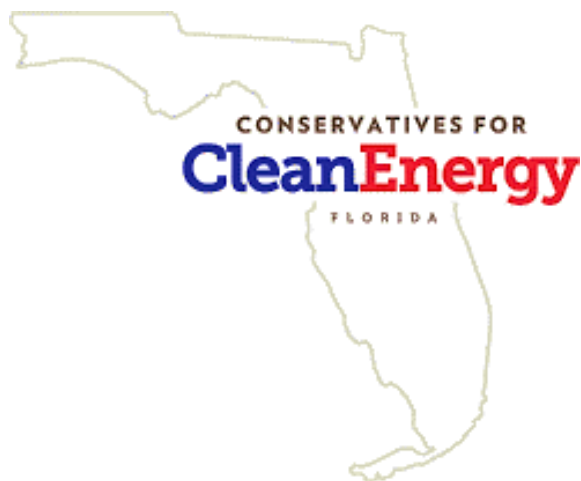


## **The Comprehensive Economic Development Impacts of the Rooftop Solar Power Industry on the State of Florida**

Submitted to:



November 2021

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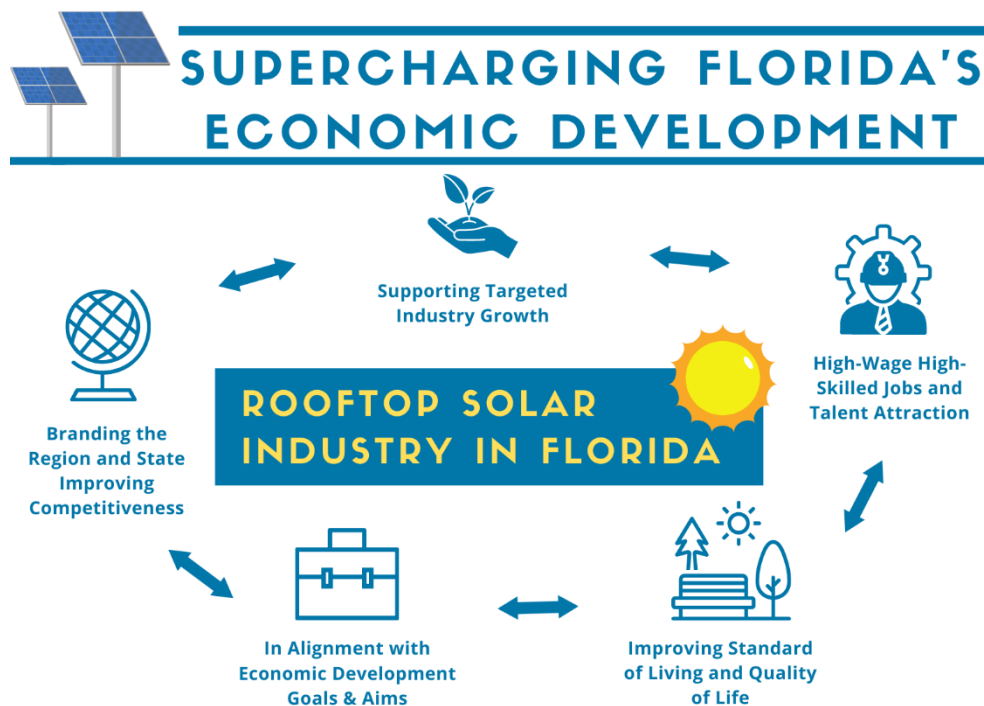
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## I. Executive Summary

- The Rooftop Solar Power Industry in Florida is a catalyst for the State's sustainable economic development, according to The Washington Economics Group, Inc. (WEG) Comprehensive Economic Development Impact Study. WEG was retained by Conservatives for Clean Energy to analyze the economic development impacts of the Industry on the State of Florida's economy.
- The **Qualitative Section** that follows this Executive Summary dives deep into the multifaceted and growing qualitative benefits of the Rooftop Solar Power Industry activities as a whole. These additional positive impacts, so-called "externality benefits," go well-beyond the quantification of economic impacts on Jobs supported, Household Income, Gross Domestic Product (GDP) and other economic indicators that are presented in this Study.
- The multifaceted "externality benefits" of the Rooftop Solar Power Industry are visualized in the Matrix below.



- In addition to the above externality benefits, the Florida Rooftop Solar Power Industry's growing operations generate significant **quantifiable economic impacts** throughout Florida. The quantifiable economic impacts generate high-wage

employment for Florida residents and important contributions to Household Income each year, among other economic impacts. Section III of the Study analyzes these economic impacts in greater detail and are summarized in Table ES-1 below.

**Table ES-1. Summary of the Annual Economic Impacts Generated in Florida by the Ongoing Operations of the Rooftop Solar Power Industry (by Impact Type)**

<b>Impact on:</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total Impact</b>
Employment (Jobs)	8,907	15,774	15,781	<b>40,462</b>
Household Income (\$ Million)	\$1,331	\$1,114	\$735	<b>\$3,179</b>
GDP (Value Added - \$ Million)	\$6,488	\$2,746	\$1,375	<b>\$10,609</b>
Federal, State & Local Tax Revenues (\$ Million)	---	---	---	<b>\$3,257</b>
Total Economic Impact (\$ Million)	\$10,730	\$5,166	\$2,426	<b>\$18,322</b>

Note: Total may not equal the sum of all due to rounding.

Source: The Washington Economics Group, Inc. (WEG)

- The large annually recurring economic impacts make the Florida Rooftop Solar Power Industry a top contributor to the State economic activity and a major source of job opportunities statewide:
  - **\$18.3 billion in Total Economic Impact**
  - **40,462 Employment (Jobs) supported**
  - **\$3.2 billion in Household Income to Florida workers**
  - **\$10.6 billion in contribution to Gross Domestic Product**
  - **\$3.3 billion in Federal, State and Local Tax Revenues**
  
- **It is critical to highlight that those jobs and industries positively impacted by the Rooftop Solar Power Industry are concentrated in the Knowledge-Based Services sectors such as High-Tech Manufacturing, Professional Business Services, Information Technology (IT) and others.** These are higher wage jobs relative to the State average, and supportive of Florida's Strategic Plan for Economic Development.

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The **direct** employment figures within the economic impact tables do not necessarily equal the total full-time equivalent (FTEs). This is due to the IMPLAN input/output (I/O) methodology, which measures **real** (inflation-adjusted) economy-wide impacts based on average wages of the industry and productivity within the given study area.

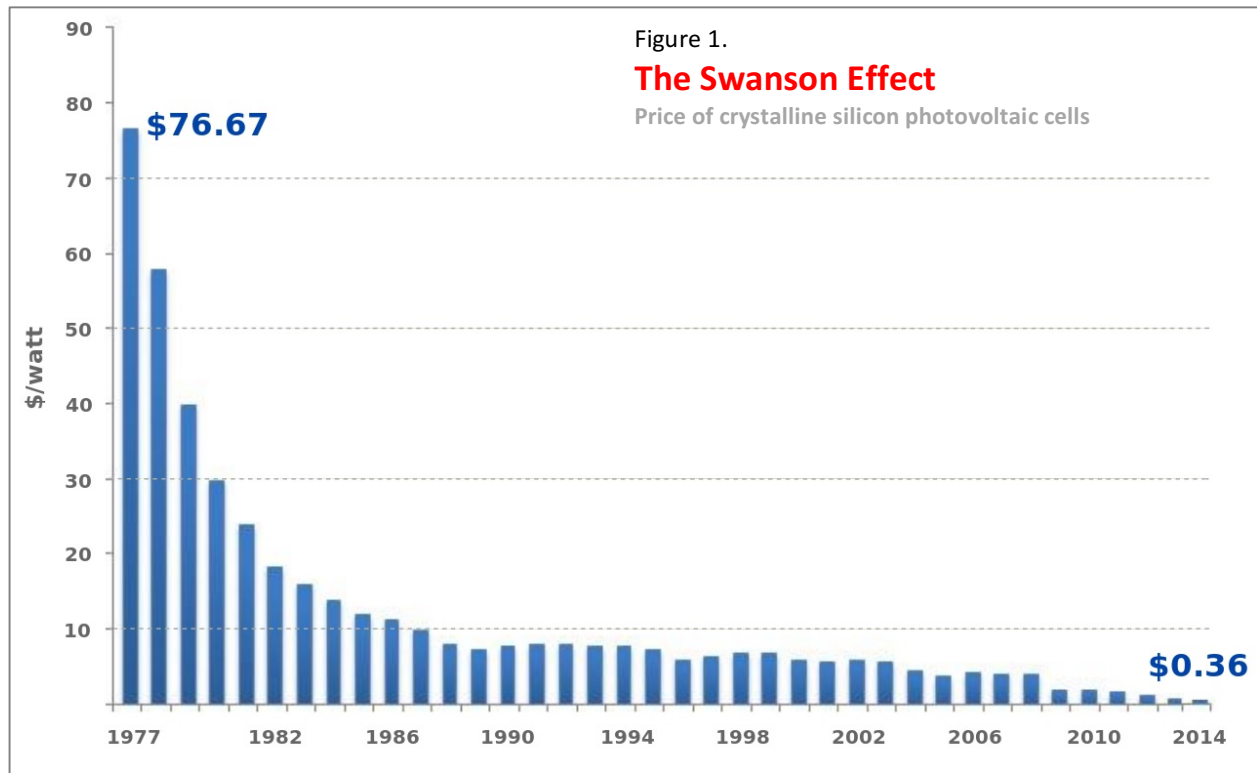
## II. Supercharged: How the Sunshine State's Rooftop Solar Power Industry Supports Florida's Economic Development

The Rooftop Solar Industry in Florida is an important catalyst for the State's sustainable economic development. This **qualitative assessment** section of this Study by The Washington Economics Group, Inc. (WEG) highlights the economic development benefits of the Rooftop Solar Power Industry in Florida. WEG was retained by Conservatives for Clean Energy to analyze both the quantitative and qualitative economic impacts of the Industry on the State of Florida's economy. While the following Section III will present the quantifiable economic impacts of the Rooftop Solar Power Industry in the State, this section dives deep into the multifaceted and growing qualitative benefits of the Rooftop Solar Industry's activities as a whole. These additional positive impacts, so called "externality benefits," go well beyond what can be quantified, and they address the growing significance of the Rooftop Solar Industry's impact on improving the standard of living of all residents through clean and reliable energy for sustainable economic growth.

