

MEMORANDUM

TO: City of Burlington Board of Finance

FROM: Ken Nolan, Manager of Power Resources

DATE: July 3, 2013

RE: **Hancock Wind Facility**

cc. Barbara Grimes

BED staff is completing a Power Purchase Agreement (PPA) with First Wind to purchase the output of their Hancock Wind facility located in Maine, with only legal review still in progress. The BED Electric Commission approved the contract, for submittal to the BOF and City Council, at its April, 2013 regular meeting.

The contract has been structured as a 10-year PPA with an option to extend, at BED's discretion, for an addition 15-years. This allows BED to enter the first 10-year period without needing a state §248 permit approval from the Public Service Board. BED would then have 2-years (until 9/30/2015) to decide if the 15-year extension is beneficial, and an additional 2-years (until 9/30/2017) to receive the needed approvals (state §248 permit and city-wide vote) to implement the extension.

The contract structure is atypical for the Vermont regulatory process, but has been designed to take advantage of recent legislative changes in the §248 permitting process to promote renewable development. Under Public Service Board (PSB) procedures BED will notice the PSB of its intent to enter the contract once the city council has approved it, and the PSB will have 90-days to review the structure before it is considered final. In its initial discussions with the Department of Public Service BED received support for the proposed structure with the understanding that BED will proceed through the §248 process if it decides to exercise the 15-year extension.

The pricing of this contract compares favorably with other contracts BED has entered, with First Wind absorbing all delivery risk to get the power from Maine to Vermont through a formula built into the contract. Pricing for the last 15-years (if BED exercises the option) increases slightly to reflect the greater delivery risk First Wind is absorbing in the last 15-years. Importantly, the pricing is known up front and can be included in BED's planning.

The contract quantity is 13.5 MW, again to structure the contract to minimize permitting cost and delay. This represents roughly 9% of BED's annual energy needs based on 2012 loads. The remaining terms are essentially based on our existing Sheffield Wind contract. This would represent the third (and final) wind contract BED is contemplating, and would result in roughly 33% of BED's supply being met by wind power.

A Powerpoint presentation that provides highlights of the contract, and the portions of BED's internal analysis that can be made public, is enclosed for your information. A copy of the latest draft of the contract is also enclosed, but due to the confidential terms it contains is being provided under seal. The pricing terms have not been included in any public documents so **for the specific pricing terms please reference Attachment 1 on page 29 of the enclosed contract.** It provides the fixed \$/MWh prices for both the first 10-year Term and an optional 15-year extension. It also provides the formula that will be used to ensure that First Wind absorbs all risks associated with moving the power from Maine to Vermont.

If you have questions prior to your meeting please don't hesitate to contact me, and BED staff will be attending your meeting to address any questions you may have.

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6 APPROVAL OF AGREEMENT BETWEEN
7 HANCOCK WIND, LLC AND BURLINGTON
8 ELECTRIC DEPARTMENT

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13 In the year Two Thousand Thirteen.....

14 Resolved by the City Council of the City of Burlington, as follows:

15 That WHEREAS, Hancock Wind, LLC is developing a fifty-one megawatt (51 MW) wind
16 generating facility in Hancock County, Maine;

17 WHEREAS, Burlington Electric Department desires to purchase 26.5%, or approximately 13.5
18 Megawatts of the output and ancillary products from the facility pursuant to the terms of an
19 Energy, Capacity, REC and Ancillary Services Sale and Purchase Agreement generally in the
20 form attached hereto;

21 NOW, THEREFORE, BE IT RESOLVED by the City Council that the Energy, Capacity, REC
22 and Ancillary Services Sale and Purchase Agreement Between Hancock Wind, LLC and
23 Burlington Electric Department attached hereto is hereby approved, subject to final review and
24 approval by the City Attorney or her designee; and

25 BE IT FURTHER RESOLVED that Barbara L. Grimes, BED General Manager, and/or her
26 designee(s), be and hereby is authorized to execute the Agreement on behalf of the City of
27 Burlington and to take all steps necessary to carry out its provisions.

