COMMENTS, FINDINGS, AND CONCLUSIONS ABOUT REPORT BY DAVID G. LOOMIS, PH.D. OF STRATEGIC ECONOMIC RESEARCH LLC ENTITLED "ECONOMIC IMPACT OF THE PLEASANT RIDGE WIND ENERGY PROJECT"

A Memorandum Report to

Phillip Luetkehans, Law Offices of Schirott, Luetkehans & Garner, LLC

From

GRUEN GRUEN + ASSOCIATES
Urban Economists, Market Strategists, and Land Use/Public Policy Analysts

January 2015

C1411

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APPLYING KNOWLEDGE
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ADDING VALUE

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MEMORANDUM

Date: January 16, 2015
To: Phillip Luetkehans, Esq.
From: Gruen Gruen + Associates
Subject: C1411 Comments, Findings, and Conclusions About Report by David G. Loomis, Ph.D. of Strategic Economic Research LLC Entitled "Economic Impact of the Pleasant Ridge Wind Energy Project"

This memorandum report summarizes comments, findings, and conclusions drawn from Gruen Gruen + Associates (GG+A) review of the report prepared by David G. Loomis, Ph.D. of Strategic Economic Research, LLC (sometimes referred to below as "author") entitled "Economic Impact of the Pleasant Ridge Wind Energy Project" (sometimes referred to below as "Wind Energy Project") and the research described in this report.

COMMENTS, FINDINGS, AND CONCLUSIONS

The analysis of the economic impact of the proposed wind energy development does not comprehensively portray impacts that the proposed development may induce.

Economic impacts are effects on the level of economic activity in a given area. Economic impacts do not measure the valuation of changes in amenity or quality-of-life factors such as health, safety, recreation, air or noise quality, or view amenities. The report does not address changes in such factors that the proposed Wind Energy Development may induce.

Nor do economic impacts measure fiscal impacts; that is, changes in government revenues and expenditures. For example, the proposed wind energy development will increase the demand for public services (e.g., public works, sheriff, fire, administration, and other public services) but the costs to provide these public services are not considered in the analysis.

Economic impacts do not measure changes in valuation of property caused by the proposed development.

Given the relatively small employment impacts predicted by the author (less than one percent of total existing jobs in the County), the failure to consider the social, fiscal, and property impacts of the proposed development, which collectively are likely to be far

greater than the predicted economic impacts, constitutes a significant omission of the report.

The economic impacts predicted by the author are misleading and overstated.

Predicted Impacts

According to the author, a Jobs and Economic Development Impacts (JEDI) input-output model, developed by the National Renewable Energy Laboratory (NREL) for the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), was used to estimate the economic benefits of both the construction and ongoing impacts of the proposed project during operation. Key inputs were not specified and revealed by the author but apparently include detailed cost estimates and estimates of the percentage of project materials and labor that will be coming from within Livingston County and the State of Illinois. Such estimates were supplied by the developer, the sponsor of the proposed project and which commissioned the report by the author. The author estimates that during the construction phase, the equivalent of 177 full-time jobs would be created in Livingston County directly from construction activity during the construction period, and then the model was used to forecast that another 207 full-time jobs would result from induced and "Turbine and Supply Chain Impacts" in the Livingston County so a total of the equivalent of 384 full-time jobs will be created. This means that during the limited, one-time construction period (apparently of only six months[1]) total earnings by County residents would increase by approximately $24 million while the output of the Livingston County economy would increase by $55.7 million in the construction period.

[1] The third line from the bottom of page 11 of the report refers to a construction period in Livingston County of only six months.

The analytical generally accepted convention is to present economic impacts in terms of direct, indirect, and induced effects. The Loomis Report indicates that 34 full-time jobs will result from induced effects, or in other words the effects of personal consumption expenditures made by workers and their households. The direct and indirect effects of construction activity, however, are not presented. Multipliers are generated from input-output models for employment, income, and output. Multipliers are not presented for employment, income, and output in the Loomis report. The JEDI model includes only the direct impacts associated with on-site construction activity. The economic impacts from purchasing the wind turbines and related equipment are reported in combination with other indirect supply-chain impacts and the sum of these is described in the Loomis report as "turbine and supply chain impacts" or "indirect impacts. General convention input-output models such as IMPLAN would report economic impacts associated with wind turbines and related power equipment as "direct" impacts and "indirect" as only the economic impact on suppliers to the construction firms and turbine manufacturers. The impacts as reported in the Loomis report do not allow for a multiplier ratio of direct to indirect economic impacts to be calculated.

