

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: ISSUANCE OF AN ADVISORY OPINION :
TO THE ENERGY FACILITY SITING BOARD :
REGARDING INVENERGY THERMAL : DOCKET NO. 4609
DEVELOPMENT LLC'S PROPOSAL TO SITE AND :
CONSTRUCT THE CLEAR RIVER ENERGY FACILITY :

ADVISORY OPINION

I. Introduction

On October 29, 2015, Invenergy Thermal Development LLC (Invenergy) filed an application with the Energy Facility Siting Board (EFSB) to construct a major energy facility. Invenergy proposes to build and operate a gas-fired combined cycle electric generating facility to be located on Wallum Lake Road in Burrillville, Rhode Island (Clear River Energy Center or CREC). The proposed facility will have a nominal power output at base load of approximately 850-1,000 megawatts (MW) while firing natural gas. The proposed facility would be configured as a two-unit one-on-one duct-fired, combined-cycle configuration with a heat recovery steam generator equipped with natural fired duct burners and one steam turbine for each unit. In its filing to the EFSB, Invenergy stated that because CREC will have lower generation costs, end-use consumers will pay less for the energy generated, resulting in savings to Rhode Island consumers. Invenergy also contended that CREC will have the ability to ramp up and down quickly in order to serve peak load in a way other electric generation facilities cannot.¹

In response to the filing, the EFSB conducted a preliminary hearing on January 12, 2016, and issued a preliminary order which, inter alia, directed the Rhode Island Public Utilities Commission (Commission or PUC) to provide the EFSB with an advisory opinion as to (i) the need for the proposed facility; (ii) whether it is cost-justified to the consumer consistent with the

¹ EFSB Preliminary Order at 1-3.

objective of ensuring that the construction and operation of CREC will be accomplished in compliance with all of the requirements of the laws, rules, and regulations; and (iii) whether cost effective efficiency and conservation opportunities provide an appropriate alternative to CREC. The Division of Planning, the Office of Energy Resources (OER), and the Division of Public Utilities and Carriers (Division) were required to participate in the PUC proceeding pursuant to R.I. Gen. Laws § 42-98-9(d).² In expanding this charge, the EFSB stated that the PUC should also expressly consider the reliability of the resulting power in determining the need for the facility, including the adequacy and dependability of the natural gas supply to the facility. Similarly, in reviewing cost-justification, the EFSB requested the PUC to also specifically analyze the projected cost impact of the facility upon retail electric customers under a wide range of reasonable factual assumptions involving the types and costs of fuel to be used and to consider the respective costs to retail customers of power derived from reasonable alternative sources.³

After a review of the record in this matter including written testimony, data responses, live testimony over three days of hearings, and memoranda, I am of the opinion that CREC is needed in order to meet the electric generation reliability needs of Southeastern New England and Rhode Island consumers, particularly given that Unit 1 has a mechanism to contract for firm supply of natural gas, which is rare in the gas fired generation industry. I further believe that the facility will provide meaningful savings in the capacity market for a period up to four years, and generate savings to wholesale energy prices in New England, the effects of which should benefit Rhode Island consumers. As the facility will be operated as a merchant plant by Invenergy, all of the

² EFSB Preliminary Order at 9-10. At the request of the Commission, the EFSB clarified that “for the purpose of the advisory opinion the Public Utilities Commission (PUC) analysis should assume that Invenergy Thermal Development LLC (Invenergy) will obtain all necessary permits.” Letter from Patricia Lucarelli to Cynthia Wilson-Frias (Mar. 24, 2016).

³ EFSB Preliminary Order at 9-10, 15-16.

costs and risks relative to the plant will be borne by the Applicant, and not by the ratepayers. Finally, based on the record evidence, I am convinced that energy efficiency and renewable energy supply cannot, at this time, reliably meet the need for which CREC will be built. The record revealed that at least in the foreseeable future, generating units such as the proposed CREC facility are needed in order to meet Rhode Island's clean energy goals.

II. Advisory Opinion of One Commissioner

By statute, the Chairperson of the PUC is the Chairperson of the EFSB, and therefore, recused herself from PUC proceedings related to EFSB proceedings. Typically, that allows two commissioners to hear and render an advisory opinion. However, since Invenergy's filing with the EFSB and the commencement of the PUC Advisory Opinion proceeding, a new commissioner, Marion Gold, was appointed to the PUC having previously served as Commissioner of OER. In order to avoid any appearance of impropriety that might result from her participation as a commissioner when the agency that she formerly led is appearing before the PUC as a party in a matter that commenced while she was still the head of that agency, Commissioner Gold recused herself from this matter. That left only one commissioner qualified to hear the evidence and render a PUC advisory opinion. The parties were advised of this development by legal counsel at a status conference in June 2016 and counsel allowed the parties a time frame within which to file objections. Only one party, the Town of Burrillville, objected to the rendering of an advisory opinion by a single commissioner, arguing that R.I. Gen. Laws § 39-1-8 requires two commissioners to transact business and the rendering of an advisory opinion would constitute the transaction of business.

