

**The Economic Effects on Michigan of the
Bekaert ECD Solar Systems, LLC Facility Location Decision**

**George A. Fulton
Peter Nicolas
Donald R. Grimes**

**University of Michigan
September 20, 2000**

Abstract

Bekaert ECD Solar Systems, LLC is considering retrofitting an existing building in Auburn Hills, Michigan for the production of solar electric cells, modules, and packaged solar-powered systems. The plant would produce enough of these cells to generate up to 25 MW of energy per year. The new facility would employ an additional 272 people by 2006. We estimate that by 2016, this location will have generated a total of 646 jobs in the state. Total state government revenues through 2016, net of MEGA costs and adjusted for inflation, would increase by \$29,694,000 (2000 dollars) due to the location of Bekaert.

The purpose of this study is to estimate the potential economic and fiscal benefits to Michigan of Bekaert ECD Solar Systems, LLC retrofitting an existing building in Auburn Hills, Michigan for the production of solar electric cells, modules, and packaged solar-powered systems (SIC 3674). The plant would produce enough of these cells to generate up to 25 MW of energy per year. Investment activity would take place between 2001 and 2006, with an investment of \$63.381 million. The facility would employ an additional 272 people and be at full production by 2006.

The estimates of the benefits include the total number of jobs created in Michigan (by major industry, including spin-off jobs), and the associated personal income and state government revenue. Benefits net of the MEGA incentive package, from 2001 to 2016, are shown in the attached table. The MEGA incentive package includes relief from 100 percent of the single business tax for the period 2002 to 2016; it also includes a tax credit to the company for the same period equal to 100 percent of the state income tax rate on the payroll (gross wages) of employees hired at the facility as a result of the project.

The total employment effects, reported in the first line of the table, include the direct jobs created at the facility itself plus spin-off jobs. The spin-off jobs are generated from two sources, increased purchases from Michigan suppliers and spending by people who receive income due to the increased economic activity. The construction activity is expected to generate a total of 188 jobs in 2001 and 225 jobs in 2002; almost all of these jobs are temporary. In 2006, the first year of full operations, an additional 601 jobs are generated in the state. We estimate that by 2016, this location will have generated a total of 646 additional jobs in the state. The total number of jobs created (direct plus spin-off) for every direct job introduced constitutes the "employment multiplier." The employment multiplier for the location averages 2.2 over the period 2006 to 2016. Sectoral detail on the employment gains is also shown in the table.

Personal income is shown in the next section of the table. Personal income is defined as the income of Michigan residents from all sources, after deduction of contributions to social insurance programs but before deduction of income tax and other personal taxes. As shown in the table, if Bekaert were to locate in Michigan under the incentive program, state personal income in 2006 would be higher by \$39.4 million (in current dollars) than it would be without the facility, and in 2016 it would be \$60.9 million higher. Adjusted for inflation, these numbers in 2000 dollars would be \$29.165 million in 2006 and \$37.179 million in 2016.

The gain in economic activity results in higher state government revenues. We estimate that in 2006, the first year of full operations, the facility would generate \$3,152,000 in additional gross state government revenue, and that the MEGA package would provide a \$654,000 incentive to Bekaert. Thus, the Bekaert facility location would increase state government revenues in 2006 by \$2,498,000, net of MEGA incentive costs.

Over the period 2001 to 2016, gross state government revenue is projected to increase by \$52,584,000 (in current dollars) due to the location of Bekaert. The MEGA incentive package for Bekaert is forecast to cost \$10,043,000 over the period, resulting in a net increase in state government revenue of \$42,541,000. Adjusted for inflation, the total net increase in state government revenue from 2001 to 2016 would be \$29,694,000 in 2000 dollars. These calculations do not include any revenue losses due to the property tax abatement or the investment tax credit. If the costs of the abatement and the tax credit were included, the net revenue gain to state government would be slightly less.

None of these estimates include the nonmeasurable effects that would produce additional economic and fiscal benefits for Michigan, such as the intangible advantages of influencing other location and expansion decisions.

**Economic and Fiscal Effects on Michigan of the Bekaert ECD Solar Systems, LLC Facility Location
Net Benefits with the Incentive Package**

Economic/Fiscal Indicator	2001	2002	2003	2004	2005	2006	2010	2015	2016	Total 2001-2016
Total Employment	188	560	386	498	536	601	576	628	646	—
Manufacturing	7	211	173	225	243	273	272	272	272	—
Nonmanufacturing	181	349	213	273	293	328	304	356	374	—
Retail Trade	25	73	54	70	74	83	79	89	92	—
Services	24	122	75	98	103	116	108	133	141	—
Other	132	154	84	105	116	129	117	134	141	—
In current dollars (thousands):										
Personal income	7,700	27,900	22,500	29,600	33,600	39,400	45,700	57,700	60,900	657,300
Gross state revenue	616	2,232	1,800	2,368	2,688	3,152	3,656	4,616	4,872	52,584
MEGA cost	0	311	356	504	577	654	729	841	866	10,043
State revenue net of MEGA cost*	616	1,921	1,444	1,864	2,111	2,498	2,927	3,775	4,006	42,541
Adjusted for inflation (thousands of 2000 dollars):										
Personal income	7,553	23,811	18,454	23,278	25,538	29,165	31,637	36,139	37,179	458,374
Gross state revenue	604	1,905	1,477	1,863	2,043	2,333	2,531	2,891	2,974	36,670
MEGA cost	0	265	292	397	439	484	505	527	528	6,976
State revenue net of MEGA cost*	604	1,640	1,185	1,466	1,604	1,849	2,026	2,364	2,446	29,694

*These estimates do not include any state government revenue losses due to the Investment Tax Credit or the property tax abatement.