



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

Prepared for:

DWW Rev I, LLC



Submitted by:

Navigant Consulting, Inc.
77 South Bedford Street
Suite 400
Burlington, MA 01803

503.476.2711
navigant.com

October 5, 2018

Confidential and Proprietary
©2018 Navigant Consulting, Inc.
Do not distribute or copy

Page i

000346



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

TABLE OF CONTENTS

Disclaimer iii

1. Executive Summary 1

2. Introduction 2

 2.1 Project Definition2

 2.2 Analysis Approach.....3

3. Methodology 3

 3.1 JEDI Offshore Wind Model.....3

 3.2 Data Collection and Assumptions5

4. Results 6

 4.1 Potential Economic Development Benefits 6

5. Discussion 7

 5.1 Comparison with Previous Analysis7

 5.2 Conclusions8

Appendix A. Detailed JEDI Model Inputs and Outputs- *Confidential*..... A-1

Appendix B. Background on JEDI Models B-1

 B.1 Model Inputs B-1

 B.2 Model Outputs..... B-2

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

DISCLAIMER

This report was prepared by Navigant Consulting, Inc. for DWW Rev I, LLC. The work presented in this report represents Navigant's professional judgment based on the information available at the time this report was prepared. Navigant is not responsible for the reader's use of, or reliance upon, the report, nor any decisions based on the report. NAVIGANT MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED. Readers of the report are advised that they assume all liabilities incurred by them, or third parties, as a result of their reliance on the report, or the data, information, findings and opinions contained in the report.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

1. EXECUTIVE SUMMARY

This advisory opinion was prepared by Navigant Consulting Inc. (“NAVIGANT”) at the request of DWW Rev I, LLC (“Deepwater”) to assist with the evaluation of direct, indirect, and induced jobs and economic value added that will result from the Revolution Wind Rhode Island project, as defined in Section 2.1 below.

As shown in Table 1-1, the Value Added in Rhode Island that is attributable to the Revolution Wind Rhode Island project is approximately \$251 million in the construction phase (starting in 2021) and approximately \$14 million on an annual basis in the operations phase (in 2018 dollars). The project will support an estimated 2,583 local job-years¹ during the construction phase and approximately 128 additional local annual jobs during the operations phase.

Table 1-1. Summary of Jobs and Investment Impacts in Rhode Island

Project Phase	Impact Categories	Jobs	Earnings (Millions USD)	Output (Millions USD)	Value Added (Millions USD)
Construction	Direct	812	\$55.3	\$141.9	\$70.4
	Indirect	1,186	\$81.9	\$288.4	\$125.4
	Induced	585	\$34.1	\$94.0	\$55.4
	Total	2,583	\$171.2	\$524.3	\$251.3
Operations (Annual)	Direct	32	\$2.4	\$2.4	\$2.4
	Indirect	68	\$4.9	\$17.1	\$9.2
	Induced	28	\$1.7	\$4.8	\$2.7
	Total	128	\$9.0	\$24.3	\$14.3

Notes: Earnings, Output and Value-Added figures are in millions of 2018 dollars. Construction job figures are in job years, which are full-time equivalent (FTE) jobs multiplied by the number of construction years. Operations jobs are FTEs for a period of one year. The analysis does not include impacts associated with spending of wind farm profits. Totals may not add up due to independent rounding.

The Revolution Wind Rhode Island project will clearly have a positive economic impact and will add a significant number of jobs to the state of Rhode Island. The Revolution Wind Rhode Island project’s in-state capital expenditures of approximately \$300 million represent approximately 0.5% of Rhode Island’s GDP.² The local jobs created during the construction phase will make the project one of the state’s largest employers. In addition, the Revolution Wind Rhode Island project will have an ongoing significant positive impact for the full 25-year operations period.

¹ Job-years during the construction phase are defined as full-time equivalent (FTE) jobs multiplied by the number of construction years.

² Rhode Island’s current-dollar Gross Domestic Product (GDP) was \$59.5 billion in 2017. (<https://apps.bea.gov/regional/bearfacts/pdf.cfm?fips=44000&areatype=STATE&geotype=3>)

REDACTED



Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

2. INTRODUCTION

2.1 Project Definition

The Revolution Wind project is a planned offshore wind farm, to be located over south of the Rhode Island coast in Deepwater Wind’s federal lease area OCS-A 0486 (see the North Lease Area in Figure 1). The output produced by approximately 400 MW of the capacity of the Revolution Wind project is expected to be sold to and purchased by ratepayers in the State of Rhode Island (such capacity, the “Revolution Wind Rhode Island” project).

The project will consist of turbines, inter-array cables, an offshore substation, export cable, onshore substation, and associated onshore construction staging and production areas. The wind turbines will be placed on the sea bed in water depths of approximately 30 meters. The turbines are expected to be approximately 55 km from the export cable landfall site.

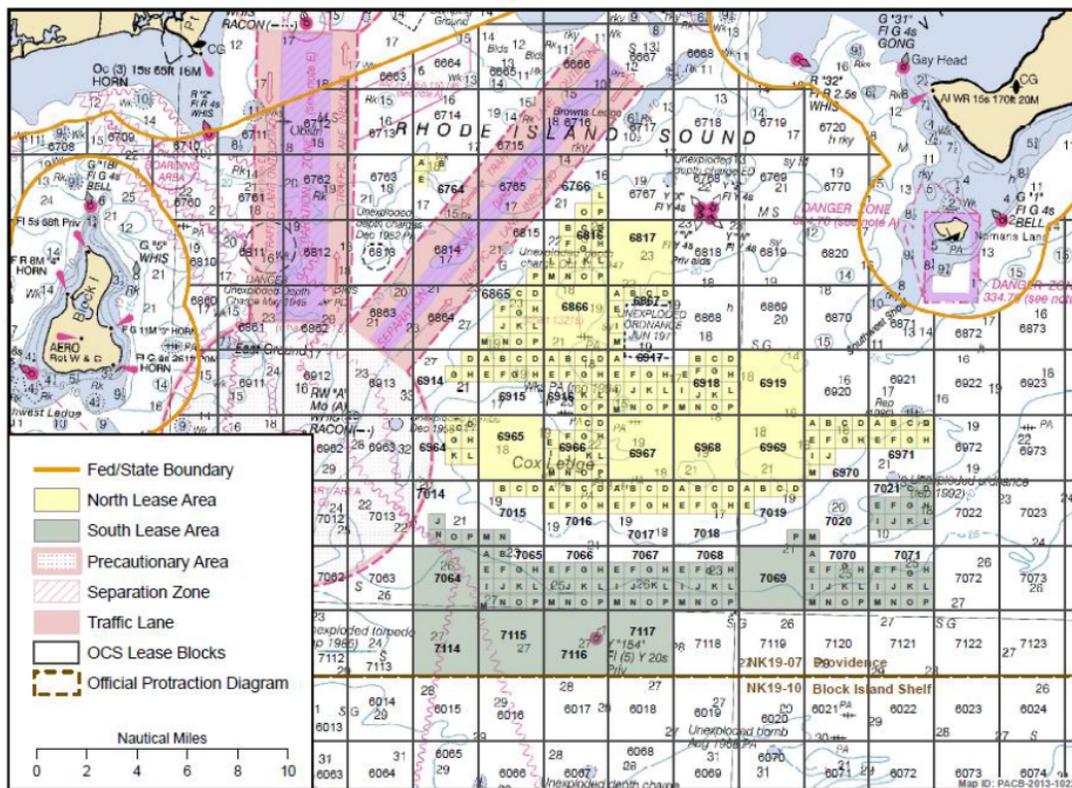


Figure 1. Revolution Wind Project Site

Certain portions of onshore construction is expected to begin in 2021 with offshore construction starting in 2022. The project is scheduled to achieve commercial operations by the end of 2023. The facility is expected to be in operation for at least 25 years from 2024 to 2048.

REDACTED



Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

The Revolution Wind Rhode Island project has committed to invest at least \$40 million in port facility upgrades and other infrastructure in Rhode Island to support the construction and operation of the project. Deepwater plans to perform significant portions of the operations and maintenance of the project from facilities in the State of Rhode Island. Certain steel fabrication and final assembly of the Revolution Wind Rhode Island project's foundations will be performed in Rhode Island. Additionally, the Revolution Wind Rhode Island project is expected to commission the construction of a specialized crew transfer vessel in Rhode Island.

2.2 Analysis Approach

Navigant prepared this evaluation of direct, indirect, and induced jobs and economic value added that will result from the Revolution Wind Rhode Island project, as defined in Section 2.1 above. Direct jobs and economic impact are those resulting from on-site labor and professional services; indirect are a result of local revenues, equipment, and supply chain impacts; and induced are local expenditures from those receiving payments within the first two categories.

To assess the economic value that will result from the development of the Revolution Wind Rhode Island project, Navigant conducted an analysis using the Jobs and Economic Development Impact ("JEDI") Offshore Wind Model. The JEDI Offshore Wind Model is an economic modeling tool developed by the National Renewable Energy Laboratory ("NREL") that allows users to demonstrate the economic impact to a given state or region of the construction and operation of an offshore wind project.

Navigant used the JEDI model³ to estimate the jobs and economic development benefits that will result from the Revolution Wind Rhode Island project. The primary source for the model inputs was Deepwater, who provided capital and operating budgets including costs, employment, and percent local data that are specific to the Revolution Wind Rhode Island project.⁴ Navigant then integrated this data into the JEDI model format. In cases where project specific data was not available, Navigant used the JEDI default values for Rhode Island projects.

3. METHODOLOGY

3.1 JEDI Offshore Wind Model

The JEDI models rely on the widely recognized and well-known input/output (I/O) multiplier data provided by the Minnesota Impact Analysis for Planning (IMPLAN) Group. Offshore wind is the latest addition to this suite, which already includes biofuels, coal, concentrating solar power, natural gas, solar

³ Note: Navigant used a modified version of JEDI model release OSW1.15.17 which includes impacts for O&M insurance.

⁴ Although Navigant did not do a detailed due diligence on the data provided by Deepwater, our independent review of the data indicates that the values are consistent with what we could expect for a project of this magnitude and we did not find any apparent anomalies in the data.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

photovoltaics, wind, and marine/hydrokinetic power.⁵ Please refer to [Appendix B](#) for more information on the JEDI models.

JEDI requires detailed estimates of project expenditures and the share of each individual expenditure line item that is procured locally. These data must be developed for both the construction and operations period of the plant life cycle. As offshore wind is only a nascent industry in the U.S. and only one project has been completed in the U.S. (Deepwater’s Block Island Wind Farm), the JEDI Offshore Wind Model relies on projected costs for individual project elements. This analysis evaluates resulting impacts for the construction and operations of the Revolution Wind Rhode Island project.

