

Carroll Road Solar Farm LLC. Estimated Economic Impacts of Reduced Agricultural Production

The Carroll Road Solar Farm LLC. solar panel installation is expected to be placed on 1,674.53 acres of mostly farmland in Lenawee County, MI. We assert that 90 percent of these parcels will have agricultural production diverted through the 35 year life of this installation. Based on current yield and cost of production estimates, we estimated the expected loss in economic activity from lost agricultural production.¹

Estimate direct annual loss of:

- **\$1,092,850 in gross farm revenues (cash sales of farms)**
- **\$473,800 in farm net revenues (Farm revenues to proprietor, farm capital and farm land)**
- **\$49,000 in farm labor earnings**

Over 35 years of the installation, this represents a decline in (2020 \$ values held constant):

- **\$38,249,700 in gross farm revenues**
- **\$23,260,600 in farm net revenues**
- **\$1,714,300 in farm labor earnings**

We simulated how the loss in annual farm sales translates to economy-wide impacts on Lenawee County, MI. Economy-wide impacts are larger than direct impacts because dollars recirculate throughout the economy. For example, the sales revenues earned by the grower are partially re-spent in the local economy to purchase seed inputs to the next year’s harvest, to purchase fuel, maintain or expand capital like tractors and enclosures, etc. Those receiving payments from the farmers will also re-spend a share to restock on inventories, pay labor, taxes and operating expenses. Households increase their expenditures from labor and proprietary income, creating a second channel of impacts. Together, the business to business transactions and household to business transactions make up what we call secondary expenditures (indirect and induced effects, respectively). The cycle continues, decreased only to the extent that purchases are made to suppliers from outside of Lenawee County. The table below shows estimates using annual estimates described above.

Model simulation: Lost Farm Sales Impacts on Lenawee County, MI

Impact Type	Employment	Labor Income	Regional Income	Output
Direct Effect	6	\$48,980	\$713,567	\$1,092,848
Indirect Effect	2	\$106,285	\$209,064	\$320,187
Induced Effect	0	\$35,682	\$21,220	\$110,923
Total Effect	8	\$184,030	\$943,851	\$1,523,958

Direct loss of agriculture sales of \$1,092,848 will create a decrease in total transactions in Lenawee County, totaling \$1.5 million per year. This would result in a reduction of regional income of just under

¹ Estimates provided by the Center for Economic Analysis at Michigan State University under the directorship of Steven R. Miller. For more information contact Steven Miller at 517.355.2153 or by email at mill1707@msu.edu.

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\$1,000,000 per year.² Total labor income will be expected to decline by \$184,030, impacting a total of 8 Lenawee County workers.³

These estimates only take into account of expected impacts tied to reduced agricultural activities as currently exercised on these farms and do not take into consideration employment by Carroll Road Solar Farm LLC in maintaining and operating the solar panel installation. It also does not take into consideration the expected impacts of any annual payments made on behalf of Carroll Road Solar Farm LLC for personal property taxes, income taxes and land lease payments. Finally, the estimates do not take into account any substituted economic activity that may be applied to these lands in the presence of the solar panel installation.

² Regional income is the combined labor income, proprietor's income, payments to capital and landowners and indirect business taxes.

³ Employment may include self-employed proprietors.