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Economic Analysis of Hancock Wind Contract Impact on BED Power Portfolio

Public Version



Ken Nolan
Manager of Power Resources

2008 BED Customer Survey Results

- In a BED sponsored survey customers were asked to rank their preference for specific power resources from 1 (oppose) to 10 (support). Results by customer class were:

	Customer Class	
	<u>Residential</u>	<u>Commercial</u>
Coal	3.64	3.73
Nuclear	4.33	4.80
Natural Gas	6.38	6.28
Biomass	7.02	6.96
Res. Wind/Solar	8.69	8.12
Wind	8.76	8.59
Efficiency	9.04	8.50

Project Description

- ❑ 51 MW Wind Facility
 - Located adjacent to the existing 39 MW Bull Hill Project
- ❑ Located in Hancock County, Maine
- ❑ 17 turbines
 - in addition to the 19 turbines already installed at Bull Hill
 - Each new turbine is 3.0 MW in size
 - Each is 518 feet in overall height (308 feet at hub)
- ❑ Connected to Bangor Hydro's transmission system at 115 kV
- ❑ Maine Department of Environmental Protection permit application deemed complete Jan 2013
 - No public hearing required
 - Permit expected July 2013 with 45 day appeal window
 - Tax agreements with local municipalities are in place and all are supportive
- ❑ Anticipate construction during 2014
- ❑ Commercial Operation not later than December 31, 2015

BED Contract Key Components

- ❑ 13.5 MW entitlement (26.5% of the Project)
 - Anticipate a 27% capacity factor
 - 32,000 MWh per year (~9% of BED's energy need in 2012)
- ❑ 10-year initial Term
- ❑ BED can extend for an additional 15 years by giving notice of its intent to do so on or before 9/30/15
 - BED would have an additional 2-years to receive all state and local approvals (including a state §248 permit and a city-wide vote)
 - No permitting costs will be incurred until/unless BED exercises this option
- ❑ Includes all market products except capacity
 - Energy
 - Renewable Energy Certificate's (REC's)
 - Other ancillary revenues
 - Other environmental products that may be created
- ❑ Due to transmission constraints in Maine the contract may not provide market capacity initially, although BED is entitled to its share of capacity when the constraint is removed
 - The developer is working with ISO-NE and other area projects to alleviate issue

Contract Key Components (Continued)

- ❑ Either party can cancel the contract without recourse if Commercial operation is not reached by December 31, 2015
 - Allows the developer to cancel if it cannot get necessary permits
 - ❑ However developer can make a one time \$50,000 payment to BED to extend this deadline to December 31, 2017 and assign the contract to another equivalent project
 - Allows BED to move on if the project cannot be built and First Wind does not have any comparable projects in construction
- ❑ Provides for performance assurance if:
 - Either party has reasonable grounds to believe the creditworthiness of the other party has become unsatisfactory, or
 - Either party believes the other party has become unable to perform its obligations under the Agreement
- ❑ Disputes are subject to binding arbitration
- ❑ Pricing, minimum delivery, credit provisions, and damage calculation provisions are subject to Confidentiality

Benefits BED sees in Contract

- ❑ Stable and known \$/MWh price
 - Continues to reduce BED's exposure to natural gas prices
 - Enhances rate stability (although potentially at a premium to non-renewable alternatives)
 - **BED only pays if MWh are actually delivered**
- ❑ BED avoids the risk normally associated with moving power from Maine to Vermont
 - Under most contracts the developer would sell to BED at a price in Maine, and BED would then need to get the power to Vermont
 - In this contract the developer has agreed to take all of this risk as part of the \$/MWh payment
- ❑ Renewability
 - This source meshes well with BED's customer's desires and city climate change goals
 - It is considered "new renewable" under all of the New England Renewable Portfolio Standards
- ❑ Known minimum delivery
 - The contract includes provisions to guarantee BED will receive a certain amount of deliveries
 - Provides more stability in planning and financial decision making
 - Enhances ability to sell REC's forward to maximize price
- ❑ Set off development risk to a third party
 - Permitting costs can approach \$5 million for a project of this size with no guarantee of success
 - BED has no development exposure in this contract
- ❑ Continues to use the private/public partnership model to maximize tax incentives and reduce BED ratepayer costs

