

THE ECONOMIC IMPACT OF SILFAB SOLAR: A STATEWIDE AND REGIONAL ANALYSIS

MEMORANDUM

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TO: South Carolina Power Team

FROM: Joseph Von Nessen, Ph.D.

EXECUTIVE SUMMARY

In an effort to expand its total production capacity, Silfab Solar is currently planning the construction and operation of a new solar panel manufacturing facility that will be located in York County, South Carolina. This facility would be among the first in the Palmetto State to manufacture solar panels, which would include local production of both solar cells and modules. The purpose of this analysis is to estimate the total economic impact to both York County and South Carolina that would likely result from the construction and subsequent ongoing operations of the planned facility.

The key findings of this analysis are as follows:

- *Silfab plans to invest \$155 million between 2023 and 2026 towards the construction of the new solar cell and panel manufacturing facility. Once the facility is complete and fully operational, it is expected to support 800 permanent, local direct jobs in York County at the facility that will pay an average annual wage of approximately \$60,000.*
- *During the four-year construction period, Silfab's capital investments will generate a one-time economic impact of over \$71.8 million in York County, which will support an average of 94 jobs over the construction period. This level of job creation is also estimated to generate \$25.3 million in labor income. For the state of South Carolina, this impact increases by 23 percent to \$88.4 million in total economic activity, which is associated with an average of 119 construction-related jobs and \$30.5 million in labor income.*
- *These one-time, construction-related economic impacts would be followed by permanent impacts associated with the ongoing operations of Silfab's new solar panel manufacturing facility. The annual economic impact of the manufacturing facility's operations on York County is estimated to total over \$508.3 million by 2026. This level of economic activity is also estimated to generate (directly and indirectly) 1,470 permanent jobs. For the state of South Carolina as a whole, the total annual economic impact of all operations of Silfab's new solar panel manufacturing facility is expected to total \$562.4 million by 2026.*
- *When combining all economic impacts associated with both construction and all ongoing operations, the cumulative economic impact of the new Silfab manufacturing facility on York County by the year 2026 is projected to total nearly \$1.3 billion. This impact represents the sum total of all economic activity supported (directly or indirectly) by the Silfab facility.*

INTRODUCTION

Due to rising demand over the past decade, investments in the development of renewable energy sources have grown dramatically throughout the United States – and as a result – the share of U.S. power generation that comes from renewables is also steadily increasing over time. According to the U.S. Energy Information Administration (EIA), U.S. power generation from renewables will increase from 21 percent in 2022 to 44 percent by 2050. Moreover, the majority of renewable energy (51%) is projected to come from solar production.¹

In response to this increasing demand, Silfab Solar is currently in the process of expanding its operating capacity, which includes the construction and operation of a new solar panel manufacturing facility located in York County, South Carolina. This facility will be among the first in the Palmetto State to manufacture solar panels, which will include local production of both solar cells and modules. More specifically, this new manufacturing facility is expected to generate a total initial capital investment of nearly \$155 million (including nearly \$52 million in York County) and approximately 800 direct, local permanent jobs by the year 2027.

The purpose of this analysis is to estimate both the one-time and permanent economic impacts to York County and to South Carolina that would likely result from the construction and subsequent ongoing operations of the planned facility. The construction of the manufacturing facility is projected to take place over a four-year period between 2023 and 2026. Limited manufacturing operations are expected to begin in 2024 and scale up over the following three years as facility construction is completed.

The economic impacts encompassing both sets of impacts are described in detail below, including a review of the primary results as well as the methodology and assumptions underlying these results. Note that this is an independent analysis that utilizes industry-standard economic models to derive all results. All projections regarding Silfab’s anticipated capital expenditures and hiring volume were provided directly by Silfab Solar.