JEDI requires expenditure data that approximates the expected engineering, material, and office costs as well as labor requirements for proposed infrastructure projects to estimate the economic impact within the Rhode Island economy. JEDI captures all monetary transactions for expenditures and consumption. Inputs to JEDI include projected capital and operational costs and the percentage local assumptions for each line item. In this report, percentage local means the percentage of expenditures that will occur in the State of Rhode Island.

JEDI’s outputs include estimates of the effects of a change in one or several economic activities on the regional, state, or local economy. Under the JEDI framework, economic activities include Jobs, Earnings, Output, and Value Added. These terms are defined in [Appendix B](#). The results for Value Added provide the best indications of benefits to the Rhode Island economy.

Table 3-1 shows the categories of jobs and investment impacts that are included in the analysis, along with examples of expenditures in each category.

Table 3-1. Categories of Jobs and Investment Impact

Impact Categories	Construction	Operations
Direct	<ul style="list-style-type: none"> Project development (engineering, design, permitting, surveys, and other professional services) Onsite labor including contractors and crews hired to construct the plant 	<ul style="list-style-type: none"> Onsite labor for operation and maintenance of the plant (plant technicians, operators, management, and administration)
Indirect	<ul style="list-style-type: none"> Turbine and supply chain (inter-industry purchases of materials, equipment, manufacturing, and other services) 	<ul style="list-style-type: none"> Local revenue (sales and property taxes and ROI for local owners) Supply chain (components, off-site labor)
Induced	<ul style="list-style-type: none"> Increased spending of household earnings from project development and on-site labor impacts as well as turbine and supply chain impacts. This includes increased business at local restaurants, hotels, and retail establishments, childcare providers and service providers. 	

⁵ NREL’s JEDI models are publicly available spreadsheet tools that apply state-specific IMPLAN year 2014 multipliers. The JEDI analysis tools were developed by NREL in conjunction with MRG & Associates. For more information on the JEDI tools, see [Appendix B](#) or <http://www.nrel.gov/analysis/jedi/>.

REDACTED



Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

3.2 Data Collection and Assumptions

Key Inputs

Deepwater provided Navigant with the raw cost, employment, and percent local data for the Revolution Wind Rhode Island project as the primary inputs to the JEDI model. Data was provided in three basic categories: project descriptive data, capital costs, and operations & maintenance (O&M) costs.

Capital expenditures are expected to occur during the period 2021-2023 according to the project schedule. Total capital expenditures are estimated at approximately \$1.4 billion in nominal dollars.⁶ Operations expenditures are expected to occur during the period 2024-2048. Total annual operations expenditures are estimated at approximately \$35 million. Details of capital and operations expenditures are provided in [Appendix A](#).

Other Assumptions

- All operation and maintenance costs are averaged over 25 years of operation.
- Based on Deepwater's provided data, 100% of the operations and maintenance staff are assumed to be local. Wind farm onsite full-time labor includes field technicians, daily operations staff, administration and management.
- Economic impacts during the operations phase represent impacts that result from wind farm O&M. Navigant assumed a breakdown of O&M material and services costs based on JEDI model default inputs.
- O&M Port and O&M Vessel costs totaling \$11 million will be paid by Deepwater's turbine supplier and compensated by Deepwater as part of Deepwater's budgeted O&M payments. For purposes of this analysis, these expenditures are considered one-time capital costs during the construction phase. The corresponding annual amount of approximately \$749,000 is backed out of the O&M costs reported by Deepwater. The amount of the O&M reduction is based on a 4.6% constant dollar annual discount rate and a net present value of \$11 million.⁷
- Wind turbines and related equipment are exempt from sales tax in Rhode Island according to the provisions of RI Title 44 § 44-18-30.⁸
- Wages are based on 2017 data from U.S. Bureau of Labor Statistics for Rhode Island median reported wages for construction and extraction laborers, wind turbine technicians, operating engineers, office administrators, and general managers.^{9 10} All jobs are assumed to have a 37.6% employee payroll overhead cost.

⁶ Note that this capital cost estimate does not include costs associated with financing, insurance, or contingency.

⁷ The 4.6% constant dollar discount rate was calculated from a nominal discount rate of 7.2% less 2.5% inflation, with both factors from the Charles River Associates report "The Impact of Block Island Wind Farm Electricity Costs", June 2010, p. 4, footnote 8.

⁸ See <http://webserver.nrilin.state.ri.us/Statutes/TITLE44/44-18/44-18-30.HTM>

⁹ Note: Due to limited Rhode Island data, wages for construction managers came from Connecticut and wages for wind turbine technicians came from New York.

¹⁰ Data is available for download at:

<https://data.bls.gov/oes/#/occGeo/One%20occupation%20for%20multiple%20geographical%20areas>. Wages are shown in [Appendix A](#).

REDACTED



Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

4. RESULTS

4.1 Potential Economic Development Benefits

A summary of Revolution Wind's potential overall economic benefits including Value Added, local jobs, Labor Earnings, and Gross Output is shown in Table 4-1. An explanation of the different economic development categories is provided in this section.

Value Added is the best indicator of economic development benefits to the local Rhode Island economy. The sum total of value added of all enterprises and self-employed in a given state comprises that state's GDP. The total Value Added from the Rhode Island Revolution project is \$251.3 million during the expected three-year construction phase and \$14 million per year (in 2018 dollars) during the operations phase. These values are the sum of earnings from capital and labor or the difference between total gross output and the cost of intermediate inputs. It is comprised of payments made to workers, proprietary income, other property type income, indirect business taxes, and taxes on production and imports less subsidies.

Job-years are defined as full-time equivalent (FTE) jobs multiplied by the number of construction years. Construction jobs are given as FTE job-years since they are spread over a multi-year construction period. Some construction jobs will last only a portion of a year while others may last the entire expected construction period of three years. Operations jobs are given as annual FTE jobs over the entire operating period. Based on the JEDI analysis, the Revolution Wind Rhode Island project is expected to account for a total of 2,583 job-years in the construction phase and 128 FTE jobs on an annual basis during the operations phase. These additional jobs result from the increased spending from the Revolution Wind project in Rhode Island.

Direct jobs are defined as on-site labor and professional services. The project will result in 812 FTE local direct job-years in the development and construction phase and 32 FTE local direct annual jobs in the operations phase. 812 FTE job-years during the 3-year construction phase is equivalent to 270.7 jobs each lasting 3 years. "Local" is defined by jobs in Rhode Island.

Indirect jobs are driven by the increase in demand for goods and services from direct on-site project spending including business and companies like construction material and component suppliers, analysts and attorneys involved with project feasibility assessments or contract negotiations, equipment or replacement part manufacturers and others. The project will result in 1,186 FTE local indirect job-years in the construction phase and 68 FTE local indirect annual jobs in the operations phase.

Induced jobs are driven by the local expenditures of those receiving payments within the first two job categories or increased household spending by workers. The project will result in 585 FTE local induced job-years in the construction phase and 28 FTE local induced annual jobs in the operations phase.

Labor Earnings encompass the additional earnings (wages and employer paid benefits) associated with the additional local jobs. Labor Earnings total to \$171.2 million (in 2018 dollars) in the construction phase and \$9 million per year in the operations phase.

Gross Output is the sum value of all goods and services at all stages of production (i.e., as a raw material and as a finished product) resulting from the project. Local Gross Output is estimated as \$524.3 million in the construction phase and \$24.3 million annually in the operations phase.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

Table 4-1. Summary of Jobs and Investment Impacts in Rhode Island

Project Phase	Impact Categories	Jobs	Earnings (Millions USD)	Output (Millions USD)	Value Added (Millions USD)
Construction	Direct	812	\$55.3	\$141.9	\$70.4
	Indirect	1,186	\$81.9	\$288.4	\$125.4
	Induced	585	\$34.1	\$94.0	\$55.4
	Total	2,583	\$171.2	\$524.3	\$251.3
Operations (Annual)	Direct	32	\$2.4	\$2.4	\$2.4
	Indirect	68	\$4.9	\$17.1	\$9.2
	Induced	28	\$1.7	\$4.8	\$2.7
	Total	128	\$9.0	\$24.3	\$14.3

Notes: Earnings, Output and Value Added figures are in millions of 2018 dollars. Construction job figures are in job years, which are full-time equivalent (FTE) jobs multiplied by the number of construction years. Operations jobs are FTEs for a period of one year. The analysis does not include impacts associated with spending of wind farm profits. Totals may not add up due to independent rounding.

5. DISCUSSION

5.1 Comparison with Previous Analysis

A Preliminary Analysis for the Revolution Wind Rhode Island project was prepared by the Brattle Group on May 29, 2018. A comparison of Navigant’s and Brattle’s analyses of the economic impacts in terms of jobs and Value Added is shown in Table 5-1.

While Navigant and Brattle used different methodologies and assumptions, our respective analyses resulted in similar estimated ranges of economic value add and job creation. The particular differences in results stem from the use of two different models: Navigant’s analysis used NREL’s JEDI model and Brattle used the IMPLAN model from IMPLAN Group. Both analyses used the same input cost data and both models use the same IMPLAN multipliers, but they are applied in different ways. Differences in results can also be attributed to the assumptions that were made while integrating the cost data into the model as well as the assumptions outlined in section 3.2. For example, the JEDI model may define the costs included in development services or labor installation differently than the IMPLAN model or which costs are attributed to economic Output vs. Value Added.

As shown in Table 5-2, the estimates of the direct number of jobs impacts are very similar between Navigant’s and Brattle’s results as is the total Value Added in the construction phase. However, Navigant’s analysis resulted in about 25% fewer indirect and induced job-years in the construction phase, but a greater number of annual jobs during the operations phase. In addition, there is a difference in the direct and indirect Value Added in the operations phase. These differences most likely result from variation in the way the cost inputs were aggregated and applied in the models as either direct or indirect impacts.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

Table 5-1. Comparison of Jobs and Economic Value Added

Project Phase	Navigant 10/1/2018		Brattle 5/29/2018		% Difference (Navigant-Brattle /Brattle)		
	Jobs	Value Added	Jobs	Value Added	Jobs	Value Added	
Construction	Direct	812	\$70.4	841	\$62.6	-3%	+12%
	Indirect	1,186	\$125.4	1,552	\$129.5	-24%	-3%
	Induced	585	\$55.4	779	\$75.4	-25%	-26%
	Total	2,583	\$251.3	3,172	\$267.6	-19%	-6%
Operations (Annual)	Direct	32	\$2.4	32	14.97	0%	-84%
	Indirect	68	\$9.2	48	\$5.29	+43%	+74%
	Induced	28	\$2.7	24	\$2.95	+16%	-10%
	Total	128	\$14.3	104	\$23.21	+23%	+23%

Notes: Value Added figures are in millions of 2018 dollars. Construction job figures are in job years, which are full-time equivalent (FTE) jobs multiplied by the number of construction years. Operations jobs are FTEs for a period of one year. The analysis does not include impacts associated with spending of wind farm profits. Totals may not add up due to independent rounding.