As Florida continues to grow and diversify its economy, it is imperative that the State embrace and adopt renewable energy sources to meet burgeoning demand. The Rooftop Solar Industry in Florida delivers on this need and supports high-wage, high-skilled employment in doing so. As an innovative leader in renewable energy delivery, Rooftop Solar Power is critical for sustainable economic growth as Floridians move into the third decade of the 21<sup>st</sup> Century. Furthermore, the Rooftop Solar Power Industry in Florida plays a foundational role in advancing the existing Florida Strategic Plan for Economic Development. By aligning with the existing efforts and interests of stakeholders, policymakers and community leaders in Florida, the economic impacts of the Rooftop Solar Power Industry ripples beyond what can be quantified utilizing the professionally accepted Input/Output (I/O) Methodology.

While technically humans have harnessed the energy and power of the sun for millennia, the first photovoltaic (PV) cell was invented in 1954. In 1973, the University of Delaware was responsible for creating the first "solar residence" providing energy to a building on campus called Solar One with support from Delmarva Power and Light Co.

Since that time, the price of photovoltaic cells has plummeted with the phenomena being dubbed "Swanson's effect." This effect means that costs of PV cells go down roughly 75 percent every 10 years, and the evidence is illustrated in Figure 1 on the next page.



Source: Bloomberg, New Energy Finance and pv.energytrend.com

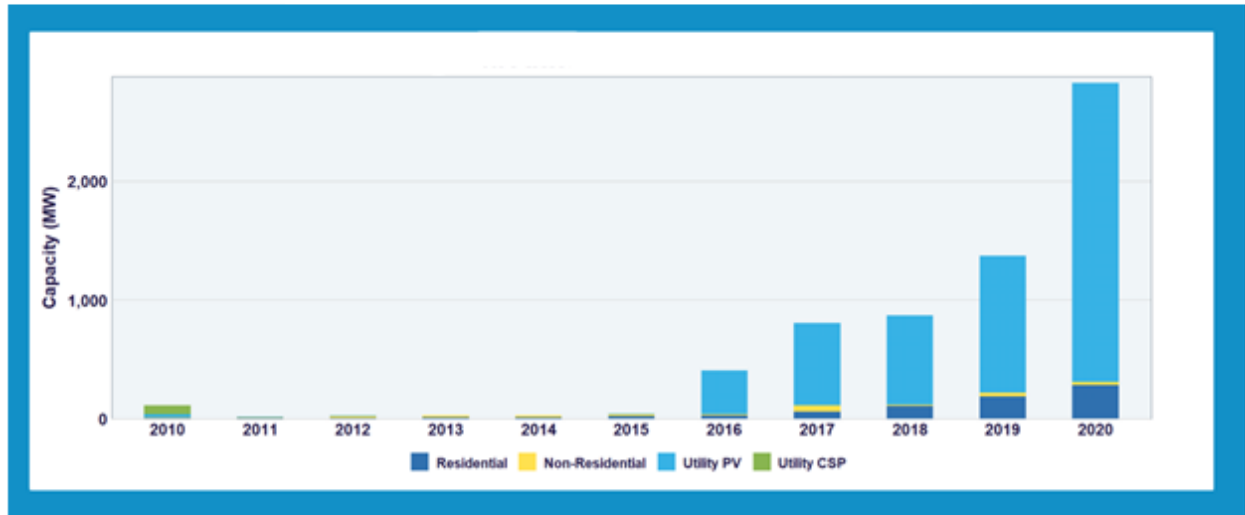
Florida, the Sunshine State, has a good opportunity for continued Rooftop Solar development and growth. Already a mushrooming industry, the Florida Rooftop Solar Power Industry is robust and growing. According to the Solar Energy Industries Association (SEIA), Florida is ranked 4<sup>th</sup> for Solar Energy (dropping slightly from the 3<sup>rd</sup> spot in 2020). Here are some other key facts for the State from SEIA:

- ❖ National Ranking: **4<sup>th</sup> (3<sup>rd</sup> in 2020)**
- ❖ State Homes Powered by Solar: **780,586<sup>1</sup>**
- ❖ Percentage of State's Electricity from Solar: **3.03%**
- ❖ Solar Businesses in Florida: **414 (66 Manufacturers, 209 Installers/Developers and 139 Others)**
- ❖ Growth Projection: **12,042 MW over the next 5 Years (ranks 3<sup>rd</sup> most among all US States)**

<sup>1</sup>Data comes from the utility scale solar farms and rooftop systems.

Florida's 80,997 total solar installations has supported 8,907 jobs. While the Rooftop Solar Power Industry is a fraction of the overall Solar economy in Florida, it is growing and will be an important future contributor for sustained economic growth. (See Figure 2 below).

Figure 2. Florida Annual Solar Installations



Source: Solar Energy Industries Association (SEIA).

From an economic development perspective, the growing Rooftop Solar Power Industry of Florida is significant because it supports high-wage, high-skilled employment. Solar manufacturers, installers, wholesalers/traders, and technicians pay higher-than-average wages. As Florida seeks to diversify away from an over concentration in the hospitality and tourism industry, the Rooftop Solar Power Industry is a good place to focus the State's efforts. Already, policymakers and community leaders have taken notice and made the Rooftop Solar Power Industry a priority for future economic development. From 2018 to 2019, there was a 17.8 percent increase in job creation from the solar industry in Florida<sup>2</sup>. With growth in the higher wage higher skilled labor pool of the State, Florida residents ultimately benefit by improving the standard of living and quality of life.

*"Removing restrictions on leased solar systems has encouraged small-scale solar growth in Florida. In 2020, small-scale solar capacity in Florida grew 57 percent, increasing from 492 MW in 2019 to 773 MW."<sup>3</sup>*

Source: U.S. Energy Information Administration (EIA),

<sup>2</sup>The Solar Foundation, State Solar Jobs Census: <https://www.thesolarfoundation.org/solar-jobs-census/states/>

<sup>3</sup><https://www.eia.gov/todayinenergy/detail.php?id=46996>





One such anecdotal example of how the Rooftop Solar Power Industry has a positive impact on Florida's economy can be seen in the story of Steve Rutherford. Steve is a service-disabled veteran who served 22 years in the Navy SEALs. After serving in Iraq to bring freedom abroad, Steve came home to Florida and started a company to help his neighbors achieve energy freedom. For the past 9 years, Steve's

company, Tampa Bay Solar, has employed 30 people across Central Florida, a third of whom are veterans. Tampa Bay Solar is just one example of many across the Sunshine State. While Florida has done well recently in growing its Rooftop Solar Power Industry footprint (such as with Steve's company Tampa Bay Solar), the State has opportunities for growth moving forward.

According to the National Renewable Energy Laboratory (NREL), researchers foresee Florida's solar power is projected to meet up to 30 percent of Florida's total electricity needs over the next 10 years, depending on the prices of other electricity sources, such as natural gas and other market conditions. Elaine Hale, the lead author of the Study, said that the percentage could go even higher, depending on how and whether future State policymakers calculate the climate costs of fossil-fueled energy<sup>4</sup>.

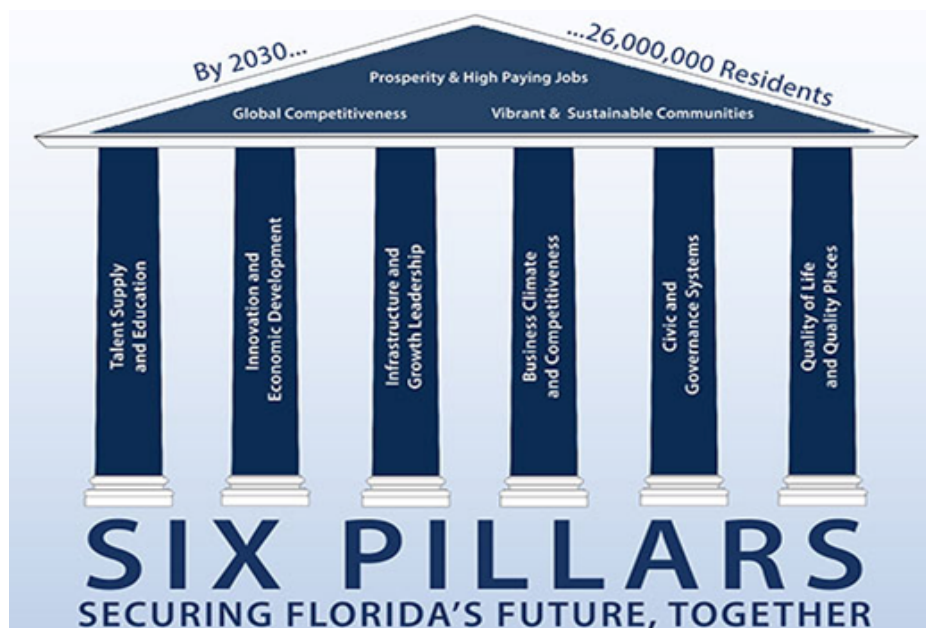
Upon Analyzing the Rooftop Solar Power Industry in Florida, it is important to see how well the industry aligns its efforts with existing economic development efforts by policymakers and community leaders. According to the Florida Foundation's Six Pillars, the Rooftop Solar Power Industry directly supports most of the important economic development strategies of the State. These include:

- Innovation and Economic Development
- Infrastructure and Growth Leadership
- Business Climate and Competitiveness
- Quality of Life and Quality Places

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<sup>4</sup>From 2018 <https://www.osti.gov/biblio/1457670>

The operational and growth-oriented activities of Florida's Rooftop Solar Power Industry are in direct alignment with Florida's Strategic Plan for Economic Development. By supporting Florida's economic pillars, the Rooftop Solar Power Industry creates a synergistic effect where economic development outcomes are affected more profoundly than they would be had there not been supportive industries such as Rooftop Solar Power.



