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

DOCKET No. SB-2015-06

# INVENERGY THERMAL DEVELOPMENT LLC'S SUPPLEMENTAL RESPONSES TO THE DEPARTMENT OF ADMINISTRATION, DIVISION OF PLANNING'S MARCH 21st AND MARCH 29th, 2017 DATA REQUESTS

March 21, 2017 Request No. 1: An update to the data that was previously requested on April 20, 2016. This update should:

- a. Account for any changes to the CREC project that are not reflected in that data, such as changes to the CREC project size, construction/operation phase timelines, generation capacity, or water plan.
- b. Include all of the inputs that were used in the input-output modeling described in section 5 of the application for both the IMPLAN and the JEDI models.

April 17, 2017 Response:

Updated JEDI and IMPLAN economic impact analysis assumptions employed by Edinaldo Tebaldi and PA Consulting Group, Inc. ("PA") are enclosed in the attached confidential spreadsheet titled: "Clear River Economic Impact Analysis Inputs and Results," and in the attached Memorandum dated April 14, 2017. The updates and changes can be summarized as follows:

- a. There have been some adjustments and increases in the revised anticipated Clear River Energy Center ("CREC" or "the Project") construction costs as compared to the values previously provided. These increased costs are attributed to several factors, including but not limited to the shift in Project scheduling by about one year due to delays in permitting and to reflect the anticipated two-stage construction schedule. There are also increased costs associated with the Project's electrical interconnect with National Grid, additional labor costs, bid estimates and firm quotes for equipment and construction to account for the two-stage construction process.
- b. The revised Water Supply Plan, filed with the Board on January 11, 2017, results in a required adjustment on the Project's capital and operating costs due to:
  - i. The replacement of the Project's original design for a permanent on site water treatment system with the revised

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Water Supply Plan utilizing rental demineralized water treatment trailers. This change in design is expected to reduce capital costs by approximately \$2 million.

- ii. The replacement of the original design utilizing a Pascoag Utility District ("PUD") water supply well, its carbon filter treatment system and associated pipeline with a supply system utilizing trucked water from the Town of Johnston. This reduced the initial capital costs due to the elimination of the water pipeline and the PUD well treatment system and added a truck facility and long-term agreement with the Town of Johnston. The associated costs for the new water plan will include a new truck filling facility in that Town of Johnston and its associated benefits package, as outlined in the agreement that Invenergy Thermal Development LLC has with the Town of Johnston. The net effect of this change was a reduction in up-front capital costs of \$2 million. This change will increase annual water costs and reduce original annual catalyst, piping and chemicals costs.
- iii. The elimination of the waste water force main and replacement with a storage tank and added recycle filter system. The net effect of this change was a reduction in upfront capital costs of \$1 million for a total reduction of \$5 million dollars (when combined with capital cost reductions from items i and ii).
- c. There have been no changes to the CREC project size or generation capacity.
- d. The above items have been included in the attached revised (confidential) Clear River Economic Impact Analysis Inputs and Results file.

Supplemental Response:

The attached confidential Excel file entitled "Clear River Economic Impact Analysis and Results\_06-15-2017.xlsx," attached as **Exhibit A** and "PA Consulting Group – Clear River

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Employment Impact Breakdown Memo\_06-09-17.pdf," attached as **Exhibit B** summarize the latest results. The only change from the previous analysis is a revised forecast of ratepayer savings, based on the latest market assumptions for ISO-NE. The primary changes from the previous analysis include the updated Net CONE and convex demand curve shape from the forward capacity auction (FCA11), updated load forecast for ISO-NE from the 2017 CELT Report, and updated supply assumptions based on FCA11. We have also included a range of ratepayer savings based on the retirement of approximately 1 GW of the PSNH assets, which are currently being divested.

Respondent: John Niland, Invenergy Thermal Development LLC

Ryan Hardy, PA Consulting Group, Inc.

IN RE: INVENERGY THERMAL DEVELOPMENT LLC'S APPLICATION TO CONSTRUCT THE CLEAR RIVER ENERGY CENTER IN

BURRILLVILLE, RHODE ISLAND

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March 21, 2017 Request No. 2: An update to the project cost data.

This update should include:

- a. The project costs by category; and
- b. The share of each of these cost categories that will go to instate vs. out-of-state firms.