The author estimates that once construction is completed and the wind energy project is in operational phase, 13 jobs would be created in Livingston County directly "onsite" from operations, and then the model was used to forecast that another 79 jobs would result from "Local Revenue and Supply Chain Impacts" and induced impacts in Livingston County. This means that during operations of the proposed wind energy project, total earnings by County residents would increase by approximately $4.0 million while the output of the Livingston County economy would increase by nearly $20.1 million.

Contrary to the initial paragraph describing the purpose and impacts the Loomis report would present, the on-going operating impacts are not presented in a manner that allows for calculation of employment, earnings or output multipliers[2]. The magnitude of the multiplier associated with any particular economic activity depends upon the extent to which businesses purchase their inputs from other businesses located in the same geographic area as the project as contrasted with the purchase of inputs from businesses located outside the geographic area. Multipliers vary among industries and among regions. Larger and more diverse geographic areas will tend to have larger industry multipliers because of a greater likelihood of linkages within the area; in other words, an industry's inputs will be provided by other businesses within the geographic area. Because Livingston County represents a relatively small area in terms of built

[2] Multipliers represent the ratio between the total economic impact of an activity to the direct economic impact of that activity. For example: an employer multiplier of 2.0 would suggest that for every one job created through direct economic effects, an additional one job would result from indirect and induced effects.

space and nonagricultural activities, the area is missing some economic or industrial sectors present in larger economic regions, and therefore, we would expect the multipliers to be comparatively low. For example, GE does not manufacture turbines in Livingston County and therefore this large input will not generate multipliers within Livingston County.[3] The impact estimates for smaller rural areas tend to be overestimated relative to larger urban areas. Livingston County is relatively sparsely developed and does not contain major agglomeration or clusters of engineering and design, and wind farm equipment and construction material firms. The author cites his study conducted for an organization promoting the use of wind energy that indicates Livingston County contains five of the 22 industries which could potentially produce one or more components of a wind turbine.[4] (As a comparison, Cook, DuPage, Kane, Lake, McHenry, Winnebago, and Will Counties each contain 16 of the relevant 22 industries). The author states on page 6 of the report that improvements "include graveled roads to access each turbine and above and below surface electrical cabling to collect and transmit the power..." According to the NREL's own JEDI model, more than 90 percent of capital expenditures for wind projects typically are for Equipment and Materials. Neither in the report nor in his testimony does Loomis identify how much of these expenditures will occur locally, if any; nor does he provide any examples of local suppliers for such equipment or materials.

The author's report provides little detail on a JEDI model that is not as well known in the economic impact literature (especially outside of the context of wind energy) as other widely-used models. For example, the author mentions the use of IMPLAN data but does specify whether and if so for what year was the data used and does not indicate if the estimates for 2014 were deflated to be consistent with the year of data used in IMPLAN (latest year for IMPLAN data available is 2012). How much of the non-IMPLAN parts of the JEDI model is locally-based? Has the JEDI model been recently tested in Livingston County or similar counties to gauge its accuracy? In addition to the report not being clear about how an IMPLAN component might have been used for Livingston County, there is no indication how the rest of the inputs were adjusted to reflect the structure of the local economy and that the County contains a relatively limited retail base but is near counties that contain larger retail bases.

Additional ways in which the estimated impacts are likely to be misleading and overstated are described below.

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[3] Where will the GE turbines described in the siting application be manufactured? Where will concrete and rebar used in construction be purchased? Information about these kinds of questions would put the figures presented in context.

[4] Illinois Wind Turbine Supply Chain Report, June 2010, Center for Renewable Energy, Illinois State University.