Sources: Florida Chamber Foundation and Enterprise Florida, Inc.

According to Enterprise Florida, the State's Economic Development Organization, Cleantech is one of Florida's most important and major industries. Rooftop Solar contributes significantly to a robust and targeted Cleantech Industry in the State.

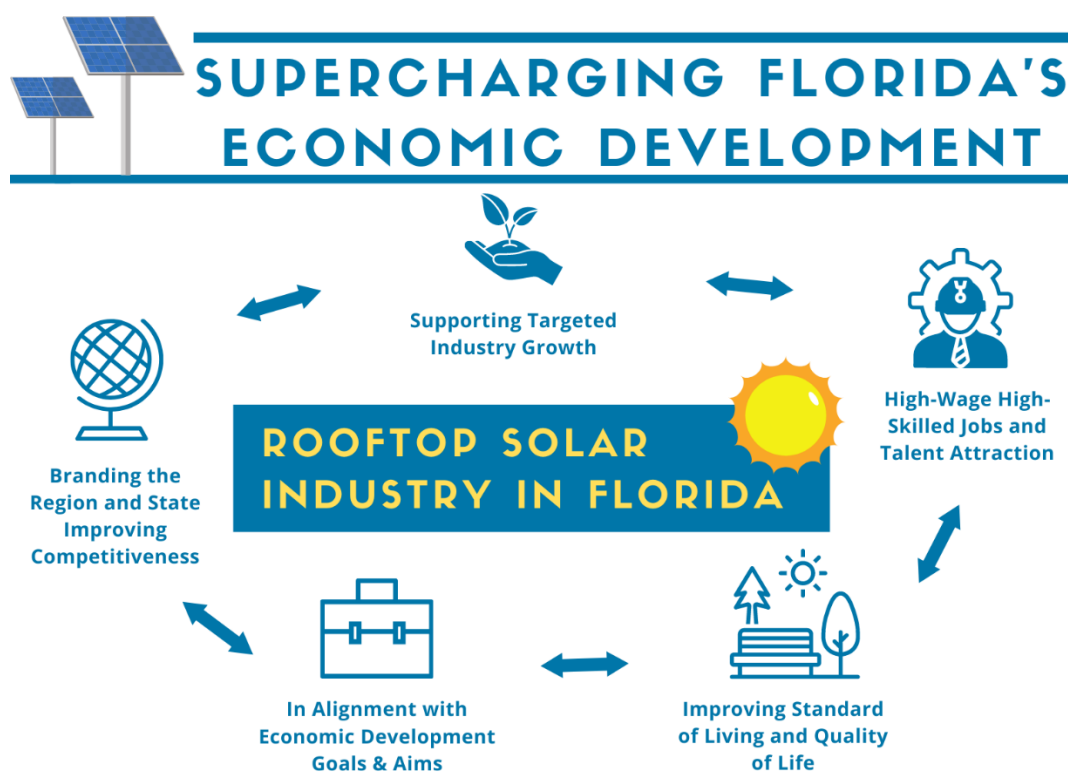
*"Floridians understand the undeniable link between sustainability and the economy and are harnessing innovation and the state's strong entrepreneurial spirit to build one of the nation's leading clean technology hubs. And whether your focus is ocean energy or green architecture, you'll find an established industry presence across the cleantech spectrum in Florida."<sup>5</sup>*

The Rooftop Solar Power's businesses are included in the over 11,750 Cleantech companies established in the Sunshine State. According to the Cleantech Industry Profile, Solar Power is an area of excellence for the State and is used in marketing materials to attract and retain

<sup>5</sup><https://www.enterpriseflorida.com/industries/cleantech/>

businesses and corporations from around the world<sup>6</sup>. For example, JinkoSolar Holding Co., Ltd. partnership with Next Era Energy. Based in Shanghai, Jinko partnered with Florida's utility company to supply them with *"up to 2,750 megawatts of high-efficiency solar modules — roughly 7 million solar panels — over approximately four years."* Jinko opened a manufacturing facility in Jacksonville to make these panels thus creating jobs and furthering Florida's cleantech industry profile<sup>7</sup>.

Upon further assessment, it is important to analyze how the Rooftop Solar Power Industry in Florida creates a virtuous cycle that further enhances sustainable economic growth and expansion. This can be visualized in the Matrix below.



Clearly, Florida Rooftop Solar Power Industry is a targeted and supported industry. The Industry's commitment to excellence is used in branding materials to support the attraction and retention of companies around the State. Further, the Industry employs high-wage and high-skilled labor, a top priority for elected officials and policymakers from around Florida. In alignment with these policy aims and goals, Rooftop Solar Power in Florida becomes then

<sup>6</sup><https://www.enterpriseflorida.com/wp-content/uploads/cleantech-industry-profile.pdf>

<sup>7</sup><https://jinkosolar.us/press/nextera-energy-and-jinkosolar-announce-deal-for-millions-of-solar-panels-jinkosolar-to-begin-manufacturing-solar-panels-in-florida/>

an essential element in sustainable economic development for Florida for the present and the future. It is therefore mission critical to continue to support the Industry as the Rooftop Solar Power Industry then supports rising standards of living and higher quality of lives for all residents in the Sunshine State.

In conclusion, the Rooftop Solar Power Industry's importance for the continued sustained growth and diversification of the Florida economy cannot be stressed enough. By supporting the existing economic development efforts of the State and aligning its efforts with policymakers and stakeholders, the Rooftop Solar Power Industry supports high-wage and high-skilled jobs that directly contribute to increase the standard of living for Florida residents. As the Industry continues to grow, Florida residents will benefit tremendously, far more than can accurately be quantified and as found in the following Section of this Study.





### III. The Annually Recurring Economic Impacts of the Rooftop Solar Power Industry's Ongoing Operations Contribute Significantly to the Economic Well-Being of Florida

The ongoing operations of the Rooftop Solar Power Industry in Florida are significant and growing, resulting in employment opportunities for local residents throughout the State. The Industry's activities increase the State's Gross Domestic Product (GDP), leading to greater economic productivity through economies of scale and agglomeration, and through additional operating revenues of business establishments within Florida that provide this Industry with a variety of goods and services.

The IMPLAN Group, LLC. (IMPLAN) developed the software and basic data needed to formulate the economic multiplier model used for this Study. IMPLAN has been providing economic multiplier models for regional economic impact analysis since 1985<sup>8</sup>. Models developed using IMPLAN software have been widely used by private-sector, academic economists, and by Federal, State and Local government agencies to measure the impacts of specific economic activities. **All impacts are estimated on a recurring annual basis** and were based on Florida industry employment of 8,907 for 2019<sup>9</sup>.

#### IMPLAN Methodology

Economic models that explicitly account for inter-industry linkages (supply relationships), the generation of labor and capital income and the spending of household income have been used since the 1960's to estimate the contribution that a particular business or industry makes to the general economy. These "input-output" models recognize that as an industry experiences an increase in the demand for its products or services, it in turn needs more goods and services from its suppliers and must increase its purchases from other industries in the economy. The effect on regional production resulting from successive rounds of inter-industry linkages is referred to as the *indirect effect*. The resulting increases in regional production also lead to expansions in employment and household income, and the increases in labor income lead to increases in consumer spending, further expanding sales and production throughout the regional economy. The latter economic impacts are referred to as the *induced effects*. The successive waves of production, spending and more production result in *economic multiplier effects*, where the final or total increase in regional production, income and employment, respectively is larger than the initial (or "direct") increase in production, income and employment. The total quantitative economic contribution of these activities, therefore, is comprised of a *direct effect*, an *indirect effect* and an *induced effect*.

<sup>8</sup>Information on the IMPLAN Group, LLC models and the company history can be found at [www.implan.com](http://www.implan.com).

<sup>9</sup>The Solar Foundation 10<sup>th</sup> Annual National Solar Jobs Census 2019, February 2020 <http://www.SolarJobsCensus.org>

The following Section presents the summary of the economic impacts generated by the ongoing operations of the Florida Rooftop Solar Power Industry in the Florida economy in terms of Employment (Jobs), Household Income, Gross Domestic Product (GDP), Total Economic Impact and Federal, State & Local Fiscal Revenues.

#### **A. The Rooftop Solar Power Industry is an Important Contributor to Overall Economic Growth and the Well-Being of Florida Residents**

The Rooftop Solar Power Industry’s growing operations generate significant quantifiable economic impacts throughout Florida. The Industry has a significant \$18 billion impact on Florida annually. This impact encompasses 40,462 jobs supported, over \$3 billion in Household Income, more than \$10 billion contribution to State Gross Domestic Product annually and over \$3 billion in Federal, State and Local tax revenues generated each year. These large impacts, summarized in Table 1 below, make the Rooftop Solar Power Industry a top contributor to State economic activity and a major source of job opportunities statewide.