April 17, 2017 Response:

Please see the attached (confidential) file detailing all CREC economic impact analysis assumptions employed by Edinaldo Tebaldi and PA Consulting in the attached confidential spreadsheet titled: "Clear River Economic Impact Analysis Inputs and Results." All construction and operating costs as well as in-state Rhode Island share percentages have been updated where appropriate to reflect the new construction timeline and the changes discussed in the response to Request No. 1. Assumptions that have been changed are highlighted in the attached confidential spreadsheet titled: "Clear River Economic Impact Analysis Inputs and Results" with notes added where appropriate.

The inputs shown on the Energy Market Cost Savings tab in the confidential spreadsheet titled: "Clear River Economic Impact Analysis Inputs and Results" reflect PA's June 2016 projection of the energy and capacity market savings of \$210 million to Rhode Island ratepayers as a result of CREC, with the four-year totals (2019-2022) from that analysis applied to the first four years of commercial operations and as described in the Public Utilities Docket 4609.

It is important to note that these projections of energy and capacity market saving will be updated. The projections shown were completed after FCA 10 (when only one of two units cleared), and thus do reflect a two-stage construction process, but they do not reflect the current Project schedule and market assumptions following FCA 11. PA will be updating its analysis by the end of

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June utilizing market assumptions from the ISO-NE's 2017 CELT Report, which is scheduled to be released by May 1, 2017. The CELT load forecast is a primary input within PA's modeling and could have material impact on the forecasted market outlook used to calculate capacity pricing, energy pricing and emissions savings. Once PA has updated its projection of energy and capacity market savings to Rhode Island ratepayers, the economic impact analysis will be updated accordingly.

## **Supplemental Response:**

The attached **Exhibit A** (**confidential**) and **Exhibit B** summarize the latest results. The only change from the previous analysis is a revised forecast of ratepayer savings, based on the latest market assumptions for ISO-NE. The primary changes from the previous analysis include the updated Net CONE and convex demand curve shape from the forward capacity auction (FCA11), updated load forecast for ISO-NE from the 2017 CELT Report, and updated supply assumptions based on FCA11. We have also included a range of ratepayer savings based on the retirement of approximately 1 GW of the PSNH assets, which are currently being divested.

Respondent: John Niland, Invenergy Thermal Development LLC

Ryan Hardy, PA Consulting Group, Inc.

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

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March 21, 2017 Request No. 3 Advise as to whether the updated information takes into account the fact that the project is split from one-stage to two-stage construction.

April 17, 2017 Response:

As noted in the previous response, PA's updated economic impact analysis takes into account the construction and operating phase assumptions consistent with the latest two-stage construction schedule, with a revised commercial on-line date of June 1, 2020.

Also, as explained in the previous response, the energy market cost savings four-year total of \$210 million also reflects a two-stage construction process (post-FCA 10), but have not yet been updated to reflect the current Project schedule and market assumptions following FCA 11. PA will be updating that analysis to account for the subsequent delay since those results were completed and the fact that the second unit did not clear in FCA 11.

As noted, PA will be updating its analysis of energy and capacity market savings utilizing market assumptions from the ISO-NE's 2017 CELT Report, scheduled to be released in the first week of May 2017. Once PA has updated its projection of energy and capacity market savings to the RI ratepayer, PA will provide an updated analysis of the economic impact of those cost savings on the Rhode Island economy. Once the 2017 CELT is released, the time required to update the energy and capacity cost savings is approximately four to five weeks, so PA expects to have an updated economic impacts analysis accounting for the updated energy and capacity cost savings by the end of June 2017.

Supplemental Response:

**Exhibit A (confidential)** and **Exhibit B** reflect the two-stage construction process, with CREC Unit #1 coming online in June 2020 and CREC Unit #2 coming online in June 2021.

Respondent: John Niland, Invenergy Thermal Development LLC

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Ryan Hardy, PA Consulting Group, Inc.

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

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# INVENERGY THERMAL DEVELOPMENT LLC'S SUPPLEMENTAL RESPONSES TO THE DEPARTMENT OF ADMINISTRATION, DIVISION OF PLANNING'S MARCH 21st AND MARCH 29th, 2017 DATA REQUESTS

March 29, 2017 Request No. 1: An update to the date and analysis provided in Sections 4.0 and 5.0 of Invenergy's Filing and Supplemental filing, including the economic and employment analysis.

