Potential Economic Losses of Reduced Tourism Attributable to Proposed Wind Turbines in Long Beach Island, NJ

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Introduction
Project Background

Atlantic Shores Offshore Wind, LLC ("Atlantic Shores") is proposing two wind turbine projects spanning more than 100,000 acres of undeveloped ocean off the shores of Long Beach Island, NJ and would represent a visual disamenity that would generate negative impacts within the economies of the affected areas of coastal New Jersey. Existing research shows that these negative impacts include reduced tourism as a result of wind turbines being visible from beaches and shores.

Tourism Economics, an Oxford Economics Company, analyzed the potential reductions in tourism (and resulting reductions in tourism spending by visitors) in Long Beach Township, Beach Haven, Ship Bottom, Barnegat Light, Surf City, and Harvey Cedars, ("the LBI Municipalities") in Ocean County. Although not included in the negative economic impacts included in this study, Tourism Economics anticipates that there would also be reductions in tourism and resulting negative economic impacts felt in Atlantic County, including in Brigantine and Ventnor City.

As part of the analysis, Tourism Economics took the following steps:

- Analyzed existing studies on visitor spending and tourism impacts in New Jersey, Ocean County, and the LBI Municipalities;
- Compiled existing research and studies on the effect of offshore wind power projects on recreational beach use in the United States and other destinations worldwide;
- Developed an economic impact model using IMPLAN data.

This document presents key elements of the research and findings. It is organized in the following sections:

1. Introduction
2. Executive summary
3. Direct impacts – Reduced visitation & visitor spending
4. Economic impact analysis
5. Methods and data sources

Tourism Economics reserves its right to supplement or amend this report based on any additional information that may come to its attention.

Executive Summary
Negative Impacts of Proposed Wind Turbines

Reductions in Visitation and Visitor Spending

The proposed wind turbines would represent visual disamenities that would generate negative impacts within the economies of the affected areas of coastal New Jersey. Existing research shows that these negative impacts include reduced tourism as a result of wind turbines being visible from beaches and shores.

Tourism Economics estimates that the wind turbines will lead to a loss of 835,000 visitors to the LBI municipalities. The reduced visitation will generate a loss of $450.2 million in reduced visitor spending with approximately 5,300 in lost jobs.

Summary Direct Economic Tourism Losses in LBI Municipalities

-835,000
Reduced Visitation to LBI Municipalities

-$450.2M
Direct Reduction in Visitor Spending

-5,300
Direct Job Loss

Tourism Economics reserves its right to supplement or amend this report based on any additional information that may come to its attention.

Total Economic Losses Attributable to Proposed Wind Turbines

The $450.2 million in reduced visitor spending will generate $668.2 million in total economic losses throughout Ocean County. The $668.2 million in total economic losses will include approximately 6,700 total lost jobs and $47.6 million in reduced state and local tax revenues.

-$668.2 MILLION
Total Economic Losses of Reduced Tourism Attributable to Proposed Wind Turbines in Long Beach Island, NJ

Summary Economic Impacts of Reduced Tourism in LBI Municipalities

-$668.2M
Total Reduced Business Sales

$112.7M

-6,700
Total Job Loss

-$47.6M
Total Reduced State & Local Taxes

Direct Impacts

Literature Review

The proposed wind turbines would represent visual disamenities that would generate negative impacts within the economies of the affected areas of coastal New Jersey. Existing research shows that these negative impacts include reduced tourism as a result of wind turbines being visible from beaches and shores.

The various studies examined the effect of wind turbines (either proposed, hypothetical, or existing turbines) on tourism in locations throughout the U.S. and worldwide. As shown below, the estimated effects of wind turbines on existing visitation vary across the existing research. Landry et al. (2012) find relatively low visitation losses for turbine projects (11%), while other studies like Voltaire et al. (2017) and Lutzyer et al. (2018) find visitation losses exceeding 50%.

Based on the range of estimated visitation losses in existing literature, Tourism Economics estimates that the potential negative effect of the proposed wind turbines will be a 25% loss of visitation to the LBI Municipalities, or a loss of 835,000 visitors.

