

**The Economic Effects on Michigan  
of the Dow Chemical Facility Location Decision**

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### Abstract

*Dow Chemical is considering relocating its research and development operations from the state of Ohio to Midland, Michigan. By 1999, the facility would employ 110 people. We estimate that by 2016, this location will have generated a total of 261 jobs in the state. Total state government revenues through 2016, net of MEGA costs and adjusted for inflation, would be increased by \$14,611,000 (1996 dollars) due to the location of Dow Chemical.*

The purpose of this study is to estimate the potential economic and fiscal benefits to Michigan of Dow Chemical's relocating its research and development operations from the state of Ohio to Midland, Michigan. Construction activity would take place in 1996 and 1997, with an investment of \$14 million, and operations would begin in the summer of 1997. The facility would employ 110 workers by 1999.

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 1996 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 1997-2016 and a tax credit to the company for the period 1997-2016 equal to 4.4 percent of the payroll (gross wages) of employees hired at the facility as a result of the project. The payroll tax credit represents 100 percent of the maximum employment credit available to a company.

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 of the facility is expected to generate a total of 75 jobs in 1996 and 168 jobs in 1997; almost all of these jobs are temporary. In 1999, the year that full operations begin, an additional 254 jobs are generated in the state. We estimate that by 2016 this facility will have generated a total of 261 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 1999-2016. 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 Dow Chemical were to locate in Michigan under the incentive program, state personal income in 1999 would be higher by \$17.3 million (in current dollars) than it would be without the facility, and in 2016 it would be \$33.6 million higher. Adjusted for inflation, these numbers in 1996 dollars would be \$13.3 million in 1999 and \$17.7 million in 2016.

The gain in economic activity results in higher state government revenues. We estimate that in 1999, the year that full operations begin, the facility would generate \$1,384,000 in additional gross state government revenue, and that the MEGA package would provide a \$494,000 incentive to Dow Chemical. Thus, the Dow Chemical facility would generate an additional \$890,000 in revenue to state government in 1999, net of MEGA incentive costs.

Over the period 1996-2016, gross state government revenue is projected to increase by \$37,816,000 (in current dollars) due to the location of Dow Chemical. The MEGA incentive package for Dow Chemical is forecast to cost \$13,141,000 over the period, resulting in a net increase in state government revenue of \$24,675,000. Adjusted for inflation, the total net increase in state government revenue from 1996 to 2016 would be \$14,611,000 in 1996 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 Dow Chemical Facility Location  
Net Benefits with the Incentive Package**

Economic/Fiscal Indicator	1996	1997	1998	1999	2000	2005	2010	2016	Total 1996-2016
Total Employment	75	296	250	254	245	231	243	261	—
Manufacturing	2	6	0	0	0	0	0	0	—
Nonmanufacturing	73	290	250	254	245	231	243	261	—
Retail Trade	8	37	35	36	34	33	35	38	—
Wholesale Trade	2	58	108	114	113	112	112	113	—
Services	15	71	76	77	74	71	74	83	—
Other	48	124	31	27	24	15	22	27	—
In current dollars (thousands):									
Personal income	2,700	13,300	15,500	17,300	18,100	21,800	26,400	33,600	472,700
Gross state revenue	216	1,064	1,240	1,384	1,448	1,744	2,112	2,688	37,816
MEGA cost	0	246	426	494	512	618	746	940	13,141
State revenue net of MEGA cost	216	818	814	890	936	1,126	1,366	1,748	24,675
Adjusted for inflation (thousands of 1996 dollars):									
Personal income	2,700	11,387	12,128	13,273	13,290	14,572	16,041	17,677	302,149
Gross state revenue	216	911	970	1,062	1,063	1,166	1,283	1,414	24,172
MEGA cost	0	239	402	454	458	483	507	539	9,561
State revenue net of MEGA cost	216	672	568	608	605	683	776	875	14,611