ONE-TIME ECONOMIC IMPACTS: CONSTRUCTION-RELATED ACTIVITIES

If the development of the manufacturing facility moves forward, it is expected to generate approximately \$52 million in capital investment for York County between 2023 and 2026. As Table 1 denotes, this would consist of an investment schedule in which roughly 72 percent of these capital expenditures would take place during the first year alone – with nearly 97 percent having taken place by the end of 2024. These dollars would be allocated to purchases related to the construction of all facilities (along with all equipment requirements) necessary for housing business activities associated with all manufacturing operations and maintenance. It also

¹ Source: U.S. EIA, *Annual Energy Outlook 2022*.

includes expenditures necessary for county-level electricity, water, and sewer infrastructure.

Table 1 – Anticipated Silfab Capital Investment in York County

Year	Estimated Investment	Cumulative Total
2023	\$37.4 million	\$37.4 million
2024	\$12.5 million	\$49.9 million
2025	\$1.0 million	\$50.9 million
2026	\$0.7 million	\$51.6 million

In addition, the primary structure in which Silfab will operate was previously constructed between January 2021 and February 2022 for the specific purpose of local industrial manufacturing for an estimated total cost of between \$47.2 million and \$70.7 million.²

In order to determine the total economic impact on York County and South Carolina arising from all purchases associated with this construction activity, a detailed structural model (known as an input-output model) of the South Carolina economy was utilized. This model contains specific information on the relationships between all local industries and provides the means to assess how an initial round of new spending activity in one industry (known as the *direct effect*) can lead to successive rounds of spending in other industries (known as the *multiplier effect*). For example, when on-site construction workers regularly purchase lunch from local restaurants, these restaurants experience an increase in demand that causes them to purchase more ingredients from their suppliers. These suppliers, in turn, experience an increase in demand, and so on.

The total economic impacts on York County arising from all anticipated local purchasing associated with Silfab’s construction-related activities as well as the construction of the primary structure appear in Tables 2-3.³

**Table 2 – Economic Impact of Silfab’s Construction-Related Activities
York County**

Year	Description	Total Employment	Total Labor Income	Total Economic Impact
2023	Silfab’s Direct Effect	188	\$13,393,261	\$37,430,000
	Multiplier Effect	85	\$4,911,077	\$14,624,515
	Total Impact	272	\$18,304,338	\$52,054,515

² These estimates assume a 785,991 square foot structure built for between \$60/SQFT and \$90/SQFT.

³ In this analysis, all construction activity and associated equipment material purchases were modeled using North American Industrial Classification System (NAICS) codes 236210 and 333000.

Year	Description	Total Employment	Total Labor Income	Total Economic Impact
2024	Silfab's Direct Effect	63	\$4,464,897	\$12,478,000
	Multiplier Effect	28	\$1,637,201	\$4,875,359
	Total Impact	91	\$6,102,098	\$17,353,359
2025	Silfab's Direct Effect	5	\$356,748	\$997,000
	Multiplier Effect	2	\$130,813	\$389,544
	Total Impact	7	\$487,561	\$1,386,544
2026	Silfab's Direct Effect	4	\$266,219	\$744,000
	Multiplier Effect	2	\$97,618	\$290,693
	Total Impact	6	\$363,837	\$1,034,693
Cumulative Totals		94⁴	\$25,257,834	\$71,829,112

**Table 3 – Economic Impact of the Construction of the Primary Structure
York County**

Time Period	Description	Annual Employment	Annual Labor Income	Annual Total Impact
Lower Bound	Direct Effect	274	\$16,526,811	\$47,159,460
	Multiplier Effect	108	\$5,895,607	\$19,071,941
	Total Impact	382	\$22,422,418	\$66,231,401
Upper Bound	Direct Effect	410	\$24,790,217	\$70,739,190
	Multiplier Effect	163	\$8,843,410	\$28,607,912
	Total Impact	573	\$33,633,627	\$99,347,102

Silfab's initial \$51.6 million capital investment in York County is expected to take place between 2023 and 2026. All of the construction-related activities associated with this initial investment would generate a *cumulative* economic impact of approximately \$71.8 million for York County during this four-year period. This total impact is also estimated to create an average of approximately 94 jobs each year throughout the construction period that would pay a total of \$25.3 million in labor income. Additionally, the construction of Silfab's primary structure, which took place between January 2021 and February 2022, is estimated to have generated between \$66.2 million and \$99.3 million in total economic activity during this 14-month time period. This level of economic activity is also associated with between 382 and 573 jobs and between \$22.4 million and \$33.6 million in labor income for York County residents.