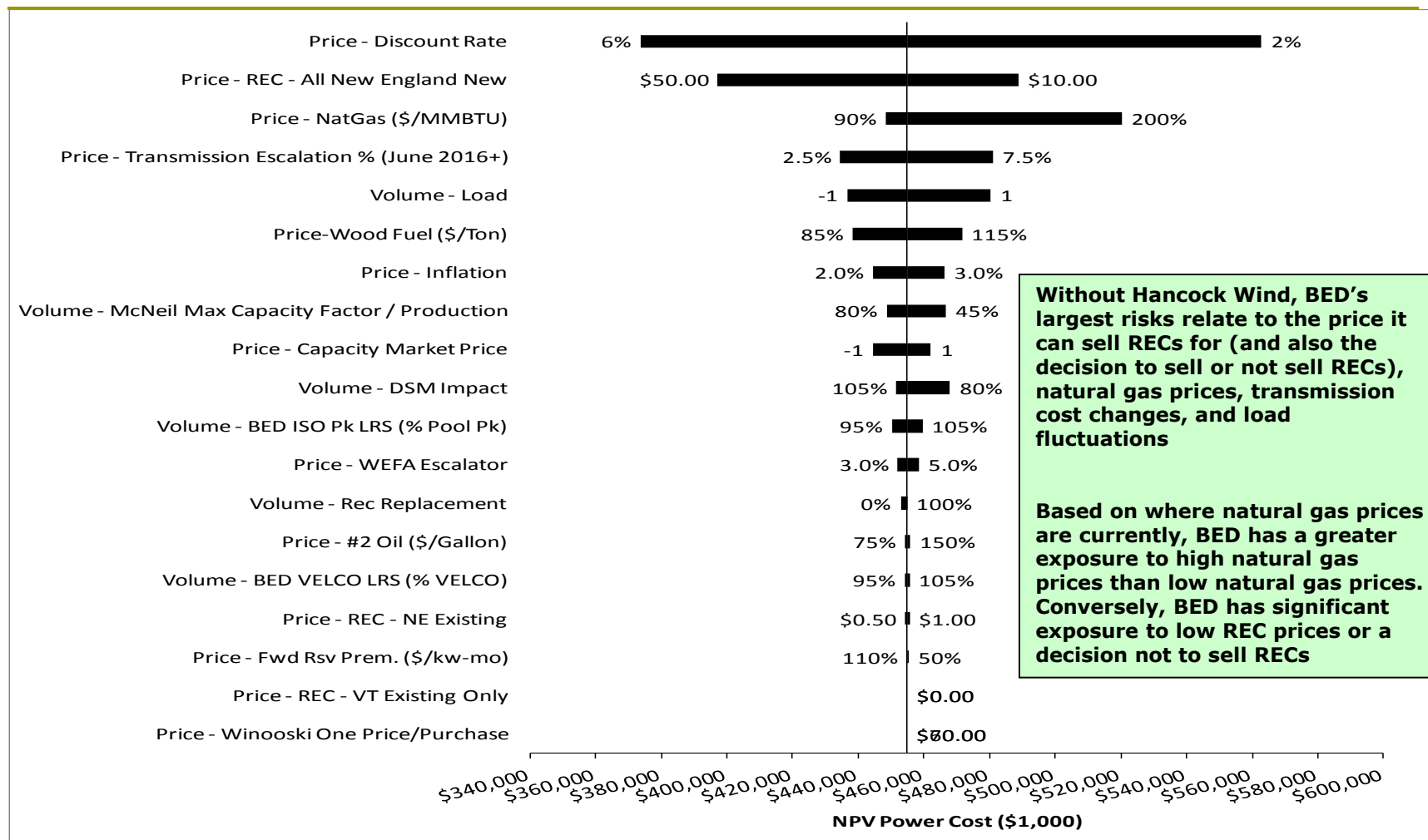
Risks Inherent in Contract

- ❑ REC pricing risk
 - The purchase is being made at a premium to market power due to its renewable nature (current wholesale costs for 2016-2017 are approximately \$48 / MWh)
 - REC prices would need to remain above about \$27-30/MWh to “buy down” the cost to the Base Case market level and BED would need to sell the RECs to minimize rate impacts
 - This contract would continue to deepen BED’s already significant exposure/involvement in the REC markets

- ❑ Counterparty Credit Risk
 - Hancock Wind is a newly created entity and is not “rated”
 - It is an LLC subsidiary of First Wind created specifically for this project
 - The developer will be providing a Letter of Credit to protect BED against some (but certainly not all) of the contract credit risk
 - Should Hancock Wind become financially distressed BED may need to call performance assurance or utilize legal action
 - ❑ For example, put a lien on the project
 - However, this is mostly risk to BED’s environmental goals. For a default to have financial impact market prices would have to rise significantly and for an extended period of time