Summary Literature Review Findings

Title	Authors	Year	Finding
The Effect of Offshore Wind Power Projects on Recreational Beach Use on the East Coast of the United States: Evidence from Contingent-Behavior Data	Parsons, P., Firestone, J., Yan, L., Toussaint, J.	2020	"29% report that they would seek out another beach or do something else (most seeking out another ocean beach). At 20-miles offshore only 10% of the respondents report that their experience would be made somewhat worse or worse and only 5% report changing trip plans."
The Impact Of Offshore Wind Farms On Beach Recreation Demand	Voltaire, L., Loureiro, M. L., Knudsen, C., & Nunes, P. A. L. D.	2017	"All scenarios combined, 51% of respondents state that they would not change their trip behaviour if an offshore wind farm was built at the beach where they were surveyed, 12.4% say they would visit the beach less, and 36.6% say they would take no trips at all."
The Effect of Wind Power Installations on Coastal Tourism	Lilley, J. Firestone & Kempton, W.	2010	"25% of the tourists would choose another beach if an offshore wind farm was installed 10km from the coast."
Wind Turbines and Coastal Recreation Demand	Landry, C., Allen, T., Cherry, T. & Whitehead, J.	2012	"Very low trip loss for wind power projects even as close at one-mile offshore (11%)"
The Amenity Costs Of Offshore Wind Farms: Evidence From a Choice Experiment	Sanja Lutzeyer, Daniel J. Phaneuf and Laura O. Taylor	2018	"Over 50 percent of those surveyed indicated they would not return to the same property for their next rental should a utility-scale wind farm be placed offshore"

Sources: as cited above

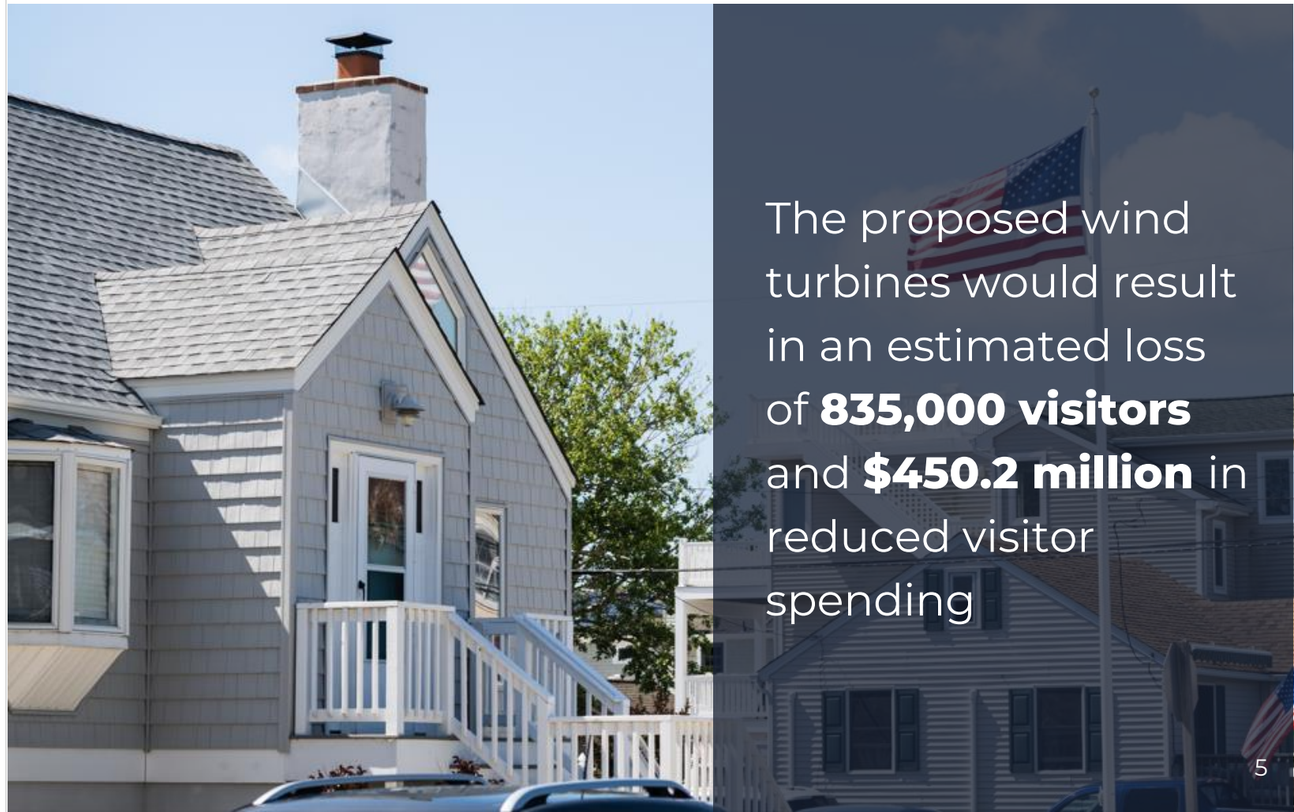
Reduced Visitation in the LBI Municipalities