My analysis of the issue leaves me to believe that I can act on my own in this instance on behalf of the Commission. First, the business of the Commission is typically to render decisions

and orders, any of which may be appealed through an application to the Rhode Island Supreme Court for a writ of certiorari.⁴ In this case, my role on behalf of the Commission is to simply give my opinion based on the record established in accordance with our usual procedures.⁵ The PUC's enabling legislation allows me to preside over a hearing alone, but requires at least two commissioners for the rendering of a decision.⁶ There is a clear difference between providing an advisory opinion and rendering a decision that is binding upon parties or the public and is subject to appeal. In fact, the Energy Facility Siting Act makes that distinction when it states "[a]dvisory opinions issued by agencies designated under § 42-98-9 shall not be considered as final decisions of the agencies making the opinions and shall not be subject to judicial review."⁷ Furthermore, the EFSB can accept, reject, or modify the advisory opinion.⁸ As such, I do not believe that this matter constitutes the transaction of business as contemplated by R. I. Gen. Laws § 39-1-8. Therefore, Burrillville's objection was overruled at the hearing.

III. Need

This is the fourth advisory opinion issued by the Commission since the passage of the Utility Restructuring Act (URA) in 1996. The URA required the "electric company" to divest itself of its generation and supply contracts in order to allow for the creation of a competitive energy supply market to offer retail access to energy consistent with a statutory timeframe.⁹ Since

⁴ See generally, R.I. Gen. Laws §§ 39-1-1, 39-1-3(a), outlining the general power of the PUC. R.I. Gen. Laws § 39-5-1 states, "Any person aggrieved by a decision or order of the commission may, within seven (7) days from the date of the decision or order, petition the supreme court for a writ of certiorari to review the legality and reasonableness of the decision or order. The petition for a writ of certiorari shall fully set forth the specific reasons for which it is claimed that the decision or order is unlawful or unreasonable. Chapter 35 of title 42 shall not be applicable to appeals from the commission. The procedure established by this chapter shall constitute the exclusive remedy for persons and companies aggrieved by any order or judgment of the commission; provided, however, any person aggrieved by a final decision or order of the administrator may appeal therefrom to the superior court pursuant to the provisions of § 42-35-15."

⁵ R.I. Gen. Laws § 42-98-9.

⁶ R.I. Gen. Laws § 39-1-11.

⁷ R.I. Gen. Laws § 42-98-10.

⁸ R.I. Gen. Laws § 42-98-11.

⁹ R.I. Gen. Laws § 39-1-27 and § 39-1-27.3 (1996), amended by 2002 P.L. 144 (Section 1).

the passage of the URA, in conducting its analysis of need, the Commission has noted that “the heightened level of scrutiny for determining need, once absolutely necessary when ratepayers alone faced the cost of additional generation facilities, is no longer required.”¹⁰ The Commission has also recognized that prior to restructuring, if the estimate of future demand was overstated, the cost of the generating facility would be spread over fewer kilowatt hour of a captive ratepayer base. Therefore, “[i]t was clearly in the ratepayers’ interest to assure that more projects were not approved than were needed to meet their projected usage so that they would not have to pay for surplus capacity.”¹¹ The Commission also determined that “[e]ven if sufficient generation exists, replacement of inefficient old plants with clean, efficient new plants may have economic as well as environmental value. Absent a gap between supply and demand, new plants may still be considered ‘needed’ by the region. In the end, it is the market that will supply the answers; in the time allowed.”¹² Similarly, the Commission has stated that in the competitive generation market “new generating units are built...as merchant plants, where the risk of selling electricity and the cost of plant construction are placed upon private investors rather than ratepayers.”¹³ Based on the findings of prior Commissions, I agree that the appropriate assessment of need in this matter occurs in the context of this changed risk dynamic, away from ratepayers and toward investors. However, I will also consider the traditional factors in this need assessment.

¹⁰ In re: Tiverton Power Associates Limited Partnership Need Assessment to Construction a Gas-Fired Generating Facility (Docket No. 2600), Opinion No. 15456 (issued Nov. 21, 1997).

¹¹ In re: Need Assessment to Construct a Gas-Fired Power Generating Facility (Docket No. 2818), Opinion No. 15744 (issued Nov. 24, 1998).

¹² *Id.*

¹³ In re: Indeck-North Smithfield, LLC Need Assessment to Construct a Gas-Fired Power Generating Facility (Docket No. 3094), Opinion No. 16388 (issued Sept. 6, 2000).

a. Clear River Energy Center Unit 1 Is Needed as it was Awarded a Capacity Supply Obligation in Forward Capacity Auction 10

The award of a capacity supply obligation by ISO-NE (the regional transmission operator for the New England Region) is one component in the need analysis and is evidence of need in the wholesale market in the near term. According to Seth Parker, the expert witness for the Division and OER the competitive market determines the need for new plants.¹⁴ This need is signaled through the Forward Capacity Market and the Forward Capacity Auction which are the procedures that were developed by a stakeholder process, adopted by ISO-NE, and approved by FERC.¹⁵ Resources are chosen by ISO-NE through the Forward Capacity Auction because they are cost effective compared to other participating resources. Because Clear River Energy Center Unit 1 was awarded a capacity supply obligation in Forward Capacity Auction 10 for the supply period commencing June 1, 2019, ISO-NE is relying on it to run when called upon.¹⁶ While Conservation Law Foundation's (CLF) witness Robert Fagan argued that the obligation is only a financial one,¹⁷ a financial obligation without a physical plant behind it is no obligation at all, and is meaningless.

