

**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
EDINALDO TEBALDI**

(JUNE 30, 2017)

SUMMARY

Edinaldo Tebaldi is an associate Professor of Economics at Bryant University and testifies regarding Clear River Energy Center's ("CREC's") economic impact analysis in support of the application. He testifies concerning the jobs and economic development opportunities anticipated by the Project and explains the results of the analysis and models used to predict the economic impacts and benefits of the Project. Mr. Tebaldi, relying on his expertise in economics and economic models, the materials provided in the application and the analysis he performed and responses to data requests, opines that CREC will have a significant positive impact on Rhode Island's employment, earnings and economic output, enhancing the socioeconomic fabric of the state.

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1

2 **I. INTRODUCTION**

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

4 **A.** Edinaldo Tebaldi, Associate Professor of Economics at Bryant University, located at 1150
5 Douglas Pike, Smithfield, Rhode Island 02917.

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

7

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

12 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
13 **PROFESSIONAL EXPERIENCE.**

14

15 **A.** I am an associate professor of economics at Bryant University and the Rhode Island Forecast
16 Manager for the New England Economic Partnership (“NEEP”). I received a Ph.D. in economics
17 from the University of New Hampshire with concentration in Economic Growth and Development
18 and International Economics. I am an econometrician with extensive experience in economic
19 modeling and applied economic research. I have published several articles in refereed journals,
20 conducted economic impact assessment for several organizations and co-authored a number of
21 studies and reports analyzing economic conditions across New England states. A detailed

1 description of my educational background and experience is in my CV, filed with the Board
2 on September 12, 2016.

3 **Q. PLEASE DESCRIBE YOUR EXPERIENCE PROVIDING TESTIMONY TO**
4 **REGULATORY COMMISSIONS, BOARDS AND AGENCIES OR AS AN**
5 **EXPERT.**

6
7 **A.** I have served as an expert witness and provided testimony for the Rhode Island State House
8 Finance Committee hearings (May 2010) and the New Hampshire Senate hearings on the R&D
9 Tax Credit - Bill SB 134-FN-A. (2007). I have also provided briefings on economic conditions to
10 the Rhode Island House of Representatives, Rhode Island Senate, and Governor Lincoln Chafee.

11 **Q. PLEASE DESCRIBE YOUR EXPERIENCE WITH ECONOMIC IMPACT**
12 **ANALYSIS FOCUSED ON THE STATE OF RHODE ISLAND.**

13
14 **A.** I have conducted several economic impact assessments including studies for the Quonset
15 Development Corporation (2016, 2012), Rhode Island National Guard (2016), Rhode Island
16 Builders Association (2012, 2014), Rhode Island Defense Economy Planning Commission (2013)
17 and the Newport County Chamber of Commerce (2013/4).

18 **Q. PLEASE IDENTIFY THE SECTIONS OF THE EFSB APPLICATION THAT YOU**
19 **ASSISTED WITH AND CAN SPEAK ABOUT.**

20
21 **A.** Section 5.1 (Economic Benefits), as supplemented with updated analysis.

22 **Q. IN COMPLETING THIS ECONOMIC ANALYSIS, DID YOU COLLABORATE**
23 **WITH ANY OTHER EXPERTS ON THE TOPIC? IF SO, WHO?**

24
25 **A.** Yes. I collaborated with PA Consulting Group, Inc. ("PA"). PA is a global consulting,
26 technology and innovation firm. PA is an independent firm employing approximately 2,500
27 people from offices across the Americas, Europe, the Nordics, the Gulf and Asia Pacific. PA
28 works across eight industries, including energy and utilities, consumer and manufacturing, defense
29 and security, financial services, government, healthcare, life sciences, transport, travel and
30 logistics.

