From: Hugh Kemper of the Glebe Mountain Group
(www.glebemountaingroup.org)

I have reviewed Beacon Hill's two reports, i.e. *'Free But Costly: An Economic Analysis of A Wind Farm in Nantucket Sound"* (March 2004) and '*Blowing in the Wind'* (October 2003) which focused primarily on tourism and property values. The complete reports are available from www.beaconhill.org or from me.

The following consists of two parts. Part I addresses some key findings as well as some thoughts on methodology. Part II focuses on what may or may not be applicable to Glebe.

Part I:
Summary of Key Findings and Comments on Methodology

(A) Blowing in the Wind

The principal purpose of 'Blowing in the Wind' was to assess the effects of the project on Cape Cod's tourist economy and property values. The project would consist of 130 wind turbines, each approximately 426 feet tall, arrayed over a 24 square mile area located five miles off the coast and clearly visible from six towns, i.e. Barnstable, Mashpee, Falmouth, Edgartown, Oak Bluffs and Yarmouth. The study included an extensive questionnaire that included the responses of 497 tourists and 501 homeowners to three pairs of photographs with different views of Nantucket Sound with and without the wind turbines. The key findings were-

(1) The decline in tourism would cause a reduction in permanent employment of between 1,173-2,533, a fall in earnings of $28-$61 million p.a., and a reduction in local output of $94-$203 million p.a.

> Employment in the Cape Code region totaled 98,098 in 1999. Tourism related industries account for 21% (20,600) and, if the indirect and induced effects of tourism spending are included, tourism accounts for 40% (39,239) of employment. Of the estimated 6 million annual trips to the Cape, an estimated 3.6 million (60%) are made to the six towns affected by the project.
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> Interestingly, 94% of the tourists said the project would not affect the frequency of their visits. The resulting rather modest decline in tourism reflects the net effect of (1) how the remaining 6% felt, i.e. the 1% who would come more often was more than offset by the 3% who would come less often and the 2% who would no longer visit the Cape and (2) how

many would pay less on lodging when visiting (11%) vs. those who would pay more (1%).

Though the net decline in tourist traffic was relatively small, this decline plus the net decline in 'willingness to spend' results in a meaningful decline in employment (5.7%-12.3% of 'tourist 'jobs and 3%-6.5% of tourist and related jobs).

(2) property values, according to homeowners, would fall, on average, by 4.0% ($1.35 billion) and by 4.6% according to a survey of 45 realtors. Homeowners with waterfront property believe values would decline by 10.9%.

The sample mean value ($853,966) of 29 ocean view properties is 1.94 times the sample mean value ($440,075) of 463 properties without a view. If property values decline, then property tax revenues would decline as well***. It is plausible that the towns, rather than cutting services and spending, would raise the property tax rate to make up the revenue shortfall. The net effect would be to shift some of the burden of property tax from high-income households (in waterfront properties) to lower-income households (who lack a view of the sound). This is because the value of waterfront property is expected to fall substantially more than 'inland' property. (page 15)***

Economic theory suggests that the value of regional environmental amenities will be capitalized into current land prices, and this prediction appears to be borne out in practice. Observed changes in these amenities will ultimately lead to change in local property values. It follows that if the project is widely perceived to reduce the beauty of Cape Cod, then it is likely to be associated with a fall in property values there. (page 14)

As detailed below, 61.7% of tourists and 70% of homeowners felt the project would worsen the view either 'slightly' or 'a lot'. The percentage of homeowners in the 'a lot' category (37.7%) was approximately double the corresponding % among tourists (18.7%).

	Tourists	Homeowners
Improve the View A lot	2.5%	0.6%
Improve the View Slightly	3.5%	1.8%
Neither improve nor worsen	32.3%	27.5%
Worsen view slightly	43.0%	32.3%
Worsen view A Lot	18.7%	37.7%

This is consistent with their respective responses to the reasons for living on or visiting the Cape the three most significant of which are noted below:

	Tourists	Homeowners
Beauty of the Region	89%	94%
Very Important	56%	79%
Important	33%	15%
Ocean Views	88%	93%
Very Important	62%	77%
Important	26%	16%
The Beaches	83%	89%
Very Important	52%	68%
Important	31%	21%

While the two 'stakeholders' share the three most important reasons for living on or visiting the Cape in roughly the same order of magnitude, these reasons are, qualitatively, significantly more important to homeowners.