Mr. Fagan testified that reliability need is the level of resources needed to ensure the lights do not go out any more than one time in every ten years as the result of a shortage of capacity. This industry-wide standard has been set by the North American Electric Reliability Council.¹⁸ He explained that “[c]apacity procurement is how we make sure we buy or have available those

¹⁴ On July 14, 2016, Statewide Planning filed a letter authored by Jared Rhodes, RI Statewide Planning Program, Chief, stating that his division had reviewed the testimony of Mr. Parker and supported its content. http://www.ripuc.org/eventsactions/docket/4609-StatewidePlanning-Letter_7-14-16.pdf.

¹⁵ Tr. July 27, 2016 at 18-20. ISO-NE describes its markets as being designed to achieve reliability and long term efficiency at the lowest cost on a fuel and technology neutral basis. Resources offering to produce electricity at the lowest prices in the markets are selected to participate. ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 21.

¹⁶ *Id.* at 10.

¹⁷ Tr. July 26, 2016 at 45.

¹⁸ Tr. July 26, 2016 at 17-20.

resources to meet the need.”¹⁹ He clarified that the first is a reliability requirement and the second is the procurement process.²⁰ He explained that other regional transmission organizations around the country each have a slightly different procurement process, but each has some sort of reliability target they use.²¹ What Mr. Fagan explained is exactly what happens in New England. ISO-NE sets a reliability need to meet a one-in-ten loss of load expectation (Net Installed Capacity Requirement) prior to carrying out the capacity procurement process (Forward Capacity Auction) to ensure sufficient resources are available to meet that need.²²

In his testimony, Mr. Parker described how the setting of the reliability need and procurement process works. He explained that ISO-NE procures installed capacity in the Forward Capacity Market to ensure resource adequacy, a critical reliability requirement. Prior to every Forward Capacity Auction, ISO-NE probabilistically calculates the Net Installed Capacity Requirement, i.e. the regional capacity procurement target, to establish the amount of capacity needed to meet New England's reliability requirements for the associated Capacity Commitment Period. This procurement target is net of energy efficiency programs, hydropower from Canada, and an assumed level of distributed generation (primarily behind the meter solar photovoltaic installations). ISO-NE set the Net Installed Capacity Requirement for Forward Capacity Auction 10 at 34,151 MW. One of the two CREC units offered in Forward Capacity Auction 10 cleared that auction and was assigned a Capacity Supply Obligation for the Capacity Commitment Period June 1, 2019 to May 31, 2020. According to Mr. Parker, ISO-NE is depending on the availability of the first CREC unit starting on June 1, 2019.²³ Mr. Parker also testified that capacity that clears

¹⁹ *Id.* at 20.

²⁰ *Id.* at 21.

²¹ *Id.*

²² *See* Parker Test. at 10, 56 explaining the loss of load expectation concept.

²³ Parker Test. at 10-11; Tr. July 27, 2016 at 46; *See* Mr. Fagan's testimony at Tr. July 26, 2016, 17, explaining that ISO-NE separately values the imports from the Hydro Quebec interconnection and net that from the higher installed capacity number initially calculated to come up with the net installed capacity figure.

the Forward Capacity Auction is, by definition, needed.²⁴ Therefore, because CREC Unit 1 cleared the Forward Capacity Auction 10 in accordance with the wholesale market rules and has a Capacity Supply Obligation, CREC Unit 1 is needed for system reliability commencing in June 2019. However, obtaining a Capacity Supply Obligation is only one component of the need analysis.

b. Clear River Energy Center is Needed in Light of Announced and At Risk Plant Retirements of Fossil Fuel Generating Units

While the existence of a Capacity Supply Obligation signals a need in the short term, that should not be the only component reviewed in this matter. The PUC has a history of reviewing not just short-term need and reliability, but also longer term needs of the region and of Rhode Island. In the EFSB's Order approving the construction of the Ocean State Power generating facility prior to restructuring, the need analysis conducted by the PUC and accepted by the EFSB, considered the need for additional energy and capacity into the next decade.²⁵ This decision was rendered prior to the passage of the URA when the risk of overinvesting was on captive ratepayers. While the Forward Capacity Market and Forward Capacity Auction signals whether a unit is needed for reliability in the short-term, there are other factors to consider in assessing need over the longer term. Furthermore, R.I. Gen. Laws § 42-98-9(d) does not limit the definition or meaning of "need" to short term need.

