opinion similarly concluded that CREC would support the development of renewable energy, as emphasized in recent ISO-NE reports.[4] Finally, OER's Advisory Opinion also concluded that CREC would support the goals of the Resilient Rhode Island Act.

IV. ADVISORY OPINIONS

TOWN PLANNING BOARD

Q. HAVE YOU REVIEWED THE TOWN'S PLANNING BOARD ADVISORY OPINION?

A. Yes.

[3] The full plan is available at: http://www.planning.ri.gov/documents/LU/energy/energy15.pdf.
[4] Specifically, the 2017 Regional Electricity Outlook, which is attached to Ryan Hardy's Pre-Filed Direct Testimony.

Q. DO YOU HAVE A RESPONSE REGARDING THE SUBSTANCE OF THE PLANNING BOARD OPINION?

A. The opinion did provide a good deal of information regarding the proposed use of water from Well 3A and the proposed treatment of the contamination present in the groundwater. It noted that the proposed use would consume a fair amount of the margin perceived to be present in the groundwater available for future increases. Although the use of Well 3A is no longer being considered, I found it interesting that the opinion seemed to say that if CREC did not use Well 3A, (and as such did not install the treatment system that would have removed the contamination), that this would make available that groundwater for use by others, which without having any treatment system installed, it would not be available.

The opinion also concluded that the Project did commit to achieving the ordinance limit of 43 dBA for normal operations and start up and shut down and recommended granting a variance on the octave band limits on the basis (as recommended by the Planning Board's own consultant) these limits were "unreasonably restrictive."

Q. ON PAGE 9, THE OPINION READS:

> "It is also our opinion that many of the data responses we received from Invenergy were incomplete and at times evasive. For example, we believe that Invenergy deliberately evaded certain regulatory requirements by, for example, utilizing a 19 percent aqueous ammonia mix. While this may technically be legal, a 20 percent or more storage requirement would have triggered much more comprehensive hazard response planning and documentation and would have provided more comfort to the Town. Another example is the lack of presentation detail regarding hydrogen storage."

DOES INVENERGY HAVE A RESPONSE?

A. I can appreciate that the Planning Board is accustomed to receiving detailed plans and calculations on projects that they are asked to review and approve. In the case of a power plant, detailed designs are not developed until such time that the project has obtained its permits. The

reason for this is the detailed design is prepared by the construction contractor ("EPC Contractor"), who will be the engineer of record, and the construction contractor is not authorized to proceed until such time that most, if not all permits have been obtained and financing for the project has been secured. This is due to the fact that in order for the EPC contractor to prepare the detailed design, the EPC Contractor must make equipment and component equipment selections (purchase commitments) necessary to obtain specific component design information that will allow the EPC to prepare the detailed design. This process is not started until such time that permits have been obtained. It is my understanding that the Board has a separate post-licensing process.

That being said Invenergy made every attempt to be as responsive to the Planning Board's request for voluminous information while we were continuing to prepare information needed for the permit applications that were still in process at that time.

In response to the question on 19 percent aqueous ammonia, this is the standard solution that has been used throughout the power industry for combined cycle and peaking plants for the past 15 to 20 years. The reason this lower concentration limit is used is not to avoid performing some analysis, but because it is safer to use, store and transport. Some older projects, like Burrillville's Ocean State Power project, use a different concentration mix, and once the design has been permitted and the equipment designed and built, it stays that way throughout the life of the project. As we indicated in our response to Town questions on this subject, Invenergy performed and provided the details of the analysis that would have been required for a higher level of concentration, and the analysis showed there were no impacts to the public in a worst case accidental release. *See* Invenergy's Response to the Town's Data Request No. 11-3.

Hydrogen, which is used to cool the electric generator, will be transported to the site in bottles and stored on site in an area set aside for the storage of hydrogen, as was described in our

response to the town question on this topic. *See* Invenergy's Responses to the Town's Data Requests Nos. 9-1 – 9-5. As described above, the final detail design of the hydrogen storage area has yet to be prepared.

Q. ON PAGE 20, THE OPINION READS:

> "The existing access road with Algonquin/Spectra should be utilized as the CREC access. A new access road should not be constructed because it would disturb significant wetlands. This condition will limit the impact on wetlands disturbance, visual impacts to abutting properties, and traffic."