It is noteworthy that while homeowners and tourists view wind power in approximately the same way (e.g. 16% of homeowners and 15% of tourists feel 'wind power is clean and abundant and should be developed at almost any cost; and 70% of homeowners and 74% of tourists feel 'wind power should be encouraged, but with moderation since it may not be appropriate everywhere'), homeowners are much more informed- 61% of homeowners are 'fairly well informed about' the project vs. 11% of tourists (only 3% of homeowners were unaware of the project vs. 59% of tourists). Furthermore, notwithstanding the immense amount of publicity this project has received, fully 44% of prospective buyers (according to the realtor survey) have 'no knowledge' of the project ***which may explain why the project has had little concrete effect on the real estate market so far***. (page 17)

(3) the overwhelming majority of tourists and homeowners felt the project should be required to pay a operating royalty ranging from 7.66% to 8.06%.

89% of homeowners and 84% of tourists responded 'yes' when asked whether the project developer should be required to pay a rent or royalty for the use of 'public land'.

While I'm no expert, the methodology appears thorough and disciplined. The fieldwork was supervised by David Paleologos, President, DAPA Research Inc.

For both the homeowner and tourist surveys the maximum error rate is +/- 4.38% at a 95% confidence level.

That said, the three pairs of photos (with/without the turbines) played a very critical role in the survey's findings and, having not seen the actual originals, it is unclear exactly what the homeowners and tourists were seeing. For example, one pair of 'without' and 'with' photos is presented on page 49. It is virtually impossible to see the turbines in the 'with' photo. In order to 'see' the turbines when viewing the photo on the web site, I had to enlarge it by 2x-3x. In short, I didn't have the sense that, as represented by Beacon Hill, the project was 'clearly visible' from the shore.

While it is true that wind developers have begun to favor 'off shore' projects to address the issue of 'visual blight' and while it is true these particular turbines are five miles off shore, my sense is that, if 'clearly visible', the survey participants were not viewing a project one would describe, as Glebe has been described, as an 'in your face' project which will 'define the town'. Additionally, with respect to Glebe, many residents and tourists will be 'living' with a project that is not only 'elevated' but at distances much closer than five miles. As such, my sense is that the estimated adverse impact on tourism and property values vis-à-vis Glebe is understated, perhaps significantly so.

(B) Free But Costly

The principal purpose of 'Free But Costly' was to assess at least 'the most important' of the economic costs and benefits in a systematic and objective fashion. Beacon Hill chose to present value these costs and benefits the result of which was a net 'economic loss' of $211.8 million as follows:

Benefits	**$735.5m**	
Fuel Saved	523.3	'marginal' blend of natural gas, oil and coal
Capital Costs Saved	97.9	by not building gas powered plant elsewhere
Emissions Reduced	107.4	CO_2, SO_x and NO_x
Greater Energy Ind.	6.8	Moore et al (1997) e.g. Gulf War I
Costs	**$947.2**	
Project Itself	882.4	development, construction and operating
Grid Integration	25.6	connecting to N.E. Grid
Environmental*	39.2	royalty method (7.86% of sales);see A(3) above
Benefits-Cost	**($211.8)**	

With the exception of 'Greater Energy Independence', the 'benefits' are pretty straightforward. As calculated, the benefit of greater energy independence is quite small and, as such, might be hotly contested by wind power advocates. It should be noted, that jobs created from the development, construction and on-going operation of the project are included in project costs.

Among the 'costs', the costs of the project itself and of grid integration are also pretty clear-cut. Though it should be noted that the cost of off-shore projects is considerably greater than the cost of on-shore projects.