For example, there have been a number of older fossil fuel and nuclear power plants that have retired or have announced their retirements. In its 2016 Regional Electricity Outlook, ISO-NE noted that more than 4,200 MW of the region's non-gas generating capacity has retired or has announced its retirement. ISO-NE has also identified another 6,000 MW from additional non-gas fossil fuel fired generators that are "at risk" for closing. While ISO-NE acknowledged that these

²⁴ Tr. July 27, 2016 at 19; Test. of Parker at 13.

²⁵ In re: Application of Ocean State Power Filed January 13, 1987 to Site and Construct a Major Energy Facility, EFSB Order No. 7 (issued Oct. 25, 1988).

older plants are currently displaced by newer gas-fired generation a majority of the time, the Regional Transmission Operator stated that “they are still critical for meeting the region’s demand in the winter.”²⁶ Mr. Parker also indicated that these older coal and oil units, although not economical over many hours of operation, are still important to meet peaking requirements.²⁷ In his testimony, John Niland, Director of Thermal Development for Invenergy stated that while he would expect the older coal and oil units to be called on to run less often due to economic concerns, they are nonetheless relied upon by ISO from a capacity standpoint to meet the reliability standard.²⁸

ISO-NE estimates that cumulatively, thirty percent of the region’s generating capacity could be gone by 2020, less than five years from now.²⁹ At the hearing, CLF expert witness Christopher Stix pointed out that only 27 MW of de-list bids and non-price retirements were submitted for Forward Capacity Auction 11 (delivery commitment period June 1, 2020 to May 31, 2021).³⁰ However, Mr. Parker stated that these “at risk” units are older and more at risk for mechanical failure with higher resulting maintenance and emission control costs.³¹ Loss of non-gas fossil fuel fired generating units are characterized by ISO-NE as challenges because they limit the options for reliable grid operation when natural gas infrastructure is constrained.³²

Invenergy has proposed a generating facility consisting of two units which will be capable of running on oil during periods of gas supply constraints to the New England region.³³ Relative

²⁶ ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 10-11.

²⁷ Tr. July 27, 2016 at 10,12-13.

²⁸ Tr. July 25, 2016 at 69.

²⁹ ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 10-11.

³⁰ Tr. July 26, 2016 at 203-04.

³¹ Tr. July 27, 2016 at 16-17.

³² ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 1.

³³ Invenergy Application to the EFSB, Section 1.1.

to Unit 1, Invenenergy has entered into a Memorandum of Understanding (MOU) with Algonquin to provide firm transportation for one of the units in the amount of 75,000 dekatherms per day including a dedicated lateral to serve the first CREC unit. Mr. Parker explained that the MOU is not a binding commitment, but is standard practice at this point in CREC's development. According to Mr. Parker, this quantity "should be sufficient under virtually all conditions."³⁴ Ryan Hardy of PA Consulting, expert witness for Invenenergy, testified that "in general, a majority of natural gas generators in New England do not purchase firm gas currently. Now, with pay-for-performance, that may change some of those decisions, but right now most of the generating capacity -- the energy is on an interruptible basis in New England."³⁵

Based on the fact that ISO-NE has identified as a challenge to reliability the approximately 10,000 MW of retirements and "at risk" for closing of non-gas fossil fuel fired generation in New England, the entire CREC facility is needed for continued reliability in the region. Invenenergy has taken the unusual but certainly proactive step of seeking a firm transportation gas contract with Algonquin and has designed the facility to run on oil in the event there may be a shortage of gas supply on the Algonquin pipeline. Each of these characteristics should allow the CREC units to reliably bid into the market, and deliver energy even during times when other generating units in New England may be without a gas supply. The fact that CREC Unit 1 will have firm gas supply and that both units will have dual fuel capability is especially significant, given that we in Rhode Island live and work in an import constrained zone relative to gas pipeline supply.

³⁴ Parker Test. at 21; Tr. July 27, 2016 at 62-63, 94-95. On cross-examination, Mr. Parker stated that in a conversation with Invenenergy representatives, he was advised that Invenenergy would also be seeking to receive priority secondary supply from Algonquin for sufficient gas supply to the secondary unit. This would provide a higher quality interruptible supply subject to fewer interruptions than typical interruptible supply. However, Mr. Parker stated that he had not independently verified this claim. Tr. July 27, 2016 at 62-63.

³⁵ Tr. July 25, 2016 at 179.

c. CREC is Needed in Rhode Island - An Import Constrained Zone, Designated as SENE by ISO-NE

Previously, the PUC has concluded that, distinct from regional need, increasing in-state generating capacity benefits the state.³⁶ Prior to Forward Capacity Auction 10, ISO-NE modeled Rhode Island as being within an import-constrained zone which was known as SEMA/RI (Southeast Massachusetts and Rhode Island). For Forward Capacity Auction 10, ISO-NE modeled two Capacity Zones for Capacity Commitment Period 2019/2020: the import-constrained Southeastern New England (SENE) Capacity Zone and the Rest-of-Pool Capacity Zone. The new SENE zone includes Northeastern Massachusetts/Boston, and Southeastern Massachusetts/Rhode Island (SEMA/RI). Mr. Parker explained that due to transmission upgrades between Forward Capacity Auction 9 and Forward Capacity Auction 10, certain transmission constraints were relieved within the SEMA/RI zone, but the larger SENE zone remains import-constrained.³⁷

