

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No. 7156

Petition of UPC Vermont Wind, LLC for a Certificate of)
Public Good pursuant to 30 V.S.A. section 248,)
authorizing it to construct up to a 52 MW wind electric)
generation facility, and associated transmission and)
interconnection facilities, in Sheffield and Sutton, Vermont,)
and operate the same.)

**PREFILED REBUTTAL TESTIMONY OF
THOMAS E. KAVET**

ON BEHALF OF UPC VERMONT WIND, LLC

September 25 2006

Summary:

Mr. Kavet responds to issues related to the economic benefits and costs of the Project to Vermont and its residents, that were raised by other parties in this case – Larry Copp and Jeff Carr (RPI-UHS), Rob Ide and Dave Lamont (DPS), the Town of Kirby, the Burringtons, and Don Gregory.

1 **Q. Please state your name and occupation**

2 Response. My name is Thomas E. Kavet. I am President of the economic
3 consulting firm, Kavet, Rockler & Associates, LLC.
4

5 **Q. Have you previously testified in this proceeding?**

6 Response. Yes, I filed testimony on behalf of the Petitioner, UPC Vermont Wind,
7 LLC.
8

9 **Q. What is the purpose of your testimony?**

10 Response. I am responding to issues related to the economic benefits and costs of
11 the Project to Vermont and its residents, that were raised by other parties in this case
12 -- Larry Copp and Jeff Carr (RPI-UHS), Rob Ide and Dave Lamont (DPS), the
13 Town of Kirby, the Burringtons, and Don Gregory. In preparing my testimony, I
14 have reviewed all of their prefiled testimony and exhibits, as well as responses to
15 discovery requests.
16

17 **Q. In the testimony of RPI-UHS witnesses Copp and Carr, they raise six**
18 **methodological issues which they contend would change the economic impact of the**
19 **proposed project from positive to negative. (PFT page 7, lines 12 to 19; page 8, lines**
20 **2 to 23; page 9, lines 1 to 22; page 10, lines 1 to 22). Please respond to their concerns.**

21 Response. Mr. Copp and Mr. Carr have raised six methodological concerns related to
22 my original economic analysis, which they suggest would change the Project's overall
23 economic impact from positive to negative. In particular they claim (1) That the

1 number of direct employees should be 5, not 6, that they should be classified as
2 “Commercial and Industrial Machinery Repair and Maintenance Workers” instead of
3 “Electric Power Generation” employees, and that the compensation of most of these
4 workers should not be determined by their employer, but by the median wage in the
5 region; (2) That the specialized shipping expenditures associated with the project
6 are known to be likely to be provided by an out-of-State firm; (3) That land lease
7 payments to firms or individuals located outside of the State and/or County should
8 have no in-State or in-County impacts (respectively) whatsoever; (4) That tax
9 benefits to out-of-Town and out-of-State property owners in Sheffield, Sutton and
10 the State of Vermont, should have no in-County or in-State (respectively) economic
11 impacts whatsoever; (5) That the small incremental cost of local government
12 services that may occur in the Towns of Sheffield and Sutton as a result of the
13 project should be deducted from the property tax impacts modeled (but not added as
14 an incremental local government expenditure); and (6) That the King George
15 School will necessarily close as a result of the proposed wind farm and be replaced
16 by an inferior business with reduced economic benefits to the region.

17 Before responding to these individual points it should be noted that even if
18 one agrees (and I do not) with all model specification issues raised by Copp and
19 Carr, with the exception that the King George School will close as a result of the
20 project and be replaced with an inferior business, all general conclusions regarding
21 the positive net economic impact of the proposed Project made in my original report
22 would be unchanged. Model output from Copp and Carr based on the first five
23 points raised in their testimony (all those excluding the closing of the School and its

1 replacement with an “average” residential care facility, see Discovery Attachment
 2 A.UPC:UHS/RPI.1-1.29) results in a net Vermont employment increase during the
 3 construction and development phase in 2007 of approximately 75 jobs and
 4 permanent employment gains of about 21 jobs per year thereafter. In our original
 5 report, I estimated “total employment gains in the State of approximately 83 jobs”
 6 and an ongoing “total employment impact in the State of about 24 jobs” (see pages
 7 2-3 of report). Despite considerable hyperbole regarding the “significance” of these
 8 first five points in their testimony, the resulting estimate of eight fewer jobs during
 9 the construction and development phase and three fewer jobs during the ongoing
 10 operation of the facility represents a trivial net difference and would not materially
 11 change any of the fundamental conclusions regarding the economic impact of the
 12 Project contained in our original report.