**Table 1. Summary of the Annual Economic Impacts Generated in Florida by the Ongoing Operations of the Rooftop Solar Power Industry (by Impact Type)**

<b>Impact on:</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total Impact</b>
Employment (Jobs)	8,907	15,774	15,781	<b>40,462</b>
Household Income (\$ Million)	\$1,331	\$1,114	\$735	<b>\$3,179</b>
GDP (Value Added - \$ Million)	\$6,488	\$2,746	\$1,375	<b>\$10,609</b>
Federal, State & Local Tax Revenues (\$ Million)	---	---	---	<b>\$3,257</b>
<b>Total Economic Impact (\$ Million)</b>	<b>\$10,730</b>	<b>\$5,166</b>	<b>\$2,426</b>	<b>\$18,322</b>

Note: Total may not equal the sum of all due to rounding.

Source: The Washington Economics Group, Inc. (WEG)

The ongoing operations generate economic impacts that extend beyond those *directly* related to the activities of the Rooftop Solar Power Industry throughout the State of Florida. These “spillover” or multiplier impacts are the result of each business activity’s supply relationships with other firms operating within the State economy, the proportion of business value added<sup>10</sup> that accrues to households in the form of labor and capital income and the propensity of households to spend income on goods produced within the local area.

The **direct** employment figures within the economic impact tables do not necessarily equal the total full-time equivalent (FTEs). This is due to the IMPLAN input/output (I/O) methodology, which measures **real** (inflation-adjusted) economy-wide impacts based on average wages of the industry and productivity within the given study area.

<sup>10</sup>“Value added” refers to the difference between business revenues and the cost of non-labor and non-capital inputs used to produce goods and/or services.

The *direct*, *indirect* and *induced* economic impacts of the Florida Rooftop Solar Power Industry were calculated using an extended *input-output* model of the Florida economy.

The following analysis presents the economic impacts on Employment (Jobs), Household Income, Gross Domestic Product (GDP) and Total Economic Impact by specific industries, as well as Fiscal Revenues generated from the operations of the Florida Solar Power Industry.

## B. An Estimated 40,462 Jobs are Supported Throughout Florida by the Ongoing Operations of the Rooftop Solar Power Industry

The operations of the Rooftop Solar Power Industry create 40,462 jobs in Florida. Just over 22 percent or 8,907 of the total employment supported are the *direct* jobs at firms in the

***Therefore, the total number of jobs directly, indirectly and induced supported by the operations of the Rooftop Solar Power Energy is estimated at 40,462 – making a significant contribution to employment opportunities in the State of Florida.***

industry; and 31,555 jobs result from *indirect* and *induced* impacts as the Industry's operations and spending filter through the State economy (Table 1, page 11). Approximately 44 percent or over 17,970 occurs in the Knowledge-Based Services

sector that requires workers with high productivity skills achieved through post-secondary degrees and continuous training.

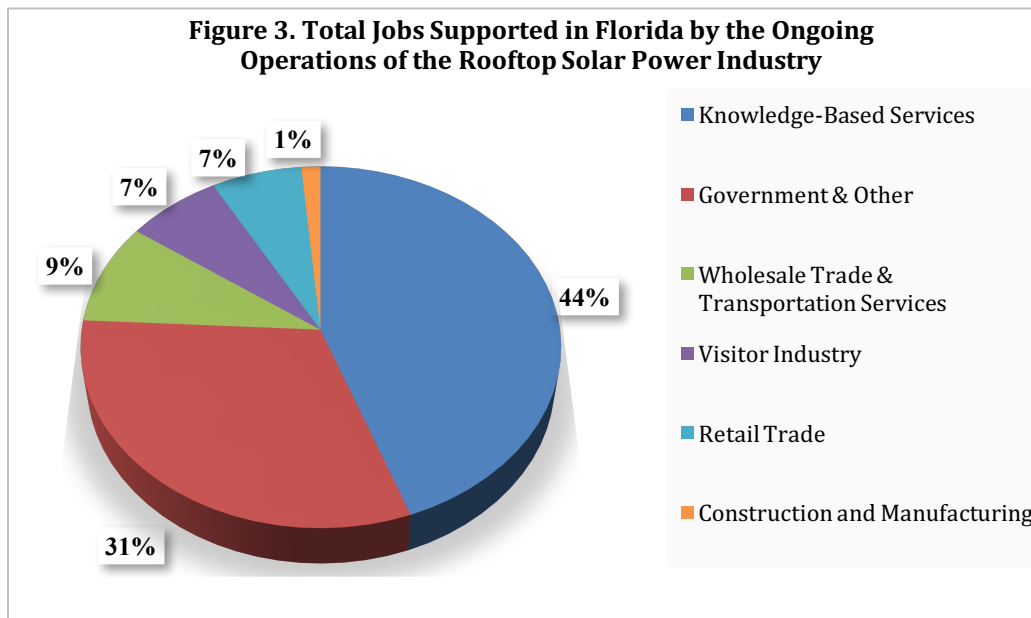
**Table 2. Total Jobs Supported in Florida by the Ongoing Operations of the Rooftop Solar Power Industry (by Industry Sector)**

Industry	Jobs Supported	% of Total
Knowledge-Based Services	17,970	44%
Government & Other	12,718	31%
Wholesale Trade & Transportation Services	3,653	9%
Visitor Industry	2,847	7%
Retail Trade	2,707	7%
Construction and Manufacturing	567	1%
<b>Total:</b>	<b>40,462</b>	<b>100%</b>

Notes: Total may not equal the sum of all due to rounding. See detailed table in Appendix III.  
Source: The Washington Economics Group, Inc. (WEG)

Major industries under this category such as High-Tech Manufacturing, Information Technology (IT), Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation have on average a higher wage than the State average.

In addition, approximately 12,718 jobs, or 31 percent, are supported in the Government & Other sector, 3,653, or 9 percent are in Wholesale Trade & Transportation Services. The remaining jobs are created in the Visitor Industry and Retail Trade sectors with 7 percent each, and 1 percent in the Construction and Manufacturing sectors combined as presented in Table 2 on the previous page and in Figure 3 below.



Source: The Washington Economics Group, Inc. (WEG)

### C. The Rooftop Solar Power Industry Ongoing Operations Contribute Substantially to the Standard of Living of Florida Residents

The Rooftop Solar Power Industry also contributes to the standard of living of Florida's residents by adding an estimated more than \$3 billion in income to the State's households. It should be noted that this increase in income for Florida Households is solely attributable to

***In total, the jobs supported by the Rooftop Solar Power Industry's ongoing operations contribute to the standard of living of Florida residents by adding an estimated \$3 billion in Household Income annually.***

the employment impacts and does not take into account any income attributable to the electric power generated by the rooftop solar installations.

The Rooftop Solar Power Industry is *directly* responsible for the generation of \$1.3 billion, and the *indirect* and *induced* impacts generate over \$1.8 billion in Household Income in the State of Florida every year. (Table 1, page 11.) As presented in Table 3 and Figure 4 on the next page,



workers in the Government & Other sector<sup>11</sup> received \$1.8 billion or 58 percent of the total labor compensation while workers in the Knowledge-Based Services sector received approximately \$929 million or 29 percent of the total labor compensation paid as a result of industry ongoing operations.

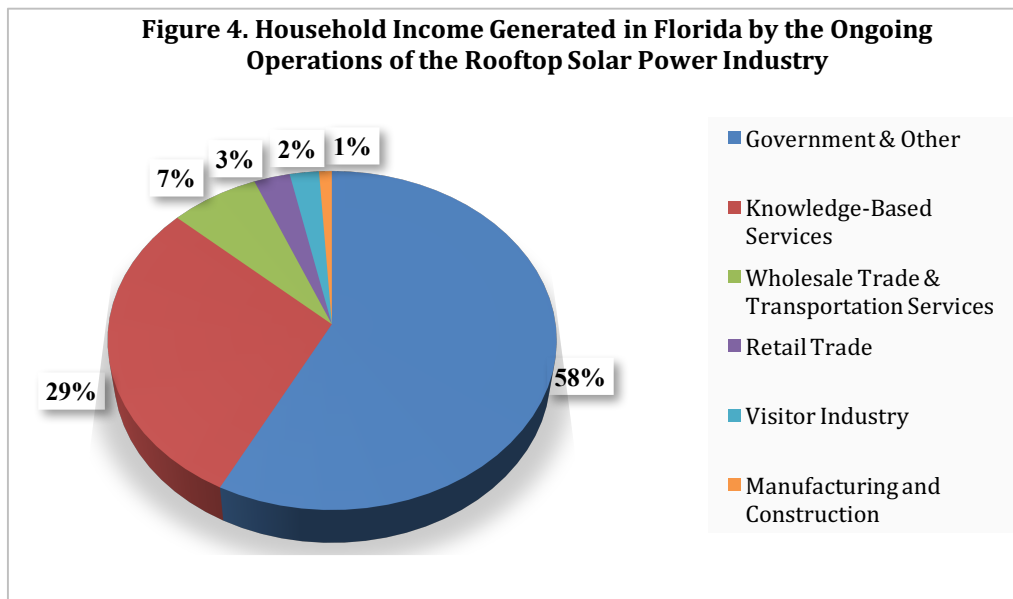
**Table 3. Household Income Generated in Florida by the Ongoing Operations of  
the Rooftop Solar Power Industry (by Industry Sector)**

Industry	Total Impact (\$ Million)	% of Total
Government & Other	\$1,830	58%
Knowledge-Based Services	\$929	29%
Wholesale Trade & Transportation Services	\$224	7%
Retail Trade	\$91	3%
Visitor Industry	\$74	2%
Manufacturing and Construction	\$32	1%
<b>Total:</b>	<b>\$3,180</b>	<b>100%</b>

Note: Total may not equal the sum of all due to rounding. See detailed table in Appendix III.