The environmental costs, however, are an issue. On the one hand, Beacon Hill has opted for the <u>least onerous assessment of environmental costs</u>, i.e. a royalty payment as a measure of the possible negative environmental effects of the project (e.g. the costs of a broken view of the ocean, the impact on bird and marine life, the reduced recreational value of the Sound, potential safety issues for boats and planes, etc). On the other hand, Beacon Hill argues, if the homeowners and realtors are correct that the project will reduce property values by $1.35 billion, that this would be the appropriate figure to use since in principle it capitalizes all the effects of the project. It should also be noted that the estimated decline in tourist related jobs, revenues and output are not included either as a 'negative benefit' or cost.

Part II: Applicability to Glebe

While not an expert, the methodologies employed by Beacon Hill in both reports are intuitively appealing and comprehensive. With modest 'fine tuning', the questionnaire and process utilized in *Blowing in the Wind* is, in my view, transferable to the Glebe environs. As is most, if not all, of the societal economic framework utilized in *Free But Costly*. With respect to the latter, clearly the 'royalty' approach to environmental costs isn't applicable as Glebe would be sited on privately owned property. However, from my perspective, that's good as it will compel us to address property values which are, theoretically, a more accurate assessment of perceived environmental costs. Furthermore, we should try to incorporate as a 'negative benefit' the impact of lost jobs in tourist related activities.

Both Cape Cod and Glebe have in common a critical dependency on the tourist market and appear to have similar tourist 'brands'.

As noted above, approximately 40% of the Cape Cod labor market is tourist related, either directly or indirectly. According to *The Impact of the Tourism Sector on the Vermont Economy 2001* (Vermont Tourism Data Center, UVM), tourist expenditures contributed to 84,577 jobs or 21.3% of total state employment. Southern Vermont has the biggest share at 27% of the Vermont tourist market- southwestern Vermont ranks #1 among Vermont's 12 tourist regions with a 16% market share and southeastern Vermont ranks #3 with an 11% market share. A very crude analysis of the 364 separate listings (*Manchester and the Mountains* yellow pages) for the eight communities we have designated as being affected by Glebe suggests 97 (or 26.6%) are directly tourist related (e.g. Inns, restaurants, Skiing, etc). As our area has no 'industry' and tourism is a labor-intensive market, estimating a local tourist labor component of (at least) 40% doesn't seem unreasonable.

According to a 1998 study of the Vermont Dept. of Tourism & Marketing, Vermont's tourist 'brand' is based on four perceptions: namely, beautiful scenery, a peaceful experience, outdoor fun and great amenities (probably in that order!). Note the similarity to Cape Cod's tourist- 'very important' and 'important' are the beauty of the region (89%), ocean views (88%), the beaches (83%), peace and quiet (67%), recreation (50%), great restaurants (46%) and shopping (19%).

The Glebe environs is also an important second homeowner market as is, presumably, Cape Cod. As we now know (*2004 Annual Report of the Division of Property Valuation & Review*), non-state residents comprise 63.1% of the Grand List total for our eight towns and 68.5% if Stratton is included. At the higher end are Winhall (79.8%), Peru (71%), and Windham (58%) and at the lower end Andover (46.9%) and Londonderry (46%). Looking once again at the yellow pages, approximately 176 (or 48.4%) of the listings can be linked to second homeowners (architects, building contractors, property management, caretaking, etc). This excludes the tourist related entities noted above which, of course, the second homeowners support.

The Beacon Hill survey suggests Cape Cod tourists and homeowners share many of the same views with a qualitative difference, i.e. the homeowners, for obvious reasons, feel more strongly about the 'quality' of their area. In many respects, homeowners are 'more committed' tourists. While we don't know the breakdown between primary and secondary homeowners in Cape Cod, it is reasonable to assume this perception applies very definitely to second homeowners. In sum, scenic beauty and property values are critically important and interrelated.

At this point I would venture that a significant difference on the downside may exist between Cape Cod and the Glebe environs, i.e. while the Vermont tourist and prospective second homeowner have a wide range of destination/location choices offering the same 'brand', the availability/convenience of alternative beach destinations to the Cape Cod tourist and second homeowner would seem to me to be more limited. If you combine this difference with the considerable difference in the perceived 'visual blight' of the two projects, my guess is that the projected negative impact on Glebe environs' tourism and property values would be significantly higher than that expected in Cape Cod.