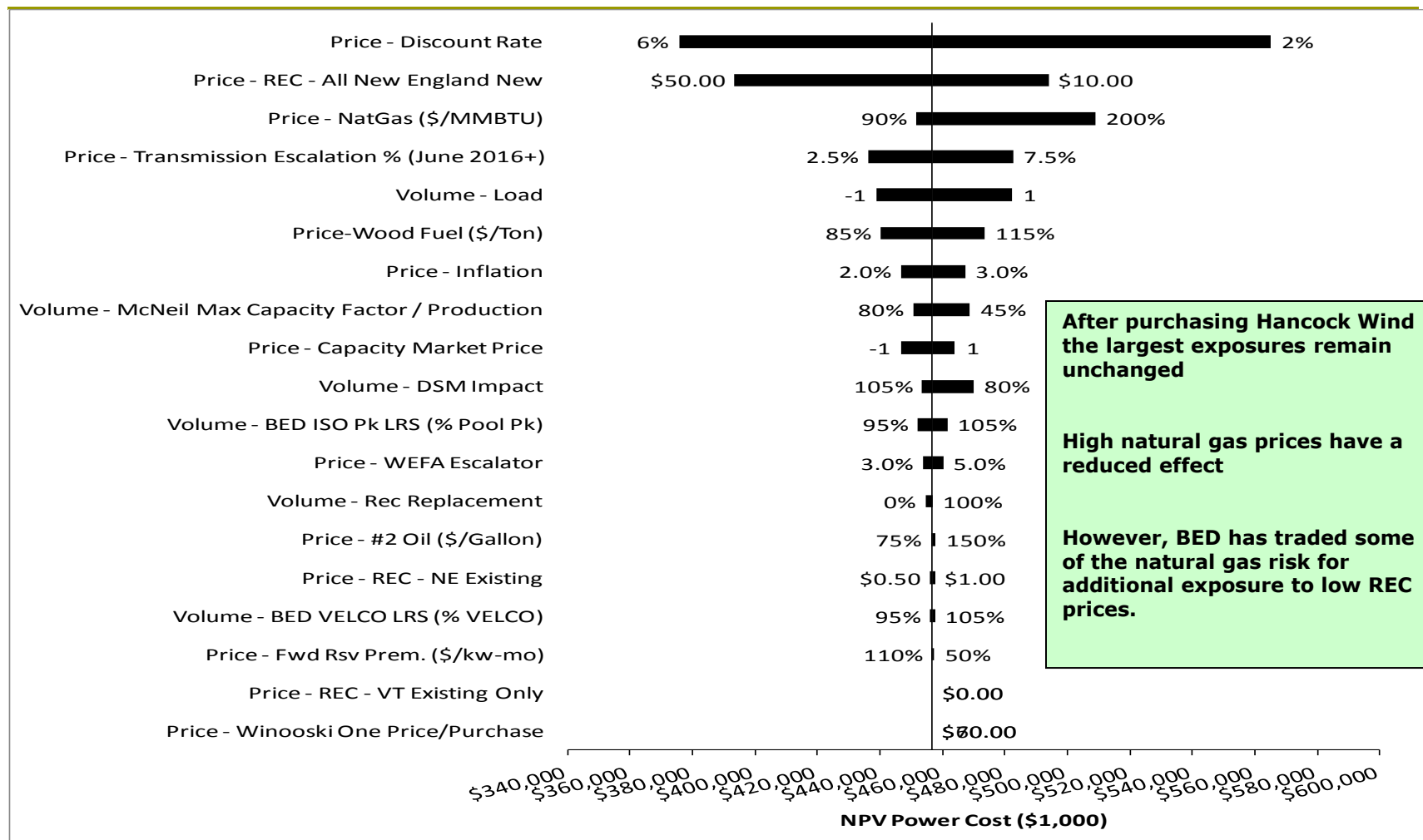
BED Risk Exposure without Hancock Wind

20 Year NPV Net Power Costs



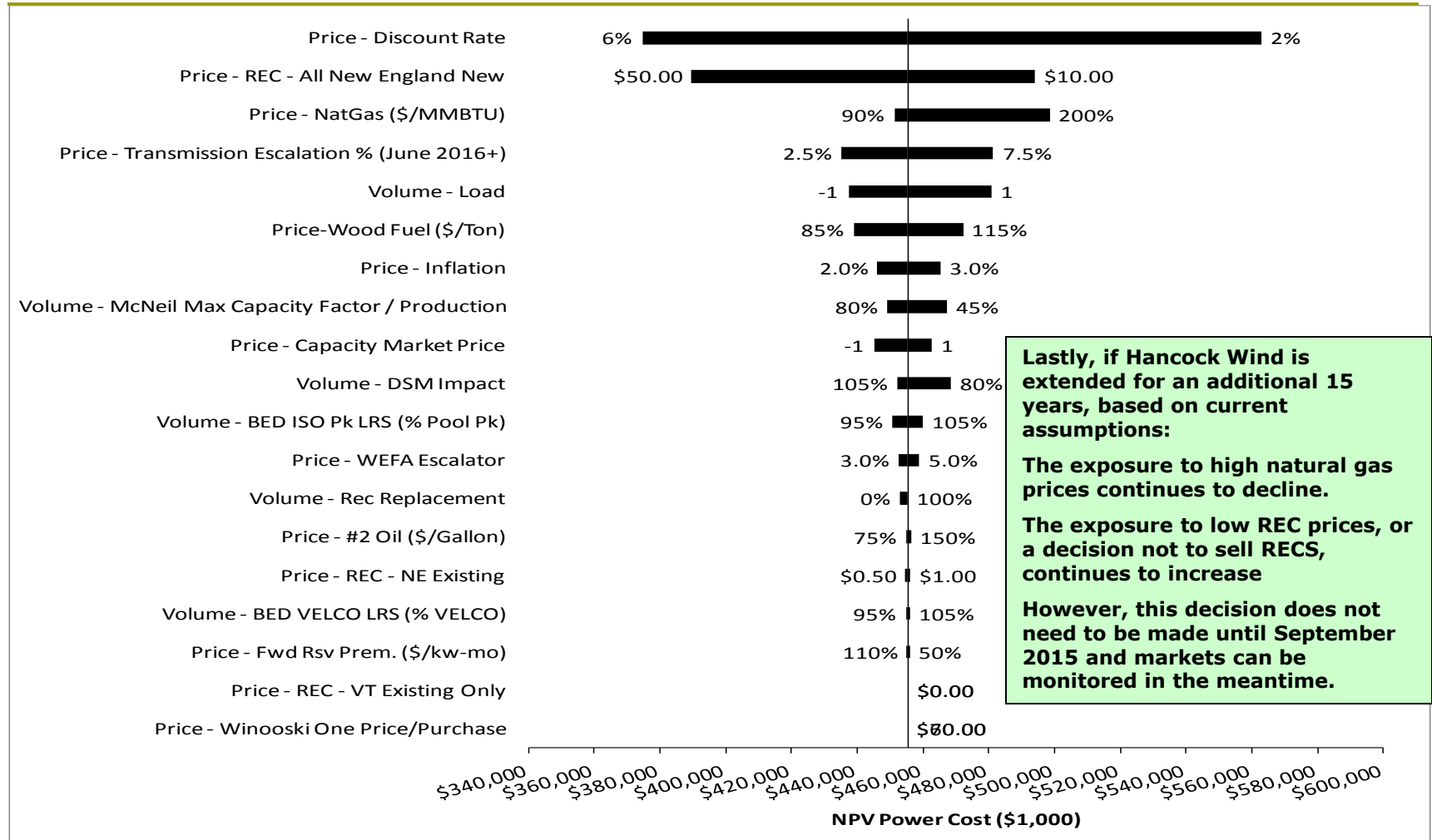
BED Risk Exposure with Hancock Wind for 10 year term

20 Year NPV Net Power Costs



BED Risk Exposure with Hancock Wind for 25 years

20 Year NPV Net Power Costs



Effect on volatility of key IRP variables

10 and 25 year Hancock Contracts

(maximum swing in case results)