Source: The Washington Economics Group, Inc. (WEG)

**Figure 4. Household Income Generated in Florida by the Ongoing  
Operations of the Rooftop Solar Power Industry**



Source: The Washington Economics Group, Inc. (WEG)

<sup>11</sup>According to IMPLAN, Government & Other is a large sector because electric utilities (including solar electric) aggregate into this sector.

Major industries under this category such as High-Tech Manufacturing, Information Technology (IT), Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation have on average a higher wage than the State average.

This is followed by the Wholesale Trade & Transportation Services generating \$224 million, or 7 percent. The remaining 6 percent of Household Income is generated across all other sectors of the State economy. Of this 6 percent, the Retail Trade sector comprises 3 percent, or more than \$90 million, and 2 percent is within the Visitor Industry sector and 1 percent in the Manufacturing and Construction sectors.

#### **D. Gross Domestic Product Impacts: The Rooftop Solar Power Industry's Ongoing Operations are Important to the Overall Economic Activity in Florida**

Gross Domestic Product (Value Added) is the portion of business revenue that is available to pay compensation to workers, capital income and indirect business taxes. It is also the principal source of income to households and a key measure of the contribution to the economy made by the activities of the Rooftop Solar Power Industry, resulting in a net contribution to the State economy of over \$10 billion each year as shown in Table 4 below. Of this, over \$6 billion is attributed to *direct* impacts, and more than \$4 billion comes from *indirect* and *induced* impacts (Table 1, page 11).

**Table 4. GDP (Value-Added) Impacts Generated in Florida by the Ongoing Operations of the Rooftop Solar Power Industry (by Industry Sector)**

Industry	Total Impact (\$ Million)	% of Total
Government & Other	\$8,261	78%
Knowledge-Based Services	\$1,616	15%
Wholesale Trade & Transportation Services	\$404	4%
Retail Trade	\$152	1%
Visitor Industry	\$115	1%
Manufacturing and Construction	\$61	1%
<b>Total:</b>	<b>\$10,609</b>	<b>100%</b>

Note: Total may not equal the sum of all due to rounding. See detailed table in Appendix III.

Source: The Washington Economics Group, Inc. (WEG)

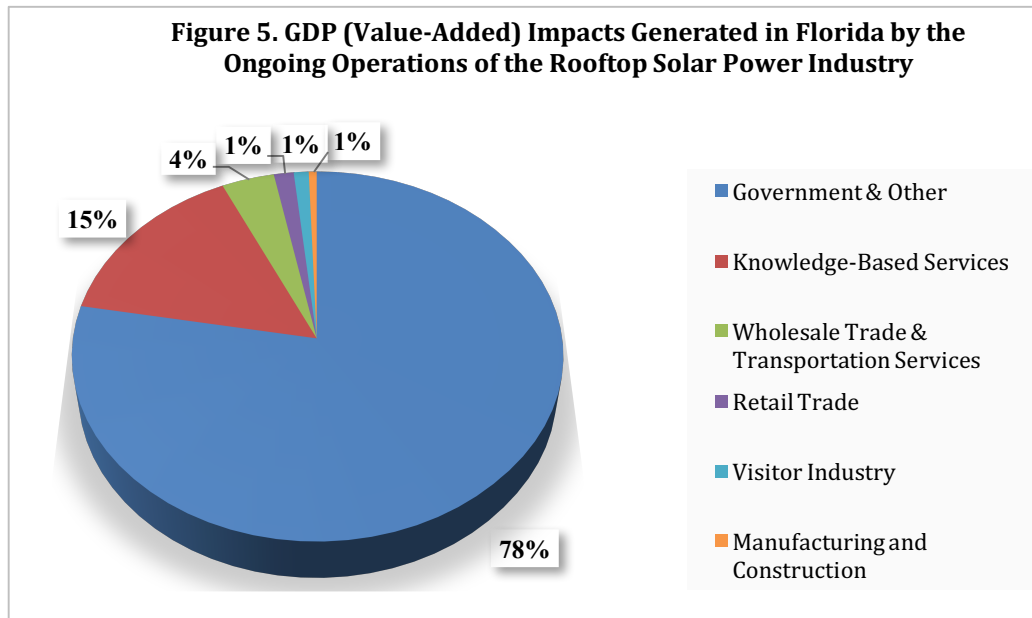
Of the total Florida GDP of more than \$10 billion attributable to the Rooftop Solar Power Industry each year, an important over \$8 billion or 78 percent of GDP is generated in the Government & Other sector<sup>12</sup>, followed by \$1.6 billion or 15 percent in the Knowledge-Based

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Major industries under this category such as High-Tech Manufacturing, Information Technology (IT), Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation have on average a higher wage than the State average.

<sup>12</sup>Ibid.

Services sector, \$404 million or 4 percent in the Wholesale Trade & Transportation Services sector and \$152 million or 1 percent in Retail Trade sector. The remaining 2 percent is generated in the Visitor Industry and in the combined Manufacturing and Construction sectors. The percentage distribution in each industry sector is illustrated in Table 4 in the previous page and in Figure 5 below.



Source: The Washington Economics Group, Inc. (WEG)

#### E. The Total Economic Impact Generated by the Florida Rooftop Solar Power Industry is a Significant \$18 Billion

Total Economic Impact measures the total production of an industry or business. In this case, the Total Economic Impact measures the total amount of goods and services produced by the Rooftop Solar Power Industry's activities in Florida.

***The Total Economic Impact of the Florida Rooftop Solar Power Industry is estimated at slightly over \$18 billion annually, a significant contribution to the State economy and jobs for residents.***

As in the other impact measures, a significant portion of the Total Economic Impact occurs in the Government & Other sector<sup>13</sup> representing 77 percent or more than \$14 billion of the overall Total Economic Impact. Sixteen (16),

percent, or close to \$3 billion of the impact is generated within the Knowledge-Based

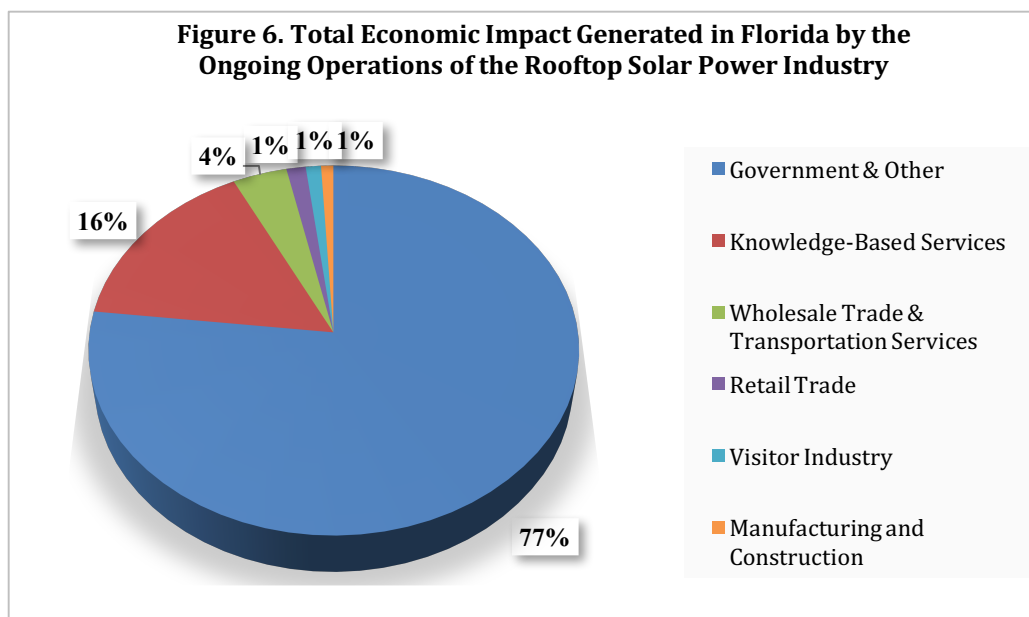
<sup>13</sup>Ibid.

Services sector, and 4 percent is generated within the Wholesale Trade & Transportation Services sector. The remaining 3 percent is distributed among the Retail Trade, Visitor Industry and the Manufacturing and Construction sectors of Florida's economy. This is presented in Table 5 and in Figure 6 below.

**Table 5. Total Economic Impact Generated in Florida by the Ongoing Operations of the Rooftop Solar Power Industry (by Industry Sector)**

Industry	Total Impact (\$ Million)	% of Total
Government & Other	\$14,079	77%
Knowledge-Based Services	\$2,901	16%
Wholesale Trade & Transportation Services	\$722	4%
Retail Trade	\$255	1%
Visitor Industry	\$203	1%
Manufacturing and Construction	\$163	1%
<b>Total:</b>	<b>\$18,323</b>	<b>100%</b>

Note: Total may not equal the sum of all due to rounding. See detailed table in Appendix III.  
Source: The Washington Economics Group, Inc. (WEG)



Source: The Washington Economics Group, Inc. (WEG)

Major industries under this category such as High-Tech Manufacturing, Information Technology (IT), Finance and Insurance, Real Estate, Professional, Administrative Services and Arts, Entertainment & Recreation have on average a higher wage than the State average.

## F. The Florida Rooftop Solar Power Industry Generates Important Contributions to Public Revenues Each Year

The Rooftop Solar Power Industry's operations generate significant contributions to public-sector revenues throughout the State of Florida each year, with close to \$1 billion or 31 percent flowing to the Federal government and more than \$2 billion or 69 percent allocated to State and Local governments. In total, the Industry generates a total of over \$3 billion in Federal, State and Local government revenues annually as shown in Table 6 below.

