



Photograph of Mill Run wind farm located in Fayette County. Taken from website of The Reinvestment Fund (<http://www.trfund.com/financing/millrun2.htm>)

WIND FARM VALUATION FOR REAL ESTATE TAX ASSESSMENT

**prepared for
Assessors Association of Pennsylvania**

**prepared by
Camins Associates**

Camins Associates

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April 11, 2006

Douglas E. Hill
Executive Director
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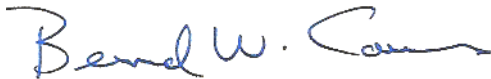
Re: Wind farm valuation for real estate tax assessment

Dear Mr. Hill:

The report contained herein proposes a methodology to be used to value wind farms for assessment purposes. The methodologies assume legal interpretation of what can and cannot be assessed in accordance with Pennsylvania law.

We appreciated the opportunity to work on this assignment. In the meantime, should you have any questions do not hesitate to call me.

Sincerely,



Bernard W. Camins, MAI, SREA, ASA
Pennsylvania Certified
General Appraiser Number GA-000016-L

Appraisal Issue

The task is to develop a methodology to be used to value wind farms for real estate assessment purposes in Pennsylvania. It is the desire all parties (government and industry) to have a system of valuation that is fair, equitable and consistent throughout the State.

The parameters in developing a methodology to value are set forth as follows:

1. The basis of value is market value, defined for assessment purposes “as the price a purchaser, who is willing, but not obliged to buy, would pay an owner, willing, but not obliged to sell, taking into consideration all uses to which the property is adapted and might in reason be applied”.¹
2. Valuation must be in compliance with Pennsylvania Assessment law and the Uniform Standards of Appraisal Practice as established by the Appraisal Foundation.
3. The method(s) employed are easily understood, clearly developed, and can be applied with uniformity.

Background information

Our initial undertaking was to obtain as much background information in order to be familiar with the issues, to recognize all parties (government and industry) concerns, and to understand what is currently being done in Pennsylvania counties where wind farms are in operation.

On January 18, 2006 we met with a group representing the industry and government in order to get input of how the industry treats real estate taxes in their proformas, how land is purchased or leased, and what the industry believes should or should not be assessed.

On January 23, 2006 we met with a group representing the Pennsylvania assessment community. Points of discussion centered on how wind farms have been assessed to date, the methodologies used, understanding the results and implications of the Waymart Case (Wayne County), how assessors interpret the law, and obtaining other ideas and input.

Summaries of the points of discussion for each group are detailed in attached Exhibit A.

¹ *Assessment Law & Procedure in Pennsylvania*, 2005 Edition, Bert M. Goodman, Pennsylvania Bar Institute, p.169.

Our work involved a research of the literature and information including that of the Appraisal Journal, the International Association of Assessing Officers, and the American Wind Energy Association (AWEA) and other trade associations. We also made contact with assessment officials in other states. Our initial contact was by means of a questionnaire with supplemental telephone or email discussions.

Assessment practices elsewhere

As part of the assignment we prepared a questionnaire that was sent to 58 assessors/taxing authorities in 18 states which surveyed assessors across the United States to get their input on assessment procedure as it pertains to wind farms. Thirty-six responded to our questionnaire, representing 62 percent of those surveyed. A copy of the survey is attached to this report in Exhibit B.

The questionnaire addressed the following criteria:

1. Components of a wind farm assessed (land, base/substructure, tower an/or turbine)
2. Appraisal methodology used (sales comparison, income, or cost)
3. Land issues
 - a. Valuation approach (income or sales comparison approach)
 - b. Land lease issues (lease documents available, determination of rent)
 - c. Basis for comparable data if sales comparison approach is used
4. Industry standards used to assess wind farms
5. Assessment – industry relationship

Assessment criteria vary from state to state and sometimes county to county. In some states the entire facility is assessed. In other states only land is assessed.

Most wind farms are leased from the landowner, as is the case in Pennsylvania. The lease document is not always available, however, for those that are leased, a base rental rate is typically paid. Sometimes percentage rent is also paid based on the wind farm's productivity.