In sum, the cumulative economic impact in York County of all construction activities associated with the new Silfab solar manufacturing facility taking place between 2021 and 2026 is estimated to total between \$138.0 million and \$171.1 million.

⁴ This estimate represents the average number of jobs supported per year across the full four-year construction period.

Extending this analysis statewide, Tables 4-5 summarize the total economic impacts arising from all anticipated local purchasing associated with Silfab’s construction-related activities as well as the construction of the primary structure on South Carolina.

**Table 4 – Economic Impact of Silfab’s Construction-Related Activities
South Carolina**

Year	Description	Total Employment	Total Labor Income	Total Economic Impact
2023	Silfab’s Direct Effect	191	\$12,982,459	\$37,430,000
	Multiplier Effect	153	\$9,115,269	\$26,630,704
	Total Impact	344	\$22,097,728	\$64,060,704

2024	Silfab’s Direct Effect	63	\$4,464,897	\$12,478,000
	Multiplier Effect	52	\$2,901,799	\$8,877,850
	Total Impact	115	\$7,366,696	\$21,355,850

2025	Silfab’s Direct Effect	5	\$356,748	\$997,000
	Multiplier Effect	4	\$231,856	\$709,346
	Total Impact	9	\$588,604	\$1,706,346

2026	Silfab’s Direct Effect	4	\$266,219	\$744,000
	Multiplier Effect	3	173,020	529,341
	Total Impact	7	\$439,239	\$1,273,341

Cumulative Totals		119⁵	\$30,492,267	\$88,396,241

**Table 5 – Economic Impact of the Construction of the Primary Structure
South Carolina**

Time Period	Description	Annual Employment	Annual Labor Income	Annual Total Impact
Lower Bound	Direct Effect	274	\$16,526,811	\$47,159,460
	Multiplier Effect	169	\$9,881,958	\$31,039,130
	Total Impact	443	\$26,408,769	\$78,198,590

Upper Bound	Direct Effect	410	\$24,790,217	\$70,739,190
	Multiplier Effect	255	\$14,822,937	\$46,558,696
	Total Impact	665	\$39,613,154	\$117,297,886

As previously noted, Silfab’s initial \$51.6 million capital investment in York County is expected to take place between 2023 and 2026. All of the construction-related activities associated with this initial investment would generate a *cumulative* economic impact of approximately \$88.4 million for South Carolina during this four-year period. This total impact is also estimated to create an average of approximately 119 jobs each year throughout the construction period that would pay a total of \$30.5 million in labor income. Additionally, the construction of Silfab’s

⁵ This estimate represents the average number of jobs supported per year across the full four-year construction period.

primary structure, which took place between January 2021 and February 2022, is estimated to have generated between \$78.2 million and \$117.3 million in total economic activity during this 14-month time period for the Palmetto State. This level of economic activity is also associated with between 443 and 665 jobs and between \$26.4 million and \$39.6 million in labor income for South Carolina residents.

In sum, the cumulative economic impact in South Carolina of all construction activities associated with the new Silfab solar manufacturing facility taking place between 2021 and 2026 is estimated to total between \$166.6 million and \$205.7 million.

