

**The Economic Effects on Michigan  
of the GEP/Bayer Automotive Glazing JV Facility Location Decision**

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December 17, 1997**

### Abstract

*GEP/Bayer Automotive Glazing JV is considering locating a facility in Michigan that would develop processing and application technology and would manufacture polycarbonate auto windows for the automotive market. The facility would employ 83 people by 2004. We estimate that by 2021, this location will have generated a total of 192 jobs in the state. Total state government revenues through 2021, net of MEGA costs and adjusted for inflation, would be increased by \$11,575,000 (1997 dollars) due to the location of GEP/Bayer Automotive Glazing JV.*

The purpose of this study is to estimate the potential economic and fiscal benefits to Michigan of GEP/Bayer Automotive Glazing JV locating a facility in Michigan that would develop processing and application technology and would manufacture polycarbonate auto windows for the automotive market (SIC 5162). This product is still in the prototype stage, and once approved by the federal government, will be introduced primarily in sports utility vehicles and station wagons. The plastic windows will be inserted in the back and side of the vehicles. Investment activity would take place between 1998 and 2002, with an investment of \$25.3 million, and operations would begin in January 2000. The facility would employ 83 people by 2004.

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 1998 to 2021, are shown in the attached table. The MEGA incentive package includes a tax credit to the company for the period 2002 to 2006 equal to 2.2 percent of the payroll (gross wages) of employees hired at the facility as a result of the project for that period, equal to 3.3 percent for the period 2007 to 2011, and equal to 4.4 percent for the period 2012 to 2021. The payroll tax credit represents 50 percent of the maximum employment credit available to a company for the period 2002 to 2006, 75 percent of the maximum credit for the period 2007 to 2011, and 100 percent of the maximum credit for the period 2012 to 2021. The MEGA incentive package also includes relief from 100 percent of the single business tax for the period 2002 to 2006.

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 renovation of the facility is expected to generate a total of 74 jobs in 1998, 15 jobs in 1999, 46 jobs in 2000, and 32 jobs in 2001; almost all of these jobs

temporary. In 2004, the first year of full operations, an additional 163 jobs are generated in the state. We estimate that by 2021 this facility will have generated a total of 192 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 expansion averages 2.1 over the period 2004-2021. 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 GEP/Bayer Automotive Glazing JV were to locate in Michigan under the incentive program, state personal income in 2004 would be higher by \$12.1 million (in current dollars) than it would be without the facility, and in 2021 it would be \$25.3 million higher. Adjusted for inflation, these numbers in 1997 dollars would be \$8.2 million in 2004 and \$11.7 million in 2021.

The gain in economic activity results in higher state government revenues. We estimate that in 2004, the first year of full operations, the facility would generate \$968,000 in additional gross state government revenue, and that the MEGA package would provide a \$190,000 incentive to GEP/Bayer Automotive Glazing JV. Thus, the GEP/Bayer Automotive Glazing JV facility location would generate an additional \$778,000 in revenue to state government in 2004, net of MEGA incentive costs.

Over the period 1998-2021, gross state government revenue is projected to increase by \$29,520,000 (in current dollars) due to the location of GEP/Bayer Automotive Glazing JV. The MEGA incentive package for GEP/Bayer Automotive Glazing JV is forecast to cost \$8,970,000 over the period, resulting in a net increase in state government revenue of \$20,550,000. Adjusted for inflation, the total net increase in state government revenue from 1998 to 2021 would be \$11,575,000 in 1997 dollars. These calculations do not include any revenue losses due to the property tax abatement. If the cost of the abatement 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 GEP/Bayer Automotive Glazing JV Facility Location  
Net Benefits with the Incentive Package**

Economic/Fiscal Indicator	1998	1999	2000	2004	2005	2010	2015	2020	2021	Total 1998-2021
Total Employment	138	88	150	163	150	166	177	190	192	—
Manufacturing	12	4	7	0	0	0	0	0	0	—
Nonmanufacturing	126	84	143	163	150	166	177	190	192	—
Retail Trade	20	13	22	22	20	21	22	24	24	—
Wholesale Trade	39	38	58	86	85	85	86	86	86	—
Services	30	20	34	36	34	39	47	55	56	—
Other	37	13	29	19	11	21	22	25	26	—
In current dollars (thousands):										
Personal income	6,200	5,000	8,400	12,100	12,100	15,200	19,000	24,000	25,300	369,000
Gross state revenue	496	400	672	968	968	1,216	1,520	1,920	2,024	29,520
MEGA cost	0	0	0	190	686	314	503	606	629	8,970
State revenue net of MEGA cost*	496	400	672	778	282	902	1,017	1,314	1,395	20,550
Adjusted for inflation (thousands of 1997 dollars):										
Personal income	5,200	3,702	6,533	8,232	8,363	9,310	10,407	11,371	11,685	217,357
Gross state revenue	416	296	523	659	669	745	833	910	935	17,389
MEGA cost	0	0	0	157	552	218	301	312	315	5,814
State revenue net of MEGA cost*	416	296	523	502	117	527	532	598	620	11,575

\*These estimates do not include any state government revenue losses due to the property tax abatement.

**Fiscal Effects on Michigan of the GEP/Bayer Automotive Glazing JV Facility Location  
Net Benefits with the Incentive Package**

Year	Gross State Revenue	MEGA Cost	State Revenue Net of MEGA Cost
	(In thousands of current dollars)		
1998	496	0	496
1999	400	0	400
2000	672	0	672
2001	864	0	864
2002	896	136	760
2003	928	152	776
2004	968	190	778
2005	968	686	282
2006	984	932	52
2007	1,072	284	788
2008	1,120	293	827
2009	1,168	304	864
2010	1,216	314	902
2011	1,280	326	954
2012	1,320	450	870
2013	1,384	467	917
2014	1,448	485	963
2015	1,520	503	1,017
2016	1,592	522	1,070
2017	1,672	543	1,129
2018	1,768	563	1,205
2019	1,840	584	1,256
2020	1,920	606	1,314
2021	2,024	629	1,395