**Table 6. Fiscal Contributions Arising from the Ongoing Operations  
of the Rooftop Solar Power Industry in Florida (\$ Thousands)**

Taxes and Fees Paid By:	Federal Taxes*	State and Local Taxes	Total Taxes
Capital	\$329,054	\$717	\$329,771
Labor	\$19,829	\$0	\$19,829
Indirect Business Taxes	\$167,261	\$2,216,772	\$2,384,032
Households	\$356,473	\$3,197	\$359,670
Corporations	\$126,840	\$37,099	\$163,939
<b>Total:</b>	<b>\$999,457</b>	<b>\$2,257,785</b>	<b>\$3,257,241</b>

\*IMPLAN does not take into account of any Federal Tax Credits for Rooftop Solar.

Total may not equal the sum of all due to rounding.

Source: The Washington Economics Group, Inc. (WEG)

In conclusion, the Rooftop Solar Power Industry not only generates significant **qualitative or externality benefits** to the State, but also significant quantifiable economic development impacts. These quantifiable impacts create employment opportunities for Florida residents while adding to the standard of living as a source of Household Income and clean, reliable energy generation.



## **Appendix I: Methodology**

## IMPLAN Model

The multiplier impacts calculated by the IMPLAN model are based on input-output methodology, which explicitly considers the inter-industry linkages that exist within an economy. Each industry needs labor and inputs from other industries in order to produce economic output. Whenever an industry experiences an increase in the demand for its output, many other industries within that economy indirectly experience an increase in demand as well because of these inter-industry linkages. This increase in demand that results from the need for material inputs is called the *indirect effects*. In addition, an increase in production within a region also leads to an increase in household income through the hiring of workers, which in turn generates further demands for goods and services within the region. Firms also need to expand their base of physical capital to meet higher levels of demand, and this too stimulates regional economic growth. The latter effects are referred to as *induced effects*. The inter-industry linkages and the induced effects on consumer and capital spending lead to successive rounds of production, and this process results in an increase in output that exceeds the initial change in demand, or a *multiplier effect*. Similarly, the increase in household income will exceed the initial payroll increase encountered in the industry that experienced the original increase in demand. The total change in employment in the regional economy is a multiple of the direct change in employment.

$$\begin{aligned}
 x_1 &= a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + \cdots + a_{1k}x_k + a_{1h}x_h + a_{1i}x_i + f_1 \\
 x_2 &= a_{21}x_1 + a_{22}x_2 + a_{23}x_3 + \cdots + a_{2k}x_k + a_{2h}x_h + a_{2i}x_i + f_2 \\
 x_3 &= a_{31}x_1 + a_{32}x_2 + a_{33}x_3 + \cdots + a_{3k}x_k + a_{3h}x_h + a_{3i}x_i + f_3 \\
 &\vdots \\
 x_k &= a_{k1}x_1 + a_{k2}x_2 + a_{k3}x_3 + \cdots + a_{kk}x_k + a_{kh}x_h + a_{ki}x_i + f_k \\
 x_h &= a_{h1}x_1 + a_{h2}x_2 + a_{h3}x_h + \cdots + a_{hk}x_k + a_{hh}x_h + a_{hi}x_i + f_h \\
 x_i &= a_{i1}x_1 + a_{i2}x_2 + a_{i3}x_h + \cdots + a_{ik}x_k + a_{ih}x_h + a_{ii}x_i + f_i
 \end{aligned}$$

The following represents the system of equations that comprise the regional economy in an extended input-output model like IMPLAN:

The variables  $x_1$  to  $x_k$  represent total production of output in each industry. The coefficients  $a_{ij}$  represent the purchases from industry “i” that are needed to produce a dollar of output in industry “j”. These are known as the *direct requirement* coefficients. The variable  $x_h$  refers



to household income and the coefficients  $a_{ih}$  refer to the average amount of household income spent on purchases from industry “i”, or the *average propensities to consume*. The coefficients  $a_{hi}$  are similar to the inter-industry purchases ( $a_{ij}$ ’s), but they represent the household income that is generated from each dollar of output produced in industry “i”. Similarly the variable  $x_i$  represents regional spending on capital goods, and the coefficients  $a_{ij}$  represents the spending on capital goods for each dollar of output produced in industry “j”. The coefficients  $a_{ji}$  represent the amount purchased from industry “j” for each dollar spent on capital goods within the region. The variables  $f_j$  represent the exogenous final demand faced by each industry, respectively.

This system of equation reduces, using matrix notation, to the following solution for industry output and household income:

$$X = (I - A)^{-1} F$$

X is the vector of industry outputs plus household income and F is a vector of exogenous final demands. The “output multipliers” (i.e., the change in industry output and household income that results from a change in final demand for the output of a particular industry) are given in the columns of the  $(I-A)^{-1}$  matrix. The IMPLAN software calculates these multipliers for counties, states and other sub-state regions. These multipliers can be used to provide a sense of the economic importance of an industry or an economic activity in a given region. The multipliers impacts for gross state product, labor and capital income and the government revenue impacts are derived from the basic output multipliers given by  $(I-A)^{-1}$ .

The IMPLAN model uses historical relationships between public-sector revenues and regional economic output in order to estimate the public-sector revenue impact resulting from the establishment of a new, or expansion of an existing economic activity.



## **Appendix II: Economic Glossary**

### **Definitions of Economic Terms Used in the Analysis**

<b><i>Employment</i></b>	Total of full-time or part-time jobs.
<b><i>Household (Labor) Income</i></b>	All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
<b><i>Gross Domestic Product (GDP)</i></b>	The increased value of a product as a result of the economic inputs (labor and capital) expended at a given stage. In the IMPLAN Model, GDP is the sum of: Employee Compensation, Proprietor Income, Other Property Type Income (Interest) and Indirect Business Taxes.
<b><i>Economic Impact (Output)</i></b>	Total value of all transactions attributed to an activity.
<b><i>Direct Effects</i></b>	The set of expenditures applied to the predictive model (i.e., I/O multipliers) for impact analysis. It is a series (or single) of production changes or expenditures made by producers/consumers as a result of an activity or policy. These initial changes are determined by an analyst to be a result of this activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond, economically to these initial changes.
<b><i>Indirect Effects</i></b>	The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added. The impacts are calculated by applying Direct Effects to the Type I Multipliers.
<b><i>Induced Effects</i></b>	The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage to the regional economy. This money is re-circulated through the household spending patterns causing further local economic activity.

**Appendix III:  
Detailed Economic Impact Tables**

## Detailed Impact Tables

Within the main portion of the Study the economic impacts are presented at a summary level. *Direct*, *Indirect* and *Induced* Impacts are aggregated into the Total Impact, and Industries are summarized by function. The following Tables present detailed impacts at the two-digit NAICS industry classification level.

The following industry sector summarizations are used in this Study:

**Government & Other** is the sum of: Agriculture & Forestry, Mining, Utilities, Company Management and Government & Other.

**Knowledge-Based Services** is the sum of: Information (IT), Finance & Insurance, Real Estate, Professional Business Services, Administrative, Educational Services, Health & Social Services, Arts, Entertainment & Recreation and Other Services.

**Wholesale Trade & Transportation Services** is the sum of: Wholesale Trade and Transportation & Warehousing.

The **Accommodation and Food Services** sector was renamed **Visitor Industry**.

## The Rooftop Solar Power Industry Economic Impacts Tables

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**The Comprehensive Economic Development Impacts of the Rooftop Solar Industry  
on the State of Florida**

**Table A-1. Total Jobs Supported in Florida by the Ongoing Operations  
of the Rooftop Solar Power Industry**

Industry	Impacts			Total
	Direct	Indirect	Induced	
Agriculture & Forestry	0	8	90	99
Mining	0	130	5	135
Utilities	8,907	1,731	33	10,672
Construction	0	183	117	300
Manufacturing	0	93	174	267
Wholesale Trade	0	310	375	684
Retail Trade	0	263	2,444	2,707
Transportation & Warehousing	0	2,167	803	2,969
Information	0	276	250	526
Finance & Insurance	0	700	1,336	2,036
Real Estate	0	894	905	1,799
Professional Services	0	2,245	777	3,022
Company Management	0	204	175	379
Administrative	0	4,032	980	5,011
Educational Services	0	19	367	386
Health & Social Services	0	0	2,972	2,972
Arts, Entertainment & Recreation	0	150	476	626
Accommodation & Food Services	0	794	2,053	2,847
Other Services	0	287	1,305	1,591
Government & Other	0	1,289	146	1,435
<b>Total:</b>	<b>8,907</b>	<b>15,775</b>	<b>15,783</b>	<b>40,462</b>
Note: Total may not equal the sum of all due to rounding.				
Source: The Washington Economics Group, Inc. (WEG)				

**The Comprehensive Economic Development Impacts of the Rooftop Solar Industry  
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**Table A-2. Household Income Generated in Florida by the Ongoing Operations  
of the Rooftop Solar Power Industry (\$ in Thousands)**

