

**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 SUPPLEMENTAL TESTIMONY
OF MASON SMITH**

(November 20, 2017)

EXECUTIVE SUMMARY

This Supplemental Testimony supplements the analysis and conclusions in Edinaldo Tebaldi's Pre-Filed Testimony, which Mason Smith has adopted, and his own Pre-Filed Rebuttal Testimony to reflect an updated analysis resulting from ISO-NE's determination that Clear River Energy Center ("CREC") Unit 2 is not qualified to participate in the upcoming Forward Capacity Auction 12 due to delays in the permitting process and deferrals in ordering of major equipment that have results from those delays. Mr. Smith's updated analysis confirms that, with minor adjustments to CREC economic and employment outputs as compared to previous testimony, CREC is still projected to create hundreds of jobs and drive well over \$1 billion in economic development in Rhode Island from 2018-2036.

LIST OF EXHIBITS

MS SUPPLEMENTAL - 1

John Niland Letter to the Rhode Island Energy Facility Siting Board, dated November 1, 2017, enclosing PA Consulting Group's Memorandum, dated October 26, 2017

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**IN RE: INVENERGY THERMAL DEVELOPMENT LLC's
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**INVENERGY THERMAL DEVELOPMENT LLC'S PRE-
FILED SUPPLEMENTAL TESTIMONY OF MASON SMITH**

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

2 **A.** Mason Smith, Managing Consultant at PA Consulting Group, Inc. ("PA"), located at 10
3 Canal Park, Cambridge, Massachusetts.

4 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

5 **A.** My testimony is on behalf of the applicant, Invenergy Thermal Development LLC
6 ("Invenergy"), in support of its application (the "Application") for a license from the Rhode Island
7 Energy Facility Siting Board ("EFSB" or "Board") to construct the Clear River Energy Center
8 project in Burrillville, Rhode Island ("Clear River" or "CREC").

9 **Q. PLEASE EXPLAIN WHY YOU ARE SUBMITTING SUPPLEMENTAL**
10 **TESTIMONY.**

11 **A.** To supplement the analysis and conclusions in Edinaldo Tebaldi's Pre-Filed Testimony,
12 which I have adopted, and my own Pre-Filed Rebuttal Testimony to reflect an update resulting
13 from ISO-NE's determination that CREC Unit 2 is not qualified to participate in the upcoming
14 Forward Capacity Auction 12 ("FCA 12") due to delays in the permitting process and deferrals in
15 ordering of major equipment that have results from those delays. *See Exhibit MS Supplemental*
16 *- 1*, John Niland's Letter to the EFSB, filed with the Board on November 1, 2017.

17 **Q. DOES ISO-NE'S DETERMINATION THAT CREC UNIT 2 IS NOT QUALIFIED**
18 **TO PARTICIPATE IN FCA 12 IMPACT THE PRE-FILED TESTIMONY OR**
19 **REBUTTAL TESTIMONY? IF SO, PLEASE EXPLAIN.**
20

1 A. Yes. The changes to the analysis in my Pre-Filed Testimony are very minor. The analysis
2 performed jointly by Edinaldo Tebaldi and myself, which informed his Pre-Filed Direct
3 Testimony, assumed that CREC Unit 2 would participate in FCA 12. ISO-NE's determination that
4 CREC Unit 2 will not be able to participate in FCA 12 potentially delays the timing of when CREC
5 Unit 2 will enter the market. I updated the analysis to account for ISO-NE's determination. My
6 updated analysis assumes that CREC 2 participates in FCA 13 instead of FCA 12 and incorporates
7 updated projections of energy and capacity market cost savings to the customer. Aside from that
8 changed assumption, my updated analysis is otherwise unchanged from the analysis presented in
9 Mr. Tebaldi's Pre-Filed Direct Testimony.