1 **Q. PLEASE DESCRIBE YOUR ROLE IN THE ANALYSIS.**

2
3 **A.** I have worked in collaboration with PA throughout the economic impacts analysis.
4 Specifically, I helped develop the analytical approach, reviewed all assumptions with respect to
5 the treatment of costs from the construction and operating periods, developed the local share
6 percentages by starting with the National Renewable Energy Laboratory’s Jobs and Economic
7 Development Impact (“JEDI”) model’s base assumptions and adjusting where appropriate
8 according to empirical Rhode Island data, evaluated all JEDI and IMPLAN model results (PA ran
9 the models) and collaborated with PA to draft all filings related to the economic impacts of the
10 Clear River facility on Rhode Island, including Section 5.1 of the Application, which PA and I
11 have updated using recent market data.

12 **Q. PLEASE DESCRIBE THE MODELS EMPLOYED TO ESTIMATE THE**
13 **ECONOMIC IMPACTS?**

14
15 **A.** We estimated the magnitude of the resulting economic impacts of the Clear River facility
16 on Rhode Island’s economy using JEDI and IMPLAN models. JEDI and IMPLAN are widely
17 used economic impact tools that provide a standard and robust approach to estimate the direct,
18 indirect and induced impacts of the construction and operation of a new power generation facility
19 on a state economy.

20 **Q. WILL THE PROJECT HAVE A POSITIVE ECONOMIC IMPACT ON THE**
21 **STATE OF RHODE ISLAND? WHAT IS THE SOURCE OF THESE ECONOMIC**
22 **IMPACTS?**

23
24 **A.** Yes. CREC’s construction and operation will generate income, employment and demand
25 for goods and services from local vendors. The creation of jobs, income and demand for goods
26 and services is expected to increase economic activity in the state. The operation of Clear River is
27 also projected to result in power market cost savings to Rhode Island electricity ratepayers, per

1 PA's power market analyses. These savings will result in further induced impacts in the form of
2 increased household spending on goods and services in Rhode Island.

3 **Q. PLEASE SUMMARIZE YOUR ORIGINAL ANALYSIS OF CREC'S ECONOMIC**
4 **IMPACTS.**

5
6 **A.** In summary, my original analysis concluded that the direct, indirect, and induced impacts
7 on the Rhode Island economy as a result of the construction and operation of CREC were projected
8 to be substantial and include:

- 9 • An average of more than 660 full-time jobs per year from 2017-2019 and 145 full-time
10 jobs per year from 2020 to 2034 in Rhode Island.
- 11 • Earnings to Rhode Island employees totaling more than \$550 million from 2016-2034, or
12 an average of nearly \$30 million annually; and
- 13 • Economic output in Rhode Island totaling more than \$1.2 billion from 2016-2034, or an
14 average of \$65 million annually.

15 **Q. HAVE YOU UPDATED YOUR ANALYSIS?**

16
17 **A.** Yes. In response to questions from the Rhode Island Division of Planning, I have recently
18 updated my analysis to reflect changes with CREC and the ISO-NE market (which impact the
19 projected electricity cost savings to the customer). These results were filed with the Board on June
20 23, 2017, in Invenergy's Supplemental Responses to the Division's March Data Requests.

21 **Q. CAN YOU SUMMARIZE THE KEY UPDATES TO YOUR ANALYSIS?**

22
23 **A.** I updated the analysis to reflect CREC's most recent water plan, CREC's updated
24 construction schedule, and changes to ratepayer savings calculated by PA Consulting Group. Key
25 changes include construction and operations phase assumptions associated with the following:

1 **Most recent water plan and grid inertia:** I updated the analysis to incorporate the latest
2 assumptions associated with the new water plan.

3 **Grid inertia:** I updated the analysis to incorporate the appropriate costs and assumed local
4 share associated with CREC's grid inertia.

5 **Construction schedule:** I have updated the analysis to reflect the most recent construction
6 schedule, which includes the commercial operation of CREC Unit 1 for a June 1, 2020
7 online date, and Unit 2 for a June 1, 2021 online date.