5.2 Conclusions

Navigant’s analysis showed that for the total capital costs of \$1.4 billion, \$305 million will be spent in Rhode Island, resulting in 2,583 total job-years and \$251.3 million Value Added during the construction phase. During the plant’s 25 years of operation, \$7.4 million will be spent annually in Rhode Island, resulting in 128 total annual jobs and \$14.3 million Value Added per year.¹¹

¹¹ Navigant has provided the above jobs and investment impacts on a best-efforts basis given the data available at the time of this analysis and the assumptions provided by Deepwater.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

**APPENDIX A. DETAILED JEDI MODEL INPUTS AND OUTPUTS-
CONFIDENTIAL**

Disclaimer

Certain data contained in the attached document or electronic file have been submitted in confidence and contain trade secrets or proprietary information, and Deepwater Wind requests confidential treatment of such parts of the Proposal as provided in Section 1.7.4 of the 83C RFP. Deepwater Wind requests that the data marked with a double blue underline not be disclosed as such information is confidential and proprietary and exempt from disclosure under the Freedom of Information Act.

[Redacted content consisting of multiple lines of blacked-out text and symbols]

Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

APPENDIX B. BACKGROUND ON JEDI MODELS

Economic development occurs when a specific area or region of interest secures new sources of investment and when at least a portion of those investments is captured by local businesses and individuals. Economic development analysis seeks to track new investments in a specific location, distinguish different types of expenditures in those regions, and then examine the impact of those investments in the given locality. For those expenditures that are local, the impacts entail the initial investment plus potential downstream effects in the supply chain and in the consumer and retail sectors of the economy. If an expenditure associated with a given project is not captured locally, it is treated as economic leakage and has no economic development value for the region of interest.

Economic development activity is typically estimated using input-output (I/O) models. I/O models apply historical relationships between demand (i.e., specific expenditures within a given sector of the economy) and the resulting economic activity to estimate how new expenditures will affect economic development metrics.

Although some I/O models incorporate dynamic elements, many are static—they measure inter-industry relationships for a given time period—and linear—they assume that any change in demand, regardless of magnitude, has the same proportional result. However, the inter-industry relationships utilized in I/O modeling tend to change only gradually over a long period of time, and I/O modeling is a widely used methodology for measuring economic development activity.

NREL has developed a set of I/O models known as the Jobs and Economic Development Impacts (JEDI) models. The JEDI models are Excel-based models that estimate the economic impacts of constructing and operating power plants, fuel production facilities, and other projects at the local (usually state) level. These models rely on the widely recognized and well known I/O multiplier data provided by the Minnesota IMPLAN Group. Offshore wind is the latest addition to this suite, which already includes biofuels, coal, concentrating solar power, natural gas, solar photovoltaics, wind, and marine/hydrokinetic power.¹² The Offshore Wind JEDI model is specifically tailored to offshore wind facilities and calculates the economic impact to a given region of the construction and operation of an offshore wind project.

B.1 Model Inputs

The JEDI Offshore Wind Model works in a similar way to other models in the JEDI family, allowing the user to specify general characteristics about the wind project such as capacity, number of turbines, distance from shore, water depth, etc., as well as specific cost components that are part of the construction or operations phase of the project.

Calculations can be based either on the entered cost data or on default inputs, which are derived from industry norms. The model asks for several categories of expenditure as well as the percentage of expenditures that will happen locally (in this case meaning in the State of Rhode Island). If project-specific inputs are not available, the model comes with default inputs so a result can be generated with incomplete data.

¹² NREL's JEDI models are publicly available spreadsheet tools that apply state-specific IMPLAN year 2014 multipliers. The JEDI analysis tools were developed by NREL in conjunction with MRG & Associates. For more information on the JEDI tools, see <http://www.nrel.gov/analysis/jedi/>.

REDACTED



Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project

JEDI model defaults are based on interviews with industry experts and project developers.¹³ Economic multipliers contained within the model are derived from Minnesota IMPLAN Group's IMPLAN regional input-output software and state data files. The IMPLAN database contains county, state, zip code, and federal economic statistics which are specialized by region, not estimated from national averages and can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity. IMPLAN is based on input-output tables, employment and wage data, data on trade flows, and data on how personal income is spent. Input-output tables are compiled at the national level by the Bureau of Economic Analysis (BEA), an agency within the Department of Commerce. State and county specific input-output tables are derived by adjusting the BEA national tables by adjusting the distribution of production among industries, based on employment data by industry, and deriving imports and exports to and from the state through a combination of the input-output relationships and trade flow data.

B.2 Model Outputs

Based on project-specific inputs from the user, the model estimates job creation, earnings, and output (total economic activity) for a given power generation project. This includes the direct, indirect, and induced economic impacts on the state economy associated with its construction and operation phases. By determining the regional economic impacts and job creation for a proposed power facility, the JEDI Offshore Wind Model can be used to answer questions about the impacts of offshore wind power in a given state, region, or local community.

NREL's JEDI models present outputs for the following economic metrics:

- *Jobs* – Additional jobs resulting from the increased final spending.
- *Earnings* – The additional earnings (wages and employer paid benefits) associated with the additional jobs.
- *Output* – The additional output that drives the increase in jobs. Output is defined more broadly than other metrics of economic activity, including value added or GDP; output is the sum value of all goods and services at all stages of production (i.e., as a raw material and as a finished product).
- *Value Added* – The difference between total gross output and the cost of intermediate inputs. It is the sum total of earnings of capital and labor, comprised of payments made to workers, proprietary income, other property type income, indirect business taxes, and taxes on production and imports less subsidies. The sum total of value added of all enterprises and self-employed in a state comprises that state's GDP.

JEDI models classify results into three categories: direct, indirect, and induced. Direct results are defined as on-site labor and professional services. These are the impacts from dollars spent on labor by companies engaged in development and on-site construction and operation of power generation and transmission. These results do not include materials—only labor. With its exclusive emphasis on labor, JEDI's first tier of impacts is narrower than typical direct economic impacts. Companies or businesses that fall into this category include project developers, environmental and permitting consultants, road builders, concrete-pouring companies, construction companies, tower erection crews, crane operators, and O&M personnel.

¹³ Default values are based on analysis of proprietary data provided by NREL, Navigant, Green Giraffe Energy Bankers, Ocean & Coastal Consultants, and the U.S. Department of Labor Bureau of Labor Statistics. In those instances where data from the sources was not an exact match for the system parameters, the best available information was used to derive appropriate values.

REDACTED



Advisory Opinion on the Economic Development Benefits of the
Revolution Wind Project

Indirect effects are reported in JEDI as local revenues, equipment, and supply chain results. These results are driven by the increase in demand for goods and services from direct on-site project spending. Businesses and companies included in the second tier of economic activity include construction material and component suppliers, analysts and attorneys who assess project feasibility and negotiate contract agreements, banks financing the projects, all equipment manufacturers (i.e., blade manufacturers), and manufacturers of replacement and repair parts.

Induced effects are the third and final category and are driven by the local expenditures of those receiving payments within the first two categories. These are often associated with increased business at local restaurants, entertainment, and retail establishments, as well as child care providers or any other entity affected by the increased economic activity and spending occurring in the first two tiers.

JEDI model results are displayed in two different time periods: construction and operations. Construction period results are inherently short-term. Jobs are defined as full-time equivalents (FTE), or 2,080-hour units of labor. (One construction period job equates to one full-time job for one year.) Equipment manufacturing jobs, such as tower manufacturing, are included in construction period jobs as it is ultimately new construction that drives equipment manufacturing. All employment related to the construction of the project is reported in FTE. Operations period results are long-term, for the life of the project, and are reported as annual FTE jobs and economic activity. Operation period impacts continue to accrue throughout the operating life of the facility.

JEDI results are not intended to be a precise forecast; they are an estimate of potential activity resulting from a specific set of projects or scenarios. In addition, JEDI results presuppose that projects are financially viable and can be justified independent of their economic development value. Importantly, results generated by the JEDI models are gross (not net) results. They do not consider potential increases or decreases in electricity rates resulting from investments in new infrastructure, nor do they consider whether the respective projects displace economic activity elsewhere.

**Rhode Island Renewable Energy Long Term Contract RFP
Docket 4600 Benefit-Cost Framework - Applicable Category Summary**

Power System Level (Cost/Benefit Categories)

(NPV in 2018\$)

Item	Category	Value
(1) Energy Supply & Transmission Operating Value of Energy Provided or Saved (Time- & Location-	Applicable/Quantifiable	\$933,754,251
(2) Renewable Energy Credit Cost/Value	Applicable/Quantifiable	\$430,227,231
(3) Retail Supplier Risk Premium	Not Applicable (N/A)	-
(4) Forward Commitment: Capacity Value	Applicable/Not Quantifiable	-
(5) Forward Commitment: Avoided Ancillary Services Value	Applicable/Not Quantifiable	-
(6) Utility / Third Party Developer Renewable Energy, Efficiency, or DER costs	Applicable/Quantifiable	(\$1,333,945,342)
(7) Electric Transmission Capacity Costs / Value	Applicable/Quantifiable	\$0
(8) Electric transmission infrastructure costs for Site Specific Resources	Applicable/Quantifiable	\$0
(9) Net risk benefits to utility system operations (generation, transmission, distribution)	N/A	-
(10) Option value of individual resources	Applicable/Quantifiable	\$115,668,599
(11) Investment under Uncertainty: Real Options Cost / Value	Applicable/Quantifiable	Included in categories (1,2,6,10)
(12) Energy Demand Reduction Induced Price Effect	N/A	N/A
(13) Greenhouse gas compliance costs (Embedded Cost)	Applicable/Quantifiable	Included in category (1)
(14) Criteria air pollutant and other environmental compliance costs	Applicable/Not quantifiable	-
(15) Innovation and Learning by Doing	N/A	-
(16) Distribution capacity costs	N/A	-
(17) Distribution delivery costs	N/A	-
(18) Distribution system safety loss/gain	N/A	-
(19) Distribution system performance	N/A	-
(20) Utility low income	N/A	-
(21) Distribution system and customer reliability / resilience impacts	N/A	-
(22) Distribution system safety loss/gain	N/A	-

Description of quantitative values or reason for exclusion:

Market value of Energy from Project + Increase in Project PPA market value from year with extreme Winter prices occurring once in 15 years
Market value of Project RECs retired (used) for RES or sold
PPA is a long term contract for wholesale power supply at a fixed price.
Beyond the capabilities of the modeling system to quantify accurately.
Beyond the capabilities of the modeling system to quantify accurately.
PPA cost of energy and RECs.
The Proposal contains a fixed PPA price for energy and REC, with all interconnection and transmission upgrades included in PPA price. The project is commitment to interconnect to the ISO-NE "PTF" at the Capacity Capability Interconnection Standard, as defined by ISO-NE.
The Proposal contains a fixed PPA price for energy and REC, with all interconnection and transmission upgrades included in PPA price. The project is required to interconnect to the ISO-NE "PTF" at the Capacity Capability Interconnection Standard, as defined by ISO-NE.
Generation supply will be interconnected at the ISO-NE "PTF". This resource is not a DER.
RI Energy Market Price Change Impact + REC Market Price Change Impact + Benefit to Rhode Island Gas Customers due to Gas Use Reduction
Project was selected based on a competitive process of multiple proposals. Evaluation and benefit cost analysis was compared to a basecase that provided a "but for" or "counterfactual" projection of the costs of electric energy, RECs, and carbon emissions associated with Rhode Island electricity consumption under a future in which no proposals are selected.
Generation supply is not an Energy DRIPe, but the proposal's indirect benefit impact on market LMP price change and REC price change is listed above.
Greenhouse gas compliance costs (RGGI) is embedded as a fuel related cost in the model analysis to determine the quantitative market impacts listed above.
Not significant value to quantify or differentiate between projects
The benefits of innovation in the OSW industry and by the developer have been captured in the bid pricing of the contract, including, but not limited to any potential federal tax credits.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.
Generation supply will be interconnected at the ISO-NE "PTF". Distribution level category is not applicable to this project.