10 **Q. HOW DOES ISO-NE'S DETERMINATION IMPACT YOUR ESTIMATE OF THE**
11 **EMPLOYMENT, INCOME, AND ECONOMIC OUTPUT PROJECTED TO**
12 **RESULT FROM CREC'S OPERATION?**

13 A. ISO-NE's determination does not significantly affect the economic development impacts
14 stated in Mr. Tebaldi's or Ryan Hardy's Pre-Filed Direct Testimony. Although the economic
15 impact projections do change very slightly in 2021 and 2022 as a result of the updated ratepayer
16 savings results, the economic impacts stated in Mr. Tebaldi's Pre-Filed Direct Testimony are still
17 correct as written, given rounding. The only change relative to Mr. Hardy's Pre-Filed Direct
18 Testimony is that from 2018-2021, with the assumed postponement in participation of CREC Unit
19 2 from FCA 12 to FCA 13, the construction and operation of the CREC facility is projected to
20 support the creation of 680 full-time jobs per year, on average, instead of the 683 jobs projected
21 prior to the postponement. Our updated analysis does not necessitate changing any of the other
22 previously stated impacts.

23 In the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony, the construction and
24 ongoing operation of CREC was projected to create hundreds of jobs and drive well over \$1 billion

1 in economic development in Rhode Island from 2018-2036. In particular, CREC was projected to
2 result in the following benefits:

3 • Rhode Island jobs. From 2018-2021, which includes the construction period, the first 1.5
4 years of operation of CREC Unit 1, and the first partial year of operation of CREC Unit 2, CREC
5 will support the creation of 683 full-time jobs per year, on average. The construction and operation
6 of CREC alone – i.e., not including the electricity cost savings to the customer – will create an
7 average of more than 605 full-time jobs per year from 2018-2021 and 129 full-time jobs per year
8 from 2022 to 2036 in Rhode Island.

9 • Rhode Island earnings. From 2018-2021, CREC will support the creation of nearly \$310
10 million in earnings to Rhode Island workers, or more than \$75 million per year, on average.
11 Earnings to Rhode Island employees as a result of CREC will total more than \$520 million from
12 2018-2036.

13 • Rhode Island economic output. From 2018-2021, the total economic impact on Rhode
14 Island is projected to be more than \$530 million, or approximately \$133 million per year. The
15 overall impact of CREC on the Rhode Island economy will total more than \$1 billion from 2018-
16 2036, or an average of over \$60 million annually.

17 Using this same methodology and assumptions, but with the second stage of CREC coming online
18 in June 2022 (versus 2021), CREC is still projected to create hundreds of jobs and drive well over
19 \$1 billion in economic development in Rhode Island from 2018-2036. In the updated analysis,
20 CREC is projected to result in the following benefits (in many cases very similar to the previous
21 analysis):

1 • Rhode Island jobs. The job creation, both short and long term, is virtually unchanged from
2 the previous analysis. From 2018-2021, which includes the construction period and the first 1.5
3 years of operation of CREC Unit 1, CREC will support the creation of 680 full-time jobs per year,
4 on average. The construction and operation of CREC alone – i.e., not including the electricity cost
5 savings to the customer – will create an average of more than 605 full-time jobs per year from
6 2018-2021 and 129 full-time jobs per year from 2022 to 2036 in Rhode Island.

7 • Rhode Island earnings. The projected earnings for Rhode Island workers is virtually
8 unchanged from the previous analysis. From 2018-2021, CREC will support the creation of nearly
9 \$310 million in earnings to Rhode Island workers, or more than \$75 million per year, on average.
10 Earnings to Rhode Island employees as a result of CREC will total more than \$520 million from
11 2018-2036.

12 • Rhode Island economic output. The total economic output for Rhode Island as a result of
13 Clear River is virtually unchanged from the previous analysis. From 2018-2021, the total economic
14 impact on Rhode Island is projected to be more than \$530 million, or approximately \$133 million
15 per year. The overall impact of CREC on the Rhode Island economy will total more than \$1 billion
16 from 2018-2036, or an average of over \$60 million annually.