WHY WON'T INVENERGY USE THE ALGONQUIN/SPECTRA ACCESS ROAD?

A. The new access road will be located predominately along a path where there is an existing gravel road. The new access road will impact some wetlands and every attempt has been made to minimize the impact to the extent practicable. Invenergy made several requests to Spectra on the potential to use their access road in lieu of creating a new separate access road for the Project, and Spectra declined on the basis that they cannot accept anything that could limit their access to the compressor station given its vital role in supplying natural gas to New England.

Q. ON PAGE 20, THE OPINION READS:

> "There should be continuous monitoring and reporting of noise levels by Invenergy, and compliance with 43 dBA at all times should be an explicit condition of the EFSB license, so that all violations are penalized with fines, a cease and desist order, and possible revocation of the operating license. There should be a commitment from Invenergy to post a performance bond or other financial assurance for the benefit of the Town to ensure that this condition is satisfied and that Town residents who are adversely affected by noise violations are compensated[.]"

DOES INVENERGY HAVE A RESPONSE?

A. Invenergy is committed to meeting the 43 dBA limit during normal operations, startup and shutdown and is willing to include continuous noise monitoring on our site. Invenergy does not

believe that a performance bond or other financial assurance can be obtained to support this commitment nor do we believe it is necessary.

Q. ON PAGE 21, THE OPINION READS:

> "There needs to be traffic management and emergency response enhancement and financial support for the state and town roads impacted by this project, including, but not limited to commitments from Invenergy to (1) rebuild all roads damaged by Invenergy, and (2) redesign and reconstruct the intersection of Church Street and High Street in order to increase the safe turning radius for large trucks."

DOES INVENERGY HAVE A RESPONSE?

A. Invenergy will monitor the condition of the roads and will commit to repairing any damage caused by the Project's construction traffic. Based on the review of the intersection of Church Street and High Street conducted by our traffic consultant no redesign or reconstruction is required. Please see the testimony of Maureen Chlebek from McMahon Associates.

Q. ON PAGE 21, THE OPINION READS:

> "Enhanced safety requirements should be imposed on all trucks hauling fuel oil, ammonia, hydrogen, and other hazardous chemicals through Town."

DOES INVENERGY HAVE A RESPONSE?

A. The safety requirements imposed on all vehicles hauling fuel oil, ammonia, hydrogen, and other hazardous chemicals through Town are governed by the Rhode Island Department of Transportation ("RIDOT"). This includes all vehicles currently hauling fuel oil, ammonia, hydrogen and other hazardous chemicals through Town for deliveries to the other existing facilities, such as Ocean State Power Facility.

Q. ON PAGE 22, THE OPINION READS:

> "Require construction of a full time, 24 hour hazardous response center at the CREC that can respond to incidents at both CREC and Spectra Energy/Algonquin compressor station."

IS IT FEASIBLE FOR INVENERGY TO HAVE A 24 HOUR HAZARDOUS RESPONSE CENTER AT CREC?

A. CREC will be manned 24 hours a day 7 days a week and will have a hazardous response plan that will be specific to dealing with hazards at the Facility. Spectra has their own plan and is fully capable of responding to hazards at the BCS facility, as they have done since it commenced operations more than fifty (50) years ago. Invenergy will work with Spectra to coordinate and provide support, if necessary, between the two facilities.

Q. ON PAGE 22, THE OPINION READS:

> "Require that ULSD only be used during maintenance testing or upon direction from ISO-NE, and will not be used solely for economic reasons, and include the Town as part of a live notification messaging system so that residents can know exactly when ULSD is being used and for what duration."

DOES INVENERGY HAVE A RESPONSE?

A. ISO-NE does not provide direction as to when ULSD should be used. The availability of natural gas is monitored by ISO-NE, who may declare a "Cold Weather Event," a "Cold Weather Watch", or a "Cold Weather Warning" according to its market rules. Invenergy expects that combustion turbine ULSD usage will be limited by the Rhode Island Department of Environmental Management ("RIDEM") permit to the equivalent usage of thirty (30) days per year at base load (15 days per turbine) and only for oil system readiness testing or when natural gas is unavailable. Natural gas will be deemed to be unavailable when the natural gas supplier informs CREC that the natural gas supply is being curtailed or if there is a Force Majeure event. Invenergy is willing to provide notification to the town when ULSD is being used and if possible, for what duration.