Customer Level (Cost/Benefit Categories)

(23) Program participant / prosumer benefits / costs	N/A	-
(24) Participant non-energy costs/benefits: Oil, Gas, Water, Waste Water	N/A	-
(25) Low-Income Participant Benefits	N/A	-
(26) Consumer Empowerment & Choice	N/A	-
(27) Non-participant (equity) rate and bill impacts	N/A	-

Proposed rate recovery through distribution rates applicable to all distribution customers.
Proposed rate recovery through distribution rates applicable to all distribution customers.
Proposed rate recovery through distribution rates applicable to all distribution customers.
Proposed rate recovery through distribution rates applicable to all distribution customers.
Proposed rate recovery through distribution rates applicable to all distribution customers.

Societal Level (Cost/Benefit Categories)

(28) Greenhouse gas externality costs	Applicable/Quantifiable	\$533,172,942
(29) Criteria air pollutant and other environmental externality costs	Applicable/Quantifiable	\$10,761,161
(30) Conservation and community benefits	Applicable/Not quantifiable	-
(31) Non-energy costs/benefits: Economic Development	Applicable/Quantifiable	\$405,125,090
(32) Innovation and knowledge spillover	Applicable/Not quantifiable	Not quantifiable
(33) Societal Low-income Impacts	N/A	N/A
(34) Public Health	Applicable/Not quantifiable	Included in category (28) and (29)
(35) National Security and US international influence	Applicable/Not quantifiable	Included in category (1) and (28)

Impact of Reduction in GHG Emissions
Impact of Reduction in NOx Emissions
The project must obtain all required federal, state and local permits.
Economic Benefit to Rhode Island
Rhode Island's leadership and contribution to emerging off-shore wind industry brings opportunities to drive down costs, attract future development, increase diversity of clean energy supply, and encourage a clean energy economy bringing investment and jobs to the region. Additional value brought by DWW's experience developing off-shore wind in the US and opportunity to take advantage of expiring federal tax incentives.
Proposed rate recovery through distribution rates applicable to all distribution customers.
Navigant Report (Schedule NG-6), "Pollutants emitted by the electric power sector cause damage to human health, including increased morbidity and mortality. Over the course of its operating life, the Revolution Wind Rhode Island project will displace thermal generation which will result in reduced emissions of harmful pollutants, which can be translated to societal benefits". The societal benefits for GHG and NOx emissions reduction are listed above in (28) and (29).
The project will contribute to reducing oil consumption, attributed to winter fuel switching, by approximately 270,000 Bbls. The economic and environmental impacts have been captured in the market value and GHG emission reduction listed in (1) and (28).

Total Net Benefits:	\$1,094,763,932
----------------------------	------------------------

Comparison to Programs that have performed the RI Benefit Cost Test

Program	Total Benefits (\$ Million)	Total Cost (\$ Million)	RI Test Benefit/Cost	Data Source
Revolution Wind	\$2,429	\$1,371	1.77	Schedule NG-5 : TCR Report, Rhode Island Benefit Cost Test
Energy Efficiency (2019 Program Year)	\$506	\$126	4.00	Docket No. 4888: 2019 Energy Efficiency Program Plan -Table E-5

Comparison to Levelized Cost of Other Programs

Program	Levelized Nominal Cost \$/MWh
Revolution Wind	\$98.43 /MWh
CERFP - Long Term Contracts (Weighted Average of 8 Projects)	\$90.26 /MWh
RE Growth (2018 Program Year)	\$183.11 /MWh
Net metering	\$185.59 /MWh

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to A-16 Rate Customers

Monthly kWh (a)	Approved Rates Effective January 1, 2019				Illustrative Rates				\$ Increase (Decrease)				Increase (Decrease) % of Total Bill				Percentage of Customers (r)
	Delivery Services (b)	Supply Services (c)	GET (d)	Total (e) = (a) + (b) + (c)	Delivery Services (f)	Supply Services (g)	GET (h)	Total (i) = (f) + (g) + (h)	Delivery Services (j) = (f) - (b)	Supply Services (k) = (g) - (c)	GET (l) = (h) - (d)	Total (m) = (j) + (k) + (l)	Delivery Services (n) = (j) / (e)	Supply Services (o) = (g) / (e)	GET (p) = (h) / (e)	Total (q) = (m) / (e)	
150	\$23.52	\$16.49	\$1.67	\$41.68	\$23.39	\$16.49	\$1.66	\$41.54	(\$0.13)	\$0.00	(\$0.01)	(\$0.14)	-0.3%	0.0%	0.0%	-0.3%	30.1%
300	\$38.65	\$32.97	\$2.98	\$74.60	\$38.37	\$32.97	\$2.97	\$74.31	(\$0.28)	\$0.00	(\$0.01)	(\$0.29)	-0.4%	0.0%	0.0%	-0.4%	12.9%
400	\$48.73	\$43.96	\$3.86	\$96.55	\$48.36	\$43.96	\$3.85	\$96.17	(\$0.37)	\$0.00	(\$0.01)	(\$0.38)	-0.4%	0.0%	0.0%	-0.4%	11.6%
500	\$58.82	\$54.95	\$4.74	\$118.51	\$58.35	\$54.95	\$4.72	\$118.02	(\$0.47)	\$0.00	(\$0.02)	(\$0.49)	-0.4%	0.0%	0.0%	-0.4%	9.6%
600	\$68.90	\$65.94	\$5.62	\$140.46	\$68.34	\$65.94	\$5.60	\$139.88	(\$0.56)	\$0.00	(\$0.02)	(\$0.58)	-0.4%	0.0%	0.0%	-0.4%	7.7%
700	\$78.98	\$76.93	\$6.50	\$162.41	\$78.33	\$76.93	\$6.47	\$161.73	(\$0.65)	\$0.00	(\$0.03)	(\$0.68)	-0.4%	0.0%	0.0%	-0.4%	19.0%
1,200	\$129.40	\$131.88	\$10.89	\$272.17	\$128.28	\$131.88	\$10.84	\$271.00	(\$1.12)	\$0.00	(\$0.05)	(\$1.17)	-0.4%	0.0%	0.0%	-0.4%	6.8%
2,000	\$210.06	\$219.80	\$17.91	\$447.77	\$208.20	\$219.80	\$17.83	\$445.83	(\$1.86)	\$0.00	(\$0.08)	(\$1.94)	-0.4%	0.0%	0.0%	-0.4%	2.3%

	Approved Rates Effective January 1, 2019 (s)	Illustrative Rates (t)	Line Item on Bill
(1) Distribution Customer Charge	\$6.00	\$6.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$1.60	\$1.60	RE Growth Program
(4) Distribution Charge (per kWh)	\$0.04298	\$0.04298	
(5) Operating & Maintenance Expense Charge	\$0.00175	\$0.00175	
(6) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(7) FY19 CapEx Factor Charge	\$0.00000	\$0.00000	
(8) CapEx Reconciliation Factor	(\$0.00055)	(\$0.00055)	
(9) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	Distribution Energy Charge
(10) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(11) Storm Fund Replenishment Factor	\$0.00288	\$0.00288	
(12) Arrearage Management Adjustment Factor	\$0.00002	\$0.00002	
(13) Low Income Discount Recovery Factor	\$0.00152	\$0.00152	
(14) Long-term Contracting for Renewable Energy Charge	\$0.00684	\$0.00591	Renewable Energy Distribution Charge
(15) Net Metering Charge	\$0.00043	\$0.00043	
(16) Base Transmission Charge	\$0.03154	\$0.03154	
(17) Transmission Adjustment Factor	\$0.00076	\$0.00076	Transmission Charge
(18) Transmission Uncollectible Factor	\$0.00043	\$0.00043	
(19) Base Transition Charge	(\$0.00083)	(\$0.00083)	Transition Charge
(20) Transition Adjustment	(\$0.00004)	(\$0.00004)	
(21) Energy Efficiency Program Charge	\$0.01151	\$0.01151	Energy Efficiency Programs
(22) Standard Offer Service Base Charge	\$0.10814	\$0.10814	
(23) SOS Adjustment Factor	\$0.00007	\$0.00007	
(24) SOS Administrative Cost Adjustment Factor	\$0.00165	\$0.00165	Supply Services Energy Charge
(25) Renewable Energy Standard Charge	\$0.00004	\$0.00004	
Line Item on Bill			
(26) Customer Charge	\$6.00	\$6.00	
(27) LIHEAP Enhancement Charge	\$0.80	\$0.80	
(28) RE Growth Program	\$1.60	\$1.60	
(29) Transmission Charge	kWh x \$0.03273	\$0.03273	
(30) Distribution Energy Charge	kWh x \$0.05019	\$0.05019	
(31) Transition Charge	kWh x (\$0.00087)	(\$0.00087)	
(32) Energy Efficiency Programs	kWh x \$0.01151	\$0.01151	
(33) Renewable Energy Distribution Charge	kWh x \$0.00727	\$0.00634	
(34) Supply Services Energy Charge	kWh x \$0.10990	\$0.10990	

Column (s): per Summary of Retail Delivery Service Rates, R.I.P.U.C. No. 2095 effective 1/1/2019, and Summary of Rates Standard Offer Service tariff, R.I.P.U.C. No. 2096, effective 1/1/2019
Column (t): = Column (s), Line (14) reflects illustrative incremental LTRER Charge associated with Revolution Wind Contract