17 **Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

18 **A.** Yes.

MS SUPPLEMENTAL - 1

Invenergy

November 1, 2017

Via Federal Express

RI Energy Facility Siting Board
89 Jefferson Boulevard
Warwick, RI 02888

Re: *Invenergy Thermal Development LLC's Application to Construct and Operate the Clear River Energy Center in Burrillville, Rhode Island*
Docket No. SB-2015-16

Dear Members of the Rhode Island Energy Facility Siting Board:

Invenergy Thermal Development LLC and the Clear River Energy Center Project (“Invenergy”) has been informed by ISO New England (“ISO-NE”) that Clear River Unit 2 is **not qualified** to participate in the upcoming FCA 12. ISO-NE’s rationale for this decision was due to delays in the permitting process and deferrals in the ordering of major equipment that have resulted from those delays.

Invenergy does not agree with ISO-NE’s assessment of the Clear River Energy Center Project’s (“Project’s” or “CREC’s”) current schedule and attempted to dissuade their determination, prior to it being issued. In particular, Invenergy noted that CREC Unit 2 had qualified previously to participate in FCA 10 and 11, the permitting process is ongoing and major equipment order dates have changed, however they are still consistent with the schedule associated with FCA 12. Although Invenergy considered appealing this decision to the Federal Energy Regulatory Commission (“the FERC”), Invenergy could not dispute that there have been permitting delays, and as such, the likelihood that the FERC would overturn ISO-NE’s FCA qualification decision was determined to be remote. Invenergy elected to evaluate this change and advise the EFSB accordingly, which is the purpose of this letter.

Invenergy’s inability to participate in FCA 12 does not have an impact on CREC’s ability to participate in future FCA’s (e.g. FCA 13 or beyond). Invenergy’s future participation was confirmed by ISO-NE. This determination does not change Invenergy’s position as to the need for CREC; however, it does change certain testimony and data CREC has provided to the EFSB. Once Invenergy received the final notice from ISO-NE that the Project would not be able to participate in FCA 12, Invenergy requested PA Consulting Group (“PA”) to update the analysis previously provided to the EFSB, the Statewide Division of Planning and the Office of Energy Resources. Invenergy wanted to have this updated information available to be submitted along with this notice. Invenergy has updated its estimates as to Rhode Island ratepayer savings, emissions reductions and economic impacts to the State of Rhode Island. The changes to these analyses are outlined in the attached report prepared by PA, concluding the following:

- CREC is needed in the ISO-NE market; the postponement of CREC Unit 2's participation in FCA 12 has no bearing on any of the four findings made by the Rhode Island Public Utilities Commission. These four major findings, that indicate a reliability need for the full CREC facility, were:
 - CREC Unit 1 cleared an FCA;
 - There is a significant amount of capacity at-risk for retirement;
 - Rhode Island is within an import constrained zone; and
 - That capacity above the net Installed Capacity Requirement ("NICR ") is needed.
- CREC will provide Rhode Island ratepayers with material energy and capacity price savings.
- CREC will lead to significant CO₂, NO_x and SO₂ emissions reductions, including compliance with state and regional goals; and
- CREC will have several positive economic impacts on the Rhode Island economy.
- The postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 has minor reduction on ratepayer savings compared with the values provided in Ryan Hardy's Pre-Filed Direct Testimony.

Invenergy has made every effort to provide this update in a timely manner and have confirmed with the ISO-NE that the public release of the FCA qualification decision is acceptable to the ISO-NE.