If the proposed project is not market-and financially-feasible to implement and conditions are not satisfied, none of the construction or operating impacts predicted will materialize. No showing of feasibility is made by the author in the report.

First, the report on the top of page 6 indicates the proposed project is under development but then later in the same page states that the development of the project is subject to a variety of conditions, including obtaining buyers of the power that would be generated ("power off-take agreements"). The report provides no indication that demand exists for the power or that it will be financially feasible to develop and operate the proposed wind energy project. In fact, on page 2 of the report, the author states because of the "uncertainty surrounding wind energy policy, the industry only installed 1,087 MW in 2013." The author does not state that the policy has been changed in 2014 to remove the uncertainty that has kept wind energy projects from being feasible to build. We understand that another wind energy project has been proposed but not constructed in Livingston County suggesting that obtaining power off-take agreements that make construction and operation feasible to implement is not assured and that existing competing supply alternatives will tend to hold down obtainable prices, which will make clearing the feasibility threshold that much more risky and uncertain.[5] Therefore, in the absence of the conditions being satisfied, the proposed project will not generate the construction and operating benefits predicted.

The author should clarify if the developer has a power purchase agreement with a creditworthy buyer for the power and if so, how much of the capacity generated will the creditworthy buyer purchase?

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[5] According to database of permitted projects by the Center for Renewable Energy at Illinois State University, the Streator Deer Run Wind Farm by Iberdrola Renewables is permitted for 164 turbines in Newton and Sunbury Townships in Livingston County. http://www.paxtonrecord.net/news/agriculture/2014-06-30/k4-wind-farm-construction-start-early-august.html. According to the August 28, 2014 issue of The Times: "It hasn't been smooth sailing for a wind farm that was planned for La Salle County.
In 2009, Iberdrola received a special use permit to construct 100 wind turbines in Otter Creek and Allen townships, but the company still hasn't broken ground on the project. Iberdrola's failure to launch could be one indicator wind farm construction has stalled in the county (La Salle County) in recent years. Last year, Iberdrola spokesman Paul Copleman told The Times the company was having trouble finding a buyer for the project. 'We generally look for a long-term contract before we begin construction, but not always,' he said. 'We don't have a long-term buyer for that project, and that speaks to market condition on prospective developments.'"
http://www.mywebtimes.com/news/local/energy-companies-looking-elsewhere-for-wind-farm-locations/article_85712eab-c88b-5276-994d-5ca663f7afef.html

Predicted impacts do not indicate quality of employment opportunities and are gross not net impacts.

The predicted impacts do not indicate the quality of employment opportunities. For example, the construction impacts are reported as annual full-time equivalent jobs but the bottom of page 11 of the Loomis report indicates that the "construction of the wind farms may actually involve hiring 768 workers for 6 months." Such a short period does not suggest a high-quality employment opportunity which would give workers confidence to spend money on non-necessities or make commitments to remaining in Livingston County. In addition, given as described in Table 2 below as of September 2014 the unemployment rate of less than six percent or 1,040 resident workers in the County, it is likely that many of the predicted construction jobs will be sourced to workers residing outside the County or might be shifting jobs from other sectors or other projects and therefore would not be new and additional.

In addition to not indicating the quality of employment opportunities, the figures presented by the author are on a gross, not net basis.[6] Therefore, the net impact on the total level of economic activity in Livingston County may not be increased by multiplier effects or at a minimum are overstated. The outcome depends upon the ability of the County to provide additional workers and capital resources. If resources are shifted away from some other use or activity in the County; that is displaced, then there will be no or smaller net positive multiplier impacts than the gross impacts predicted. The gross job estimates presented in the report do not take into account net effects on jobs, such as displacement of other jobs by the construction of the proposed wind energy project, or the impacts of potentially changing electricity or fuel prices that could change the demand for workers and services associated with the plant. For example, the 300 MW Streator Cayuga Ridge South Wind Farm under construction in 2008 and 2009 and came online in March 2010 (the 200 MW Minonk Wind Farm located in both Woodford and Livingston Counties came on line in 2012, following construction in 2011)[7]. Presumably the Streator Cayuga Ridge South Wind Farm would have created similar gross job impacts as predicted in the report but as described below in Table 3 the number of construction jobs in Livingston County declined from 2008 through 2010 and have stabilized at the 2010 figures. This suggests the potential that the jobs were simply shifted from one construction activity to another and did not alter the structure or increase the employment base in the construction sector. For another example, the analysis does

[6] The bottom of page 8 of the report states that the "study does not analyze net jobs."