If land is not leased or lease documentation is not provided a sales comparison approach is used. The type of comparables used varies greatly but usually in accordance to what the land is zoned.

There are no standards that the wind farm industry uses that assessors are aware of. Some states have elected to use a production tax in lieu of a real estate tax, as in the case of the State of Minnesota. There the state legislature passed a Wind Energy Production Tax in 2002. The tax is based on the size of the facility. Large scale systems, 12 megawatts and larger, pay \$0.12 per kilowatt. These rates are scaled upward depending on the size of the facility.

Legal issues

The components of a wind farm include land, base/substructure, tower and turbine. Other ancillary improvements include roads and other structures. The industry believes that these are items of non-realty. We generally concur and believe, based on our understanding of Pennsylvania assessment law, that the tower and turbine and any improvements essential to the machinery and equipment would not be assessable. Our belief is that these are items of non-realty for real estate tax purposes although our opinion is subject to legal interpretation.

It is our understanding that there is pending litigation in Wayne County that addresses these issues. The outcome of this litigation will determine whether the improvements, in whole or in part, would be considered assessable real estate.

Some states have looked at production-based taxation systems, whereby assessment and taxation that is based on a unit of production model (\$ per megawatt). It is our opinion, subject to legal interpretation, that Pennsylvania law does not support a valuation procedure consisting of analyzing the wind farm as a business entity.

Valuation Issues and Recommendations

The valuation issues are twofold. First, what is to be assessed and secondly what valuation method is most appropriate?

If legal interpretation concludes that the each component of a wind farm (towers, turbines and ancillary site improvements) are not assessable, then valuation would focus on the land only. If the lease information is available, land value would be determined by the income capitalization approach based on the capitalized value of the rent through direct capitalization or yield capitalization.

In the short term, a sales comparison approach would be used if the lease information is not available. In the long term, assuming more wind farms come on line where the land is leased and rental information is available, value could be derived from comparing leases and determining market rent for the subject site, which then can be used in an income capitalization approach.

Valuing Land by the Income Capitalization Approach

The income capitalization approach is preferred because it best reflects the value of the land component. Our study concludes that a wind farm development most often starts with a land lease between property owner and developer. The lease has investment quality that is marketable in that it could be sold to an investor.

Direct capitalization and yield capitalization are two methods to value based on the income capitalization approach. Direct capitalization assumes stabilized net operating income. The first year's base rent and/or percentage less expenses (it is assumed there are no expenses with the exception of a nominal management fee) is capitalized.

Overall capitalization rates are extracted from a) sales, if available, b) market surveys, and/or c) through a band-of-investment formula, which takes into account the relationship of debt and equity capital.

Since there are likely no sales of land leases for wind farms, the rate would be derived from other sources. Market indicators published in the Appraiser News Online (published by the Appraisal Institute), CB Richard Ellis, Inc., and Korpacz Real Estate Investor Survey summarize the results of overall capitalization rates for net leased investments. All studies are national in scope. Some of these studies are offered for a fee. The table shown below summarizes recent overall capitalization rates from two of these services.

Investment Surveys (Overall Capitalization Rate Analysis)

Type of investment	Class	Low	High	Avg
Net leased investments	A	6.50	7.50	7.42
Net leased investments	B	7.00	8.00	7.55
Net leased investments	C	8.00	9.00	8.50

Source: CB Richard Ellis, National Investor Survey - 2005

Type of investment	Quarter	Low	High	Avg	Chg
National net lease	3rd	6.50	10.00	7.75	-
National net lease	2nd	6.50	10.00	7.65	10
National net lease	1 yr ago	7.00	10.00	8.04	-29

Source: Korpacz Real Estate Investor Survey - Third Quarter 2005

There are also numerous real estate companies that specialize in net leased investments and publish their listings of single tenant properties. Overall capitalization rates are indicated. A few of these companies and their web addresses are listed below:

- Net Leased Retail (www.netleasedretail.com). The company deals with acquisitions and dispositions of single (NNN triple net) and multi-tenant retail properties (shopping center and strip centers) nationwide. Based in Portland Oregon.
- Net Leased Investment Company (www.netleased.com). Based in Florida.
- Upland Net Leased Sales (www.nnnsales.com). Requires online registration.
- Net-Properties (www.net-properties.com). Maryland based company requires online registration.

