

1 I am requesting that my comments be entered into the record in my absence. I am scheduled to inspect renewable
2 energy systems for the Rhode Island Renewable Energy Fund today and cannot be present on Block Island.

3 A housekeeping request is first in order. I would ask that all PDF files be filed as searchable so that the submittals
4 can be searched electronically. For this proceeding, we did not find any of the PDFs to be searchable. Obviously this
5 makes it very difficult to find relevant information of interest.

6 I realize time is brief, so I will attempt to make my comments short and to the point. In the many years past, the
7 Rhode Island Public Utilities Commission Commissioners has stated "Public comment is given the weight public
8 comment is due". Which to me, is given to mean, the public does not really have much weight in these types of
9 proceedings. I hope that is not the case with this Commission and that you listen to my comments as I believe this
10 rate case before you can create short and long term opportunities, or leave a legacy of missed opportunities.

11 My credentials are at the end of my comments. To summarize, I have been employed by electric utilities, energy
12 service companies, and renewable energy installation companies. I have been a contractor for several state
13 renewable energy funds including Rhode Island's where we took a program that installed 6 projects over five years
14 to one that installed two hundred projects in three years. I am on the North American Board of Certified Energy
15 Practitioners test development committee, and hold a NABCEP PV Installation Professional certification. I was the
16 first in Rhode Island to have this certification. I have over thirty-four years of experience in the energy industry.

17 I would like to say that BIUD's management has been very accessible throughout this transition to a publically
18 owned utility. However, from my perspective, there are many balls being juggled with respect to financing,
19 budgeting and other operational priorities. Operational issues have been foremost and consumer issues such as net
20 metering and energy efficiency have not been as high as a priority. There was no mention of an energy conservation
21 program until after I raised the issue many months ago for example.

22 This hearing is taking place before the customers have had adequate time to discuss in public format with the Block
23 Island Utility District itself the pros and cons of BIUD's net metering and energy conservation policy. I feel this
24 process has been rushed on Block Island as there has been very little time for public discussion. There have only
25 been two meetings that discussed this in any meaningful amount, and the agenda for those meetings had other
26 important issues that needed to be discussed. More questions were raised than answers forthcoming as should be
27 expected. And, answers have been promised, but have not yet been received. The reality is that there has not had
28 adequate time for questions AND answers to be generated. I personally am waiting for responses to several
29 important questions to issues I have raised that are critical to this hearing and the decision making process.

I submitted the following to BIUD, but there has been no meeting since then for a public response and no response in general. Several Board members indicated that these issues needed to be fully vetted before any PUC proceeding, but as you can see, this has not happened. As emailed to the Board and Management:

[Additional comments for the PUC are in bold]

"Dear BIUD,

This is another article regarding regressive (short term, penalizing, etc.) rate making policies that are protectionist, capturing of the ratepayer/consumer who choose solar. Under the Trump administration, we have seen more of these tactics, though these should be state rate making policies, with FERC occasionally in the decision-making process. These articles are coming from a pro-PV source, but they do point out the tactics that utilities have taken seeing PV as a threat. I remember working for PSNH and developing a computer model that analyzed customer characteristics and was able to pinpoint likely cogeneration sources. PSNH wanted to adopt what I would term regressive policies, and I successfully advocated that instead we should get these sources under contract for development as they were a cheaper source of energy. The key was determining the rate that should be paid. It was higher than avoided cost and was based partially on a risk analysis.

Here are some issues that have arisen during BIUD's process that I think need to be settled before any adoption of a net metering policy:

1) Policy needed for the "waiting list" (for net metering).