TABLE A
DIFFERENCES IN VERMONT AGGREGATE EMPLOYMENT IMPACTS
BETWEEN EPR ANALYSIS FOR RPI/UHS AND ORIGINAL KRA ECONOMIC
IMPACT REPORT FOR UPC, ASSUMING NO CLOSURE OF THE KING
GEORGE SCHOOL

Analysis Source	Net Employment Change Construction and Development Phase	Net Employment Change Ongoing Annual Permanent Jobs (first 10 year average)
Kavet Rockler & Associates, initial UPC economic impact report, pages 2-3	+83 jobs	+24 jobs
Economic & Policy Resources RPI/UHS analysis, per Attachment A.UPC:UHS/RPI.1-1.29	+ 75 jobs	+21 jobs
Differences	8 jobs	3 jobs

1 The only model specification change in the Copp and Carr testimony that
2 would significantly affect any of the conclusions associated with the economic
3 impacts of the project is their point number 6 (PFT page 10, lines 10-19), which is
4 the assumption that the presence of the wind turbines will necessarily result in the
5 closure of the King George School (hereafter referred to as “KGS”) and its
6 replacement by an inferior business. I find no economic justification for either the
7 closure of the school or its replacement by an inferior business, aside from the
8 subjective opinion given to Copp and Carr by employees of the school (and not its
9 owner, UHS). They cite no economic evidence that would show that a school – or
10 any other business – has ever closed or been adversely affected by the presence of a
11 wind farm, nor that this particular school would have to cease operations as a result
12 of the proposed project. The only economic evidence suggesting the KGS could
13 close at any time in the near future is the fact that it’s former owner was recently in
14 bankruptcy. This condition preceded the proposed development and has nothing to
15 do with proximity to a wind farm.

16 The further assumption in the Copp and Carr analysis that if the KGS were
17 to close that it would necessarily be replaced with a business that has less economic
18 benefit to the region is also without justification. In the event of closure, due to
19 financial or any other reason, there is no evidence that the facility could not be
20 replaced with a business that could have a comparable economic impact. The King
21 George School currently provides very upscale educational services. I understand
22 KGS tuition rates are approximately \$58,000 per year, excluding fees, which is well
23 above tuition rates at other academic institutions, including many colleges. Even if

1 the school were to be replaced with a residential care facility, as speculated in the
2 Copp and Carr testimony, there is no reason to believe that it would not be an
3 upscale facility, like the present School, that would have significantly higher staffing
4 and expenditure patterns than the “average” care facility specified in their alternative
5 model.

6 With respect to the first five points raised in the Copp and Carr testimony, it
7 should be noted that econometric and input/output models such as that used in
8 both my firm’s and Copp and Carr’s analysis are designed to provide broad
9 economic impact metrics and not pinpoint accuracy. They are based on voluminous
10 economic and demographic data, evolving economic theory, and layers of
11 assumptions. In any application of such models, model specification detail can
12 quickly reach the point of diminishing returns, where additional model input
13 precision will have little or offsetting effects on the analytic results. All of the model
14 specification issues raised by Copp and Carr that have merit are in this realm or are
15 based on information that was not available at the time the model was originally run.

16 While some of the first five points raised by Copp and Carr are valid, they are
17 all biased towards lowering the economic impact estimate and do not account for
18 comparable omissions that could more than offset these modifications, rendering the
19 initial economic impact analysis as a conservative estimate of the potential economic
20 benefits from this project. As shown above, however, even in sum total, they would
21 not alter any of the original report conclusions regarding the broad economic impact
22 of the project and economic benefits to residents of Caledonia County and the State
23 of Vermont.

1 It should also be noted that UPC has revised the project parameters since the
2 initial analysis was performed, reducing the number of turbines from 26 to 16,
3 increasing the nameplate capacity per turbine from 2MW to 2.5MW, locating 14 of
4 the turbines in the Town of Sheffield and 2 in the Town of Sutton, changing the mix
5 of full time operational employees, and reducing the total nameplate generating
6 capacity of the project from 52MW to 40MW. Total project expenditures are
7 expected to decline from approximately \$90 million to about \$75 million.