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to A-60 Rate Customers

Monthly kWh (a)	Approved Rates Effective January 1, 2019						Illustrative Rates						\$ Increase (Decrease)				Increase (Decrease) % of Total Bill				Percentage of Customers (v)
	Delivery Services	Supply Services	Low Income Discount	Discounted Total	GET	Total	Delivery Services	Supply Services	Low Income Discount	Discounted Total	GET	Total	Delivery Services	Supply Services	GET	Total	Delivery Services	Supply Services	GET	Total	
	(b)	(c)	(d) = [(b)+(c)] x-.25	(e) = (b) + (c) + (d)	(f)	(g) = (e) + (f)	(h)	(i)	(j) = [(h)+(i)] x-.25	(k) = (h) + (i) + (j)	(l)	(m) = (k) + (l)	(n) = [(h)+(j)] - [(b)+(d)]	(o) = (i) - (c)	(p) = (l) - (f)	(q) = (n) + (o) + (p)	(r) = (n) + [(b)+(d)]	(s) = (o) + (c)	(t) = (p) + (f)	(u) = (q) + (g)	
150	\$19.30	\$16.49	(\$8.95)	\$26.84	\$1.12	\$27.96	\$19.16	\$16.49	(\$8.91)	\$26.74	\$1.11	\$27.85	(\$0.10)	\$0.00	(\$0.01)	(\$0.11)	-0.4%	0.0%	0.0%	-0.4%	32.1%
300	\$34.19	\$32.97	(\$16.79)	\$50.37	\$2.10	\$52.47	\$33.91	\$32.97	(\$16.72)	\$50.16	\$2.09	\$52.25	(\$0.21)	\$0.00	(\$0.01)	(\$0.22)	-0.4%	0.0%	0.0%	-0.4%	15.4%
400	\$44.12	\$43.96	(\$22.02)	\$66.06	\$2.75	\$68.81	\$43.75	\$43.96	(\$21.93)	\$65.78	\$2.74	\$68.52	(\$0.28)	\$0.00	(\$0.01)	(\$0.29)	-0.4%	0.0%	0.0%	-0.4%	12.5%
500	\$54.06	\$54.95	(\$27.25)	\$81.76	\$3.41	\$85.17	\$53.59	\$54.95	(\$27.14)	\$81.40	\$3.39	\$84.79	(\$0.36)	\$0.00	(\$0.02)	(\$0.38)	-0.4%	0.0%	0.0%	-0.4%	9.6%
600	\$63.99	\$65.94	(\$32.48)	\$97.45	\$4.06	\$101.51	\$63.43	\$65.94	(\$32.34)	\$97.03	\$4.04	\$101.07	(\$0.42)	\$0.00	(\$0.02)	(\$0.44)	-0.4%	0.0%	0.0%	-0.4%	7.2%
700	\$73.92	\$76.93	(\$37.71)	\$113.14	\$4.71	\$117.85	\$73.27	\$76.93	(\$37.55)	\$112.65	\$4.69	\$117.34	(\$0.49)	\$0.00	(\$0.02)	(\$0.51)	-0.4%	0.0%	0.0%	-0.4%	16.4%
1,200	\$123.57	\$131.88	(\$63.86)	\$191.59	\$7.98	\$199.57	\$122.46	\$131.88	(\$63.59)	\$190.75	\$7.95	\$198.70	(\$0.84)	\$0.00	(\$0.03)	(\$0.87)	-0.4%	0.0%	0.0%	-0.4%	5.2%
2,000	\$203.02	\$219.80	(\$105.71)	\$317.11	\$13.21	\$330.32	\$201.16	\$219.80	(\$105.24)	\$315.72	\$13.16	\$328.88	(\$1.39)	\$0.00	(\$0.05)	(\$1.44)	-0.4%	0.0%	0.0%	-0.4%	1.6%

	Approved Rates Effective January 1, 2019 (w)	Illustrative Rates (x)	Line Item on Bill
(1) Distribution Customer Charge	\$2.00	\$2.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$1.60	\$1.60	RE Growth Program
(4) Distribution Charge (per kWh)	\$0.04298	\$0.04298	
(5) Operating & Maintenance Expense Charge	\$0.00175	\$0.00175	
(6) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(7) FY19 CapEx Factor Charge	\$0.00000	\$0.00000	
(8) CapEx Reconciliation Factor	(\$0.00055)	(\$0.00055)	Distribution Energy Charge
(9) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	
(10) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(11) Storm Fund Replenishment Factor	\$0.00288	\$0.00288	
(12) Arrearage Management Adjustment Factor	\$0.00002	\$0.00002	
(13) Low Income Discount Recovery Factor	\$0.00000	\$0.00000	
(14) Long-term Contracting for Renewable Energy Charge	\$0.00684	\$0.00591	Renewable Energy Distribution Charge
(15) Net Metering Charge	\$0.00043	\$0.00043	
(16) Base Transmission Charge	\$0.03154	\$0.03154	
(17) Transmission Adjustment Factor	\$0.00076	\$0.00076	Transmission Charge
(18) Transmission Uncollectible Factor	\$0.00043	\$0.00043	
(19) Base Transition Charge	(\$0.00083)	(\$0.00083)	Transition Charge
(20) Transition Adjustment	(\$0.00004)	(\$0.00004)	
(21) Energy Efficiency Program Charge	\$0.01151	\$0.01151	Energy Efficiency Programs
(22) Standard Offer Service Base Charge	\$0.10814	\$0.10814	
(23) SOS Adjustment Factor	\$0.00007	\$0.00007	
(24) SOS Administrative Cost Adjustment Factor	\$0.00165	\$0.00165	Supply Services Energy Charge
(25) Renewable Energy Standard Charge	\$0.00004	\$0.00004	
Line Item on Bill			
(26) Customer Charge	\$2.00	\$2.00	
(27) LIHEAP Enhancement Charge	\$0.80	\$0.80	
(28) RE Growth Program	\$1.60	\$1.60	
(29) Transmission Charge	\$0.03273	\$0.03273	
(30) Distribution Energy Charge	\$0.04867	\$0.04867	
(31) Transition Charge	(\$0.00087)	(\$0.00087)	
(32) Energy Efficiency Programs	\$0.01151	\$0.01151	
(33) Renewable Energy Distribution Charge	\$0.00727	\$0.00634	
(34) Supply Services Energy Charge	\$0.10990	\$0.10990	
(35) Discount percentage	25%	25%	

Column (w): per Summary of Retail Delivery Service Rates, R.I.P.U.C. No. 2095 effective 1/1/2019, and Summary of Rates Standard Offer Service tariff, R.I.P.U.C. No. 2096, effective 1/1/2019
Column (x): = Column (w), Line (14) reflects illustrative incremental LTCRER charge associated with Revolution Wind Contract

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to A-60 Rate Customers

Monthly kWh (a)	Approved Rates Effective January 1, 2019						Illustrative Rates						\$ Increase (Decrease)				Increase (Decrease) % of Total Bill				Percentage of Customers (v)
	Delivery Services	Supply Services	Low Income Discount	Discounted Total	GET	Total	Delivery Services	Supply Services	Low Income Discount	Discounted Total	GET	Total	Delivery Services	Supply Services	GET	Total	Delivery Services	Supply Services	GET	Total	
	(b)	(c)	(d) = [(b)+(c)] x-.30	(e) = (b) + (c) + (d)	(f)	(g) = (e) + (f)	(h)	(i)	(j) = [(h)+(i)] x-.30	(k) = (h) + (i) + (j)	(l)	(m) = (k) + (l)	(n) = [(h)+(j)] - [(b)+(d)]	(o) = (i) - (c)	(p) = (l) - (f)	(q) = (n) + (o) + (p)	(r) = (n) + [(b)+(d)]	(s) = (o) ÷ (c)	(t) = (p) ÷ (f)	(u) = (q) ÷ (g)	
150	\$19.30	\$16.49	(\$10.74)	\$25.05	\$1.04	\$26.09	\$19.16	\$16.49	(\$10.70)	\$24.95	\$1.04	\$25.99	(\$0.10)	\$0.00	\$0.00	(\$0.10)	-0.4%	0.0%	0.0%	-0.4%	32.1%
300	\$34.19	\$32.97	(\$20.15)	\$47.01	\$1.96	\$48.97	\$33.91	\$32.97	(\$20.06)	\$46.82	\$1.95	\$48.77	(\$0.19)	\$0.00	(\$0.01)	(\$0.20)	-0.4%	0.0%	0.0%	-0.4%	15.4%
400	\$44.12	\$43.96	(\$26.42)	\$61.66	\$2.57	\$64.23	\$43.75	\$43.96	(\$26.31)	\$61.40	\$2.56	\$63.96	(\$0.26)	\$0.00	(\$0.01)	(\$0.27)	-0.4%	0.0%	0.0%	-0.4%	12.5%
500	\$54.06	\$54.95	(\$32.70)	\$76.31	\$3.18	\$79.49	\$53.59	\$54.95	(\$32.56)	\$75.98	\$3.17	\$79.15	(\$0.33)	\$0.00	(\$0.01)	(\$0.34)	-0.4%	0.0%	0.0%	-0.4%	9.6%
600	\$63.99	\$65.94	(\$38.98)	\$90.95	\$3.79	\$94.74	\$63.43	\$65.94	(\$38.81)	\$90.56	\$3.77	\$94.33	(\$0.39)	\$0.00	(\$0.02)	(\$0.41)	-0.4%	0.0%	0.0%	-0.4%	7.2%
700	\$73.92	\$76.93	(\$45.26)	\$105.59	\$4.40	\$109.99	\$73.27	\$76.93	(\$45.06)	\$105.14	\$4.38	\$109.52	(\$0.45)	\$0.00	(\$0.02)	(\$0.47)	-0.4%	0.0%	0.0%	-0.4%	16.4%
1,200	\$123.57	\$131.88	(\$76.64)	\$178.81	\$7.45	\$186.26	\$122.46	\$131.88	(\$76.30)	\$178.04	\$7.42	\$185.46	(\$0.77)	\$0.00	(\$0.03)	(\$0.80)	-0.4%	0.0%	0.0%	-0.4%	5.2%
2,000	\$203.02	\$219.80	(\$126.85)	\$295.97	\$12.33	\$308.30	\$201.16	\$219.80	(\$126.29)	\$294.67	\$12.28	\$306.95	(\$1.30)	\$0.00	(\$0.05)	(\$1.35)	-0.4%	0.0%	0.0%	-0.4%	1.6%