Industry	Impacts			Total
	Direct	Indirect	Induced	
Agriculture & Forestry	\$0	\$291	\$2,676	\$2,967
Mining	\$0	\$1,659	\$90	\$1,749
Utilities	\$1,330,607	\$308,550	\$5,504	\$1,644,660
Construction	\$0	\$9,853	\$6,167	\$16,020
Manufacturing	\$0	\$6,241	\$9,784	\$16,025
Wholesale Trade	\$0	\$27,769	\$34,387	\$62,157
Retail Trade	\$0	\$8,650	\$81,868	\$90,518
Transportation & Warehousing	\$0	\$134,643	\$27,031	\$161,675
Information	\$0	\$27,988	\$23,679	\$51,667
Finance & Insurance	\$0	\$51,719	\$86,046	\$137,765
Real Estate	\$0	\$22,144	\$21,636	\$43,780
Professional Services	\$0	\$169,323	\$56,085	\$225,408
Company Management	\$0	\$21,919	\$18,815	\$40,735
Administrative	\$0	\$154,729	\$37,871	\$192,599
Educational Services	\$0	\$789	\$14,922	\$15,711
Health & Social Services	\$0	\$7	\$180,100	\$180,107
Arts, Entertainment & Recreation	\$0	\$4,317	\$14,136	\$18,453
Accommodation & Food Services	\$0	\$21,534	\$52,022	\$73,556
Other Services	\$0	\$13,712	\$49,515	\$63,227
Government & Other	\$0	\$127,718	\$12,651	\$140,369
<b>Total</b>	<b>\$1,330,607</b>	<b>\$1,113,555</b>	<b>\$734,985</b>	<b>\$3,179,148</b>

Note: Total may not equal the sum of all due to rounding.  
Source: The Washington Economics Group, Inc. (WEG)

**The Comprehensive Economic Development Impacts of the Rooftop Solar Industry  
on the State of Florida**

**Table A-3. GDP (Value-Added) Impacts Generated in Florida by the Ongoing Operations  
of the Rooftop Solar Power Industry (\$ in Thousands)**

Industry	Impacts			Total
	Direct	Indirect	Induced	
Agriculture & Forestry	\$0	\$446	\$4,776	\$5,221
Mining	\$0	\$3,030	\$279	\$3,309
Utilities	\$6,488,398	\$1,338,044	\$23,119	\$7,849,561
Construction	\$0	\$18,695	\$11,339	\$30,034
Manufacturing	\$0	\$12,225	\$18,596	\$30,821
Wholesale Trade	\$0	\$112,115	\$75,819	\$187,934
Retail Trade	\$0	\$16,905	\$135,305	\$152,210
Transportation & Warehousing	\$0	\$176,424	\$39,575	\$215,999
Information	\$0	\$60,873	\$57,129	\$118,003
Finance & Insurance	\$0	\$70,119	\$126,113	\$196,232
Real Estate	\$0	\$73,830	\$331,929	\$405,759
Professional Services	\$0	\$239,925	\$73,967	\$313,892
Company Management	\$0	\$25,437	\$21,835	\$47,272
Administrative	\$0	\$204,909	\$44,996	\$249,905
Educational Services	\$0	\$1,100	\$17,379	\$18,479
Health & Social Services	\$0	\$9	\$206,848	\$206,857
Arts, Entertainment & Recreation	\$0	\$6,357	\$21,703	\$28,060
Accommodation & Food Services	\$0	\$32,963	\$82,148	\$115,111
Other Services	\$0	\$18,029	\$60,314	\$78,342
Government & Other	\$0	\$334,442	\$21,561	\$356,003
<b>Total</b>	<b>\$6,488,398</b>	<b>\$2,745,877</b>	<b>\$1,374,730</b>	<b>\$10,609,004</b>

Note: Total may not equal the sum of all due to rounding.

Source: The Washington Economics Group, Inc. (WEG)

**The Comprehensive Economic Development Impacts of the Rooftop Solar Industry  
on the State of Florida**

**Table A-4. Total Economic Impact Generated in Florida by the Ongoing Operations  
of the Rooftop Solar Power Industry (\$ in Thousands)**

Industry	Impacts			Total
	Direct	Indirect	Induced	
Agriculture & Forestry	\$0	\$716	\$8,753	\$9,469
Mining	\$0	\$44,877	\$1,806	\$46,683
Utilities	\$10,729,771	\$2,543,469	\$43,806	\$13,317,045
Construction	\$0	\$40,276	\$24,573	\$64,849
Manufacturing	\$0	\$38,033	\$59,703	\$97,735
Wholesale Trade	\$0	\$152,337	\$127,359	\$279,696
Retail Trade	\$0	\$29,358	\$225,889	\$255,247
Transportation & Warehousing	\$0	\$360,091	\$81,714	\$441,805
Information	\$0	\$141,413	\$121,365	\$262,779
Finance & Insurance	\$0	\$173,052	\$331,108	\$504,160
Real Estate	\$0	\$176,113	\$477,785	\$653,898
Professional Services	\$0	\$401,720	\$118,193	\$519,913
Company Management	\$0	\$43,996	\$37,766	\$81,762
Administrative	\$0	\$339,282	\$80,664	\$419,946
Educational Services	\$0	\$1,597	\$25,175	\$26,771
Health & Social Services	\$0	\$14	\$346,203	\$346,217
Arts, Entertainment & Recreation	\$0	\$10,378	\$36,302	\$46,680
Accommodation & Food Services	\$0	\$55,235	\$147,300	\$202,535
Other Services	\$0	\$27,948	\$92,939	\$120,887
Government & Other	\$0	\$586,275	\$37,975	\$624,250
<b>Total</b>	<b>\$10,729,771</b>	<b>\$5,166,180</b>	<b>\$2,426,378</b>	<b>\$18,322,327</b>

Note: Total may not equal the sum of all due to rounding.

Source: The Washington Economics Group, Inc. (WEG)



**Appendix IV:  
The Washington Economics Group, Inc.  
Project Team and Qualifications**



**J. Antonio Villamil**  
Founder and Senior Advisor

Tony Villamil is a nationally recognized economist, with over thirty-five years of successful career as a business economist, university educator and high-level policymaker for both federal and state governments. Tony was selected in 2008 as the founding Dean of the School of Business of St. Thomas University, serving successfully until December 31, 2013 at which time he resigned to return as senior advisor to the growing economic consulting practice that he founded, The Washington Economics Group, Inc. (WEG), a Florida-based firm established in 1993 upon returning to the State from his public service in Washington, D.C.

Tony is the immediate past Chairman of the Governor's Council of Economic Advisors of Florida, and during 1999-2000, he was selected by Governor Bush as his first Director for Tourism, Trade and Economic Development. Previously, he was appointed by President George H. W. Bush as U.S. Undersecretary of Commerce for Economic Affairs, receiving unanimous U.S. Senate confirmation. Presently he is active on Corporate Board of Directors, including Pan American Life Insurance Group (PALIG) and Spanish Broadcasting System (SBS). At PALIG he serves as Chair of the Governance and Nominating Committee of the Board. Tony is currently Chair of the Board Compensation Committee at SBS. He recently completed a successful 18-year tenure at Amerant Bank, N.A. and Amerant Holding Corp., serving as Chair of the Risk Committee and most recently as Chair of the AML/BSA Committee. Amerant Bank, N.A. is the former Mercantil Bank, N.A. and become a public company in 2020 during his active service on the Board.

Among civic and professional leadership positions, he is currently a member of the Board of Directors of the Miami-Dade Beacon Council, the official economic development organization of the county. He is also on the Board of Directors of the Greater Miami Chamber of Commerce. He serves as Senior Fellow of the James Madison Institute (JMI) of Tallahassee, Florida.

He earned Bachelor and Master Degrees in Economics from Louisiana State University (LSU), where he also completed coursework for the Ph.D. Degree. In 1991, Florida International University (FIU) awarded him a Doctoral Degree in Economics (hc), for "distinguished contributions to the Nation in the field of economics." He frequently speaks to business, government and university audiences on the Florida economy, U.S. trade policy and economic development issues.



**Jose Antonio (TJ) Villamil IV**  
Director of Operations

Jose Antonio (TJ) Villamil serves as Director of Operations of The Washington Economics Group, Inc. (WEG). TJ oversees the client relations, marketing and business research functions of the firm.

Prior to joining WEG, TJ was the Manager of Social Media for the Keiser University System of Florida. Among other experiences, he served as the University of Florida (UF) Special Assistant to the University President from May 2014 to December 2015. During his role, he was also the assistant corporate secretary to the UF Board of Trustees. He assisted the UF President oversee a \$4.6 billion budget, 50,000 students, 16 colleges, two academic health centers and more than 150 research centers. In this role, TJ directed special projects and gave strategic advice to President Bernie Machen and the UF Board of Trustees. TJ ended his role when Dr. Machen retired after 12 years of service to UF and returned to his hometown of Miami to join WEG.

TJ is a proud double graduate from UF, receiving his Masters in Entrepreneurship from the Hough Graduate School of Business, and his undergraduate degree in Telecommunications – News from the College of Journalism and Communications. TJ proudly served as the Student Body President for UF from 2012 to 2013 to represent the 50,000-member student body of the Gator Nation. During that period, TJ also represented all student interests on the UF Board of Trustees and on the boards of directors of the UF Alumni Association, the UF Foundation and the University Athletic Association.



**Charles K. Yaros**  
Associate Consultant for Economics

Chuck Yaros is an Associate Consultant for Economics at The Washington Economics Group, Inc. (WEG). He serves as economic consultant in the areas of financial economics and economic impact studies. Prior to joining WEG he was a Vice President and Portfolio Strategist at Shay Financial Services in Miami where he specialized in developing, implementing and managing interest rate risk and capital optimization strategies for financial institutions.

Mr. Yaros has over 20 years of experience as a business and financial economist, having worked in a number of positions of progressive responsibility in the South Florida business community. Additionally, he has spoken and taught courses on financial risk management.

Chuck received his undergraduate degree in Economics with Honors from Trinity College and his Master's degree in Economics from Duke University, where he also completed course work for the Ph.D. degree. Chuck and his family are residents of Coral Gables, Florida.