8 Accordingly, a revised economic impact analysis has been produced consistent with
9 the new project parameters. None of the broad project conclusions regarding the
10 positive net economic impacts of the project for both Caledonia County and the
11 State of Vermont are affected by these changes. The broad employment and
12 economic impacts of this revised proposal are addressed further below.

13

14 **Q. In Mr. Copp and Mr. Carr's first point, they claim that the number of direct**
15 **employees should be 5, not 6, that they should be classified as "Commercial and**
16 **Industrial Machinery Repair and Maintenance Workers" instead of "Electric Power**
17 **Generation" employees, and that their salaries should not be determined by their**
18 **employer, but by the median wage in the region (Copp and Carr PFT page 8, lines 2-**
19 **20)? Do you agree?**

20 Response. No, I do not. The number of permanent employees to be hired to
21 maintain and operate the proposed facility were provided by UPC at the time of the
22 modeling, along with an estimated operating budget. I have received confirmation
23 from UPC that these data and salary ranges were the best available at the time of the

1 model run and have not changed since. The revised project, however, will require
2 one fewer full time technician/manager and will have a slightly different mix of
3 personnel. The new project will now provide direct employment for five persons:
4 three technician/managers, two with a salary of approximately \$80K per year, and
5 one at \$60K per year; one administrative assistant with a salary of approximately
6 \$35K per year; and one public outreach coordinator, with a salary of \$38K. All of
7 these positions will receive benefit packages valued at about 40% of total
8 compensation.

9 I do not concur with the second part of point number 1, Copp and Carr's re-
10 specification of the employment category for these employees, from NAICS 22111,
11 "Electric Power Generation," to NAICS 811310, "Commercial and Industrial
12 Machinery and Equipment (except Automotive and Electronic) Repair and
13 Maintenance." As defined in the official NAICS guide, the NAICS 22111 category,
14 "Electric Power Generation," includes NAICS 221119 for "establishments primarily
15 engaged in operating electric power generation facilities...[including] facilities [that]
16 convert other forms of energy such as solar, wind, or tidal power, into electrical
17 energy...The electric energy produced in these establishments is provided to electric
18 power transmission systems or to electric power distribution systems." Although
19 wind power is a relatively new industry, it is clearly defined and included within this
20 NAICS code and this is the proper category for the employees associated with the
21 operation of the proposed wind farm. Alternatively, the category recommended by
22 Copp and Carr is defined by "establishments [that] either sharpen/install commercial
23 and industrial machinery blades and saws or provide welding (e.g., automotive,

1 general) repair services; or repair agricultural and other heavy and industrial
2 machinery and equipment (e.g., forklifts and other materials handling equipment,
3 machine tools, commercial refrigeration equipment, construction equipment, and
4 mining machinery).” Their reduction of the stated UPC salary and benefits to be
5 paid these workers, based on their misclassification of these jobs, is also
6 inappropriate. These jobs involve unique responsibilities that UPC is best qualified
7 to understand, and the compensation they propose to pay may have nothing to do
8 with the median wage for the machinery and equipment workers Copp and Carr
9 believe to be comparable. Firms engaged in specialized businesses such as wind
10 farm operations often pay wages that are higher than or otherwise inconsistent with
11 average local pay scales. In our revised model run, all wages and benefits are entered
12 as specified by UPC.

13

14 **Q. In Mr. Copp and Mr. Carr’s second point, they claim that the specialized**
15 **shipping expenditures associated with the Project are now known to likely be**
16 **provided by an out-of-state firm (Copp and Carr PFT page 8, lines 21-23; page 9,**
17 **lines 1-9)? Do you agree?**

18 Response. Yes, I do - however, this information was unknown at the time of our
19 initial model run. Because there was no information at the time as to the identity or
20 specific location of any firm that might perform freight and trucking services
21 associated with the project, in the initial model, it was entirely appropriate to specify
22 the demand for these services in the county in which the activity would take place.
23 In such a case, the model would then determine whether these services are available

1 locally or whether these are provided elsewhere. Copp and Carr admit that their
2 limited research confirmed that, in fact, there were two local companies identified
3 with a capacity to handle such business (PFT page 9, line 5). After the original
4 model specification work was completed, the identity of likely shipping firms became
5 available and, as indicated by Copp and Carr, all were based out-of-state. Thus, their
6 adjustment of this model input is appropriate. In the revised model run, I have been
7 advised that the most likely shipping firms are also out-of-state, and this information
8 has been incorporated into the revised model inputs.