Although a wind farm lease is very different from a retail lease, nonetheless, these services provide a valuable tool for the assessor.

Yield capitalization, also referred to as a discounted cash flow analysis (DCF), is a second method used to value property by the income capitalization approach. It differs fundamentally from direct capitalization in the way that it is applied and is most applicable when rent is variable. Change in revenue could be due to a combination of base rent changes, percentage rent as determined by productivity of the wind farm, or a combination of each.

Value by a discounted cash flow analysis requires an estimate of each year's cash flows less operating expenses plus the property's expected reversion value at the end of the holding period and/or life of the investment. The method permits annual adjustments in rental revenue and operating expenses. Selection of a yield rate can be obtained through the published investment surveys cited in the previous section (Korpacz and CB Richard Ellis).

In order to estimate value of the reversion at the end of the holding period, one must ascertain the useful life of the asset. If the assumption is that the property will continue as a wind farm, it is appropriate to capitalize the expected rent at the end of the term by means of an overall capitalization rate. If the expectation is for the wind farm to have reached the end of its useful life, value of the reversion (land) is forecasted by a sales comparison approach, in accordance with its future highest and best use, as if the wind farm were not present.

Examples of each valuation technique is found in Exhibit C.

Valuing Land by the Sales Comparison Approach

If the lease document is not available, value of the land must be estimated through a sales comparison approach. The sales comparison approach is based on a principle of substitution, which states that an informed buyer would pay no more for a property than the cost of acquiring a property of similar quality and utility.

The type of comparable sales to select is of singular importance. If appraised, in accordance to the highest and best use of the property as a wind farm, we suggest that industrial land would apply since these property types are industrial in character.

Land as vacant, however, is not likely to be zoned industrial. More often they are situated in large open areas zoned agricultural. The question arises whether it is more appropriate to use agricultural or less intensive zoned land.

Our survey did not reveal any uniformity regarding this matter. Some assessors have chosen to value land in accordance to zoning (agriculture, pastureland, mountainland, etc.) while others have valued land as commercial or industrial.

For example, in the State of Minnesota, the legislature recently passed a statute allowing assessors to value land as if the wind farm were not located on it or revalue as if commercial property. Pipestone County is encouraging development of more wind farms. The county has opted to value land as if the wind farm did not exist. Implicit is the assumption that the land has a less intensive use and thereby would be assessed at a lower value. On the other hand, in Nobles County, the assessor has chosen to value land as commercial.

In conclusion, we recommend valuing land by means of a direct capitalization method, if possible and appropriate. It assumes the lease information is available and rent is uniform. The rent serves to reflect the value of the property since the land is encumbered by the lease, generally for a long term, and may be marketable. Direct capitalization is a simple method to use requiring the assessor to capitalize a stabilized income.

If rent is graduated or irregular than a discounted cash flow analysis would be employed. Each year's cash flows are estimated throughout the holding period of the investment. The property's expected reversion value can be determined by capitalizing the expected rent at the end of the holding period by an overall capitalization rate, if the wind farm is expected to continue, or by a sales comparison approach as if the wind farm is not present.

If rental information is not available, the assessor should value land by a sales comparison approach. We believe that industrial land sales could be considered as a basis for comparison, since the wind farm is characteristically an industrial use.

Valuing the Improvements

The improvements of a wind farm include the base/substructure, towers and turbines plus any ancillary roads and improvements. These items would be assessed on a cost basis less depreciation, depending on a legal assumption of what can be assessed as real property. Actual costs are preferable and should be available from permit records.

The matrix presented in Exhibit D delineates land valuation, and if legally appropriate, the valuation of the base/substructure, tower and turbine.

Conclusions

Our task was to develop a methodology to be used to value and assesses wind farms in the Commonwealth of Pennsylvania with the goal of providing the assessment community a method that is a) based on market value, b) is in compliance with Pennsylvania Assessment law and meets the Uniform Standards of Appraisal Practice, and c) is easily understood, clearly developed, and can be applied with uniformity.