*2) Recognition of inherited errors in the inventory of solar projects, and as stated, placing customers that are interested and pursuing solar within the freed up amount under the existing 3% cap. **(We found errors in the data base and a preliminary review freed up about 18kW of net metering capacity. The Board agreed to honor this, but I have not heard anything since then.)***

*3) Discussion on the basis of the "losses" to BIUD from solar customers, i.e. calculations, assumptions. **(Our calculations show that the revenue loss is much less than BIUD's belief. However, the correct answer can only be determined by discussion and analysis. BIUD appears to assume all generation is used by the customer, yet their meters and billing program shows that this is not the case. The assumed value of energy also appears to be incorrect as energy that is exported is valued at slightly below actual avoided cost. ((This brings up the need for***

61 *analysis of Avoided Cost and if the current definition is too limiting)). Our analysis (appended to this submittal),*
62 *shows BIUD's loss of contribution at slightly over \$8,000 per 1% of peak. It's inconsequential if one considers all*
63 *the benefits that are currently unrecognized).*

64
65 *4) Discussion of how to use "smart" meters to be used either as net metered or as avoided cost meters. What*
66 *registers need to be isolated and can the metering program be used as is or does it need to be modified. If so, what*
67 *cost?*

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69 *5) Use of funds from operating the generators to invest in energy storage. What is the plan? Can we develop a plan?*
70 *(BIUD load shape is amenable to energy storage, load shedding and similar technologies. A valuation of*
71 *dispatchable energy storage and/or load shedding needs to be completed in order to create an accurate rate plan*
72 *that recognizes these benefits. BIUD is looking at centralized energy storage for management control issues I*
73 *believe, but it should not be at the exclusion of customer owned energy storage. Case 4982-Episcopal Diocese*
74 *before the PUC recognized the value of customer energy storage.)*

75
76 *6) More analysis on ISO NE system time of peak. Solar seems to work well, but energy storage would increase that*
77 *chance. What is the value to BIUD of generating at time of system peak?*

78
79 *Thank you, Chris"*

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81 Specific to BIUD's filing, the filing by BIUD contains information that shows rate making was finalized without much
82 customer interaction. While the Board represents the customers, allowing only one meeting that presents the rate
83 filing, and no real mechanism for integrating customer reaction is not really how this type of customer owned utility
84 is supposed to function. We will highlight the concerns we have at this time:

85
86 1) Renewable energy appears to be seen as a threat towards high priority maintenance needs:

87 Our discussions with management and the Board indicate that deferred maintenance and upgrades are a priority.
88 This is understandable and will create benefits that are necessary and prudent. This should not be at the expense of
89 longer term policies that recognize the current state of generation options and the need for environmental, social

90 justice, and economic reasons to use a broader perspective in incorporating the benefits of indigenous renewable
91 energy, energy efficiency, and load management technology and strategies.

92
93 Goals do not include renewable energy being integrated with thought and purpose into BIUD's planning even
94 though climate change is highlighted for the reason for shutting down generators.

95 Response: BIUD to ensure adequate revenues to upgrade the infrastructure and fund maintenance and efficiency programs.

96 2) BIUD's Net Metering program has always been "unique". Renewable energy has been faced with barriers that
97 would seem almost insurmountable but for the good will and consciousness of the customer base.

98 The current practice of Net Metering is NOT similar to National Grids. In reality, BIUD's net metering policy is similar
99 to an aggressive energy conservation program.

100 Generation that displaces utility purchases is valued at tariff. Generation that is exported to the utility is valued at
101 avoided cost. BIUD is theoretically neutral to the exported generation. This is the policy that I am asking be
102 continued.

103 3) BIUD's avoided cost approach appears to be equitable, but has many non-obvious issues:

104 Discriminates against private investment in technology that lowers their cost of electricity. It's regressive by
105 penalizing innovation and investment in new technologies as it assumes negative consequences of customer
106 generation to an inaccurate degree, and does not recognize a wide range of benefits. While the benefits may be
107 difficult to quantify, an educated and professional attempt should be made.

108 It fails to recognize that BIUD is neutral at least, and most likely benefits to a greater extent than avoided cost and
109 the proposed \$.01/kWh REC adder. There has been no study of short and long term benefits from distributed
110 generation and its value quantification.