9

10 **Q. In Mr. Copp and Mr. Carr's third and fourth points, they claim that land lease**
11 **payments to firms or individuals located outside of the State and/or County should**
12 **have no in-state or in-county impacts (respectively) whatsoever, and that tax benefits**
13 **to out-of-town and out-of-state property owners in Sheffield, Sutton and the State of**
14 **Vermont, should have no in-county or in-state (respectively) economic impacts**
15 **whatsoever. (Copp and Carr PFT page 9, lines 10-18). Do you agree?**

16 Response: No, I do not. These are valid theoretical considerations, but they do not
17 capture actual economic effects and err on the side of understating economic
18 impacts, as does every model specification change suggested by Copp and Carr.
19 While both property taxes and lease payments to non-residents will probably have a
20 differential and reduced economic impact, they will certainly not have no impact
21 whatsoever, as modeled by Copp and Carr. To do so would assume that expenditure
22 patterns in the State of Vermont or Caledonia County are identical between a non-
23 resident who owns a second home in Sheffield or Sutton, Vermont, and a resident of

1 California, Massachusetts, Texas or any other state who does not. This is obviously
2 not the case, but would require survey or other empirical data to ascertain any
3 quantifiable variance vs. year-round residents.

4 Similarly, Copp and Carr contend that expenditure patterns in the State of
5 Vermont would be identical between a firm based out-of-state that owns land and
6 does business in the State of Vermont with one that has no presence in the State
7 whatsoever. They assume, for example, that lease payments to one of the lessors,
8 Meadowsend Timberlands, will have absolutely no in-state benefits because the firm
9 is based in New Hampshire. They neglect to consider, however, the following facts
10 associated with this entity: 1) The firm is located less than 30 miles from the
11 Vermont border, 2) The firm has a branch office in Vermont with staff, 3) 25% of
12 the firm's employees are located in Vermont, 4) More than two-thirds of all land
13 owned and managed by the firm is located in Vermont, 5) About 20% of the
14 Vermont land the firm owns and manages is located in Caledonia County, and 6)
15 The firm states that when they harvest timber and perform other land management
16 tasks on their Vermont properties, they generally use Vermont subcontractors. To
17 assume there will be no incremental Vermont expenditures associated with revenue
18 from lease payments to this firm is clearly erroneous and, like all other assumptions
19 made by Copp and Carr, biases their analysis in a downward direction. Without
20 survey data to ascertain the differential impact of non-resident property owner
21 expenditure patterns, it is impossible to assign a value to this input parameter. In the
22 absence of any credible empirical data, I would note this as a model assumption,
23 attempt to balance this with other offsetting unknowns, and/or run with some

1 model range weighted between 0.0 (as they now assume) and 1.0 (as we now
2 assume). For a land-owner such as Meadowsend Timberlands, I would weight this at
3 or close to 1.0. For out-of-state landowners with less of an in-state presence, this
4 factor could be as low as 0.25. The fact that there are very minor aggregate model
5 output differences between the two analyses, excluding the KGS effects, suggests
6 that this may be a model refinement that is not worth the added effort to further
7 specify.

8

9 **Q. In Mr. Copp and Mr. Carr's fifth point, they claim that the small incremental**
10 **cost of local government services in the Towns of Sheffield and Sutton that may**
11 **occur as a result of the project should be deducted from the property tax impacts**
12 **modeled (but not added as an incremental local government expenditure); (Copp**
13 **and Carr PFT page 10, lines 4-9)? Do you agree?**

14 Response: With respect to issue number 5, it is reasonable to adjust the personal
15 income model inputs to account for some small increase in local government
16 services, but only if the same amount is added as a local government expenditure.
17 Copp and Carr reduced the personal income benefit by \$32.6K (2002 dollars), but
18 should have added this same amount to local government output, since it also
19 represents incremental additional local government spending. Their failure to do so
20 is yet another example of the persistent negative bias in their recommended model
21 adjustments. If both the reduced local income benefit and increased local
22 government expenditure are included, the net effect of this change is negligible. This
23 change, if properly specified, is a virtual offset and, as is true with all of the above

1 five issues, does not alter any of the positive findings in the original report and
2 analysis.