Q. ON PAGES 22-23, THE OPINION READS:

> "Pursuant to EFSB Rule 1.14(b), we respectfully request that the EFSB consider delegating to our Board the authority, during the construction period, the period of plant start up, and a reporting

period to follow 'to visit the plant and plant site to determine if construction, construction practices, operation or operational practices are in compliance with the terms of the Board's license.'"

WHAT IF ANY IMPACT WOULD DELEGATING THIS AUTHORITY TO THE TOWN'S PLANNING BOARD HAVE ON CREC?

A. Invenergy believes the Planning Board, through the inspections and reviews that will be conducted by the Town's building inspector as part of the building permit process, will be able to visit the plant and plant site to determine if construction, construction practices, operation or operational practices are in compliance with the terms of the Board's license.

Q. BEFORE WE MOVE TO THE OTHER ADVISORY OPINIONS, PLEASE ADDRESS THE RECOMMENDATIONS MADE BY THE TOWN'S EXPERTS. THE PLANNING BOARD ASKED INVENERGY TO STATE WHETHER IT WOULD CONSULT THE PASCOAG FIRE DEPARTMENT CONCERNING EMERGENCY RESPONSE. PLEASE RESPOND.

A. Invenergy will coordinate with the Pascoag Fire Department, as well as with other local emergency responders and hazardous materials response teams concerning the equipment and training needed to properly and safely respond in the unlikely event there is an accidental chemical release at CREC.

Q. NEXT, THE TOWN ALSO REQUESTED INDEPENDENT NOISE TESTING. PLEASE RESPOND.

A. Invenergy will require the EPC contractor to comply with the noise limits imposed on the Project. Compliance will be demonstrated by a mandatory compliance test that will be a condition of the construction contract. The test will be monitored by an independent consultant, who is approved by the lenders (the "Banks") hired by the Project entity and monitored by the Bank's Independent Engineer ("IE") who will certify that compliance has been met and, if not, what steps would be necessary in order to comply. Invenergy also noted that the Town is welcome to conduct its own independent noise monitoring when CREC is conducting its noise test.

Q. THE TOWN ALSO PRESENTED A RECOMMENDATION REGARDING STORMWATER. PLEASE RESPOND.

A. Please see the stormwater analysis filed with RIDEM. Jim Riordan from ESS Group, Inc. and Chad Jacobs from HDR, Inc. will be addressing this topic more fully during their testimony.

TOWN ZONING BOARD

Q. HAVE YOU REVIEWED THE TOWN ZONING BOARD ADVISORY OPINION?

A. Yes.

Q. A FEW TIMES IN THE OPINION, THE ZONING BOARD REFERENCED HAVING A LACK OF INFORMATION. DO YOU AGREE THAT THE ZONING BOARD DID NOT HAVE ENOUGH INFORMATION?

A. No. Invenergy responded to every single data request (and there were several hundreds) and responded to every single question from the Town's solicitors and Zoning Board officials with the best available information it had at the time. For the reasons described earlier, it is almost impossible for Invenergy to have every plan finalized and every report finished prior to agency review or even final hearings. I will leave the details of zoning and planning to Richard Lipsitz and Edward Pimentel. But I understand that Zoning and Planning Boards are evidently accustomed to receiving detailed plans and calculations on projects that they are asked to review and approve. In the case of a power plant, however, detailed designs are not developed until the project has obtained its permits. Again, this is because the detailed design is prepared by the EPC contractor, who will be the engineer of record, and the construction contractor is not authorized to proceed until such time that most, if not all, permits have been obtained. The EPC Contractor must first make equipment and component equipment selections (purchase commitments) before it can prepare the detailed design.

That being said, Invenergy has made a purchase commitment for the main generating equipment, (the Power Island, which includes the combustion turbine, steam turbine, generator

and heat recovery steam generator) with General Electric ("GE"), which was necessary in order to complete the input data for the RIDEM air permit application. However, GE has not been released to commence the detailed design that is needed to prepare the design plans. The release process for GE and the EPC contractor is not started until such time that permits (including a siting license from this Board) have been or are close to being obtained. Invenergy gave the Zoning Board the most up-to-date and most detailed information it had available at the time requested. It appears the Zoning Board is not used to the EFSB process and was trying to treat this process as if it were a normal Zoning Board hearing, where they were asked to render a decision rather than an opinion and unfortunately, the information that the Zoning Board was accustomed to having before rendering a decision will not be available until such time that commitments can be made to GE and the EPC contractor. Invenergy has done its absolute best to provide every agency that rendered an advisory opinion, including the Zoning Board, with the best available information it could provide.