111
112 I promised that I would attempt to be brief and to the point. The following is not inclusive. There are many issues
113 and questions left to be studied and answered. To summarize some of the more obvious and critical issues I present
114 for your consideration:

- L15 1) A more detailed analysis and understanding needs to be undertaken to understand BIUD's net metering
L16 exposure.
- L17 2) Avoided Cost components need to be updated to represent BIUD's near and longer term avoided costs.
- L18 3) BIUD should understand and facilitate customer investment in energy conservation, energy management, and
L19 renewable energy technologies and not see it as a threat to financial stability without concrete, publically
L20 discussed and regulatory reviewed analysis. That analysis needs to be undertaken before any rate agreement is
L21 made. Such an analysis is critical to our financial and environmental stability.
- L22 4) Load management techniques should be vigorously studied and pursued upon the basis of such studies and
L23 should not exclude customer actions and investment in lieu of BIUD owned investments.
- L24 5) BIUD should be required to solicit generation from on-island resources with an accepted cost/benefit analytical
L25 approach comparing it to off-island generation options.

L26 Thank you for your time.

L27 Sincerely,



L28
L29 Christopher Warfel 1/9/2020
L30

Christopher Warfel, PE
PO Box 871, Block Island, RI 02807 (401) 466-8978

Career History

ENTECH Engineering, Inc. (11/1997 - Present)

Block Island, RI

ENTECH provides innovative solutions to a wide array of unusual or problematic situations for those who utilize energy, and other valuable and constrained resources. Clients include the energy services and utilization industries, federal, state and local government, public utility commissions, and research-based organizations. ENTECH has an excellent record of exceeding its customer's expectations.

- DOE Region 1 (NY/NE) Lead Instructor for SITN Photovoltaic Technology
- IREC/NYSERDA content development and instructor to Building/Electric Code Officials, Fire and Rescue Officials, Engineers, Architects and Installers.
- IREC Clean Energy Workforce Advanced PV Instructor
- Consultant to various state energy departments, specializing in renewable energy, and energy utilization program administration and technical (inspection/design review) and financial/market analysis assistance.
- Instructor to Solar Powers America cities in solar thermal design, installation and inspection of OG100 and OG300 systems.
- Design and installation of solar electric, solar thermal, and small wind energy projects for large and small grid and non-grid applications.
- Quality assurance inspection and design review engineer for renewable energy programs and non-governmental clients throughout the United States.
- Administrator of largest DOE grant for reducing diesel electric generation by utilizing renewable energy technologies. Accomplishments include development of innovative financing program for low incomes households. Results will be transferred to appropriate areas with US and territories.
- NABCEP Solar Electric Test Development Committee Member
- Continuous services to government, industrial and commercial businesses seeking to improve their energy, material, and labor efficiency.
- Conducted statewide evaluation of architectural and engineering design and specification practices to provide basis for upgrading state energy code and better focus utility energy conservation programs.
- Developed model to determine cost-effective composting solutions to communities facing increased solid waste disposal costs. This process involved surveys, interviews, chemical and volumetric analysis to derive the optimal solution.
- Design engineer of renewable energy systems for use in aquaculture including upwellers, hoists, and sorting machinery.

Texas New Mexico Power, Facility Works, Inc. (08/1996 - 11/1997)

Fort Worth, TX

Director of Engineering

FWI entered into the deregulated energy services business as part of Texas New Mexico Power's diversification process. My position as Director of Engineering in a startup company gave me the ability to utilize much of my experience in a very fast pace environment. Although this company did not survive so the parent company could be a more valuable buyout candidate, the Engineering Department could point to many successes in its short history.

- Formed and directed the Engineering Services Department reaching a staff of five engineers, two technicians and three sales engineers.
- Integrated department's function and devised procedures/processes with Sales and Operations to provide a cohesive approach to delivering customer-desired products.
- Provided sophisticated HVAC, lighting, facility automation controls, renewable and conventional generation and industrial process evaluation and design services.
- Responsible for the design and installation of the company's LAN/WAN system.
- Developed Performance Contracting Product including methodology, contracts and verification protocol.
- Conceived and installed Key Account Tracking System to create intelligence gathering and dissemination.
- In the first fourteen months, the Engineering department ran at a profit with \$435,000 under contract, \$3.2M as the preferred proposal for consideration, and \$5.4M awaiting customer decision for implementation.