Very truly yours,



John Niland
Director Business Development

Enclosures

cc: Alan M. Shoer, Esq. (*e-mail only*)



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October 26, 2017

Update to CREC Market Analysis

Introduction

With the announcement that Invenenergy's Clear River Energy Center ("CREC") Unit 2 will not be able to participate in the Forward Capacity Auction ("FCA") for the 2021-2022 capability year, also referred to as FCA 12, due to permitting delays, we have updated our analysis assuming a one-year postponement in CREC Unit 2's online date. This assumed change shifts CREC Unit 2's participation from FCA 12 to FCA 13 with a new online date of June 1, 2022. There were no other assumption changes made to the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony submitted to the Energy Facilities Siting Board ("EFSB") on June 30, 2017. This memo outlines the impact of the postponement in participation of CREC Unit 2 from FCA 12 to FCA 13.

Overall, the impact of assuming a one-year delay in CREC Unit 2's participation in the FCA is relatively minor. It is important to note that while Ryan Hardy's Pre-Filed Direct Testimony only considered the impact and related benefits of the 980 MW CREC facility over a 5-year period, there is the expectation that benefits, particularly environmental, will continue for several years thereafter as will the permanent jobs that are created. Therefore, a 12-month delay for 485 MW of the facility does not significantly alter the analysis and related findings.

This updated analysis confirms the conclusions presented in Ryan Hardy's Pre-Filed Direct Testimony.

- CREC is needed in the ISO-NE market;
- CREC will provide Rhode Island ratepayers with material energy and capacity price savings;
- CREC will lead to significant CO₂, NO_x and SO₂ emissions reductions, including compliance with state and regional goals; and
- CREC will have several positive economic impacts on the Rhode Island economy.

The updated analysis is presented below in four sections: (i) impact on need, (ii) impact on ratepayer savings, (iii) impact on emissions reductions, and (iv) impact on economic benefits.

Impact on need

The postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 **does not impact previous conclusions on the assessment of need**. CREC Unit 1 has previously obtained a Capacity Supply Obligation, and within the updated analysis CREC Unit 2 is expected to clear FCA 13.

As confirmed by the Rhode Island PUC in its Advisory Opinion, there are several forms of need within ISO-NE and Rhode Island. The Rhode Island PUC's four major findings that indicate a reliability need for the full CREC facility were that:

- (1) CREC Unit 1 cleared an FCA,
- (2) That there is a significant amount of capacity at-risk for retirement,



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October 26, 2017

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With the announcement that Invenenergy's Clear River Energy Center ("CREC") Unit 2 will not be able to participate in the Forward Capacity Auction ("FCA") for the 2021-2022 capability year, also referred to as FCA 12, due to permitting delays, we have updated our analysis assuming a one-year postponement in CREC Unit 2's online date. This assumed change shifts CREC Unit 2's participation from FCA 12 to FCA 13 with a new online date of June 1, 2022. There were no other assumption changes made to the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony submitted to the Energy Facilities Siting Board ("EFSB") on June 30, 2017. This memo outlines the impact of the postponement in participation of CREC Unit 2 from FCA 12 to FCA 13.

Overall, the impact of assuming a one-year delay in CREC Unit 2's participation in the FCA is relatively minor. It is important to note that while Ryan Hardy's Pre-Filed Direct Testimony only considered the impact and related benefits of the 980 MW CREC facility over a 5-year period, there is the expectation that benefits, particularly environmental, will continue for several years thereafter as will the permanent jobs that are created. Therefore, a 12-month delay for 485 MW of the facility does not significantly alter the analysis and related findings.

This updated analysis confirms the conclusions presented in Ryan Hardy's Pre-Filed Direct Testimony.

- CREC is needed in the ISO-NE market;
- CREC will provide Rhode Island ratepayers with material energy and capacity price savings;
- CREC will lead to significant CO₂, NO_x and SO₂ emissions reductions, including compliance with state and regional goals; and
- CREC will have several positive economic impacts on the Rhode Island economy.

The updated analysis is presented below in four sections: (i) impact on need, (ii) impact on ratepayer savings, (iii) impact on emissions reductions, and (iv) impact on economic benefits.

Impact on need

The postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 **does not impact previous conclusions on the assessment of need**. CREC Unit 1 has previously obtained a Capacity Supply Obligation, and within the updated analysis CREC Unit 2 is expected to clear FCA 13.