**Haydee M. Carrion**  
Senior & Project Research Assistant

Haydee M. Carrion has been Executive Assistant to Dr. Villamil since the firm's founding in 1993. She has senior level expertise in multi-media presentations and in the preparation and design of complex reports and documents for clients, utilizing the latest technologies.

In 2012, WEG promoted her to Senior and Project Research Assistant to the firm, given outstanding performance in web-based research and in assistance to the firm's Principal in the preparation of audio-visual presentations for clients and in desktop publishing. Ms. Carrion is fluent in Spanish, with experience in the preparation of economics and business documents in the language.

Ms. Carrion has been with WEG for over 25 years. Ms. Carrion holds degrees in Business Administration and Office System Technologies from Miami-Dade College.

**The Washington Economics Group, Inc. (WEG)** has been successfully meeting client objectives since 1993 through economic consulting services for corporations, institutions and governments of the Americas. We have the expertise, high-level contacts, and business alliances to strengthen your competitive positioning in the growing marketplaces of Florida, Latin America and the Caribbean.

Our roster of satisfied clients, over the past 28 years, includes corporations, financial institutions, public entities, and non-profit associations expanding their operations in the Americas.

#### **EXCLUSIVE CONSULTING APPROACH:**

Each client is unique to us. We spend considerable time and effort in understanding the operations, goals, and objectives of clients as they seek our consulting and strategic advice. We are not a mass-production consulting entity nor do we accept every project that comes to us. We engage a limited number of clients each year that require customized consulting services in our premier areas of specialization. These premier and exclusive services are headed by Founder and Senior Advisor J. Antonio (Tony) Villamil. Tony is a former U.S. Under Secretary of Commerce with over thirty-five years of experience as a business executive and as a senior public official of the U.S. and most recently of Florida.

#### **PREMIER CONSULTING SERVICES:**

*Economic Impact Studies* highlight the importance of a client's activities in the generation of income, output and employment in the market area serviced by the entity. These studies are also utilized to analyze the impact of public policies on key factors that may affect a client's activities such as tax changes, zoning, environmental permits and others.

*Strategic Business Development Services* are customized to meet client objectives. Recent consulting assignments include customized marketing strategies, country risk assessments for investment decisions and corporate spokesperson activities and speeches on behalf of the client at public or private meetings.

*Economic Development Strategies*. The firm supports cities, counties and states in developing targeted economic development plans and strategies to attract, retain and expand high-wage industries. Each plan is based on the factor endowments of the area, and in close coordination with public officials in charge of economic development.

For a full description of WEG capabilities and services, please  
visit our website at:  
[www.weg.com](http://www.weg.com)

## The Comprehensive Economic Development Impacts of the Rooftop Solar Industry on the State of Florida

### The Washington Economics Group, Inc. Representative Client List 1993-2021

Multinational Corporations	
ALSTOM	Lockheed Martin
Ameritech International	Lucent Technologies
Bureau Veritas (BIVAC)	MasterCard International
Carrier	MediaOne/AT&T
Carnival Corp.	Medtronic
Esso Inter-America	Merck Latin America
FedEx Latin America	Microsoft Latin America
Genting Group	Motorola
Hyatt	Phelps Dodge
IBM	SBC Communications
Joseph E. Seagram & Sons, Inc. (Vivendi)	Telefonica Data Systems
KPMG	Visa International
Construction and Real Estate Development Firms	
Areas USA, Inc.	Inland Port Systems, LLC
Barron Collier Companies	Landstar Development
Berkowitz Development Group	LXR Luxury Resorts
Boca Developers	Miami Asset Management Company, Inc.
CDS International	Miapolis, LLC
Century Homebuilders	Odebrecht Construction, Inc.
Codina Realty	Palazzo Las Olas Group, LLC
Chateau Group	Tate Capital
Empire World Towers, LLC	The Allen Morris Company
ESJ Capital Partners	The Related Group, Inc.
Ferro Investment Group, LLC	The Rouse Company
Flagler Development	The St. Joe Company
Florida East Coast Realty Inc.	Trammel Crow Company
Florida Realtors	WCI Development Companies
Engineering, Planning and Design Firms	
AECOM (DMJM Harris)	HNTB
Atkins (PBSJ)	Kimley-Horn and Associates
CDM Smith (Wilbur Smith Associates)	Parsons Brinckerhoff
Golder Associates	Redevelopment Management Associates (RMA)
Colleges and Universities	
Alabama State University	Rocky Mountain College of Art and Design
Barry University	San Ignacio College
Eckerd College	Sistema Universitario Ana G. Méndez
Embry-Riddle Aeronautical University	St. Thomas University
Florida Agricultural & Mechanical University	University of Central Florida
Florida International University	Universidad Politécnica de Puerto Rico
Full Sail University	University of Florida
Keiser University	University of Miami
Los Angeles Film School	UM's Rosenstiel School of Marine and Atmospheric Science
Miami-Dade College	University of South Florida/ENLACE
Palm Beach Medical Education Corporation	University of South Florida
Law Firms	
Becker & Poliakoff	Gloria Roa Bodin, Esq.
Bilzin Sumberg	Greenberg Traurig, LLP
Carlton Fields	Holland & Knight, LLP
Colson Hicks Eidson	Steel Hector & Davis
DLA Piper	Tew Cardenas, LLP
Dunbar & Dunbar	
Financial Institutions	
ABN-AMRO Bank	FIBA
Advantage Capital	Fiduciary Trust International
AMERANT (former Mercantil Bank N.A.)	First Union National Bank (Wells Fargo)
Allen & Company	Hemisphere National Bank
BNP Paribas	HSBC/Marine Midland
BAC Florida	International Bank of Miami (First United Bank)
Bank Atlantic Corp.	Lazard Freres & Co.
BankUnited, FSB	Pan American Life Insurance Group (PALIG)
Barclays Bank	PointeBank, N.A.
Century Bank	Seitlin Insurance
ESJ Capital Partners	Sun Trust Corporation
Espirito Santo Bank	The Equitable/AXA Advisors
FBA	TD Bank, N.A.
	Union Planters Bank of Florida (Regions)

## The Comprehensive Economic Development Impacts of the Rooftop Solar Industry on the State of Florida

### Florida-Based Companies

All Aboard Florida	Iberia Tiles
American Airlines Arena	International Speedway Corporation (ISC)
Atlantic Sapphire	Jungle Island
BMI Companies	Lake Nona
Communikat	Mercy Hospital
CoreMessages	Miami Dolphins
Daytona International Speedway	Nopetro LLC
Dosal Tobacco	Palm Beach Premier
Drivers Club Miami	Resorts World Miami (RWM)
Farm Stores	Ron Sachs Communications
Fishkind & Associates	Rolling Loud
Florida Hospital	Sprint of Florida
Florida Marlins	eMerge Americas
Florida Power & Light	The Biltmore Hotel
Flo-Sun Sugar Corp.	The Heat Group
Greater Miami Convention & Visitors Bureau	Ultimate Software
Greater Ft. Lauderdale Alliance	Ultra Music Festival
Homestead-Miami Speedway	VICTUS

### Non-Florida-Based Institutions

Darlington Raceway	Richmond International Raceway
Georgia Retail Federation	Talladega Superspeedway
Illinois Retail Merchant Association	The Seed Foundation
Indiana Retail Council	United States Tennis Association (USTA)
Kansas Speedway	Virginia International Raceway
Martinsville Speedway	Washington Retail Association
New Jersey Motorsports Park (NJMP)	Watkins Glen International
Progress Energy	

### Public Institutions and Non-Profit Organizations

Baptist Health South Florida	Independent Colleges and Universities of Florida (ICUF)
BayCare Health System	Indian River County Chamber of Commerce
Broward County Public Schools	Inter-American Development Bank
Career Source North Central Florida	Jackson Health Systems
Chapman Partnership	Jacksonville Chamber of Commerce
Citizens of Clean Energy	Jewish Community Services
City of Boca Raton	Lakeland Regional
City of Coral Gables	Louisiana Committee for Economic Development
City of Doral	Miami Marine Stadium
City of Plantation	Miami Museum of Science
City of West Palm Beach	Miami-Dade County Public Schools
Conservatives for Clean Energy	Miami-Dade Expressway Authority
Economic Development Commission of Collier County	Miami Downtown Development Authority
Economic Development Commission of Lee County	Palm Beach International Agricultural Summit
Economic Development Commission of Mid-Florida	Port of Miami
Enterprise Florida, Inc.	SEIU Florida
Farm Share, Inc.	South Florida Progress Foundation
Florida Bankers Association	Space Florida
Florida Citrus Mutual	St. Mary's Medical Center
Florida Chamber of Commerce	State of Florida
Florida International Bankers Association	SW Florida Regional Chamber of Commerce
Florida Institute for Commercialization of Public Research	Sylvester Comprehensive Cancer Center
Florida League of Cities	Tampa-Hillsborough Expressway Authority
Florida Nursing Homes Alliance	Tampa General
Florida Outdoor Advertising Association	The Beacon Council
Florida Ports Council	The Florida Bar
Florida Retail Association	The Florida Chamber Foundation
Florida Sports Foundation	The Florida Coalition for Capital
Florida Venture Forum	United Nations Economic Development Program
Friends of Miami Marine Stadium	United Teachers of Dade
Greater Tampa Chamber of Commerce	Visit Florida
Greater Tallahassee Chamber of Commerce	Zoological Society of Florida

### Latin America-Based Institutions

Allied-Domecq, Mexico	Mercantil Servicios Financieros, Venezuela
Association of Peruvian Banks	Peruvian Management Institute (IPAE)
Federation of Inter-American Financial Institutions (FIBAFIN)	The Brunetta Group of Argentina
Fonalledas Enterprises, Puerto Rico	