[7] See Illinois Wind Farm Database prepared by Illinois Wind Working Group Center for Renewable Energy
Illinois State University:
http://renewableenergy.illinoisstate.edu/downloads/databases/062514%20Completed%20Wind%20Farms%20in%20IL.pdf.

not take into account the potential that wind turbines may reduce agricultural production due to their footprint which would reduce income from farming.

We recognize that the author (on page 8 of the report) acknowledges that his analysis is focused on gross not net impacts. For small counties, however, this may provide misleading exaggerated estimates of impact if the size of the project has the potential to distort the local labor market(s). On this problem, as well as problems of double-counting and other issues that are unaddressed in the report, see Oosterhaven J, Stelder D (2002)[8] Similarly, as described at the end of this memorandum, income from land rent may be spent non-locally so that the additional impacts may have more or less local content – depending on (1) size of the contribution of rental income to the local landowner and (2) whether the landowner is in fact a local.

The JEDI model outputs were not compared with actual Livingston County wind energy projects already developed

The author did not apparently attempt to conduct any studies of the wind energy projects actually built in Livingston County to put into perspective the gross figures for a hypothetical project not yet built or operated and instead relies on employment, cost, and revenue data from the project developer. The analysis may also rely on non-representative industry and input data for the specific geography of Livingston County. The report does not indicate the JEDI model was calibrated to reflect local conditions or the scale and scope of inter-industry linkages that exist in Livingston County and the presence of larger retail, office, and industrial space agglomerations near but outside Livingston County. Direct or on-site employment and supply chain employment in Livingston County induced by the development and operation of these existing wind energy projects was not identified by the author. Therefore, the JEDI model outputs were not compared with actual Livingston County wind energy projects already developed. As a result, the impacts presented do not reflect empirical reality of actual projects.[9]

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[8] Oosterhaven, J. and Stelder, D. (2002), Net Multipliers Avoid Exaggerating Impacts: With A Bi–Regional Illustration for the Dutch Transportation Sector, Journal of Regional Science, 42: 533–543.

[9] An economic impact analysis of the Shady Oaks wind energy development in Lee County completed after the fact of construction for the developer indicates that the project's turbine blades were made in North Dakota, the towers were made in Wisconsin, and the contractor is from Minnesota, which has mobilized to complete 100 wind energy developments across the nation. Other project components were made in China, Ohio, California, and Texas. According to the Shady Oaks impact report, the JEDI model "can be misleading as far as number of construction jobs created." The contractor for the Shady Oaks project used 185 construction workers living within 50 miles of the project which means workers came from areas outside Lee County. The contractor reported that only $35,000 was spent locally to service trucks and

Given the specialized nature of the wind project construction industry and the anticipated ramp-up of construction labor (nearly 200 onsite workers needed over six months), one suspects that "mobile" construction groups move from site to site with specialized equipment who will hire local labor only to supplement their needs. Construction-period impacts estimated by Loomis appear to assume that 100 percent of direct labor needs will be sourced locally.

The references to the wind supply and the inputs summarized in Table 1 of the Loomis report are not fully justified. Is it likely that components of the wind supply chain would relocate for a project that will last six months? GG+A believes this would be unlikely, not only because of the ephemeral nature of the project but also because most firms now are seeking to exploit scale economies that yield greater returns than savings in transportation costs. Hence, absence a cluster of similar projects in the Central Illinois, there would appear to be limited business justification and little prospect for significant relocation of the supply chain.