As confirmed by the Rhode Island PUC in its Advisory Opinion, there are several forms of need within ISO-NE and Rhode Island. The Rhode Island PUC's four major findings that indicate a reliability need for the full CREC facility were that:

- (1) CREC Unit 1 cleared an FCA,
- (2) That there is a significant amount of capacity at-risk for retirement,



- (3) Rhode Island is within an import constrained zone; and
- (4) That capacity above the net Installed Capacity Requirement ("NICR ") is needed.

The postponement of CREC Unit 2's participation to FCA 13 has no bearing on any of these four findings by the Rhode Island PUC. Moreover there are several other forms of need for CREC that are not impacted by the potential one-year postponement. These include CREC being a dual fuel facility that will use natural gas as its primary fuel and fuel oil as a backup, and CREC's ability to help integrate renewable generation. The dual fuel capability of CREC improves the winter reliability of the ISO-NE system, which ISO-NE has indicated is a major system challenge. Similarly, as a flexible and efficient generator, CREC will help support the integration of renewable generation on the ISO-NE grid by providing an effective resource to balance the variable nature of wind and solar.

Impact on ratepayer savings

The assumed postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 has **minor impact on ratepayer savings compared with the analysis in Ryan Hardy's Pre-Filed Direct Testimony.**

CREC will provide capacity and energy at the least possible cost to the customer. All capacity that clears the FCA is part of the overall 'package' of capacity that provides the greatest economic benefit to the ratepayers, and the CREC facility will only be dispatched when it can generate electricity more cost effectively than other thermal generation options.

In the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony, CREC was projected to save Rhode Island ratepayers between \$122 million and \$429 million between 2019 and 2024, depending on future retirements in New England. This range represents the difference in total capacity and energy costs to Rhode Island-only load resulting from the CREC capacity addition, as measured by comparing cost results from capacity and energy modeling cases (a) with CREC coming online in two stages: June 2020 (485 MW) and June 2021 (an additional 485 MW); and (b) without CREC. The capacity and energy cost differences between these two cases represented the savings to the ratepayers. Capacity cost savings to Rhode Island ratepayers were calculated to be \$72 million to \$379 million from 2019-2024, or \$12 million to \$63 million annually on average. Energy cost savings to Rhode Island ratepayers were calculated to be \$50 million for 2020-2024, or approximately \$10 million annually.

Using this same methodology and assumptions, but with the second stage of CREC coming online in June 2022 (versus 2021), the savings to Rhode Island ratepayers are projected to be between \$119 million and \$365 million between 2019 and 2024, depending on future retirements. This is less than a 3% difference on the low end of the range and a 15% difference on the high end of the range. Capacity cost savings to Rhode Island ratepayers are projected to be \$71 million to \$317 million from 2019-2024, or \$12 million to \$53 million annually on average. Energy cost savings to Rhode Island ratepayers are projected to be \$48 million for 2020-2024, or approximately \$10 million annually.

Impact on emissions reductions

The assumed postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 has **minor impact on emissions reductions compared with the analysis in Ryan Hardy's Pre-Filed Direct Testimony.**

In the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony, CREC was projected to lead to significant CO₂, NO_x and SO₂ emissions reductions in the region, and specifically annual average reductions of 0.95% for CO₂, 0.99% for NO_x and 2.88% for SO₂ in the New England and New York region in the 2020-2025 timeframe. This is due to CREC being the most efficient and cleanest natural gas combined cycle generator in New England upon commercial operation, displacing generation from dirtier sources of energy. These emission reductions will help Rhode Island meet its emission targets under both the Resilient Rhode Island Act and the Regional Greenhouse Gas Initiative ("RGGI").