	Approved Rates Effective January 1, 2019 (w)	Illustrative Rates (x)	Line Item on Bill
(1) Distribution Customer Charge	\$2.00	\$2.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$1.60	\$1.60	RE Growth Program
(4) Distribution Charge (per kWh)	\$0.04298	\$0.04298	
(5) Operating & Maintenance Expense Charge	\$0.00175	\$0.00175	
(6) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(7) FY19 CapEx Factor Charge	\$0.00000	\$0.00000	
(8) CapEx Reconciliation Factor	(\$0.00055)	(\$0.00055)	Distribution Energy Charge
(9) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	
(10) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(11) Storm Fund Replenishment Factor	\$0.00288	\$0.00288	
(12) Arrearage Management Adjustment Factor	\$0.00002	\$0.00002	
(13) Low Income Discount Recovery Factor	\$0.00000	\$0.00000	
(14) Long-term Contracting for Renewable Energy Charge	\$0.00684	\$0.00591	Renewable Energy Distribution Charge
(15) Net Metering Charge	\$0.00043	\$0.00043	
(16) Base Transmission Charge	\$0.03154	\$0.03154	
(17) Transmission Adjustment Factor	\$0.00076	\$0.00076	Transmission Charge
(18) Transmission Uncollectible Factor	\$0.00043	\$0.00043	
(19) Base Transition Charge	(\$0.00083)	(\$0.00083)	Transition Charge
(20) Transition Adjustment	(\$0.00004)	(\$0.00004)	
(21) Energy Efficiency Program Charge	\$0.01151	\$0.01151	Energy Efficiency Programs
(22) Standard Offer Service Base Charge	\$0.10814	\$0.10814	
(23) SOS Adjustment Factor	\$0.00007	\$0.00007	
(24) SOS Administrative Cost Adjustment Factor	\$0.00165	\$0.00165	Supply Services Energy Charge
(25) Renewable Energy Standard Charge	\$0.00004	\$0.00004	
Line Item on Bill			
(26) Customer Charge	\$2.00	\$2.00	
(27) LIHEAP Enhancement Charge	\$0.80	\$0.80	
(28) RE Growth Program	\$1.60	\$1.60	
(29) Transmission Charge	\$0.03273	\$0.03273	
(30) Distribution Energy Charge	\$0.04867	\$0.04867	
(31) Transition Charge	(\$0.00087)	(\$0.00087)	
(32) Energy Efficiency Programs	\$0.01151	\$0.01151	
(33) Renewable Energy Distribution Charge	\$0.00727	\$0.00634	
(34) Supply Services Energy Charge	\$0.10990	\$0.10990	
(35) Discount percentage	30%	30%	

Column (w): per Summary of Retail Delivery Service Rates, R.I.P.U.C. No. 2095 effective 1/1/2019, and Summary of Rates Standard Offer Service tariff, R.I.P.U.C. No. 2096, effective 1/1/2019
Column (x): = Column (w), Line (14) reflects illustrative incremental LTCRER charge associated with Revolution Wind Contract

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to C-06 Rate Customers

Monthly kWh (a)	Approved Rates Effective January 1, 2019				Illustrative Rates				\$ Increase (Decrease)				Increase (Decrease) % of Total Bill				Percentage of Customers (n)
	Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (f)	Supply Services (g)	GET (h)	Total (i)	Delivery Services (j)	Supply Services (k)	GET (l)	Total (m)	
250	\$36.93	\$27.48	\$2.68	\$67.09	\$36.70	\$27.48	\$2.67	\$66.85	(\$0.23)	\$0.00	(\$0.01)	(\$0.24)	-0.3%	0.0%	0.0%	-0.4%	56.3%
500	\$60.56	\$54.95	\$4.81	\$120.32	\$60.09	\$54.95	\$4.79	\$119.83	(\$0.47)	\$0.00	(\$0.02)	(\$0.49)	-0.4%	0.0%	0.0%	-0.4%	16.9%
1,000	\$107.81	\$109.90	\$9.07	\$226.78	\$106.88	\$109.90	\$9.03	\$225.81	(\$0.93)	\$0.00	(\$0.04)	(\$0.97)	-0.4%	0.0%	0.0%	-0.4%	8.1%
1,500	\$155.07	\$164.85	\$13.33	\$333.25	\$153.67	\$164.85	\$13.27	\$331.79	(\$1.40)	\$0.00	(\$0.06)	(\$1.46)	-0.4%	0.0%	0.0%	-0.4%	5.0%
2,000	\$202.32	\$219.80	\$17.59	\$439.71	\$200.46	\$219.80	\$17.51	\$437.77	(\$1.86)	\$0.00	(\$0.08)	(\$1.94)	-0.4%	0.0%	0.0%	-0.4%	13.6%

	Approved Rates Effective January 1, 2019 (o)	Illustrative Rates (p)	Line Item on Bill
(1) Distribution Customer Charge	\$10.00	\$10.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$2.50	\$2.50	RE Growth Program
(4) Distribution Charge (per kWh)	\$0.04207	\$0.04207	
(5) Operating & Maintenance Expense Charge	\$0.00176	\$0.00176	
(6) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(7) FY18 CapEx Factor Charge	\$0.00000	\$0.00000	
(8) CapEx Reconciliation Factor	(\$0.00052)	(\$0.00052)	Distribution Energy Charge
(9) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	
(10) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(11) Storm Fund Replenishment Factor	\$0.00288	\$0.00288	
(12) Arrearage Management Adjustment Factor	\$0.00002	\$0.00002	
(13) Low Income Discount Recovery Factor	\$0.00152	\$0.00152	
(14) Long-term Contracting for Renewable Energy Charge	\$0.00684	\$0.00591	Renewable Energy Distribution Charge
(15) Net Metering Charge	\$0.00043	\$0.00043	
(16) Base Transmission Charge	\$0.03167	\$0.03167	
(17) Transmission Adjustment Factor	(\$0.00474)	(\$0.00474)	Transmission Charge
(18) Transmission Uncollectible Factor	\$0.00035	\$0.00035	
(19) Base Transition Charge	(\$0.00083)	(\$0.00083)	
(20) Transition Adjustment	(\$0.00004)	(\$0.00004)	Transition Charge
(21) Energy Efficiency Program Charge	\$0.01151	\$0.01151	Energy Efficiency Programs
(22) Standard Offer Service Base Charge	\$0.10864	\$0.10864	
(23) SOS Adjustment Factor	(\$0.00041)	(\$0.00041)	Supply Services Energy Charge
(24) SOS Administrative Cost Adjustment Factor	\$0.00163	\$0.00163	
(25) Renewable Energy Standard Charge	\$0.00004	\$0.00004	
Line Item on Bill			
(26) Customer Charge	\$10.00	\$10.00	
(27) LIHEAP Enhancement Charge	\$0.80	\$0.80	
(28) RE Growth Program	\$2.50	\$2.50	
(29) Transmission Charge	\$0.02728	\$0.02728	
(30) Distribution Energy Charge	\$0.04932	\$0.04932	
(31) Transition Charge	(\$0.00087)	(\$0.00087)	
(32) Energy Efficiency Programs	\$0.01151	\$0.01151	
(33) Renewable Energy Distribution Charge	\$0.00727	\$0.00634	
(34) Supply Services Energy Charge	\$0.10990	\$0.10990	

Column (o): per Summary of Retail Delivery Service Rates, R.I.P.U.C. No. 2095 effective 1/1/2019, and Summary of Rates Standard Offer Service tariff, R.I.P.U.C. No. 2096, effective 1/1/2019
Column (p): = Column (o), Line (14) reflects illustrative incremental LTRER Charge associated with Revolution Wind Contract

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to G-02 Rate Customers

kW	Monthly Power Hours Use (a)	kWh	Approved Rates Effective January 1, 2019				Illustrative Rates				\$ Increase (Decrease)				Increase (Decrease) % of Total Bill			
			Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (f)	Supply Services (g)	GET (h)	Total (i)	Delivery Services (j)	Supply Services (k)	GET (l)	Total (m)
20	200	4,000	\$478.80	\$475.20	\$39.75	\$993.75	\$475.08	\$475.20	\$39.60	\$989.88	(\$3.72)	\$0.00	(\$0.15)	(\$3.87)	-0.4%	0.0%	0.0%	-0.4%
50	200	10,000	\$1,040.70	\$1,188.00	\$92.86	\$2,321.56	\$1,031.40	\$1,188.00	\$92.48	\$2,311.88	(\$9.30)	\$0.00	(\$0.38)	(\$9.68)	-0.4%	0.0%	0.0%	-0.4%
100	200	20,000	\$1,977.20	\$2,376.00	\$181.38	\$4,534.58	\$1,958.60	\$2,376.00	\$180.61	\$4,515.21	(\$18.60)	\$0.00	(\$0.77)	(\$19.37)	-0.4%	0.0%	0.0%	-0.4%
150	200	30,000	\$2,913.70	\$3,564.00	\$269.90	\$6,747.60	\$2,885.80	\$3,564.00	\$268.74	\$6,718.54	(\$27.90)	\$0.00	(\$1.16)	(\$29.06)	-0.4%	0.0%	0.0%	-0.4%
20	300	6,000	\$557.40	\$712.80	\$52.93	\$1,323.13	\$551.82	\$712.80	\$52.69	\$1,317.31	(\$5.58)	\$0.00	(\$0.24)	(\$5.82)	-0.4%	0.0%	0.0%	-0.4%
50	300	15,000	\$1,237.20	\$1,782.00	\$125.80	\$3,145.00	\$1,223.25	\$1,782.00	\$125.22	\$3,130.47	(\$13.95)	\$0.00	(\$0.58)	(\$14.53)	-0.4%	0.0%	0.0%	-0.5%
100	300	30,000	\$2,370.20	\$3,564.00	\$247.26	\$6,181.46	\$2,342.30	\$3,564.00	\$246.10	\$6,152.40	(\$27.90)	\$0.00	(\$1.16)	(\$29.06)	-0.5%	0.0%	0.0%	-0.5%
150	300	45,000	\$3,503.20	\$5,346.00	\$368.72	\$9,217.92	\$3,461.35	\$5,346.00	\$366.97	\$9,174.32	(\$41.85)	\$0.00	(\$1.75)	(\$43.60)	-0.5%	0.0%	0.0%	-0.5%
20	400	8,000	\$636.00	\$950.40	\$66.10	\$1,652.50	\$628.56	\$950.40	\$65.79	\$1,644.75	(\$7.44)	\$0.00	(\$0.31)	(\$7.75)	-0.5%	0.0%	0.0%	-0.5%
50	400	20,000	\$1,433.70	\$2,376.00	\$158.74	\$3,968.44	\$1,415.10	\$2,376.00	\$157.96	\$3,949.06	(\$18.60)	\$0.00	(\$0.78)	(\$19.38)	-0.5%	0.0%	0.0%	-0.5%
100	400	40,000	\$2,763.20	\$4,752.00	\$313.13	\$7,828.33	\$2,726.00	\$4,752.00	\$311.58	\$7,789.58	(\$37.20)	\$0.00	(\$1.55)	(\$38.75)	-0.5%	0.0%	0.0%	-0.5%
150	400	60,000	\$4,092.70	\$7,128.00	\$467.53	\$11,688.23	\$4,036.90	\$7,128.00	\$465.20	\$11,630.10	(\$55.80)	\$0.00	(\$2.33)	(\$58.13)	-0.5%	0.0%	0.0%	-0.5%
20	500	10,000	\$714.60	\$1,188.00	\$79.28	\$1,981.88	\$705.30	\$1,188.00	\$78.89	\$1,972.19	(\$9.30)	\$0.00	(\$0.39)	(\$9.69)	-0.5%	0.0%	0.0%	-0.5%
50	500	25,000	\$1,630.20	\$2,970.00	\$191.68	\$4,791.88	\$1,606.95	\$2,970.00	\$190.71	\$4,767.66	(\$23.25)	\$0.00	(\$0.97)	(\$24.22)	-0.5%	0.0%	0.0%	-0.5%
100	500	50,000	\$3,156.20	\$5,940.00	\$379.01	\$9,475.21	\$3,109.70	\$5,940.00	\$377.07	\$9,426.77	(\$46.50)	\$0.00	(\$1.94)	(\$48.44)	-0.5%	0.0%	0.0%	-0.5%
150	500	75,000	\$4,682.20	\$8,910.00	\$566.34	\$14,158.54	\$4,612.45	\$8,910.00	\$563.44	\$14,085.89	(\$69.75)	\$0.00	(\$2.90)	(\$72.65)	-0.5%	0.0%	0.0%	-0.5%
20	600	12,000	\$793.20	\$1,425.60	\$92.45	\$2,311.25	\$782.04	\$1,425.60	\$91.99	\$2,299.63	(\$11.16)	\$0.00	(\$0.46)	(\$11.62)	-0.5%	0.0%	0.0%	-0.5%
50	600	30,000	\$1,826.70	\$3,564.00	\$224.61	\$5,615.31	\$1,798.80	\$3,564.00	\$223.45	\$5,586.25	(\$27.90)	\$0.00	(\$1.16)	(\$29.06)	-0.5%	0.0%	0.0%	-0.5%
100	600	60,000	\$3,549.20	\$7,128.00	\$444.88	\$11,122.08	\$3,493.40	\$7,128.00	\$442.56	\$11,063.96	(\$55.80)	\$0.00	(\$2.32)	(\$58.12)	-0.5%	0.0%	0.0%	-0.5%
150	600	90,000	\$5,271.70	\$10,692.00	\$665.15	\$16,628.85	\$5,188.00	\$10,692.00	\$661.67	\$16,541.67	(\$83.70)	\$0.00	(\$3.48)	(\$87.18)	-0.5%	0.0%	0.0%	-0.5%