We suspect that the "induced" economic impact estimates presented for construction and on-going operations may be overstated if the author assumed that 100 percent of wage/payroll expenditures will remain within the County. (Induced economic effects essentially relate to the re-circulation of income paid to workers, as they make personal consumption expenditures on goods and services - retail goods, healthcare, personal services, etc.). We suspect that a significant share of personal consumption (if not the majority) expenditures are likely to occur outside of Livingston County where greater concentrations of retail outlets and services are concentrated. The greater amount of retail offerings available in Bloomington, Peoria, and Kankakee/Bourbonnais can be expected to capture income spent on retail goods not readily available in Livingston County. (See page 10 of the Loomis report in which the author states "as workers receive income, they may decide to purchase more expensive clothes, ... along with other goods and services from local businesses". The author uses as another example a 'steel mill workers who provides the inputs for turbine production and spends his money in a similar fashion...'. Note Livingston County, however, does not have any steel mill workers). As another example of why the multiplier effects are likely to be misleading and overstated on page 9 of the report the author states "the banker who finances the contractor are both considered indirect impacts." However, if the contractor selected is not local and no

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vehicles. Correcting for the improper presentation of direct and indirect impacts of the JEDI model, the authors of the Shady Oaks impact analysis estimated that the ongoing operations would support 15.5 direct jobs and an additional 9 induced jobs. See http://www.goldwindamerica.com/media/2012/12/Goldwind_ShadyOaks_Economic_Impact_Study.pdf

The Economic and Fiscal Benefits of the Shady Oaks Wind Farm, May 2013, ARC Perspectives, Inc.

indication has been provided that the contractor will be local, the banker will not be local and further no indication is given that the banker will hire more bankers or otherwise stimulate demands because of financing the contractor for this project.

Nothing in the report is indicated whether wages and salaries paid to the construction groups higher or lower than average wages in the County.

The construction (one-time) and ongoing economic impact estimates presented appear to be based upon below-average capital costs and above average "local spending" share estimates.

According to the NREL JEDI Wind Model, the national average installed project cost in 2012 was approximately $1,940 per Kilowatt Hour of nameplate capacity. The author reports a total project cost (see page 1 of the report) of approximately $363 million or the equivalent about $1,494 per Kilowatt Hour. Estimated project construction costs, accordingly, are below average.

Table 1 summarizes the estimated distribution of construction expenditures and the proportion of those expenditures that would be expected to be made "locally" within a small-sized county (defined as those including population between 30,000 and 100,000 - Livingston County has a population of approximately 38,000), based upon JEDI Model default values.

TABLE 1 Estimate of Local Construction Spending Based Upon Default JEDI Model Local Share Estimates				
	Total Installed Project Cost		Local Spending[2]	
	$ Millions	% of Total[1]	% Share	$ Total
Equipment	270.0	74.6	0.0	0
Materials	56.8	15.6	8.4	4,756,367
Labor	25.3	7.0	1.9	476,933
Other / Soft	10.1	2.8	10.8	1,095,830
Total	**363.2**	**100.0**	**1.7**	**6,329,130**
[1] Represents typical distribution of capital expenditures, as estimated by the NREL. This information was not supplied in the Loomis report. [2] Local spending estimates represent JEDI Model "default values" for a "small" County containing between 30,000 and 100,000 residents.				
Sources: National Renewable Energy Laboratory, *JEDI Wind Model*; Gruen Gruen + Associates.				

About 75 percent of typical installed project costs relate to Equipment expenditures - turbines, blades, towers, etc. The default assumption in the JEDI model is that none of these dollars are likely to be spent locally. Overall, the default JEDI model assumptions are that about 1.7 percent of total capital costs would occur locally within a small-sized County. This suggests that about $6.3 million of local expenditures within Livingston County would be made. This compares to a direct local spending (i.e. output) of about $15.2 million estimated in the report (see Table 4, Page 13). No support detailing the basis for such estimates is provided in the report.

Operating and Maintenance Costs

- The default JEDI Model estimate for ongoing "personnel" expenditures for a 243 MW wind project in Illinois is $887,000 per year. The default assumption is that 100 percent of the payroll remains local. This compares to approximately $993,000 of payroll estimated in the report (see Table 3, Page 12). Personnel or payroll represents about 18 percent typical O&M expenses, according to the JEDI Model defaults.