Each year, Tourism Economics analyzes the impacts of the New Jersey visitor economy on behalf of VisitNJ. Based on Tourism Economics' latest report, "The New Jersey Visitor Economy 2022", Ocean County welcomed 10.3 million visitors and $5.4 billion in total visitor spending in 2022. Tourism Economics estimates that the LBI Municipalities welcomed 3.3 million visitors and $1.8 billion in visitor spending in 2022.

As previously stated, Tourism Economics estimates the proposed wind turbines will lead to a 25% loss in visitation to the LBI Municipalities. Based on Tourism Economics' estimates of visitation to the LBI municipalities in 2022, the 25% loss in visitation will translate to 835,000 visits.

-835,000 VISITS

Estimated Visitation Losses Attributable to Proposed Wind Turbines in Long Beach Island, NJ



Reduced Visitor Spending in the LBI Municipalities

The loss of 835,000 visitors to the LBI municipalities attributable to the proposed wind turbines would result in $450.2 million in reduced visitor spending. As shown below, the $450.2 million in lost visitor spending would include $162.4 million on lodging (including hotels, motels, and short-term rentals), $131.2 million in food and drink purchases, $95.2 million in retail purchases, $38.3 million in entertainment and recreation purchases, and $23.1 million on transportation (including ride shares, taxis, parking, gasoline, and ground transportation).

-$450.2 MILLION

Reduced Visitor Spending Attributable to Proposed Wind Turbines

Source: Tourism Economics

Economic Impacts Methodology

Tourism Economics estimated the economic impacts of reduced visitor spending (attributable to the proposed wind turbines) using regional Input-Output (I-O) model based on a customized IMPLAN (www.implan.com) models for the economy of Ocean County. IMPLAN is recognized as an industry standard in local-level I-O models.