PERMANENT ECONOMIC IMPACTS: ONGOING OPERATIONS

The one-time economic impacts that result from all of the aforementioned construction would be followed by more permanent impacts associated with the ongoing operations at the new Silfab facility. Specifically, it is anticipated that limited production at the facility will begin by 2024 and will scale up through the year 2026 as construction is completed. The number of permanent jobs associated with all facility operations will, in turn, increase over time as the facility scales up to full capacity. The number of direct, full-time permanent employees is projected to increase from an initial volume of 415 in 2024 to 800 by 2026 as summarized in Table 6.

Table 6 – Silfab’s Anticipated Direct, On-Site Permanent Employment

Year	Total Direct Full-Time Employment
2024	415
2025	529
2026	800

As with all construction-related activities, the total economic impacts on York County and South Carolina arising from all ongoing operations at the facility can also be estimated. These impacts are broken down by year between 2024 and 2026 and are displayed in Tables 7-8.

**Table 7 – Economic Impact of Silfab’s Manufacturing Facility Operations
York County**

Year	Description	Total Employment	Total Labor Income	Total Economic Impact
2024	Silfab’s Direct Effect	415	\$24,894,688	\$196,779,513
	Multiplier Effect	348	\$23,982,647	\$66,907,463
	Total Impact	763	\$48,877,335	\$263,686,976

2025	Silfab’s Direct Effect	529	\$31,733,229	\$250,834,608
	Multiplier Effect	443	\$30,570,651	\$85,286,863
	Total Impact	972	\$62,303,880	\$336,121,470

2026	Silfab’s Direct Effect	800	\$47,989,760	\$379,334,000
	Multiplier Effect	670	\$46,231,609	\$128,978,242
	Total Impact	1,470	\$94,221,369	\$508,312,242

**Table 8 – Economic Impact of Silfab’s Manufacturing Facility Operations
South Carolina**

Year	Description	Total Employment	Total Labor Income	Total Economic Impact
2024	Silfab’s Direct Effect	415	\$24,894,688	\$196,779,513
	Multiplier Effect	522	\$32,580,765	\$94,962,269
	Total Impact	937	\$57,475,453	\$291,741,782

2025	Silfab’s Direct Effect	529	\$31,733,229	\$250,834,608
	Multiplier Effect	665	\$41,530,662	\$121,048,290
	Total Impact	1,194	\$73,263,891	\$371,882,898

2026	Silfab’s Direct Effect	800	\$47,989,760	\$379,334,000
	Multiplier Effect	1,006	\$62,806,294	\$183,059,796
	Total Impact	1,806	\$110,796,054	\$562,393,796

Note how the total impact of all operations associated with Silfab’s solar manufacturing facility is expected to steadily increase from 2024 to 2026. The total economic impact of the facility on York County is estimated to rise from approximately \$263.7 million in 2024 to over \$508.3 million annually by 2026. These figures reflect the dollar value representing all final goods and services produced in York County that can be attributed (directly or indirectly) to the ongoing operations of the facility. This level of economic activity is also estimated to generate 763 permanent jobs in the year 2024 that will then scale up to 1,470 by the year 2026, which will – in turn – generate approximately \$48.9 million and \$94.2 million annually in labor income for York County residents, respectively.

Similarly, for South Carolina, the total economic impact associated with all operations of Silfab’s facility is estimated to rise from approximately \$291.7 million in 2024 to approximately \$562.4 million annually by 2026. These figures reflect the dollar value representing all final goods and services produced in South Carolina

that can be attributed (directly or indirectly) to the ongoing operations of the facility. This level of economic activity is also estimated to generate 937 permanent jobs in the year 2024 that will then scale up to 1,806 by the year 2026, which will – in turn – generate approximately \$57.5 million and \$110.8 million annually in labor income for South Carolinians, respectively.

When combining all economic impacts associated with both construction and all ongoing operations, the cumulative economic impact of the new Silfab manufacturing facility on York County by the year 2026 is projected to total nearly \$1.3 billion. This impact represents the sum total of all economic activity supported (directly or indirectly) by the Silfab facility in York County as well as the construction of the primary structure between 2021 and 2026.