- Material and Services are estimated to represent the remainder or about 80 percent of typical O&M expenditures. These primarily consist of Insurance costs and Replacement Parts / Equipment. Again, the default assumption of the JEDI Model is that none of these ongoing expenditures are likely to be made in a small

County. It is not clear to what extent the author's estimates include impacts associated with non-payroll O&M costs.

- The report refers to several wind energy projects of the scale proposed in Illinois; it would be important to assess the long-term employment impacts (for O&M) of these existing projects to be able to evaluate whether those estimated by the author are consistent with the actual experiences of existing comparable projects. The author, however, does not present such benchmark data.

Previously built and operating wind energy projects have not altered the economic structure or caused the economic base to increase in Livingston County and no basis is given to suggest the proposed wind energy project will significantly positively improve the economic and employment base.

Even if the undisclosed local share and multiplier estimates were reasonable, the total projected economic impacts are not significant relative to the size of the local economy. *The gross job impacts, not net, would be only ½ of one percent of the total number of jobs, while the gross income impacts would represent only a third of one percent of the County's earnings. The key point that the Loomis report did not put into context is that given the size of the County's employment and income base, the projected impacts are not significant.*

Actual employment conditions summarized in Table 2 suggest the previously built and operating wind energy projects have not generated significant positive impacts or ramped up economic development in Livingston County such as to alter the economic structure or cause the economic base to increase in Livingston County. Even if the jobs impacts associated with the previous wind energy projects did offset any job losses in other firms or economic sectors, the job impacts were not so significant to alter the structure make up and size of the County's economic base. What the review of economic and employment conditions suggest is the importance of recognizing no short-run construction project is likely to have any sustained impact and the proposed project can be expected to be no different. Long-term land use decisions should not be made based on impacts of limited duration.

TABLE 2 Livingston County Labor Force and Unemployment: 2006-2014				
Year	Labor Force #	Employed #	Unemployed #	Rate %
Avg 2006	18,776	17,951	825	4.4
Avg 2007	19,521	18,603	918	4.7
Avg 2008	19,347	18,188	1,159	6.0
Avg 2009	19,243	17,306	1,937	10.1
Avg 2010	19,156	17,127	2,029	10.6
Avg 2011	18,693	17,045	1,648	8.8
Avg 2012	18,075	16,585	1,490	8.2
Avg 2013	17,832	16,301	1,531	8.6
Current (November 2014)	17,970	16,930	1,040	5.8
Sources: Illinois Department of Employment Security; Gruen Gruen + Associates.				

According to the Illinois Department of employment Security, unemployment rates and the number of unemployed members of the labor force in Livingston County were low prior to 2008. Following the advent of the Great Recession (which officially started in December 2007 and ended in June 2009 with lingering high unemployment effects continuing particularly through 2010), unemployment rose but has since been reduced to less than six percent or 1,040 labor force members unemployed.

Table 3 of actual employment by economic sector in Livingston County suggests the existing plants have not generated substantial positive ongoing impacts or ramped up economic development through major build-up of the wind energy supply chain, or otherwise in the County. Non-farm jobs have ranged from nearly 19,000 to nearly 20,000 jobs from 2001 through 2008. Since the Great Recession non-farm jobs have declined to range from nearly 18,300 in 2009 to nearly 17,500 in 2012. Construction jobs, however, have stayed relatively stable through the entire 12 year period and manufacturing jobs have declined. Retail and wholesale trade jobs as well as administrative & waste management services jobs have also declined especially since the construction and opening of the existing wind energy projects.