This update should:

- a. Reflect the new project plan;
- b. Include calculations of Rhode Island employment, earnings, and economic output effects;
- c. Include an update to the information provided by PA Consulting Group, Inc. in its November 4, 2015 Memorandum that separates the direct and indirect Rhode Island employment and earnings impacts; and
- d. Note any changes to the underlying assumptions or methodology of the analysis that were used to account for changes to the CREC project.

April 17, 2017 Response:

Edinaldo Tebaldi and PA have provided an updated version of the November 4, 2015 memorandum. The enclosed memorandum, dated April 14, 2017, reflects Rhode Island employment and earnings projections consistent with the current CREC construction schedule as well as the latest construction and operating cost assumptions. The latest input assumptions and commentary on changes since the 2016 analysis can be found in the enclosed confidential Clear River Economic Impact Analysis Inputs and Results file. The same file also includes a summary of projected Rhode Island employment, earnings and economic output resulting from the construction, operation and energy and capacity market cost savings to Rhode Island ratepayers resulting from CREC.

As noted in previous responses, PA will be updating its analysis of energy and capacity market savings utilizing market assumptions

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from the ISO-NE's 2017 CELT Report, scheduled to be released in the first week of May 2017. Once PA has updated its projection of energy and capacity market savings to the RI ratepayer, it will provide an updated analysis of the economic impact of those cost savings on the RI economy.

## Supplemental Response:

The attached **Exhibit A** (**confidential**) **and Exhibit B** summarize the latest results. The only change from the previous analysis is a revised forecast of ratepayer savings, based on the latest market assumptions for ISO-NE. The primary changes from the previous analysis include the updated Net CONE and convex demand curve shape from the forward capacity auction (FCA11), updated load forecast for ISO-NE from the 2017 CELT Report, and updated supply assumptions based on FCA11. We have also included a range of ratepayer savings based on the retirement of approximately 1 GW of the PSNH assets, which are currently being divested.

Respondent:

John Niland, Invenergy Thermal Development LLC Edinaldo Tebaldi

Ryan Hardy, PA Consulting Group, Inc.

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

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INVENERGY THERMAL DEVELOPMENT LLC By its Attorneys,

/s/ Alan M. Shoer

Alan M. Shoer, Esq. (#3248) Richard R. Beretta, Jr. Esq. (#4313) Nicole M. Verdi, Esq. (#9370) ADLER POLLOCK & SHEEHAN, P.C. One Citizens Plaza, 8<sup>th</sup> Floor Providence, RI 02903-1345

Tel: 401-274-7200 Fax: 401-751-0604 Dated: June 23, 2017

#### **CERTIFICATE OF SERVICE**

I hereby certify that on June 23, 2017, I delivered a true copy of the foregoing responses to the Energy Facilities Siting Board via electronic mail to the parties on the attached service list.