8 **Impacts from the electricity cost savings to the customer:** I have updated the analysis
9 to include the updated electricity cost savings to the customer from PA based on its updated
10 view of the ISO-NE market.

11 **Q. PLEASE PROVIDE A SUMMARY OF YOUR ASSESSMENT OF CREC'S**
12 **ECONOMIC IMPACTS ON THE STATE OF RHODE ISLAND.**

13 **A.** The construction and ongoing operation of CREC will have a significant positive impact
14 on Rhode Island employment, earnings and economic output. As calculated according to the
15 methodology discussed above, the direct, indirect and induced impacts on the Rhode Island
16 economy as a result of the construction and day-to-day operation of CREC (not including the
17 impact of ratepayer savings) are substantial and include:

- 18 • An average of more than 605 full-time jobs per year from 2018-2021 – which includes the
19 construction period, the first full year of operation of CREC Unit 1, and the first partial
20 year of operation of CREC Unit 2 – and 129 full-time jobs per year from 2022 to 2036 in
21 Rhode Island;
- 22 • Earnings to Rhode Island employees totaling more than \$480 million from 2018-2036, or
23 an average of over \$25 million annually;

- 1 • Economic output in Rhode Island totaling more than \$1 billion from 2018-2036, or an
2 average of \$55 million annually.

3 Note that the figures above do not include the induced impacts from the electricity cost savings to
4 the customer, which will create additional employment, income, and output in Rhode Island.
5 Including the economic impacts from the electricity cost savings to Rhode Island customers,
6 CREC will have the following impacts on the Rhode Island economy.

- 7 • An average of more than 680 full-time jobs per year from 2018-2021 – which includes the
8 construction period, the first full year of operation of CREC Unit 1, and the first partial
9 year of operation of CREC Unit 2 – and an average of 157 full-time jobs per year from
10 2022 to 2036 in Rhode Island;

- 11 • Earnings to Rhode Island employees totaling more than \$520 million from 2018-2036, or
12 an average of more than \$27 million annually; and

- 13 • Economic output in Rhode Island totaling over \$1.15 billion from 2018-2036, or an average
14 of more than \$60 million annually.

15 **II. ADVISORY OPINION ANALYSIS**

16 **RHODE ISLAND STATEWIDE PLANNING PROGRAM**

17 **Q. HAVE YOU REVIEWED THE RHODE ISLAND STATEWIDE PLANNING**
18 **PROGRAM ADVISORY OPINION?**

19 **A.** Yes, I have reviewed the Advisory Opinion submitted by the Division of Planning that was
20 submitted to the Board in the fall of 2016. I have not yet reviewed any updated Advisory Opinions.

21 **Q. DO YOU HAVE AN OPINION REGARDING THE DIVISION’S ORIGINAL**
22 **ANALYSIS OF CREC’S ECONOMIC IMPACT?**

23 **A.** Yes. The Rhode Island Statewide Planning Program (the “Program”) analysis, which was
24 supported by the Office of Management and Budget (“OMB”), supports and complements the
25 results that we presented in the updated Section 5.1. OMB ran its own JEDI analysis to evaluate

1 the projected employment, earnings and economic output results presented in Invenenergy’s EFSB
2 application and, in all cases, reported high and low case results that encompassed Invenenergy’s
3 estimates. The Program’s Advisory Opinion states, “[b]ased on this, the Program deems
4 Invenenergy’s estimate to be reasonable, and consistent with a finding of positive economic impact
5 for the state.”

6 OMB also used RIMS II multipliers to conduct a second evaluation. The Program says
7 “OMB’s model generates values that are generally consistent with Invenenergy’s application” and
8 summarized by saying, “[t]his suggests that the magnitude of the employment, earnings, and
9 economic output benefits described by Invenenergy are reasonable, or even low, and consistent with
10 a finding of positive economic impact for the state.”

11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 **A.** Yes.