Mr. Niland testified that when considering where to site its facility, Invenenergy focused on the SENE region based on the results of FCA 9 when the SEMA/RI zone cleared at the cap of approximately \$17 per kilowatt-month. According to Mr. Niland, clearing at the cap signaled an overall system-wide and local reliability need of the region indicating that there was insufficient generation to meet the demand which resulted in high clearing prices. Additionally, he stated that although reconfigured for Forward Capacity Auction 10, the SENE zone remains an import transmission constrained zone, which means that in order to meet the needs for the zone, the new generation project must be located within the SENE zone.³⁸ Mr. Niland opined that the main reason the SENE zone cleared the Forward Capacity Auction 10 at the same level as the rest of

³⁶ See In re: Application of Ocean State Power Filed January 13, 1987 to Site and Construct a Major Energy Facility, EFSB Order No. 7 (issued Oct. 25, 1988).

³⁷ Parker Test. at 10-11.

³⁸ Niland Test. at 10-11; Tr. July 25, 2016 at 80-81.

pool was the addition of CREC which satisfied the need within the zone.³⁹ CLF witness, Fagan disagreed, arguing that the increase in the size of the zone allowed more resources to participate in serving the zone.⁴⁰ All witnesses agreed that ISO-NE does not make the results of the rejected bids public. It should be noted that CREC was the largest new resource to clear Forward Capacity Auction 10, and the largest new natural gas combined cycle plant to clear.⁴¹

Regardless of this disagreement, on cross examination, Mr. Niland testified that even with the addition of CREC, Rhode Island will still be required to import significant amounts of fuel for electricity generation.⁴² Furthermore, arguing that the lack of price separation signals a lack of need in the zone is contrary to the ISO-NE determination that the SENE is still an import constrained zone. It is the job of ISO-NE to make these determinations under the FERC approved processes. ISO-NE valued resources located in import constrained zones. Where imports of energy will be needed even with the addition of CREC, it can only benefit the region and the State of Rhode Island consumers to have CREC located within the SENE zone. Therefore, CREC is needed within the SENE zone.

d. Resources Acquired Above the Net Installed Capacity Requirement are Needed

ISO-NE cleared 35,567 MW of capacity which was 1416 MW over the net installed capacity requirement. Mr. Fagan testified that ISO-NE is conservative in its projections because their job is to keep the lights on.⁴³ Mr. Fagan argued that because ISO-NE cleared capacity in

³⁹ Tr. July 25, 2016 at 81. Mr. Niland testified that while the price signal from the Forward Capacity Auction 10 was lower than the prior auction, for the second unit, the clearing price is a viable option. He noted that the clearing price is still three times that of the capacity price in PJM. Tr. July 25, 2016 at 111. PJM is the regional transmission organization that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

⁴⁰ Tr. July 26, 2016 at 138-39.

⁴¹ See Tr. July 26, 2016 at 150-51.

⁴² Tr. July 25, 2016 at 74

⁴³ Tr. July 26, 2016 at 182.

excess of the net installed capacity requirement, more than the capacity of CREC Unit 1, there is no need for CREC. He did not dispute that ISO-NE followed its rules in conducting the Forward Capacity Auction nor in clearing capacity in excess of the net installed capacity requirement, but argued that ISO-NE cleared too much. He concluded that CREC is not needed because removing the CREC Unit 1 from the auction results would still leave almost 1,000 MW of excess capacity. He noted that a new 333 MW combustion turbine on Cape Cod at the Canal plant location and a new 484 MW combined cycle facility in Connecticut were the other two large gas fired generating plants that cleared Forward Capacity Auction 10. However, neither of these plants has yet to be built and Mr. Fagan agreed that there is the potential that one or more of these plants will not be built.⁴⁴ Mr. Fagan was not tasked with opining whether either of those two facilities were needed in New England.⁴⁵

Mr. Parker testified that capacity that clears in excess of the net installed capacity requirement provides higher reliability for the region which benefits consumers. Because of the design of the sloped demand curve, the more capacity that clears, the lower the clearing price and the total capacity cost for consumers.⁴⁶ The latter issue was confirmed through testimony at the hearing by Mr. Parker, Mr. Fagan and Mr. Stix.⁴⁷ Mr. Fagan stated that for Forward Capacity Auction 10, the clearing price was lowered by the clearing of additional capacity.⁴⁸

CLF has argued that Invenegy is not needed because there will still be excess capacity if one were to take the auction results and simply back out the CREC Unit 1 portion. Per this argument, most of the new resources that cleared would not be needed as the new resources

⁴⁴ Tr. July 26, 2016 at 150-51, 175-76.

⁴⁵ Tr. July 26, 2016 at 137-38, 151-53, 174.

⁴⁶ Parker Test. at 12.