/a/ Alam M Chaan	
/s/ Alan M. Shoer	

SB-2015-06 Invenergy CREC Service List as of 06/19/2017

Name/Address	E-mail	Phone/FAX				
File an original and 10 copies with EFSB:	Todd.Bianco@puc.ri.gov;	401-780-2106				
Todd Bianco, Coordinator	Kathleen.Mignanelli@puc.ri.gov;					
Energy Facility Siting Board	Patricia.lucarelli@puc.ri.gov;					
89 Jefferson Boulevard	Margaret.Curran@puc.ri.gov;					
Warwick, RI 02888	janet.coit@dem.ri.gov;					
Margaret Curran, Chairperson	Catherine.Pitassi@doa.ri.gov;					
Janet Coit, Board Member	Margaret.hogan@puc.ri.gov;					
Assoc. Dir., Div. of Planning Parag Agrawal	susan.forcier@dem.ri.gov;					
Patti Lucarelli Esq., Board Counsel						
Susan Forcier Esq., Counsel	rayna.maguire@dem.ri.gov;					
Rayna Maguire, Asst. to the Director DEM						
Catherine Pitassi, Asst. to. Assoc. Dir. Plann.	Parag.Agrawal@doa.ri.gov;					
Margaret Hogan, Sr. Legal Counsel						
Parties (Electronic Service Only, Unless by						
Request)						
Invenergy Thermal Development LLC	ashoer@apslaw.com;	401-274-7200				
Alan Shoer, Esq.						
Richard Beretta, Esq.	rberetta@apslaw.com;					
Elizabeth Noonan, Esq.	enoonan@apslaw.com;					
Nicole Verdi, Esq. Adler, Pollock & Sheehan						
One Citizens Plaza, 8 <sup>th</sup> Floor	nverdi@apslaw.com;					
Providence, RI 02903	jniland@invenergyllc.com;	312-224-1400				
110 (100100), 112 02/00						
John Niland, Dir. Of Business Development	Tthomas@invenergyllc.com;					
Tyrone Thomas, Esq., Asst. General Counsel	Tulomas@invenergyne.com,					
Mike Blazer, Esq., Chief Legal Officer						
Invenergy Thermal Development LLC	mblazer@invenergyllc.com;					
One South Wacker Drive, Suite 1900	generalcounsel@invenergyllc.com;	_				
Chicago, IL 60600		101.071.1100				
Town of Burrillville	Michael@mcelroylawoffice.com;	401-351-4100				
Michael McElroy, Esq., Special Counsel						
Leah Donaldson, Esq., Special Counsel						
Schacht & McElroy	<u>leah@mcelroylawoffice.com;</u>					
PO Box 6721						
Providence, RI 02940-6721						
	dimitrilaw@icloud.com;	401-273-9092				
William Dimitri, Esq., Acting Town Solicitor						
Conservation Law Foundation	Jelmer@clf.org;	401-351-1102				
Jerry Elmer, Esq.	Mgreene@clf.org;					
Max Greene, Esq.	7					
55 Dorrance Street						
Providence RI, 02903						
Ms. Bess B. Gorman, Esq.	Bess.Gorman@nationalgrid.com;	781-907-1834				
Assistant General Counsel and Director						
Legal Department, National Grid						

40 Sylvan Road	Mark.rielly@nationalgrid.com;	
Waltham, MA 02451	,	
Mark Rielly, Esq.		
Senior Counsel		
Office of Energy Resources	Andrew.Marcaccio@doa.ri.gov;	401-222-3417
Andrew Marcaccio, Esq.		
Nick Ucci, Chief of Staff		
Chris Kearns, Chief Program Development	Nicheles Heei@anager si com	401 574 0100
One Capitol Hill	Nicholas.Ucci@energy.ri.gov;	401-574-9100
Providence, RI 02908	Christopher.Kearns@energy.ri.gov;	
	egc@levitan.com;	
Ellen Cool	Drama McCaha@doo ri com	_
Levitan & Associates	Brenna.McCabe@doa.ri.gov;	
Rhode Island Building and Construction Trades	gmancinilaw@gmail.com;	401-739-9690
Council		
Gregory Mancini, Esq.		
Sinapi Law Associates, Ltd.		
2374 Post Road, Suite 201		
Warwick, RI 02886		
Residents of Wallum Lake Road, Pascoag, RI	ccapizzo@shslawfirm.com;	401-272-1400
Dennis Sherman and Kathryn Sherman		
Christian Capizzo, Esq.	kags8943@gmail.com;	
Shechtman Halperin Savage, LLP		
1080 Main Street		
Pawtucket, RI 02869		
Residents of Wallum Lake Road, Pascoag, RI	jkeoughjr@keoughsweeney.com;	401-724-3600
Paul Bolduc and Mary Bolduc		
Joseph Keough Jr., Esq.		
41 Mendon Avenue		
Pawtucket, RI 02861	oatyss1@verizon.net;	401-529-0367
Paul and Mary Bolduc		
915 Wallum Lake Road		
Pascoag, RI 02859		
Abutter David B. Harris	msendley@cox.net;	401-349-4405
Michael Sendley, Esq.	, and the second	101 6 19 1106
600 Putnam Pike, St. 13		
Greenville, RI 02828		
Interested Persons (Electronic Service Only)		
Harrisville Fire District	ras@sinapilaw.com;	401-739-9690
Richard Sinapi, Esq.	,	
Joshua Xavier, Esq.		
2347 Post Road, Suite 201	jdx@sinapilaw.com;	
Warwick, RI 02886		
, in the second	nickgorham@gorhamlaw.com;	401-647-1400
Residents of 945 Wallum Lake Road, Pascoag, RI (Walkers)	mekgomame gomamaw.com;	+01-04/-1400
Nicholas Gorham, Esq.		
P.O. Box 46	edaigle4@gmail.com;	
North Scituate, RI 02857		
TYOTHI SCHUARE, IXI UZOS /		