Q. DO YOU HAVE A RESPONSE REGARDING THE SUBSTANCE OF THE ZONING BOARD OPINION?

A. Yes, the opinion asserts, specifically relating to water supply, that Invenergy refused to supply requested information on the alternative water supply source. Invenergy did not tell the Town that we refused to provide such information. Rather, we advised that we were unable at that time to provide any information as the discussions with potential counter parties who could supply water were confidential. Due to the confidential nature of the discussions, Invenergy was unable to provide the requested information at that time. This is the main reason Invenergy filed for a delay in the EFSB hearing process, so those confidential discussions could be concluded, and Invenergy could publicly disclose the alternative water sources.

The Zoning opinion also stated that the discharge of spent water (waste water) was unknown when, at that time, the waste water discharge plan had not changed.

The Zoning Board also noted additional testimony provided by residents who were concerned that "not only was the aquifer in jeopardy but the potential future development of the Town was being jeopardized because [CREC's use of Well 3A groundwater] may not accommodate the expected growth and expansion of the community." Even though the issue of the potential use of Well 3A by Invenergy is no longer in question, I think it is important to note that the ground water is currently contaminated and already in jeopardy. This water cannot be relied upon to support the community needs now or in the future. Invenergy's proposed use of Well 3A was based on providing the funding to install a treatment system and pay for the operation and maintenance of that system and the well operations.

Other Invenergy witnesses, such as Edward Pimentel (Planning and Zoning) and Michael Hankard (Noise), will be addressing and responding to the Zoning Board's specific comments and findings in more detail.

DIVISION OF STATEWIDE PLANNING

Q. HAVE YOU REVIEWED THE DIVISION OF STATEWIDE PLANNING'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A COMMENT?

A. Statewide Planning found CREC to be consistent with Rhode Island's Energy Plan entitled "Energy 2035" specifically as it relates to maintaining a balance between long term efforts to transform the energy system and the near term plans to maintain reliability. Additionally, Statewide Planning found that CREC supports the sustainability goals by reducing greenhouse gas emissions and is consistent with the goal of transforming the energy system by facilitating

increased penetration of renewables due to the nature of CREC's fast start and high ramp rate capabilities.

RHODE ISLAND DEPARTMENT OF HEALTH ("RIDOH")

Q. HAVE YOU REVIEWED DOH'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. RIDOH provided an opinion on a number of topics that will be addressed by the other expert witnesses Invenergy has retained as part of this proceeding. Specifically, the following witnesses will be addressing the topics RIDOH included in their opinion:

- **Noise** - Michael Hankard, President of Hankard Environmental, Inc.
- **Air Emissions** - Michael Feinblatt, Vice President and Practice Leader for Energy and Industrial Services at ESS Group, Inc. ("ESS")
- **Visual Impact** - Gordon Perkins, Senior Project Manager at Environmental Design and Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. and Trevor Hollins, Lighting Design Manager at HDR, Inc.
- **Electromagnetic Fields** - William Bailey, Principal Scientist in the Center for Occupational and Environmental Health Risk Assessment within the Health Science Practice at Exponent, Inc.
- **Emergency Response** - Mike Feinblatt of ESS will address questions and comments on the ammonia storage. With regard to procedures and training, CREC will have clear written procedures in place for periodic inspection, testing and maintenance for all systems and components that handle or store hazardous materials. CREC will ensure that operations staff as well as local responders will have appropriate training along with periodic refresher

training for safe handling, storage, use and emergency response. Emergency responders will be provided with complete information on the facility design, material quantities and locations and make sure that the training is complete.