⁴⁷ Tr. July 26, 2016 at 131-32, 137-38; Tr. July 27, 2016 at 20-21, 28-29, 53-55

⁴⁸ Tr. July 26, 2016 at 132.

approximate 1,458 MW in total (with the three large ones referred to above comprising 1,302 MW). This argument is not persuasive. There is no assurance that any of the new resources will be built. Nor, for that matter, is there any guarantee that all of the existing resources will deliver. Furthermore, this argument ignores the fact that each of these units was able to clear at a lower capacity price than those that dropped out in prior rounds.⁴⁹ While ISO-NE needs to be conservative in its job to keep the lights on without, as asserted by Mr. Fagan, regard to the cost, it appears the forward capacity auction construct is designed to enhance reliability and encourage the clearing of lower cost options that, in the aggregate, produce lower capacity costs for consumers in New England. Therefore, because ISO-NE cleared CREC in the Forward Capacity Auction in accordance with its rules with the participation of CREC, this is evidence that the facility is needed for reliability.

IV. Cost Justification

a. CREC will Generate Capacity and Energy Savings for Rhode Island Consumers

Although there was disagreement about the magnitude, the evidence in the record was undisputed that CREC will generate capacity and energy savings in the wholesale market which will flow to Rhode Island ratepayers and consumers in general. Invenenergy witness Hardy estimated capacity savings for the first four years of operation to be \$170 million, including \$39.4 million for the first capacity commitment period. He estimated energy savings to be \$41 million for the first four years. These estimates assumed four years of operation for CREC Unit 1 and three years of operation for CREC Unit 2.⁵⁰

⁴⁹ Parker Test. at 34. Tr. July 27, 2016 at 121-24. Mr. Parker explained that, for example, if CREC Unit 1 had not bid, small resources that were rejected may have stayed in the mix and may have received a capacity supply obligation. This would have changed the outcome of the capacity cost. Tr. July 27, 2016 at 123-24.

⁵⁰ Hardy Test. at 13-14; Hardy Rebuttal at 9.

CLF witness Stix indicated that the maximum amount of capacity savings for the Forward Capacity Market 10 capacity commitment period would be \$36 million but that the savings could be close to zero.⁵¹ In its post-hearing memorandum, CLF conceded that the savings would be “small but meaningful.”⁵²

Division and OER witness Parker stated that it is reasonable for Mr. Hardy to assume capacity reductions would occur during the first four years of operation and then cease once the ISO-NE market rebalances. Mr. Parker indicated that energy savings would be generated for many years as CREC will displace higher cost and less efficient resources due to its high efficiency relative to other generating units in New England.⁵³

Mr. Hardy’s analysis was based on both CREC units clearing in the Forward Capacity Auction 11. He indicated that if only Unit 1 is built, the savings would be more than half, but closer to half than to the full estimate of savings.⁵⁴ Mr. Parker found Mr. Hardy’s estimate of energy savings to be reasonable but opined that his estimate of capacity savings was exaggerated. Mr. Parker maintained that the capacity savings would be less than PA Consulting estimated but that the CREC facility would still provide material savings to Rhode Island consumers. He indicated that the capacity benefits would be one-quarter to one-half of Mr. Hardy’s estimate for Forward Capacity Auction 10.⁵⁵ He stated that it was not possible to derive a precise figure. The total cost savings would be small but meaningful.⁵⁶ The savings would appear to be about one to two percent for both energy and capacity.⁵⁷

⁵¹ Stix Test. at 19.

⁵² CLF Post Hearing Memorandum of Law, 1.

⁵³ Parker Test. at 32

⁵⁴ Tr. July 25, 2016 at 176-81.

⁵⁵ Parker Test at 36, 36-38.

⁵⁶ Parker Test. at 40.

⁵⁷ Tr. July 27, 2016 at 84.

b. Risk of Loss

In his testimony, Mr. Parker emphasized that “any savings ultimately realized as a result of constructing CREC will accrue to consumers without shifting investment risk onto them. This is a key benefit of utility restructuring and competitive wholesale markets, which Rhode Island adopted through its URA of 1996.”⁵⁸ In the almost twenty years since the energy industry was restructured in New England, the landscape as it pertains to electric generating power plants has changed dramatically. Prior to restructuring, the plants were mostly owned by utilities which meant that the ratepayers ultimately bore the risks associated with plant investment. Now, however, the plants are developed and owned by independent parties as merchant generators. Today, the competitive power market determines if the plant is needed and independent merchant generators must compete for business in the ISO-NE markets. Accordingly, the costs and risks of these plants are not borne by captive ratepayers, but rather, by the developers and investors in the plants. Now the ratepayers pay for capacity and energy that ISO-NE determines to be cost effective through its wholesale procurement and pricing mechanisms. If CREC’s capacity and energy bids are accepted, CREC will provide and be paid for those products, effectively demonstrating that CREC is cost justified.