What is assessable for a wind farm is based on legal opinion. If legal interpretation concludes that each component (towers, turbines and ancillary site improvements) are assessable, than the Cost Approach would apply. In recognition of ongoing litigation in Wayne County we recommend that other counties not pursue the value of the improvements until the case is resolved.

However, if our assumption is correct, in that these items are not considered real estate by assessment law, than valuation would focus on the land only.

Land value would be determined by one of two approaches: the income approach based on the capitalized value of the rent (direct or yield capitalization), if rental information is available, or the sales comparison approach, if rental information is not available.

EXHIBIT A

Outline of what was discussed with the industry

Developers often negotiate with individual assessors during the startup phase of a project as to how the property would be assessed.

Developer typically pays the landowner "royalties" (rent) for the use of the land by means of lease and or easement agreements. In some cases land is purchased.

Rental agreements are structured differently but generally involve payment of a base rent, percentage rent based on the amount of electricity sold (revenues) or a combination of the two. Rent is based on the overall utility of the site for a wind farm.

Typical life of a wind turbine is 20-25 years at which time the unit could be retired or replaced. Technology has not changed dramatically except that the trend is to build larger turbines suggesting that the pad on which a turbine sits today may not be functional in 25 years.

Assessments in Fayette and Somerset counties suggest the use of an income approach whereby rent is capitalized. Fayette County also assesses the foundation whereas Somerset does not.

Wayne County assesses the land, foundation and structure. Wayne County has agreed to a settlement for tax years 2004-2005 only with Florida Power and Light. The utility company entered an appeal in 2006.

It is the consensus of the industry that the structures are not taxable under State law. The question arises whether or not the foundation should be assessed. While it is agreed that the pad is unique to the structure and perhaps should not be assessed nonetheless the industry entered into an agreement to assess the pad in Fayette County.

Outline of what was discussed with assessors group

Review of issues discussed with industry and government officials in meeting held January 18, 2006.

Summary of cell tower case in Dauphin County where the Pennsylvania Commonwealth Court ruled that cell towers are real estate improvements. Owners of the towers taxed argued that the structures were personal property and not real estate.

The general consensus of the group was that the income approach to value is preferable. The basis for the income approach comes from land lease data that may or may not be available to the assessor. In situations where leases are not available land is valued by a sales comparison approach.

In the areas where wind farms are up and running in Pennsylvania, each county assesses differently. In Fayette County the land and the pad are assessed. In Wayne County, land is assessed to the title owner and the tower portion is taxed to the developer. In Somerset County land only is taxed.

EXHIBIT B

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BERNARD W. CAMINS
CRE, MAI, SREA, ASA

February 20, 2006

To Whom It May Concern:

We have been engaged by the Assessor's Association of Pennsylvania to develop a methodology to appraise wind farms in the Commonwealth of Pennsylvania for assessment tax purposes. The purpose is to have a uniform method of assessing that can be applied to existing facilities as well as those that come on line.

Our work to date has involved discussions with representatives from the wind farm industry and state and county officials.

Of interest is what components of the wind farm are assessed and how assessors across the country are assessing them. We understand that there are differences in State law that may preclude what can be assessed.

Attached to this letter is a short questionnaire. Please take time to answer each question. You may email or fax your response to my colleague, Charles Freedman, assisting in this study. His email address is cfreedman2108@comcast.net and his fax is 717-652-7425.

We appreciate your help and look forward to your response.