Using this same methodology and assumptions, but with the second stage of CREC coming online in June 2022 (versus 2021), CREC's inclusion in the New England generation fleet is projected to lead to annual average reductions in CO₂, NO_x and SO₂ emissions of 0.89% for CO₂, 0.89% for NO_x and 2.58% for SO₂ in the 2020-2025 timeframe.

Impact on economic benefits

The assumed postponement in participation of CREC Unit 2 from FCA 12 to FCA 13 has *minor impact on economic benefits compared with the analysis in Ryan Hardy's Pre-Filed Direct Testimony.*

In the analysis presented in Ryan Hardy's Pre-Filed Direct Testimony, the construction and ongoing operation of CREC was projected to create hundreds of jobs and drive well over \$1 billion in economic development in Rhode Island from 2018-2036. In particular, CREC was projected to result in the following benefits:

Rhode Island jobs. From 2018-2021, which includes the construction period, the first 1.5 years of operation of CREC Unit 1, and the first partial year of operation of CREC Unit 2, CREC will support the creation of 683 full-time jobs per year, on average. The construction and operation of CREC alone – i.e., not including the electricity cost savings to the customer – will create an average of more than 605 full-time jobs per year from 2018-2021 and 129 full-time jobs per year from 2022 to 2036 in Rhode Island.

Rhode Island earnings. From 2018-2021, CREC will support the creation of nearly \$310 million in earnings to Rhode Island workers, or more than \$75 million per year, on average. Earnings to Rhode Island employees as a result of CREC will total more than \$520 million from 2018-2036.

Rhode Island economic output. From 2018-2021, the total economic impact on Rhode Island is projected to be more than \$530 million, or approximately \$133 million per year. The overall impact of CREC on the Rhode Island economy will total more than \$1 billion from 2018-2036, or an average of over \$60 million annually.

Using this same methodology and assumptions, but with the second stage of CREC coming online in June 2022 (versus 2021), CREC is still projected to create hundreds of jobs and drive well over \$1 billion in economic development in Rhode Island from 2018-2036. In the updated analysis, CREC is projected to result in the following benefits (in many cases very similar to the previous analysis):

Rhode Island jobs. The job creation, both short and long term, is virtually unchanged from the previous analysis. From 2018-2021, which includes the construction period and the first 1.5 years of operation of CREC Unit 1, CREC will support the creation of 680 full-time jobs per year, on average. The construction and operation of CREC alone – i.e., not including the electricity cost savings to the customer – will create an average of more than 605 full-time jobs per year from 2018-2021 and 129 full-time jobs per year from 2022 to 2036 in Rhode Island.

Rhode Island earnings. The projected earnings for Rhode Island workers is virtually unchanged from the previous analysis. From 2018-2021, CREC will support the creation of nearly \$310 million in earnings to Rhode Island workers, or more than \$75 million per year, on average. Earnings to Rhode Island employees as a result of CREC will total more than \$520 million from 2018-2036.

Rhode Island economic output. The total economic output for Rhode Island as a result of Clear River is virtually unchanged from the previous analysis. From 2018-2021, the total economic impact on Rhode Island is projected to be more than \$530 million, or approximately \$133 million per year. The overall impact of CREC on the Rhode Island economy will total more than \$1 billion from 2018-2036, or an average of over \$60 million annually.



Conclusion

The update of our market analysis described in this memo—which assumes CREC Unit 2's participation in FCA 12 is postponed to FCA 13—confirms that the foundational conclusions on Page 46 of Ryan Hardy's Pre-Filed Direct Testimony remain unchanged.

- *CREC is needed to meet the energy needs of both Rhode Island and the broader New England region.*
- *CREC will provide material ratepayer savings, is cost-justified, and can be expected to produce energy at the lowest reasonable cost to the consumer.*
- *CREC will allow the state to meet its emission objectives under the Resilient Rhode Island Act and RGGI.*
- *CREC will enhance the socioeconomic fabric of Rhode Island by creating hundreds of new jobs through both the construction and operation of the facility.*

For any questions, please contact:

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