- **Climate Change and Health**: Invenergy certainly recognizes the importance of taking positive actions to confront climate change challenges. That is one of the key drivers behind our leadership in the field of renewable energy. Priority should be given to renewables, but at the same time one has to recognize the need to provide a reliable electric generation infrastructure. The CREC will help support renewable generation in the region, reduce GHG emissions and increase overall system efficiency. All of these points were noted in the OER opinion, which concluded that, "[t]he construction of CREC will not impede renewable generation. Wind and solar resources are intermittent, generating electricity only when the wind blows or the sun shines. They are non-dispatchable and generally self-scheduled, and the operation of CREC will have no impact on the output of wind or solar resources." *Id*. at 31. OER also noted that "CREC will have fast start and rapid ramp rate generating capability that may facilitate integration of new and existing renewable generation in the regional power grid." *Id*. at 32. According to ISO-NE, "adding more wind- and solar-powered resources in New England will paradoxically increase the region's need for more fast-response, flexible resources – which in many cases will be natural-gas-fired generators." *Id.*

BUILDING INSPECTOR

Q. HAVE YOU REVIEWED THE BUILDING INSPECTOR'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. In response to the Building Inspector's Advisory Opinion, Invenergy provided the Building Inspector the following documents: (1) a Preliminary Stormwater Management Plan and Preliminary Soil Erosion and Sediment Control Plan; (2) a conceptual plan set that included proposed details and drawings for CREC's site plans, soil and sediment control drawings and plans, and other drawings and plans similar to what is anticipated in a post-licensing building permit application (by comparison with reference to another similar Invenergy Thermal Development LLC project in Lackawanna County, PA); (3) Updated Stormwater Management and SESC drawing package (Appendix A of the Freshwater Wetlands Alteration Permit Application), that was filed with RIDEM (note: these documents superseded the preliminary plans provided in November of 2016); (4) a chart identifying what drawings have been revised and/or updated; (5) the Facility's Stormwater Management Plan (Appendix J of the Freshwater Wetlands Alteration Permit Application), which included the Soil Erosion and Sediment Control Plan; (6) copy of the revised Water Supply Plan, filed with the Board on January 11, 2017; (7) a revised and updated Site Arrangement and General Arrangement, prepared by HDR, Inc.; and (8) a list of buildings and structures, detailing our interpretation of whether a proposed building and/or structure is considered a "principal" or "accessory" structure under the Burrillville Zoning Ordinance, and our interpretation of whether the building and/or structure identified would require a height variance. Regarding other zoning related opinions, Edward Pimentel will testify regarding these other issues raised in the Building Inspector's Advisory Opinion.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION ("RIDOT")

Q. HAVE YOU REVIEWED RIDOT'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. As Invenergy had yet to apply for permits with RIDOT at that time, RIDOT listed the process and permitting necessary for CREC. Invenergy has since submitted a PAP permit with RIDOT. Keith MacDonald of Pare Corporation will describe the details of this permit.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Q. HAVE YOU REVIEWED RIDEM'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. Yes, Michael Feinblatt, Vice President and Practice Leader for Energy and Industrial Services at ESS, will address the issues raised by RIDEM.

HISTORICAL PRESERVATION AND HERITAGE COMMISSION ("HPHC")

Q. HAVE YOU REVIEWED HPHC'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. HPHC advised that it had no objection to CREC. Christopher Donta, from Gary & Pape, Inc. will testify in more detail regarding this Advisory Opinion. I should also note that Invenergy has consulted with the Narragansett Indian Tribe and the Blackstone Valley Heritage Corridor Commission.

PASCOAG UTILITIES DISTRICT ("PUD")

Q. HAVE YOU REVIEWED PUD'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. PUD concluded that CREC should not utilize Well 3A as its water supply. On August 19, 2016, PUD withdrew its letter of intent to supply water to Invenergy. Accordingly, PUD's Advisory Opinion is now moot.

TAX ASSESSOR

Q. HAVE YOU REVIEWED THE TAX ASSESSOR'S ADVISORY OPINION?

A. Yes.

Q. DO YOU HAVE A RESPONSE?

A. The Assessor concluded that CREC would not negatively impact property values in the Town. Michael MaRous of Marous and Company will testify in more detail regarding this.

V. OTHER COMMENTS

Q. PLEASE DESCRIBE OTHER COMMITMENTS INVENERGY HAS MADE IN RESPONSE TO CONCERNS RAISED.

A. Invenergy has made several commitments and entered into agreements with the Town of Burrillville, which were filed with the Board. These include: (1) a Payment in Lieu of Tax Agreement ("PILOT"); (2) a Decommissioning Agreement; and (3) a Property Value Guarantee Agreement.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.