

**The Economic Effects on Michigan of the  
Hemlock Semiconductor Expansion**

Prepared by the Michigan Economic Development Corporation utilizing Regional  
Economic Models, Incorporated (REMI) software.

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### Abstract

*Hemlock Semiconductor is considering expanding their facility in Hemlock, Michigan. This facility would manufacture polycrystalline silicon to serve the solar energy industry. The new facility would employ up to 60 people by the end of 2006. We estimate that by 2015, this location will have generated a total of 122 jobs in the state. Total state government revenues through 2015, net of MEGA costs and adjusted for inflation, would increase by \$4.8 million (2004 dollars) due to the Hemlock Semiconductor expansion.*

The purpose of this study is to estimate the potential economic and fiscal benefits to Michigan of Hemlock Semiconductor locating a polycrystalline silicon manufacturing expansion in Hemlock. Investment activity would take place in 2005 with an investment of \$40 million. The facility would employ an additional 60 people and would be at full production by 2006.

The estimates of the benefits attributable to the project 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 2005 to 2015, are shown in the attached table. The MEGA incentive package includes a tax credit to the company equal to 100 percent of the state income tax rate on the payroll (gross wages) of employees hired at the facility for the period 2006 to 2015.

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 created from two sources, increased purchases from Michigan suppliers and spending by people who receive income due to the increased economic activity. In 2006, the first year of full operations, an additional 137 jobs are generated in the state. The total number of jobs (direct plus spin-off) for every direct job introduced constitutes the "employment multiplier." The employment multiplier for the expansion averages 2.32 over the period 2005 to 2015. Sectoral detail on the employment 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 Hemlock Semiconductor were to locate in Michigan under the incentive program, state personal income in 2006 would be higher by \$6.8 million (in current dollars) than it would be without the facility, and in 2015, it would be \$8.4 million higher. Adjusted for inflation, these numbers in 2004 dollars would be \$6.5 million in 2006 and \$6.7 million in 2015.

The gain in economic activity results in higher government revenues. We estimate that in 2006, the first year of full operations without investment activity, the facility would

generate \$524,000 in additional gross state revenue, and that the MEGA package would provide a \$115,000 incentive to Hemlock Semiconductor. Thus, the new Hemlock Semiconductor facility would increase state revenues in 2006 by \$409,000, net of MEGA costs.

Over the period 2005 to 2015 state government revenue is projected to increase by \$6.7 million (in current dollars) due to the new Hemlock Semiconductor facility. The MEGA incentive package for Hemlock Semiconductor is forecast to cost \$1.4 million over the period, resulting in a net increase in state government revenue of \$5.3 million. Adjusted for inflation, the total net increase in state government revenue from 2005 to 2015 would be \$4.8 million in 2004 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 the 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.

**Hemlock Semiconductor  
Economic and Fiscal Effects on Michigan - Net Benefits with the Incentive Package**

Economic/Fiscal Indicator	2005	2006	2007	2008	2009	2010	2015	Total
<b>Total Employment</b>	279	137	133	129	127	124	122	
Manufacturing	26	58	57	57	56	55	55	
Non-Manufacturing	253	79	76	72	71	69	67	
Retail Trade	39	13	12	12	11	11	9	
Services	84	38	37	35	34	34	33	
Other	130	28	27	25	26	24	25	
<b>In Current Dollars (Thousands):</b>								
Personal Income	\$11,260	\$6,805	\$7,019	\$7,141	\$7,233	\$7,507	\$8,423	\$86,730
Gross State Revenue	867	524	540	550	557	578	649	6,678
Mega Cost	0	115	118	122	126	129	162	1,350
State Revenue Net of MEGA Cost*	\$867	\$409	\$422	\$428	\$431	\$449	\$487	\$5,328
<b>Adjusted for Inflation (Thousands of 2004 Dollars):</b>								
Personal Income	\$11,076	\$6,537	\$6,602	\$6,580	\$6,529	\$6,640	\$6,744	\$77,073
Gross State Revenue	853	503	508	507	503	511	520	5,934
Mega Cost	0	110	111	112	113	114	130	1,176
State Revenue Net of MEGA Cost*	\$853	\$393	\$397	\$395	\$390	\$397	\$390	\$4,758

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