If Invenergy believes its projected revenues will be sufficient to cover CREC’s operating costs and will allow Invenergy to recover its investment, CREC will be built. If Invenergy believes revenues from CREC will not be sufficient, the facility will not be built. In either event, Invenergy – not the ratepayers – will be at risk. The end result is that any savings ultimately realized by CREC will accrue to consumers without shifting the investment risk onto them. As the evidence

⁵⁸ Parker Test. at 36 (emphasis in original).

indicates that CREC will generate capacity and energy savings and that the risks associated with the plant will be borne by Invenergy, I believe the facility to be cost-justified.

V. Alternatives

a. Location

Although perhaps only tangentially relevant to the EFSB's charge to the Commission on the evaluation of alternatives, an issue that was raised during public comment and by the Town of Burrillville was whether alternative locations were considered. What is relevant to this advisory opinion is whether there is a relationship between the locational choice and the reasonableness of costs to consumers. Based on Mr. Niland's live testimony, the choice of Burrillville appears rational and cost justified.

Several members of the public disputed the locational choice on non-socio-economic standards because it, or a nearby location, had been rejected by Ocean State Power almost twenty years ago.⁵⁹ The rejection of that site was based entirely on the chosen site's ownership and access to gas and electric transmission lines.⁶⁰ Mr. Niland testified that when choosing a site for development, Invenergy considers the locations of various infrastructure that would be required in order to provide power including access to the electric transmission system and gas supply facilities. He explained that Invenergy's consideration of Burrillville was based on the fact that there are properties in close proximity to or which cross the electric transmission system at a voltage level of 230 kV and above. While three or four other locations considered had access to the electric transmission system, Burrillville is the only town in Rhode Island through which the Algonquin gas pipeline runs. He indicated, therefore, that other locations Invenergy reviewed did

⁵⁹ EFSB Order No. 7 (issued Oct. 25, 1988).

⁶⁰ *Id.*

not have access to both high voltage transmission lines and gas supply.⁶¹ Lack of access to both the electric transmission system and gas pipeline would increase the cost and complexity of the facility, likely driving up costs for consumers. I am aware that there is already a power plant and compressor station in Burrillville and I can certainly understand why many town residents would be opposed to this project. However, Mr. Niland's testimony was uncontroverted and thus, evidenced a reasonableness to the selection of the Burrillville site from a Rhode Island consumer perspective. From a statewide perspective, the site is a logical one as it is in close proximity to the Algonquin pipeline, the gas compressor station, and the electric transmission lines.

b. Energy Efficiency and Conservation

Mr. Parker stated that he was not aware of any energy efficiency or conservation resources that could adequately replace CREC's capacity.⁶² He specifically stated that neither energy efficiency nor distributed generation were presented as alternatives to the CREC facility and "given the fact that they are not always available when load is – needs resources, they may not be good alternatives to CREC."⁶³ It must be noted that this is a large project with each unit rated at 485 MW. There was no evidence presented in the record that would support a contention that energy efficiency could obviate the need for capacity of a 485 MW unit that cleared the Forward Capacity Auction. While Mr. Fagan provided several tables and estimates of the impact of energy efficiency programs on peak load and load growth as evidence that there was no need for additional fossil fuel fired generation in New England, ISO-NE already accounts for those values in its energy forecasts.⁶⁴ At the hearing, Mr. Fagan clarified that he never said energy efficiency or behind the

⁶¹ Tr. July 25, 2016 at 85-88.

⁶² Parker Test. at 44.

⁶³ Tr. July 27, 2016 at 94.

⁶⁴ Fagan Test. at 17-23

meter photovoltaic would obviate the need for CREC, but that the ISO-NE projections of peak loads were too high.⁶⁵

Mr. Parker testified that ISO-NE makes adjustments to its long-term load forecast in its system planning studies for passive demand resources like energy efficiency. These adjustments are based on the projected budgets of the states' energy efficiency programs. He noted that in its 2016 Energy Efficiency Forecast 2020-2025, ISO-NE projected that that "energy efficiency programs in Rhode Island will reduce summer peak loads by 110 MW and have 747 GWh in cumulative energy savings over the period from 2020-2025."⁶⁶ According to Mr. Parker, while ISO-NE's selection of CREC Unit 1 may have resulted in the rejection of new energy efficiency capacity resources, those rejected resources would not be as cost-effective as the CREC unit; otherwise they would have been selected instead of CREC Unit 1.⁶⁷ Based on the fact that ISO-NE already accounts for energy efficiency in its various forecasts and allows cost effective energy efficiency to bid into the capacity market, it appears energy efficiency, as a current participating resource in the ISO-NE markets, is not a cost effective alternative to the CREC unit.

Energy efficiency, however, is an important component of the State of Rhode Island's policy goals and the record showed that CREC will not hinder the development of cost effective energy efficiency opportunities in Rhode Island. Each year, as required by statute, the Commission is presented with a plan devised by various stakeholders to implement energy efficiency programs that are of a lower cost than procuring new energy supply. Each year, National Grid implements those programs as approved by the Commission. Indeed, Rhode Island is recognized as a national leader in energy efficiency programs. There was no evidence in the record that CREC would

⁶⁵ Tr. July 26, 2016 at 49-50.