Bernard W. Camins, MAI, SREA, CRE

WIND FARM QUESTIONNAIRE

1. Which components of a wind farm are assessed?
 - a. land only
 - b. land + base/substructure
 - c. land + base/substructure + tower
 - d. land + base/substructure + tower + turbine
2. What appraisal methods are applied in assessing a wind farm?
 - a. sales comparison approach
 - b. income approach
 - c. cost approach
3. Is land purchased by or leased to the developer?
 - a. purchased
 - b. leased
4. If leased, do you receive a copy of the land lease with the rent amounts and term stated?
 - a. yes
 - b. no
5. If land is leased how is rent determined?
 - a. base rent
 - b. percentage rent based on wind farms productivity (sales volume)
 - c. base rent + percentage rent
6. If the sales comparison is used for valuing the land component what is the basis for comparable data?
 - a. industrial
 - b. commercial
 - c. residential
 - d. agricultural/mountainland
7. If the income approach to value land is used which method is employed?
 - a. direct capitalization
 - b. discounted cash flow analysis
8. If a cost approach is used what source is used for determining the cost of components of a wind farm?
 - a. Marshall Valuation/Mean
 - b. permit data
9. What method is used to depreciate the cost of the improvements?
 - a. straight line
 - b. other
10. If the answer to Question 9 is b (other) could you explain what method is used?
11. Are there standards used by the wind farm industry that you use in determine the assessment of a wind farm project?
 - a. yes
 - b. no
12. If the answer is yes to Question 11 could you please elaborate on the source?
13. Have you received any opposition from wind farm developers on the methodology used to assess property? If yes could you explain why?

Any additional comments would be welcomed.

EXHIBIT C

ESTIMATING VALUE WITH DIRECT CAPITALIZATION AND DCF ANALYSIS

Direct Capitalization

$$\text{Value} = \text{Net operating income/overall capitalization rate} = \frac{\$100,000}{10\%} = \$1,000,000$$

Yield Capitalization

Example with even cash flows

Year	NOI	Reversion	Discount Factor (10%)*	Discounted Cash Flows
1	\$100,000		0.9091	\$ 90,909
2	100,000		0.8264	82,645
3	100,000		0.7513	75,131
4	100,000		0.6830	68,301
5	100,000	\$1,000,000	0.6209	683,013
				<u>\$ 1,000,000</u>

Example with uneven cash flows

Year	NOI	Reversion	Discount Factor (10%)*	Discounted Cash Flows
1	\$100,000		0.9091	\$ 90,909
2	110,000		0.8264	90,909
3	120,000		0.7513	90,158
4	130,000		0.6830	88,792
5	140,000	\$1,000,000	0.6209	707,850
				<u>\$ 1,068,618</u>

* Present worth of \$1 from standard compound interest tables. Discount rate reflects yield rate.

EXHIBIT D

ASSUMPTIONS OF WHAT CAN BE ASSESSED AS REAL PROPERTY SUBJECT TO LEGAL INTERPRETATION

	Land only	Land + base/substructure (if legally permitted)	Land + base/substructure + tower + turbine (if legally permitted)
Income Capitalization Approach	Capitalized value of the lease 1. Actual lease or imputed rent 2. Lease can be for a fixed amount with adjustment factors over time and/or percentage of gross sales revenue Method preferred - Direct capitalization a. income is determined by the lease b. one tenant c. Generally NNN terms d. Capitalization rate can be derived from market surveys and/or listings e. DCF if rent is not uniform.	Same as in land only column plus base/substructure via cost approach.	Same as in land only column plus base/substructure, turbine and tower via cost approach.
Sales Comparison Approach	If lease is not available or land is owned by the developer. Highest and Best Use - industrial	Same as in land only column plus base/substructure via cost approach.	Same as in land only column plus base/substructure, turbine and tower via cost approach.
Cost approach	not applicable	Yes - land value as industrial plus base/substructure via cost approach.	Yes - land value as industrial plus base/substructure, tower and turbine via cost approach.

CERTIFICATION

We certify that, to the best of our knowledge and belief:

- the statements of fact contained in this report are true and correct.
- the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions.
- we have no present or prospective interest in the subject of this report, and no personal interest with respect to the parties involved.
- we have no bias with respect to the subject of this report or the parties involved with the assignment.
- our engagement in this assignment was not contingent upon developing or reporting predetermined results.
- our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined conclusion or direction that favors the cause of the client, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this consulting assignment.
- our analyses, opinions and conclusions were developed, and this report has been prepared in conformity with the Uniform Standards of Professional Appraisal Practice.
- no one provided significant professional assistance to the persons signing this certification.
- the reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Practice of the Appraisal Institute.
- the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.



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