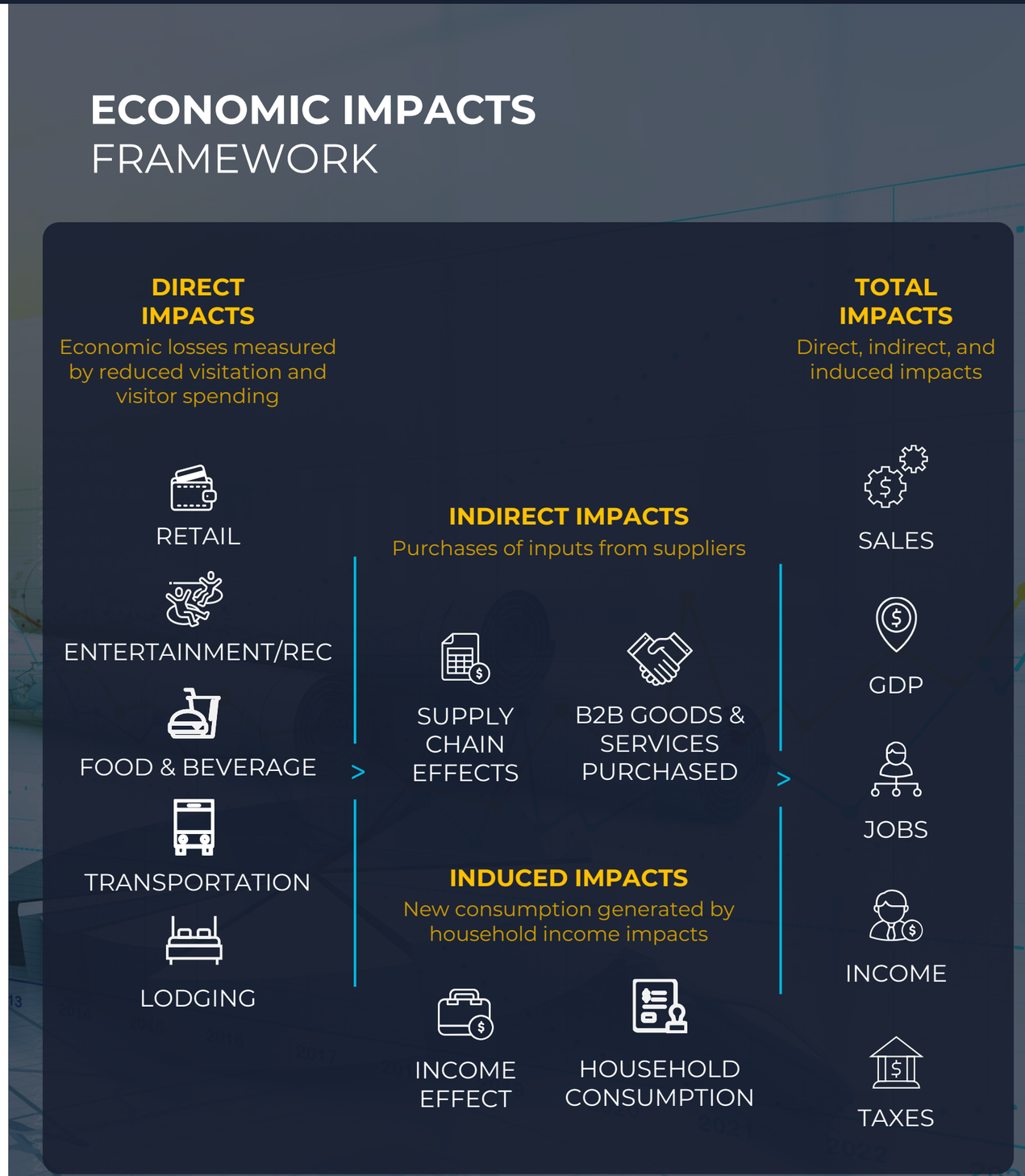
An I-O model represents a profile of an economy by measuring the relationships among industries and consumers to track the flow of industry revenue to wages, profits, capital, taxes and suppliers. The supply chain is traced as dollars flow through the economy, representing indirect impacts. The model also calculates the induced impacts of spending. Induced impacts represent benefits to the economy as incomes earned as a result of direct spending are spent in the local economy, generating additional sales, jobs, taxes, and income.

The modeling process begins with aligning the direct expenditure measurements with the related sectors in the model (e.g. hotels, restaurants, retail, and recreation). The model is then run to trace the flow of these expenditures through the economy. In this process, the inter-relationships between consumers and industries generate each level of impact.

IMPLAN calculates three levels of impact – direct, indirect, and induced – for a broad set of indicators.

These include the following:

- Business sales (also called gross output)
- Household income (including wages and benefits)
- Employment
- Federal taxes
- State and local taxes



Economic Impacts
Reduced Business Sales by Industry

The proposed wind turbines will generate an estimated $668.2 million in reduced economic activity.

The $450.2 million in reduced visitor spending will generate $119.7 million in reduced indirect expenditures (purchases of inputs from suppliers) and $98.3 million in reduced induced expenditures (consumption generated by household income impacts), resulting in a total economic loss of $668.2 million in Ocean County.

The total economic impact (losses) of $668.2 million in Ocean County will include $169.5 million in total lost labor income and an associated job loss of 6,729 total full-time and part-time jobs.

Summary Economic Losses
($ millions and number of full-time and part-time jobs)

	Direct Impacts	Indirect Impacts	Induced Impacts	Total Impacts
Reduced economic output (business sales)	$450.2	$119.7	$98.3	$668.2
Labor income losses	$119.1	$25.9	$24.4	$169.5
Job losses	5,339	749	642	6,729

Source: Tourism Economics

Note: totals may not sum due to rounding.