Peter Nightingale, member Fossil Free Rhode Island 52 Nichols Road Kingston, RI 02881	divest@fossilfreeri.org;	401-789-7649
Sister Mary Pendergast, RSM 99 Fillmore Street Pawtucket, RI 02860	mpendergast@mercyne.org;	401-724-2237
Patricia J. Fontes, member Occupy Providence 57 Lawton Foster Road South Hopkinton, RI 02833	Patfontes167@gmail.com;	401-516-7678
Burrillville Land Trust Marc Gertsacov, Esq. Law Offices of Ronald C. Markoff 144 Medway Street Providence, RI 02906	marc@ronmarkoff.com;	401-272-9330
Paul Roselli, President Burrillville Land Trust PO Box 506 Harrisville, RI 02830	proselli@cox.net;	401-447-1560
Rhode Island Progressive Democrats of America Andrew Aleman, Esq. 168 Elmgrove Avenue Providence, RI 02906	andrew@andrewaleman.com;	401-429-6779
Fighting Against Natural Gas and Burrillville Against Spectra Expansion Jillian Dubois, Esq. The Law Office of Jillian Dubois 91 Friendship Street, 4 <sup>th</sup> Floor Providence, RI 02903	jillian.dubois.esq@gmail.com;	401-274-4591
Burrillville Town Council c/o Louise Phaneuf, Town Clerk 105 Harrisville Main Street Harrisville, RI 02830	lphaneuf@burrillville.org;	401-568-4300
Christine Langlois, Deputy Planner Town of Burrillville 144 Harrisville Main Street Harrisville, RI 02830	clanglois@burrillville.org; jraymond@burrillville.org;	401-568-4300
Joseph Raymond, Building Official  Michael C. Wood, Town Manager Town of Burrillville 105 Harrisville Main Street Harrisville, RI 02830	mcwood@burrillville.org;	401-568-4300 ext. 115

Mr. Leo Wold, Esq. Department of Attorney General 150 South Main Street Providence, RI 02903	LWold@riag.ri.gov;	401-274-4400				
Public Utilities Commission Cynthia Wilson Frias, Esq., Dep. Chief of Legal Alan Nault, Rate Analyst	Cynthia.Wilsonfrias@puc.ri.gov;  Alan.nault@puc.ri.gov;	401-941-4500				
Division of Public Utilities and Carriers John J. Spirito, Esq., Chief of Legal Steve Scialabba, Chief Accountant Tom Kogut, Chief of Information	john.spirito@dpuc.ri.gov; steve.scialabba@dpuc.ri.gov; thomas.kogut@dpuc.ri.gov;	401-941-4500				
Matthew Jerzyk, Deputy Legal Counsel Office of the Speaker of the House State House, Room 302 Providence RI, 02903	mjerzyk@rilin.state.ri.us;	401-222-2466				
Hon. Cale Keable, Esq., Representative of Burrillville and Glocester	Cale.keable@gmail.com;	401-222-2258				
Nick Katkevich	nkatkevich@gmail.com;					
Avory Brookins	abrookins@ripr.org;					
Joseph Bucci, Acting Administrator Highway and Bridge Maintenance Operations RI Department of Transportation	joseph.bucci@dot.ri.gov;					
Jared Rhodes, Chief Statewide Planning Program	jared.rhodes@doa.ri.gov;					
Jennifer Sternick Chief of Legal Services RI Department of Administration	Jennifer.sternick@doa.ri.gov;					
Doug Gablinske, Executive Director TEC-RI	doug@tecri.org;					
Tim Faulkner ecoRI News 111 Hope Street Providence, RI 02906	tim@ecori.org;	401-330-6276				
Sally Mendzela	salgalpal@hotmail.com;					
Keep Burrillville Beautiful Paul LeFebvre	paul@acumenriskgroup.com;	401-714-4493				
Mark Baumer	everydayyeah@gmail.com;					
Nisha Swinton Food & Water Watch New England	nswinton@fwwatch.org;					
Kaitlin Kelliher	Kaitlin.kelliher@yahoo.com;					
Joe Piconi, Jr.	jiggzy@hotmail.com;					