	Approved Rates Effective January 1, 2019 (o)	Illustrative Rates (p)	Line Item on Bill
(1) Distribution Customer Charge	\$145.00	\$145.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$23.40	\$23.40	RE Growth Program
(4) Base Distribution Demand Charge (per kW > 10kW)	\$6.50	\$6.50	Distribution Demand Charge
(5) Distribution Charge (per kWh)	\$0.00409	\$0.00409	
(6) Operating & Maintenance Expense Charge	\$0.00128	\$0.00128	
(7) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(8) FY18 CapEx Factor Demand Charge (per kW > 10kW)	\$0.00	\$0.00	
(9) CapEx Reconciliation Factor	(\$0.00029)	(\$0.00029)	
(10) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	Distribution Energy Charge
(11) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(12) Storm Fund Replenishment Factor	\$0.00288	\$0.00288	
(13) Arreage Management Adjustment Factor	\$0.00002	\$0.00002	
(14) Low Income Discount Recovery Factor	\$0.00152	\$0.00152	
(15) Long-term Contracting for Renewable Energy Charge	\$0.00684	\$0.00591	Renewable Energy Distribution Charge
(16) Net Metering Charge	\$0.00043	\$0.00043	
(17) Transmission Demand Charge	\$4.37	\$4.37	Transmission Demand Charge
(18) Base Transmission Charge	\$0.01231	\$0.01231	
(19) Transmission Adjustment Factor	(\$0.00236)	(\$0.00236)	Transmission Adjustment
(20) Transmission Uncollectible Factor	\$0.00035	\$0.00035	
(21) Base Transition Charge	(\$0.00083)	(\$0.00083)	Transition Charge
(22) Transition Adjustment	(\$0.00004)	(\$0.00004)	
(23) Energy Efficiency Program Charge	\$0.01151	\$0.01151	Energy Efficiency Programs
(24) Standard Offer Service Base Charge	\$0.11754	\$0.11754	
(25) SOS Adjustment Factor	(\$0.00041)	(\$0.00041)	
(26) SOS Administrative Cost Adjustment Factor	\$0.00163	\$0.00163	Supply Services Energy Charge
(27) Renewable Energy Standard Charge	\$0.00004	\$0.00004	
Line Item on Bill			
(28) Customer Charge	\$145.00	\$145.00	
(30) LIHEAP Enhancement Charge	\$0.80	\$0.80	
(29) RE Growth Program	\$23.40	\$23.40	
(31) Transmission Adjustment	\$0.01030	\$0.01030	
(32) Distribution Energy Charge	\$0.01109	\$0.01109	
(33) Distribution Demand Charge	\$6.50	\$6.50	
(34) Transmission Demand Charge	\$4.37	\$4.37	
(33) Transition Charge	(\$0.00087)	(\$0.00087)	
(34) Energy Efficiency Programs	\$0.01151	\$0.01151	
(35) Renewable Energy Distribution Charge	\$0.00727	\$0.00634	
(36) Supply Services Energy Charge	\$0.11880	\$0.11880	

Column (o): per Summary of Retail Delivery Service Rates, RIPUC No. 2095 effective 1/1/2019, and Summary of Rates Standard Offer Service tariff, RIPUC No. 2096, effective 1/1/2019
Column (p): = Column (o), Line (15) reflects illustrative incremental LTRER Charge associated with Revolution Wind Contract

The Narragansett Electric Company
Calculation of Monthly Typical Bill
Illustrative Total Bill Impact of Revolution Wind Contract
Rates Applicable to G-32 Rate Customers