Summary Economic Impacts (Losses)

-$450.2M Reduced Visitor Spending + **-$119.7M** Indirect Business Sales (Losses) + **-$98.3M** Induced Business Sales (Losses) = **-$668.2M** Total Economic Impact (Losses)

ECONOMIC IMPACTS (LOSSES)
REUCED BUSINESS SALES BY INDUSTRY ($ MILLIONS)

	Direct Business Sales	Indirect Business Sales	Induced Business Sales	Total Business Sales
Total, all industries	**$450.2**	**$119.7**	**$98.3**	**$668.2**
By industry				
Lodging	$162.4	$0.0	$0.0	$162.4
Food & Beverage	$131.2	$10.2	$7.3	$148.7
Retail Trade	$95.2	$2.4	$8.4	$106.0
Finance, Insurance and Real Estate	$0.0	$33.1	$33.7	$66.9
Business Services	$0.0	$32.4	$7.7	$40.1
Recreation and Entertainment	$38.3	$0.7	$1.1	$40.1
Construction and Utilities	$0.0	$17.6	$4.3	$21.9
Education and Health Care	$0.0	$0.2	$19.6	$19.7
Gasoline Stations	$17.3	$0.1	$0.6	$18.0
Other Transport	$5.8	$3.0	$1.7	$10.5
Personal Services	$0.0	$2.9	$6.2	$9.1
Wholesale Trade	$0.0	$4.6	$3.1	$7.7
Communications	$0.0	$5.5	$1.9	$7.5
Government	$0.0	$3.8	$1.4	$5.2
Manufacturing	$0.0	$2.6	$1.1	$3.7
Agriculture, Fishing, Mining	$0.0	$0.4	$0.1	$0.5
Air Transport	$0.0	$0.0	$0.1	$0.1

Source: Tourism Economics

Note: totals may not sum due to rounding.

Economic Impacts
Employment Losses by Industry

The proposed wind turbines will generate an estimated job loss of 6,729 part-time and full-time jobs.

Economic Impacts of Proposed Wind Turbines
Employment Losses by Industry (number of full-time and part-time jobs)

	Direct Employment	Indirect Employment	Induced Employment	Total Employment
Total, all industries	**5,339**	**749**	**642**	**6,729**
By industry				
Food & Beverage	2,036	147	94	2,277
Lodging	1,975	0	0	1,975
Retail Trade	715	21	79	815
Recreation and Entertainment	537	11	18	566
Business Services	0	232	57	289
Finance, Insurance and Real Estate	0	192	83	275
Education and Health Care	0	2	185	187
Other Transport	41	31	20	92
Personal Services	0	22	67	88
Gasoline Stations	35	1	5	41
Government	0	27	7	34
Construction and Utilities	0	24	8	31
Wholesale Trade	0	18	11	30
Communications	0	13	5	17
Manufacturing	0	6	1	8
Agriculture, Fishing, Mining	0	3	1	3
Air Transport	0	0	0	0

Source: Tourism Economics

Note: totals may not sum due to rounding.

Economic Impacts
Labor Income Losses by Industry

The proposed wind turbines will generate an estimated $169.5 million in reduced labor income.

Economic Impacts of Proposed Wind Turbines
Labor Income Losses by Industry ($ millions)

	Direct Labor Income	Indirect Labor Income	Induced Labor Income	Total Labor Income
Total, all industries	**$119.1**	**$25.9**	**$24.4**	**$169.5**
By industry				
Food & Beverage	$41.4	$4.2	$2.6	$48.1
Lodging	$47.5	$0.0	$0.0	$47.5
Retail Trade	$13.0	$0.7	$2.5	$16.1
Recreation and Entertainment	$14.5	$0.2	$0.3	$15.0
Business Services	$0.0	$9.7	$2.4	$12.1
Education and Health Care	$0.0	$0.1	$9.6	$9.7
Finance, Insurance and Real Estate	$0.0	$2.2	$1.7	$3.9
Personal Services	$0.0	$1.0	$2.4	$3.4
Government	$0.0	$2.6	$0.6	$3.3
Other Transport	$1.8	$0.9	$0.5	$3.1
Construction and Utilities	$0.0	$2.4	$0.6	$3.0
Wholesale Trade	$0.0	$1.1	$0.7	$1.7
Gasoline Stations	$1.0	$0.0	$0.1	$1.1
Communications	$0.0	$0.5	$0.2	$0.8
Manufacturing	$0.0	$0.4	$0.1	$0.4
Agriculture, Fishing, Mining	$0.0	$0.0	$0.0	$0.0
Air Transport	$0.0	$0.0	$0.0	$0.0

Source: Tourism Economics

Note: totals may not sum due to rounding.

Fiscal Impacts
Tax Generation

The proposed wind turbines will generate an estimated $80.3 million in reduced state and local tax revenues.