3 As mentioned above, in performing economic impact analyses, minor issues,
4 such as those raised in issues 1 through 5 by Copp and Carr, are not generally worth
5 the effort to research and specify because they are unlikely to significantly affect
6 model results unless they are all biased in one direction. If these five issues were the
7 only omitted model specification details, they might be relevant, in aggregate, and
8 worth the effort to quantify and include. They are, however, offset by other model
9 issues likely to have positive net economic impacts that were not included in the
10 original analysis. These include:

- 11 1. Considerably greater development expenditures, both by UPC and those
12 opposing the application (such as increased legal and other professional
13 service expenditures). These expenditures tend to be highly local, with large
14 multiplier effects and could easily be triple or more than the original model
15 inputs. In the revised model run, these expenditures are conservatively
16 estimated to be about \$250K (in 2002 dollars).
- 17 2. Higher property tax and mitigation payments as a part of the agreement with
18 the Town of Sheffield than originally modeled. In the revised model run,
19 these are entered as specified in the Sheffield agreement, assuming a total
20 “Accepted Value” based on \$1.25 million per nameplate MW of generating
21 capacity.

- 1 3. Possible economic development and real estate stimulus from persistently
- 2 lower property taxes and/or greater local government expenditures,
- 3 especially in the Town of Sheffield.
- 4 4. Economic benefits from lower energy prices for Vermont consumers (see
- 5 also the testimony of David Lamont, page 6, lines 17-19 and page 7, line 1,
- 6 supporting this contention). And,
- 7 5. Planned contributions to local higher education institutions to fund technical
- 8 education training for wind systems specialists.

9 Because these positive additional economic factors were not included in the original
10 model specification, the original analysis presents a conservative (i.e., low) estimate
11 of the likely economic benefits from the project.

12
13 **Q. Have you prepared an economic analysis of the revised Project? If so, how do**
14 **the economic benefits of the revised Project compare to the original design?**

15 Response: I have prepared a revised economic analysis to take recent project changes
16 into account. The economic impacts of the revised project are similar to the impacts
17 of the original design. The revised aggregate project economic impacts are as follows:

18 During the construction and development phase, the revised project will
19 generate total employment gains in the State of well over 100 jobs, with more than a
20 third of these in Caledonia County. In 2008 and beyond, operation and maintenance
21 of the wind turbines will generate a total employment impact in the State of about 20
22 jobs per year, with about 60% of these expected to be in Caledonia County.

1 In addition to these jobs, the revised project will generate gains in total State
2 economic output of about \$25 million during the construction and development
3 phase, with ongoing annual disposable income gains of more than \$1.5 million per
4 year. State General and Transportation Fund fiscal impacts are expected to exceed
5 \$1 million during the construction and development phase and, including State
6 property tax payments, will total more than \$15 million over the 20 year life of the
7 project. Local property tax and mitigation payments are expected to total nearly half
8 a million dollars per year, with additional local land lease payments of more than
9 \$200,000 per year. Via both property taxes and mitigation payments, the Town of
10 Sheffield is expected to receive more than \$600 per resident per year, based on the
11 estimated 2004 Town population.

12 The net economic impacts associated with this project represent significant
13 economic benefits to the State and region. Given that Caledonia County and
14 surrounding Northeast Kingdom counties persistently suffer from among the highest
15 unemployment rates and lowest economic growth rates in the State, the above-
16 mentioned economic benefits have enhanced fiscal, economic and social value.

17 It should be noted that even though the revised project has been scaled
18 down in size, it will still generate enough electricity to power more than 100% of the
19 homes in Caledonia or Orleans Counties, and nearly half of the electricity needed to
20 power all residences in the three counties in the Northeast Kingdom of Vermont
21 (based on effective output estimates of 111,900MWh/year and average Vermont
22 consumption per residence of 7.29MWh/year).

23

1 **Q. Mr. Copp and Mr. Carr suggest that UPC should have provided you with a**
2 **financial and management plan for the Project in order to assess whether the Project**
3 **will be “successful”, and to ensure that the economic benefits will be realized (Copp**
4 **and Carr PFT page 4, lines 18 to 22). Do you agree?**

5 Response: No, I do not. I received all financial and operational information
6 necessary to measure economic impacts of the project from UPC. The financial
7 information provided to both our firm and Copp and Carr, including considerable
8 confidential information, was more than sufficient to support model inputs needed
9 to specify the model and measure economic impacts. In my experience, this
10 information was consistent with normal business planning at this stage of
11 development. No further financial or management information is necessary in order
12 to measure economic impacts from the Project. The information provided by UPC
13 greatly exceeded that routinely used by Copp and Carr in evaluating Vermont
14 Economic Progress Council projects for State subsidies. Most of the beneficial
15 economic impacts will occur whether the project is “successful,” as measured by
16 some business plan profitability target, or not.