⁶⁶ Parker Test. at 43.

⁶⁷ Parker Test. at 43-44.

impede the continued development of energy efficiency programs. On the contrary, the addition of the CREC facility should encourage the development of more cost effective energy efficiency measures. If energy efficiency programs are developed that are of a lower cost than procuring supply from facilities like CREC, Rhode Island ratepayers will be supporting those programs rather than purchasing additional energy supply.

c. The project is consistent with the current energy generating trend in New England and will help with the integration of renewable resources

Renewable energy resources, while undoubtedly representing the future of energy generation, do not, at this time, provide a cost effective alternative to large, efficient gas fired generators like CREC. Rather, such generation is necessary to allow for the integration of renewables as they become more prevalent in the wholesale market. The CREC facility will have the characteristics that will help Rhode Island continue to meet its environmental goals.

In addition to providing capacity to assure resource adequacy, CREC and other efficient, gas fired generating resources also provide fast start, ramping, flexibility, and other performance characteristics for ISO-NE to meet its operational requirements.⁶⁸ As the electric industry and wholesale markets evolve, particularly due to the growing penetration of wind power and other renewable resources, these performance characteristics are becoming more important for ISO-NE's system operators to manage the New England bulk power system. CREC's performance characteristics should help ISO-NE meet its operational requirements.⁶⁹

New, more efficient and cleaner natural gas units are replacing the older fossil fuel fired generating units, primarily oil and coal that are retiring. More than sixty percent of the new generation proposed in our region is primarily or exclusively fueled by natural gas. Wind power,

⁶⁸ ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 4, 10.

⁶⁹ Parker Test. at 10.

while an increasing part of the portfolio, remains a small portion of regional capacity and inadequate transmission is an obstacle to adding more at this time. According to ISO-NE, most of the region's wind resources are located in northern New England. Many of the new wind power proposals are located where the transmission system is already constrained, particularly in Maine. To be able to deliver more wind power from existing resources as well as to access more Canadian hydropower, significant additional investment will be required in electric transmission infrastructure. Delivering wind power from proposed projects to distant consumers will require major upgrades of the transmission system.⁷⁰

Solar installations are multiplying but still make a relatively small contribution – even less so on short winter days or when there is cloud or snow cover – and is not dispatchable when needed by the ISO-NE. ISO-NE presently counts zero photovoltaic capacity toward the winter daily peak demand because the peak demand in the winter occurs in the evening after sunset. The addition of renewables has actually increased the need for flexible, fast starting gas generators like CREC due to the intermittent nature of renewables.⁷¹ Mr. Fagan, while disputing the need to install a facility such as CREC, agreed that a resource like CREC could provide characteristics that are needed to have proper operating reserves related to the integration of renewables.⁷² It should be noted that CREC is the largest new combined cycle plant that cleared FCA 10 at 485 MW, followed by Bridgeport Harbor at 484 MW, and that CREC as a General Electric H-class facility, will be the most efficient combined cycle that will enter the New England market.⁷³ Not only will CREC not impede the development of renewable resources in Rhode Island and our region, it will – to

⁷⁰ ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 3-4, 14, 32-33,

⁷¹ ISO New England, 2016 Regional Electricity Outlook, available at http://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf, 3, 19, 34

⁷² Tr. July 26, 2016 at 56, referring to the ISO New England, 2015 Regional System Plan, Section 10, "Integration of Variable Energy Resources, 157-168.

⁷³ Hardy Test. at Exhibit RH-3, p. 14; Tr. July 25, 2016 at 152, 168; July 26, 2016 at 150-51, 168.

the contrary – aid and assist with the future development and integration of renewables. For this reason also, the CREC facility is needed. For all of these reasons, renewable energy supply does not, at this time, represent a cost effective, reliable alternative compared to the CREC facility and in fact, at this time, the CREC facility is needed to allow Rhode Island to continue meeting its goals toward more integration of renewables in Rhode Island and New England.

VI. Conclusion

For all of the above stated reasons, it is my opinion that Invenenergy has met its burden of proof that the entire CREC facility is needed in order to meet the electric generation reliability needs of Southeastern New England and Rhode Island consumers. I further believe that the facility will provide meaningful savings in the capacity market for a period up to four years, and generate savings to wholesale energy prices in New England for many years, the effects of which should benefit Rhode Island consumers. I believe the project to be cost-justified. Additionally, Invenenergy established that its choice of location was reasonable on a cost basis. Based on the record evidence, I am convinced that energy efficiency, conservation opportunities, and renewable energy supply cannot, at this time, reliably meet the need for which the Invenenergy plant will be built and that they therefore do not provide an appropriate alternative to CREC. The record revealed that at least in the foreseeable future, generating units such as the proposed CREC facility are needed in order to meet Rhode Island's clean energy goals.

(22541) Advisory Opinion⁷⁴

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Dated: September 12, 2016

⁷⁴ This number is being assigned for administrative purposes only and does not constitute an order or decision of the Commission.