The reduced economic activity attributable to visitation losses to the LBI Municipalities will generate $145.3 million in reduced federal and state and local tax revenues.

Total reduced federal tax revenues will amount to $65.0 million, while total reduced state and local taxes will amount to $80.3 million. Reduced state and local tax revenues will include $22.5 million in reduced sales tax revenue, $7.1 million in reduced personal income tax revenue, $2.5 million in reduced corporate taxes, $2.8 million in reduced excise and fees, and $44.8 million in reduced property tax revenues.

FISCAL IMPACTS
LOST TAX REVENUES ($ MILLIONS)

	Direct Taxes	Indirect & Induced Taxes	Total Taxes
Total Taxes	**$57.7**	**$87.6**	**$145.3**
Federal	**$24.9**	**$40.0**	**$65.0**
Personal income	$12.4	$18.2	$30.6
Corporate	$1.2	$2.1	$3.3
Social insurance	$9.9	$17.7	$27.6
State and Local	**$32.7**	**$47.6**	**$80.3**
Sales	$9.2	$13.3	$22.5
Personal income	$2.9	$4.2	$7.1
Corporate	$0.9	$1.6	$2.5
Excise and fees	$1.2	$1.7	$2.8
Property	$18.3	$26.4	$44.8

Source: Tourism Economics

Note: totals may not sum due to rounding.

Methods and Data Sources

Glossary – Economic Impact Definitions

Term	Description
Direct Impact	Impacts (business sales, jobs, income, and taxes) created directly from spending by visitors to a destination within a discreet group of tourism-related sectors (e.g. recreation, transportation, lodging).
Indirect Impact	Impacts created from purchase of goods and services used as inputs (e.g. food wholesalers, utilities, business services) into production by the directly affected tourism-related sectors (i.e. economic effects stemming from business-to-business purchases in the supply chain).
Induced Impact	Impacts created from spending in the local economy by employees whose wages are generated either directly or indirectly by visitor spending.
Employment	Jobs directly and indirectly supported by visitor activity (includes part-time and seasonal work). One job is defined as one person working at least one hour per week for fifty weeks during the calendar year.
Labor income	Income (wages, salaries, proprietor income and benefits) supported by visitor spending.
Local Taxes	City and County taxes generated by visitor spending. This includes any local sales, income, bed, usage fees, licenses and other revenues streams of local governmental authorities – from transportation to sanitation to general government.
State Taxes	State tax revenues generated by visitor spending. This will include sales, income, corporate, usage fees and other assessments of state governments.

IMPLAN Economic Impact Model

An IMPLAN model was compiled for Ocean County, NJ. This traces the flow of visitor-related expenditures through the local economy and their effects on employment, wages, and taxes. IMPLAN also quantifies the indirect (supplier) and induced (income) impacts of tourism. Tourism Economics then cross-checks these findings with employment and wage data for each sector to ensure the findings are within reasonable ranges.

About the Research Team

TOURISM ECONOMICS
AN OXFORD ECONOMICS COMPANY

Oxford Economics was founded in 1981 as a commercial venture with Oxford University's business college to provide economic forecasting and modelling to UK companies and financial institutions expanding abroad. Since then, we have become one of the world's foremost independent global advisory firms, providing reports, forecasts and analytical tools on 200 countries, 100 industrial sectors and over 3,000 cities. Our best-of-class global economic and industry models and analytical tools give us an unparalleled ability to forecast external market trends and assess their economic, social and business impact.

Oxford Economics is an adviser to corporate, financial and government decision-makers and thought leaders. Our worldwide client base comprises over 2,000 international organizations, including leading multinational companies and financial institutions; key government bodies and trade associations; and top universities, consultancies, and think tanks.

This study was conducted by the Tourism Economics group within Oxford Economics. Tourism Economics combines an understanding of traveler dynamics with rigorous economics in order to answer the most important questions facing destinations, investors, and strategic planners. By combining quantitative methods with industry knowledge, Tourism Economics designs custom market strategies, destination recovery plans, forecasting models, policy analysis, and economic impact studies.

Oxford Economics employs 400 full-time staff, including 250 professional economists and analysts. Headquartered in Oxford, England, with regional centers in London, New York, and Singapore, Oxford Economics has offices across the globe in Belfast, Chicago, Dubai, Miami, Milan, Paris, Philadelphia, San Francisco, and Washington DC.

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