TABLE 3

Historical Employment (Number of Jobs) by Industry in Livingston County: 2001-2012

	2001 #	2002 #	2003 #	2004 #	2005 #	2006 #	2007 #	2008 #	2009 #	2010 #	2011 #	2012 #
Forestry, fishing, & related activities	162	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining	76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Utilities	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	56	54
Construction	**952**	**924**	**927**	**889**	**919**	**938**	**994**	**1,025**	**993**	**960**	**963**	**960**
Manufacturing	3,403	3,178	2,904	2,812	2,820	2,921	3,065	3,041	2,271	2,049	2,278	2,337
Wholesale trade	641	629	621	632	1,061	1,040	1,065	1,093	1,040	916	879	880
Retail trade	2,488	2,392	2,511	2,487	2,489	2,381	2,460	2,283	2,262	2,157	2,087	2,072
Transportation & warehousing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	752	740
Information	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Finance & insurance	783	776	780	802	794	780	834	923	1,001	967	1,020	1,011
Real estate & rental and leasing	309	282	333	351	376	383	382	410	363	359	350	364
Professional, scientific, & technical services	433	420	424	408	436	438	481	495	482	470	468	458
Management of companies & enterprises	0	0	0	0	0	0	0	0	0	0	0	0
Administrative & waste management services	515	505	449	505	610	647	607	412	435	428	399	397
Educational services	123	131	135	142	128	132	149	150	152	164	163	154
Health care & social assistance	1,992	1,914	2,021	1,996	2,070	2,075	2,087	2,055	2,039	2,069	2,078	2,001
Arts, entertainment, & recreation	162	169	208	140	185	184	177	186	196	203	192	185

TABLE 3 Continued

Historical Employment (Number of Jobs) by Industry in Livingston County: 2001-2012

	2001 #	2002 #	2003 #	2004 #	2005 #	2006 #	2007 #	2008 #	2009 #	2010 #	2011 #	2012 #
Accommodation & food services	1,074	1,004	1,011	995	936	1,035	1,160	1,014	958	921	924	929
Other services, except public administration	1,139	NA	1,154	1,183	1,171	1,143	1,147	1,105	1,055	964	971	979
Government & government enterprises	3,268	3,227	3,057	3,011	2,943	2,915	2,843	2,815	2,766	2,636	2,579	2,533
Total Non-farm Employment	19,802	19,078	18,864	18,498	18,913	19,034	19,694	19,287	18,284	17,552	17,601	17,471

Sources: U.S. Bureau of Economic Analysis; Table CA25N: Total full-time and part-time employment by NAICS industry; Gruen Gruen + Associates.

The historical employment trends do not suggest the previous projects have ramped up economic development and produced jobs and income affects that have changed the type or scale of economic activities in the County. The author does not reference the employment make-up of the County or even consider whether and if so, how the previous wind energy developments have affected the economic base and income of County residents. The author does not explain why the predicted impacts are likely to occur given past projects do not appear to have had similar levels of impact and whatever impacts they have had have not been significant if significant means strengthening agglomeration economies and increasing the economic and employment base of the County. Again, we would note that we would not expect the multipliers of a project of this nature to have a sustained and substantial impact and to suggest otherwise is misleading.

Impacts of Transfer of Money for Use of Land for Turbines and Property Tax Revenue and Revenue to Equity Investors

The JEDI model upon Loomis relies for the potential impact relates to the transfer of money for the land. The JEDI model includes land lease revenue in the "Local Revenue and Supply Chain Impacts" during operations. While the transfer of money for the land will increase the income of the local landowner from whom the land is leased or purchased, estimating how and where this money will be used is speculative. For example, should a land owner whose property is leased spend the money received on a condominium in Naples Florida, the local Livingston County economy will not be positively impacted.

In addition to the land lease revenue, the JEDI model includes in the "Local Revenue and Supply Chain Impacts" during operations the revenue from property taxes and revenue to equity investors. The JEDI model default assumes that revenue to equity investors leaks out of the local economy but that 100 percent of property tax revenue and land lease revenue remains in the local economy. The Loomis report does not specify if these default assumptions in the JEDI model were changed or adjusted to reflect actual local conditions. The project developer Invenergy Wind Development North America LLC is headquartered in Chicago and therefore revenues to equity investors should not be considered to be captured in Livingston County. Any increase in property taxes or other local tax revenues could be offset by decline in property values or the taxes could be used in ways that do not increase local economic activity such as paying municipal debt or adding to reserves.

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