kW	Monthly Power Hours Use (a)	kWh	Approved Rates Effective January 1, 2019				Illustrative Rates				Increase (Decrease)				Increase (Decrease) % of Total Bill			
			Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (b)	Supply Services (c)	GET (d)	Total (e)	Delivery Services (f)	Supply Services (g)	GET (h)	Total (i)	Delivery Services (j)	Supply Services (k)	GET (l)	Total (m)
200	200	40,000	\$3,807.18	\$5,279.20	\$378.60	\$9,464.98	\$3,769.98	\$5,279.20	\$377.05	\$9,426.23	(\$37.20)	\$0.00	(\$1.55)	(\$38.75)	-0.4%	0.0%	0.0%	-0.4%
750	200	150,000	\$13,460.58	\$19,797.00	\$1,384.11	\$34,642.69	\$13,330.08	\$19,797.00	\$1,380.30	\$34,507.38	(\$130.50)	\$0.00	(\$5.81)	(\$143.31)	-0.4%	0.0%	0.0%	-0.4%
1,000	200	200,000	\$17,861.58	\$26,396.00	\$1,844.07	\$46,101.65	\$17,675.58	\$26,396.00	\$1,836.32	\$45,907.90	(\$186.00)	\$0.00	(\$7.75)	(\$193.75)	-0.4%	0.0%	0.0%	-0.4%
1,500	200	300,000	\$26,645.58	\$39,594.00	\$2,759.98	\$68,999.56	\$26,366.58	\$39,594.00	\$2,748.36	\$68,708.94	(\$279.00)	\$0.00	(\$11.62)	(\$290.62)	-0.4%	0.0%	0.0%	-0.4%
2,500	200	500,000	\$44,213.58	\$65,990.00	\$4,591.82	\$114,795.40	\$43,748.58	\$65,990.00	\$4,572.44	\$114,311.02	(\$465.00)	\$0.00	(\$19.38)	(\$484.38)	-0.4%	0.0%	0.0%	-0.4%
5,000	200	1,000,000	\$88,133.58	\$131,980.00	\$9,171.40	\$229,284.98	\$87,203.58	\$131,980.00	\$9,132.65	\$228,316.23	(\$930.00)	\$0.00	(\$38.75)	(\$968.75)	-0.4%	0.0%	0.0%	-0.4%
7,500	200	1,500,000	\$132,053.58	\$197,970.00	\$13,750.98	\$343,774.56	\$130,658.58	\$197,970.00	\$13,692.86	\$342,321.44	(\$1,395.00)	\$0.00	(\$58.12)	(\$1,453.12)	-0.4%	0.0%	0.0%	-0.4%
10,000	200	2,000,000	\$175,973.58	\$263,960.00	\$18,330.57	\$458,264.15	\$174,113.58	\$263,960.00	\$18,253.07	\$456,326.65	(\$1,860.00)	\$0.00	(\$77.50)	(\$1,937.50)	-0.4%	0.0%	0.0%	-0.4%
20,000	200	4,000,000	\$351,653.58	\$527,920.00	\$36,648.90	\$916,222.48	\$347,933.58	\$527,920.00	\$36,493.90	\$912,347.48	(\$3,720.00)	\$0.00	(\$155.00)	(\$3,875.00)	-0.4%	0.0%	0.0%	-0.4%
200	300	60,000	\$4,616.98	\$7,918.80	\$522.32	\$13,058.10	\$4,561.18	\$7,918.80	\$520.00	\$12,999.98	(\$55.80)	\$0.00	(\$2.32)	(\$58.12)	-0.4%	0.0%	0.0%	-0.4%
750	300	225,000	\$16,506.33	\$29,695.50	\$1,925.08	\$48,126.91	\$16,297.08	\$29,695.50	\$1,916.36	\$47,908.94	(\$209.25)	\$0.00	(\$8.72)	(\$217.97)	-0.4%	0.0%	0.0%	-0.5%
1,000	300	300,000	\$21,910.58	\$39,594.00	\$2,562.69	\$64,067.27	\$21,631.58	\$39,594.00	\$2,551.07	\$63,776.65	(\$279.00)	\$0.00	(\$11.62)	(\$290.62)	-0.4%	0.0%	0.0%	-0.5%
1,500	300	450,000	\$32,719.08	\$59,391.00	\$3,837.92	\$95,948.00	\$32,300.58	\$59,391.00	\$3,820.48	\$95,512.06	(\$418.50)	\$0.00	(\$17.44)	(\$435.94)	-0.4%	0.0%	0.0%	-0.5%
2,500	300	750,000	\$54,336.08	\$98,985.00	\$6,388.38	\$159,709.46	\$53,638.98	\$98,985.00	\$6,359.32	\$158,982.90	(\$697.50)	\$0.00	(\$29.06)	(\$726.56)	-0.4%	0.0%	0.0%	-0.5%
5,000	300	1,500,000	\$108,378.58	\$197,970.00	\$12,764.53	\$319,113.11	\$106,983.58	\$197,970.00	\$12,706.40	\$317,659.98	(\$1,395.00)	\$0.00	(\$58.13)	(\$1,453.13)	-0.4%	0.0%	0.0%	-0.5%
7,500	300	2,250,000	\$162,421.08	\$296,955.00	\$19,140.67	\$478,516.75	\$160,328.58	\$296,955.00	\$19,053.48	\$476,337.06	(\$2,092.50)	\$0.00	(\$87.19)	(\$2,179.69)	-0.4%	0.0%	0.0%	-0.5%
10,000	300	3,000,000	\$216,463.58	\$395,940.00	\$25,516.82	\$637,920.40	\$213,673.58	\$395,940.00	\$25,400.57	\$635,014.15	(\$2,790.00)	\$0.00	(\$116.25)	(\$2,906.25)	-0.4%	0.0%	0.0%	-0.5%
20,000	300	6,000,000	\$432,633.58	\$791,880.00	\$51,021.40	\$1,275,534.98	\$427,053.58	\$791,880.00	\$50,788.90	\$1,269,722.48	(\$5,880.00)	\$0.00	(\$232.50)	(\$5,812.50)	-0.4%	0.0%	0.0%	-0.5%
200	400	80,000	\$5,426.78	\$10,558.40	\$666.05	\$16,651.23	\$5,352.38	\$10,558.40	\$662.95	\$16,573.73	(\$74.40)	\$0.00	(\$3.10)	(\$77.50)	-0.4%	0.0%	0.0%	-0.5%
750	400	300,000	\$19,543.08	\$39,594.00	\$2,464.05	\$61,601.13	\$19,264.08	\$39,594.00	\$2,452.42	\$61,310.50	(\$279.00)	\$0.00	(\$11.63)	(\$290.63)	-0.5%	0.0%	0.0%	-0.5%
1,000	400	400,000	\$25,959.58	\$52,792.00	\$3,281.32	\$82,032.90	\$25,587.58	\$52,792.00	\$3,265.82	\$81,645.40	(\$372.00)	\$0.00	(\$15.50)	(\$387.50)	-0.5%	0.0%	0.0%	-0.5%
1,500	400	600,000	\$38,792.58	\$79,188.00	\$4,915.86	\$122,896.44	\$38,234.58	\$79,188.00	\$4,892.61	\$122,215.19	(\$558.00)	\$0.00	(\$22.25)	(\$581.25)	-0.5%	0.0%	0.0%	-0.5%
2,500	400	1,000,000	\$64,458.58	\$131,980.00	\$8,184.94	\$204,623.52	\$63,238.58	\$131,980.00	\$8,146.19	\$203,654.77	(\$920.00)	\$0.00	(\$38.75)	(\$968.75)	-0.5%	0.0%	0.0%	-0.5%
5,000	400	2,000,000	\$128,623.58	\$263,960.00	\$16,357.65	\$408,941.23	\$126,763.58	\$263,960.00	\$16,280.15	\$407,003.73	(\$1,860.00)	\$0.00	(\$77.50)	(\$1,937.50)	-0.5%	0.0%	0.0%	-0.5%
7,500	400	3,000,000	\$192,788.58	\$395,940.00	\$24,530.36	\$613,258.94	\$189,998.58	\$395,940.00	\$24,414.11	\$610,352.69	(\$2,436.00)	\$0.00	(\$116.25)	(\$2,552.25)	-0.5%	0.0%	0.0%	-0.5%
10,000	400	4,000,000	\$256,953.58	\$527,920.00	\$32,703.07	\$817,576.65	\$253,233.58	\$527,920.00	\$32,548.07	\$813,701.65	(\$3,720.00)	\$0.00	(\$155.00)	(\$3,875.00)	-0.5%	0.0%	0.0%	-0.5%
20,000	400	8,000,000	\$513,613.58	\$1,055,840.00	\$65,393.90	\$1,634,847.48	\$506,173.58	\$1,055,840.00	\$65,083.90	\$1,627,097.48	(\$7,440.00)	\$0.00	(\$310.00)	(\$7,750.00)	-0.5%	0.0%	0.0%	-0.5%
200	500	100,000	\$6,236.58	\$13,198.00	\$899.77	\$20,244.35	\$6,143.58	\$13,198.00	\$895.90	\$20,147.48	(\$93.00)	\$0.00	(\$3.87)	(\$96.87)	-0.5%	0.0%	0.0%	-0.5%
750	500	375,000	\$22,579.83	\$49,492.50	\$3,003.01	\$75,075.34	\$22,231.08	\$49,492.50	\$2,988.48	\$74,712.06	(\$348.75)	\$0.00	(\$14.53)	(\$363.28)	-0.5%	0.0%	0.0%	-0.5%
1,000	500	500,000	\$30,008.58	\$65,990.00	\$3,999.94	\$99,998.52	\$29,543.58	\$65,990.00	\$3,980.57	\$99,514.15	(\$465.00)	\$0.00	(\$19.37)	(\$484.37)	-0.5%	0.0%	0.0%	-0.5%
1,500	500	750,000	\$44,866.08	\$98,985.00	\$5,993.80	\$149,844.88	\$44,168.58	\$98,985.00	\$5,964.73	\$149,118.31	(\$697.50)	\$0.00	(\$29.07)	(\$726.57)	-0.5%	0.0%	0.0%	-0.5%
2,500	500	1,250,000	\$74,581.08	\$164,975.00	\$9,981.50	\$249,537.58	\$73,418.58	\$164,975.00	\$9,933.07	\$248,326.65	(\$1,162.50)	\$0.00	(\$48.43)	(\$1,210.93)	-0.5%	0.0%	0.0%	-0.5%
5,000	500	2,500,000	\$148,868.88	\$329,950.00	\$19,963.00	\$498,769.36	\$146,543.58	\$329,950.00	\$19,853.90	\$496,347.48	(\$2,325.00)	\$0.00	(\$96.88)	(\$2,421.88)	-0.5%	0.0%	0.0%	-0.5%
7,500	500	3,750,000	\$223,156.08	\$494,925.00	\$29,920.05	\$748,001.13	\$219,668.58	\$494,925.00	\$29,774.73	\$744,368.31	(\$4,787.50)	\$0.00	(\$145.32)	(\$5,332.82)	-0.5%	0.0%	0.0%	-0.5%
10,000	500	5,000,000	\$297,443.58	\$659,900.00	\$39,889.32	\$997,232.90	\$292,793.58	\$659,900.00	\$39,695.57	\$992,389.15	(\$4,650.00)	\$0.00	(\$193.75)	(\$4,843.75)	-0.5%	0.0%	0.0%	-0.5%
20,000	500	10,000,000	\$594,593.58	\$1,319,800.00	\$79,766.41	\$1,994,159.99	\$585,293.58	\$1,319,800.00	\$79,378.91	\$1,984,472.49	(\$9,300.00)	\$0.00	(\$387.50)	(\$9,687.50)	-0.5%	0.0%	0.0%	-0.5%
200	600	120,000	\$7,046.38	\$15,837.60	\$953.50	\$23,837.48	\$6,934.78	\$15,837.60	\$948.85	\$23,721.23	(\$111.60)	\$0.00	(\$4.65)	(\$116.25)	-0.5%	0.0%	0.0%	-0.5%
750	600	450,000	\$25,616.58	\$59,391.00	\$3,541.98	\$88,549.56	\$25,198.08	\$59,391.00	\$3,524.55	\$88,113.63	(\$418.50)	\$0.00	(\$17.43)	(\$435.93)	-0.5%	0.0%	0.0%	-0.5%
1,000	600	600,000	\$34,057.58	\$79,188.00	\$4,718.57	\$117,964.15	\$33,499.58	\$79,188.00	\$4,695.32	\$117,382.90	(\$558.00)	\$0.00	(\$23.25)	(\$581.25)	-0.5%	0.0%	0.0%	-0.5%
1,500	600	900,000	\$50,939.58	\$118,782.00	\$7,071.73	\$176,793.31	\$50,102.58	\$118,782.00	\$7,036.86	\$175,921.44	(\$837.00)	\$0.00	(\$34.87)	(\$871.87)	-0.5%	0.0%	0.0%	-0.5%
2,500	600	1,500,000	\$84,703.58	\$197,970.00	\$11,778.07	\$294,451.65	\$83,308.58	\$197,970.00	\$11,719.94	\$292,998.52	(\$1,395.00)	\$0.00	(\$58.13)	(\$1,453.13)	-0.5%	0.0%	0.0%	-0.5%
5,000	600	3,000,000	\$169,113.58	\$395,940.00	\$23,543.90	\$588,597.48	\$166,233.58	\$395,940.00	\$23,427.65	\$585,691.23	(\$2,420.00)	\$0.00	(\$116.25)	(\$2,536.25)	-0.5%	0.0%	0.0%	-0.5%
7,500	600	4,500,000	\$253,523.58	\$593,910.00	\$35,309.74	\$882,743.32	\$249,338.58	\$593,910.00	\$35,135.36	\$878,383.94	(\$4,185.00)	\$0.00	(\$174.38)	(\$4,359.38)	-0.5%	0.0%	0.0%	-0.5%
10,000	600	6,000,000	\$337,933.58	\$791,880.00	\$47,075.57	\$1,176,889.15	\$332,353.58	\$791,880.00	\$46,843.07	\$1,171,076.65	(\$5,580.00)	\$0.00	(\$232.50)	(\$5,812.50)	-0.5%	0.0%	0.0%	-0.5%
20,000	600	12,000,000	\$675,573.58	\$1,583,760.00	\$94,138.91	\$2,353,472.49	\$664,413.58	\$1,583,760.00	\$93,673.91	\$2,341,847.49	(\$11,160.00)	\$0.00	(\$465.00)	(\$11,625.00)	-0.5%	0.0%	0.0%	-0.5%

	Approved Rates Effective January 1, 2019 (o)	Illustrative Rates (p)	Line Item on Bill
(1) Distribution Customer Charge	\$1,100.00	\$1,100.00	Customer Charge
(2) LIHEAP Enhancement Charge	\$0.80	\$0.80	LIHEAP Enhancement Charge
(3) Renewable Energy Growth Program Charge	\$192.78	\$192.78	RE Growth Program
(4) Base Distribution Demand Charge (per kW > 200kW)	\$5.00	\$5.00	Distribution Demand Charge
(5) Distribution Charge (per kWh)	\$0.00385	\$0.00385	
(6) Operating & Maintenance Expense Charge	\$0.00085	\$0.00085	
(7) Operating & Maintenance Expense Reconciliation Factor	(\$0.00002)	(\$0.00002)	
(8) FY18 CapEx Factor Demand Charge (per kW > 200kW)	\$0.00	\$0.00	
(9) CapEx Reconciliation Factor	(\$0.00029)	(\$0.00029)	
(10) Revenue Decoupling Adjustment Factor	\$0.00184	\$0.00184	Distribution Energy Charge
(11) Pension Adjustment Factor	(\$0.00023)	(\$0.00023)	
(12) Storm Fund Replenishment Factor	\$0.00		