17

18 **Q. Mr. Copp and Mr. Carr assumed in their analysis that the King George School**
19 **would close and be replaced by a managed care facility (Copp and Carr PFT page 10**
20 **lines 10 to 19). Is that a valid assumption?**

21 Response. As stated above, Copp and Carr have provided no objective economic
22 information that would support the contention that this or any other school would
23 close as a result of the proposed development. Without grounding a major

1 assumption such as this with credible empirical evidence, the mere threat to close a
2 business could become the basis for economic analyses premised upon such
3 subjective conjecture. Without an empirical basis, this premise, and the ensuing
4 economic impact analysis and conclusions associated with it, are unfounded.

5

6 **Q. Mr. Copp and Mr. Carr claim that your consideration of avoided emissions of**
7 **certain air pollutants was “non-conclusive” because you did not specify the actual**
8 **generation units that would be displaced by the Project (Copp and Carr PFT page 13,**
9 **lines 17 to 20). Dave Lamont for the DPS suggests that while the Project will result**
10 **in less electricity being used from fossil fuel units, it may not result in emissions**
11 **reductions due to implementation of the Regional Greenhouse Gas Initiative (RGGI)**
12 **(Lamont PFT page 4, lines 3 to 16). Do you agree?**

13 Response. As stated in our original report, “it is impossible to know in advance
14 exactly which power sources may be displaced by new wind power output at any
15 given moment in time.” This does not mean, however, that the Project is not likely
16 to displace greenhouse gas emitting electrical generating sources and provide
17 environmental benefits to Vermont, New England and the nation. In our report, we
18 cite a range of possible avoided emissions based on various reasonable assumptions.
19 Just because it is impossible to know exactly which units may be displaced by new
20 wind-powered electric generation capacity, does not make it impossible to conclude
21 that it is likely this capacity will displace units that emit greenhouse gasses. Dave
22 Lamont for the DPS seems to concur with this in his statement that, “this project
23 will displace fossil fuel generation. In New England, the marginal energy source for

1 electricity is some type of fossil fuel (natural gas, coal or oil). The fossil fuel
2 displaced by this project will be available to generate electricity in the future or be
3 diverted to another use.” (Lamont PFT, page 3, lines 15-18)

4 The Regional Greenhouse Gas Initiative (RGGI), introduces additional
5 complexity in estimating avoided CO2 emissions, but it is important to keep in mind
6 that reducing greenhouse gas emissions is the fundamental purpose of this initiative,
7 and to consider not only economic, but also political and technological factors in
8 evaluating the workings and effects of this agreement.

9 The current RGGI emissions limits have been established by politicians,
10 based on current and expected power generation technologies (including wind) and
11 expected energy price impacts, in order to more fully recognize the future negative
12 externalities associated with fossil fuel use. Because the actual future cost of these
13 externalities is unknown, but could be very substantial, policy-makers sought to
14 introduce both regulatory goals and a market mechanism that could begin to price
15 these costs and reduce greenhouse gas emissions. The goals were set at levels that
16 policy-makers believed were both technologically possible and would not have
17 politically unacceptable price impacts on consumers. If the cost of these goals to
18 consumers becomes too high, the goals will probably be relaxed. If they do not, the
19 goals will probably be tightened.

20 Once policy-makers have set a CO2 cap, as has been done with the RGGI, it
21 would seem not to matter whether or not any non-CO2 producing energy generation
22 facilities, such as that proposed by UPC, ever get built. If no clean energy generation
23 sources are built, however, the price of the emissions certificates would likely

1 increase, and these costs would probably be passed on to consumers in the form of
2 higher energy prices. This, in turn, would be likely to produce political pressure to
3 relax the caps and thereby result in increased greenhouse gas emissions and
4 accelerated negative environmental consequences.

5 The converse is also likely: If many clean energy projects such as UPC's are
6 constructed, the price of the emissions certificates would decline (which is consistent
7 with the testimony of David Lamont, page 4, lines 13-19), energy prices would not
8 rise as much as expected, and there would likely be political pressure (and economic
9 slack with respect to electricity prices) to lower the emission caps and reduce CO2
10 emissions even further, thereby increasing associated environmental benefits.