	<u>No Hancock</u>		<u>10 Year Hancock</u>	<u>Incremental Change</u>		<u>Hancock plus extension</u>	<u>Cumulative Change</u>
Price - Discount Rate	\$188,874		\$189,192	\$318		\$188,160	(\$714)
Price - REC - All New England New	\$91,677		\$100,566	\$8,889		\$104,447	\$12,770
Price - NatGas (\$/MMBTU)	\$71,886		\$57,156	(\$14,730)		\$47,219	(\$24,667)
Price - Transmission Escalation % (June 2016+)	\$46,315		\$46,315	\$0		\$46,315	\$0
Volume - Load	\$43,350		\$43,350	\$0		\$43,350	\$0
Price-Wood Fuel (\$/Ton)	\$33,274		\$33,274	\$0		\$33,274	\$0
Price - Inflation	\$21,840		\$20,587	(\$1,253)		\$19,024	(\$2,816)
Volume - McNeil Max Capacity Factor / Production	\$18,031		\$18,031	\$0		\$18,031	\$0
Price - Capacity Market Price	\$17,388		\$17,388	\$0		\$17,388	\$0
Volume - DSM Impact	\$16,354		\$16,354	\$0		\$16,354	\$0
Volume - BED ISO Pk LRS (% Pool Pk)	\$9,282		\$9,282	(\$0)		\$9,282	\$0
Price - WEFA Escalator	\$6,383		\$6,383	\$0		\$6,383	\$0
Volume - Rec Replacement	\$2,049		\$2,216	\$167		\$2,288	\$239
Price - #2 Oil (\$/Gallon)	\$1,553		\$1,553	(\$0)		\$1,553	\$0
Volume - BED VELCO LRS (% VELCO)	\$1,358		\$1,358	\$0		\$1,358	\$0
Price - REC - NE Existing	\$1,326		\$1,437	\$111		\$1,486	\$160
Price - Fwd Rsv Prem. (\$/kw-mo)	\$633		\$633	\$0		\$633	\$0
Price - REC - VT Existing Only	\$0		\$0	\$0		\$0	\$0
Price - Winooski One Price/Purchase	\$0		\$0	\$0		\$0	\$0

Economic Conclusions

- ❑ The Hancock Wind contract's fixed pricing reduces BED's exposure to natural gas and fossil fuel price increases.
 - However, this decrease in exposure to fossil fuel prices comes with an increased exposure to the Renewable Energy Credit (REC) markets in roughly a \$1 increase in REC exposure for every \$2 decrease in fossil fuel exposure
- ❑ If BED were unable to sell the REC's from the plant, its costs would be approximately \$1.45 million higher annually than purchasing market power at today's prices (in the early years of the contract)
 - In a worst case scenario where ALL REC markets went to zero price this would equate to a 2.9% rate increase based on BED's Revenue Requirement of roughly \$50,400,000
- ❑ BED does not believe a zero REC value is realistic for Class I RECs
 - Wind REC's are easily portable between REC markets
 - Historic data shows that available REC market prices for wind resources have generally been above the levels needed to make Hancock equivalent to market energy purchases

Economic Conclusions - Continued

- Based on an analysis of the Hancock Wind contract using BED's Integrated Resource Plan financial model, adding the Project to BED's portfolio is nearly break-even under the base case.
 - It should be noted that this assumes REC prices at the long term average used in the IRP (\$27.90/REC) – not the actual REC prices that exist today (~\$50/REC)
 - The contract's main benefit is not in reducing projected costs (although it will do so at today's REC prices). Its main benefit is acting to shrink future volatility in BED's power costs.

IRP NPV IRP Cost-of-Service (\$1,000)		
	NPV	Change (Cum)
No Hancock - Base	\$843,229	
Hancock - 10 Year	\$842,536	-0.08%
Hancock - with 15 Year Extension	\$839,337	-0.46%

Final Observations

- This contract represents the most attractive offer of wind power BED has received to date
- The resource type is heavily supported by Burlington residents and businesses
- It provides a further hedge against the potential impact of future high natural gas prices
 - As the tornado diagrams show, even though BED is trading natural gas exposure for REC exposure, overall power cost volatility is reduced.
- Under the absolute worst case scenario (REC prices go to \$0) BED ratepayers would see a 2.9% rate increase related to this contract in return for obtaining an additional 9% of their supply from wind power
- If Class I REC prices remain anywhere near where they are today the contract is actually cheaper than other non-renewable alternatives provided BED continues to sell the RECs
- This purchase will fill out the wind purchases BED envisioned in the 2012 IRP