Hon. Aaron Regunberg Representative of Providence, District 4	Aaron.regunberg@gmail.com;
Paul Ernest	paulwernest@gmail.com;
Skip Carlson	scarlson@metrocast.net;
Kathryn Scaramella	kscaramella@outlook.com;
Diana Razzano	Dlrazzano13@verizon.net;
David Goldstein	tmdgroup@yahoo.com;
Douglas Jobling	djobling@cox.net;
Claudia Gorman	corkyhg@gmail.com;
Curt Nordgaard	Curt.nordgaard@gmail.com;
Colleen Joubert	Colleenj1@cox.net;
Matt Smith Food & Water Watch	msmith@fwwatch.org;
Christina Hoefsmit, Esq. Senior Legal Counsel RI Department of Environmental Management	Christina.hoefsmit@dem.ri.gov;
Steven Ahlquist, RIFuture	atomicsteve@gmail.com;
Pascoag Utility District William Bernstein, Esq. Michael Kirkwood, General Manager Robert Ferrari, Northeast Water Solutions, Inc.	mkirkwood@pud-ri.org; Wlblaw7@gmail.com; rferrari@nwsi.net;
Ben Weilerstein Toxics Action Center	ben@toxicsaction.org;
Russ Olivo Woonsocket Call	rolivo232@gmail.com;
Suzanne Enser	svetromile@gmail.com;
Rhode Island Student Climate Coalition	riscc@brown.edu;

# EXHIBIT A (REDACTED)

## **EXHIBIT B**



Tel: +1 720 566 9920 Fax: +1 720 566 9680 www.paconsulting.com

June 9, 2017

To Whom It May Concern,

At the request of Invenergy LLC ("Invenergy"), Edinaldo Tebaldi and PA Consulting Group ("PA") have prepared this memorandum to isolate the <u>direct</u> economic development impacts resulting from the construction and ongoing operation of the Clear River natural gas-fired combined cycle generation facility.

Figure 1 shows the jobs and income projected to be created by the construction and ongoing operations of Clear River in the State of Rhode Island. The construction of Clear River is projected to generate 306 direct jobs in 2018, 427 in 2019, and 365 in 2020, the three full years of construction, and nearly the same number of indirect and induced jobs in those years. The ongoing operation of the facility will create 23 onsite (direct) jobs annually from 2021 through 2036, and over 105 additional indirect and induced jobs (including the contractors and service professionals involved in the regular operation and maintenance of the facility).

Table 1: Employment and Earnings Impact – Rhode Island Only, 2018-2036

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Direct Employment Impact (FTEs per y	/ear)																		
Construction Period	306	427	365	89															
Facility Operations			15	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Indirect & Induced Employment Impact	(FTEs p	er year)																	
Construction Period	265	371	317	77															
Facility Operations			62	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106
Total Employment Impact	571	798	758	295	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129
Direct Earnings Impact (\$ - millions)																			
Construction Period	51.7	73.9	64.5	16.1															
Facility Operations			1.0	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.4
Indirect & Induced Earnings Impact (\$ -	millions)	1																	
Construction Period	17.4	24.8	21.6	5.4															
Facility Operations			5.0	8.8	9.0	9.2	9.4	9.6	9.8	10.0	10.2	10.4	10.7	10.9	11.1	11.4	11.6	11.9	12.2
Total Earnings Impact	69.1	98.7	92.2	32.0	10.7	11.0	11.2	11.5	11.7	12.0	12.2	12.5	12.8	13.0	13.3	13.6	13.9	14.2	14.5

#### For any questions, please contact:

#### Ryan Hardy

Member of PA's Management ryan.hardy@paconsulting.com 617-252-0528

#### Edinaldo Tebaldi

Bryant University Associate Professor of Economics etebaldi@bryant.edu 401-232-6901

#### Mason Smith

Managing Consultant mason.smith@paconsulting.com 617-252-0216