11 The political linkage between the cap, which is a non-market solution based
12 on the belief that there are future negative externalities that are not fully priced into
13 current fossil fuel use, and the price of the tradable certificates and energy prices,
14 which are left to the market, within the cap, cannot be ignored. The caps were
15 set by policy-makers at levels they deemed to be achievable without undue energy
16 price burdens to the consumer (or voter). What is considered "achievable," is based
17 on the economics and technologies of projects such as that proposed by UPC.
18 If projects such as this are not approved and built, the caps are likely to be relaxed
19 (not that they are particularly aggressive or rigid in their present form) and
20 greenhouse gas emissions will increase.

21 The "game" of exactly what avoided emissions may occur from one specific
22 project can miss the forest for the trees. Yes, it is difficult or impossible to know in
23 advance exactly which fuel sources may be displaced, and yes, there will be many

1 regulatory regimes in place over time to encourage cleaner power production in
2 various ways, but when regional generation capacity is augmented by clean
3 energy sources, such as the UPC project, there are obvious and clear environmental
4 benefits in the form of avoided emissions.

5 Reasonable estimates for avoided emissions, based on differing source
6 assumptions, are presented in the below Table B for the revised project
7 configuration proposed.

8 **TABLE B**
9 **Possible Avoided Emissions Associated with Proposed UPC 40MW Wind Farm in**
10 **Vermont (thousands of pounds)**
11

Assumption Source	CO2	SO2	NOx
Vermont ANR Fact Sheet	160,000.0	NA	NA
2004 NE Output, Gas and Petroleum Only	130,135.6	262.2	76.7
2004 NE Output, Gas, Petroleum and Coal Only	153,278.9	435.2	123.9

12
13 Using the same Vermont Public Service Board standards cited in our original report
14 (see page 15, paragraph 3), the monetized value of the air emissions that would be
15 avoided as a result of the revised project would be nearly \$1 million per year. Over
16 the project's expected initial operational period of at least 20 years, this would
17 amount to more than \$18.5 million in constant 2006 dollars.

18

19 **Q. DPS witnesses Ide and Lamont mention the agreement reached between**
20 **UPC and the Town of Sheffield regarding tax and other payments, although they**

1 don't appear to have placed much weight on it (Lamont PFT page 6, lines 15-16; Ide
2 PFT page 5, lines 11 to 15). Mr. Lamont does not mention the non-property tax
3 payments at all. Do you believe that all of the benefits that will accrue to the Town
4 of Sheffield under this agreement have been fully accounted for by the other parties
5 in this case?

6 Response. No, I do not. The local property tax and mitigation payments to the
7 Town of Sheffield are a part of the total economic impacts considered in performing
8 our analysis. They are substantial and significant payments that contribute to the
9 local economy. If there is any uncertainty regarding the economic benefits of the
10 project outlined in our analysis or these payments in particular, DPS employs
11 economists familiar with economic models of the type used in this analysis and could
12 rely on these experts in evaluating the merits of the economic analysis performed on
13 behalf of the applicant (as well as that of opponents to the project).

14

15 **Q.** A number of witnesses, including Kenneth Hayes (Town of Kirby) (Hayes
16 PFT page 6, lines 10 to 12; page 8, lines 20 to 22; and pages 9 through 13), the
17 Burringtons (Burrington PFT page 7, lines 15 to 20 and pages 8 through 14), and
18 Donald Gregory (Gregory PFT page 5, lines 4 to 6 and lines 10 to 22; page 6 through
19 page 7; page 8, lines 19 to 21; and page 9, lines 1 to 11), suggest that the Project will
20 hurt tourism and property values. Please respond to their concerns. Have you found
21 any empirical evidence that would suggest tourism will be harmed by the project?

22 Response. We discussed in considerable detail in our report the research and
23 analysis that supports our conclusions regarding potential tourism and property

1 valuation impacts and have seen no empirical evidence presented by any of the
2 above parties, or other critical professional peer review, that would contradict this
3 analysis.

4 With respect to potential property valuation impacts, as stated in our original
5 report on pages 15 and 16, after an extensive literature review of the topic, it was
6 determined that there was no empirical basis for any negative town or county adjustment
7 for this effect. Although there is no question that there are individual property owners
8 and potential property buyers who consider the proximity of wind turbines to be
9 undesirable, there is no evidence that that these opinions result in measurable negative
10 impacts in aggregate town or county-wide property sales prices and valuations. In fact,
11 there may be some net positive property valuation effects beyond the direct property tax
12 payments from the project. By significantly reducing town-wide property taxes, the
13 demand for properties in the affected areas, and hence their valuations, would be
14 expected to increase. These additional positive effects, which would probably occur over
15 an extended time period, were not estimated or included in the model inputs used in this
16 analysis.