Northeast Utilities/Public Service of New Hampshire (3/86 - 8/96)

Manchester, NH

Senior Engineer

- Member of first-in-the-nation all customer classes electricity purchasing deregulation pilot program which provided opportunity to interface with regulators, utilities and competitors. Specific accounts included municipal, small commercial and industrial segments.
- Program Administrator of Energy Conscious Construction Program for industrial and commercial customers. Program exceeded all market penetration goals while having 72% lower overhead when compared against all other NU subsidiaries.
- Chairman of Cogeneration Task Force that formed and directed corporate cogeneration strategy. This strategy included a very customer-focused strategy and the development of a customer generation analysis methodology and software, which resulted in retaining greater than 98% of at-risk sales. Life cycle contribution value of retained sales was estimated at \$125M.
- Developed innovative use of coal fly ash that reduced annual disposal costs by \$400,000 by sponsoring a successful University of New Hampshire and Department of Transportation research and demonstration project, and by renegotiating existing contracts.

Education

- Master of Mechanical Engineering, University of Massachusetts, Amherst, MA
- Bachelors of Science, Forestry Engineering-School of Environmental and Resource Engineering, State University of New York College of Environmental Science and Forestry
- Bachelors of Science, Syracuse University
- Certificate in Professional Studies- Finance, Rivier College, Nashua, NH

Professional Memberships Past/Present

- Adjunct Faculty, Community College of Rhode Island, *Design and Installation of Solar Electric Systems [40hr]*, New Hampshire College, *Energy and the Environment [40hr]*
- National Society of Professional Engineers
- Association of Energy Engineers
- American Society of Heating Refrigeration and Air Conditioning Engineers
- Radiant Heating Association
- Cogeneration Institute
- American Institute of Facility Engineers
- North American Board of Certified Energy Practitioners

Published Articles/Presentations

- "Techno-Economic Study of Autonomous Wind Driven Reverse Osmosis Desalination Systems," Solar and Wind Technology, Vol. 5, No. 5, 1988.
- "Energy Auditing Methods Worth the Time," Association of Energy Engineers Regional Meeting, Chicago and Boston, 1992.
- "Cogeneration Analysis," New Hampshire ASHRAE, 1993. "Energy Auditing Methods for Utilities," Energy Engineering, Vol. 90, No. 2, 1993.
- "Self Generation Economics for Sawmills," PSNH and NH State Office of Forestry, 1994.
- "Positioning Your Company for Deregulation," Energy Management Consortium, Southwest Members Meeting, Spring 1997.
- "Risk/Reward of Energy Efficiency in the Industrial Capital Budgeting Process," American Council for an Energy Efficient Economy, 1998 Summer Symposium, Monterey, CA.
- "Quantifying the Hurdle Rates of Industrial Energy Efficiency Investments", Energy Magazine, October, 1998
- "The Block Island Renewable Energy Grant, Right/Wrong/Better", Fall US DOE Region One SEP Conference, October, 2000.
- "Performance of Renewable Powered Upwellers", National Shellfish Association Annual Meeting, Mystic, CT April 17, 2002
- "Results of the Block Island Renewable Energy Grant Program, Considering the Alternative", American Solar Energy Society Annual Meeting, Reno, NV, June 18, 2002
- Advanced Design of Photovoltaic Systems, NYSEDA Buildings Conference, March 2010
- Design, Installation, and Inspection of Solar Domestic Water Heating System, Solar Powers America, 2009, 2010.
- Utilization of Renewable Energy Technology for Off-grid, Battery/Hybrid Powered Equipment in Aquaculture, Northeast Aquaculture Conference & Exposition, Boston, MA January 9-11, 2019

133 Net Metering Revenue Analysis

Peak 5000 kW

Cap@3% 150 kW

Annual PV Generation 188,340 kWh

Generation Value

Assume: 80% consumed internally 150,672 kWh

20% exported at neutral value 37,668 kWh

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Revenue

	Displace Purchases Tariff, \$/kWh	Neutral Value of Exported Energy Fuel, \$/kWh	Lost Contribution	Per 1% of Peak Towards Cap Divide by 3
At: \$/kWh	\$ 0.260	\$ 0.100		
	\$ 39,174.72	\$ 15,067.20	\$ 24,107.52	\$ 8,035.84

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Added Value

- Less Pollution
- Local Generation Support
- Local Employment
- Local Skills

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