17 Since this analysis was performed, there has been one other significant academic
18 study performed on the topic of property valuation impacts that is both relevant and
19 methodologically rigorous. The study was performed by Ben Hoen at the Bard Center
20 for Environmental Study and analyzes property valuation changes associated with the
21 Fenner wind farm in New York State. The study is cited in the testimony of both Hayes
22 (page 13, line 12) and Burrington (page 9, lines 13-23 and page 10, lines 1-2), who believes
23 this study has the “best design and most appropriate use of statistics.”

1 The Hoen analysis finds that,

2 Our analysis of 280 home sales within 5 miles of the Fenner windfarm, in
3 Madison County, New York failed to uncover any statistically significant
4 relationship between either proximity to or visibility of the windfarm and
5 the sale price of homes. Additionally, the analysis in this report failed to
6 uncover a relationship even when concentrating on homes within a mile
7 or that sold immediately following the announcement and construction
8 of the windfarm.

9 The study concludes,

10 “Contrary to the notion that adverse effects are universal, this report did
11 not produce any significant relationship between distance from, or
12 visibility of the windfarm and the sale prices of homes. These results fit
13 with those reported in other empirical studies that surveyed public
14 attitudes, which found that people living near turbines find them
15 “acceptable” and, in fact, rarely spontaneously mention them (Braunholtz
16 and MORIScotland, 2003).”

17

18 The Hoen study is attached as *Exhibit UPC-TK-Reb-1*.

19 With respect to tourism impacts, there is nothing beyond anecdotal opinion and
20 personal conjecture to support the contentions of the above parties that there will be net
21 negative economic impacts associated with reduced tourism.

22 As stated in our original report on page 17:

23 Potential tourism impacts – both positive and negative - associated with
24 the proposed wind farm were also considered in specifying the economic
25 impact model. Given Vermont’s substantial tourism industry, this is a
26 topic of heightened local importance. Following a thorough literature
27 search of academic and other articles on this topic, we find no empirical
28 basis for a significant adjustment – positive or negative – to likely tourism
29 visitation or expenditures as a result of the proposed wind farm
30 development in Sheffield and Sutton.

31

1 There is no credible professional analysis or empirical data that would
2 support a reduction in regional tourism expenditures based on the presence of the
3 proposed wind farm. Although there is some evidence that suggests a small positive
4 tourism impact could occur (as noted on our report on page 17), without plans to
5 encourage tourist visitation to the turbine sites, this will probably not be large
6 enough to warrant any model adjustment.

7

8 **Q. As you are aware, UPC has made revisions to the Project as a result of**
9 **concerns raised by other parties. Do those changes affect the broad conclusions you**
10 **reached regarding the economic benefits of the Project?**

11 Response. No, they do not. As stated above, the Project offers significant positive
12 economic and environmental benefits to the region and State. The below
13 conclusions reached in our original analysis are still applicable:

14 We find that the proposed UPC Vermont Wind project in Sheffield
15 and Sutton will have significant economic and fiscal benefits to the
16 State of Vermont, Caledonia County and the local host
17 municipalities. We also find that this project is an important
18 component in meeting the present and future demand for
19 competitively-priced electric energy and clean, renewable power in
20 the State, as mandated by Act 61 of the 2005 Vermont General
21 Assembly.

22

23 The generation of electricity to power Vermont's homes, industry and
24 commercial businesses over the next decade involves trade-offs in costs,
25 environmental impacts, economic benefits and reliability. As a rare local
26 Vermont energy resource, wind power offers unique advantages when
27 compared to existing and alternative energy sources. It emits no
28 greenhouse gasses or other environmental pollutants and displaces
29 existing generating facilities that foul the air and pose grave ecological
30 risks. It is a renewable energy source with fixed production costs over
31 very long periods of time, enabling price stability at competitive rates.
32 And, it is a sustainable resource that generates not just electricity, but
33 permanent jobs, income, tax revenues and wealth for Vermonters. Wind

1 power from projects such as the proposed UPC Vermont Wind facility is
2 not the only answer to Vermont and New England's energy needs, but it
3 is a critical part of the solution.

4

5 **Q. Does this conclude your testimony at this time?**

6 Response. Yes, it does.