

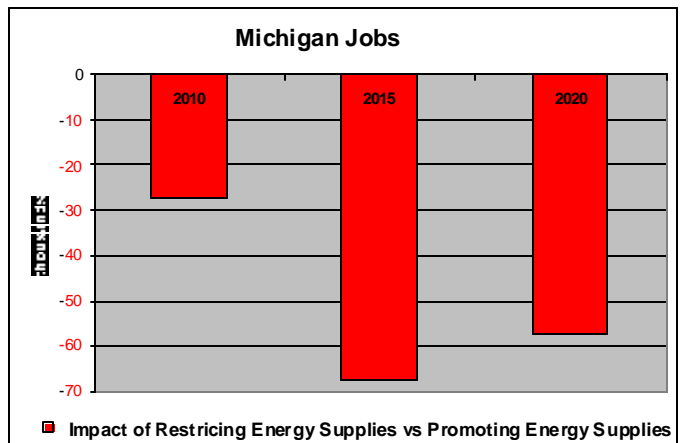
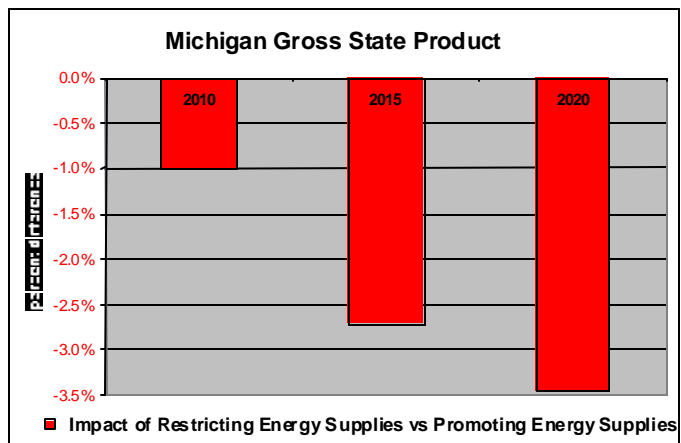
Promoting Energy Supply: Impact on Michigan's Economy

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The energy outlook for the U.S. has changed substantially over the last few years as the outlook for natural gas supplies has undergone a complete about-face. There has been little growth in U.S. lower-48 supplies, and imports from Canada have leveled off and may have peaked. LNG is now expected to play a much larger role in meeting the growing demand for natural gas, but its development is subject to myriad regulatory hurdles that may derail many planned projects.

Against the backdrop of a tighter supply picture for natural gas, the fuel substitution option is severely constrained as a mechanism for meeting the steady tightening of emission limits. During the 1990s, it was forecast that the low cost of low-emission gas combined cycle plants combined with the low cost of natural gas would make gas the option of choice for meeting emission limits. As gas supplies have tightened (and gas prices have risen), power generators and large manufacturers are facing tightening emission limits with fewer, more expensive choices.

- Michigan's economy would expand by 29% from 2010 to 2020 (at a rate of 2.5% per year) under policies that increase access to domestic energy resources.
- In contrast, policies that restrict energy supplies would reduce Michigan's Gross State Product by 3.5% in 2020.
- Jobs are a critical issue for Michigan's prosperity. Policies promoting energy supplies would result in 191,000 new jobs in the next decade.
- In contrast, under restrictive energy policies, Michigan would have 58,000 fewer jobs by 2020, and hourly wages would be lower.



Looking forward, there are policy options to improve economic performance by **promoting energy supplies** by ensuring adequate supplies at globally competitive prices while making steady improvements in air quality. Likewise, there are policies that would **restrict energy supplies** and lead to lower economic performance without a notable gain in air quality.

Global Insight has been commissioned by the National Association of Manufacturers and the American Council for Capital Formation to measure the impacts on U.S. manufacturing and the overall economy of two scenarios that are defined by key energy and environmental policy options.

Promoting Energy Supplies Increases US Economic Performance, US Manufacturing Output Expands, 18 Million Jobs are Created

Under the **Promoting Energy Supplies** scenario, US economic performance is enhanced by the availability of energy resources at globally competitive prices. Continued reliance on domestically produced fuels, a steady increase in economically attractive renewable resources and the building of several new nuclear units contributes to a strong economy. Over the period 2010-2020,

- Real GDP growth averages 3.1%.
- Business fixed investment grows at an annual rate of 6.3% per year.
- Industrial production increases at 3.5% per year.
- Real disposable income rises 3.2% per annum.
- Employment expands 1.25% per year; 18 million new jobs are created.
- Manufacturing output grows 3.0% per year.
- Manufacturers employ more than 13 million people.

Restricting Energy Supplies Would Cost the US Economy 1.3 Million Jobs, Manufacturing Output would be 6% Lower

Under the **Restricting Energy Supplies** scenario, tightening mercury emission limits, enactment of severe limits on carbon dioxide emissions, and barriers to development of natural gas supplies combine to dramatically increase the cost of energy and reduce economic growth compared to the Promoting Energy Supplies scenario.

- Homeowners would pay 26% more for natural gas in 2010, and 21% more for electricity. By 2020, natural gas would cost 31% more, and electricity prices would be 61% higher.
- Manufacturers would see similar price hikes, reducing global competitiveness.
- The economy's performance would be weaker.
- Real GDP would fall 2.3% below the Promoting Energy Supplies case by 2020.
- Industrial production would be 12% lower by 2020.
- Real disposable income would be 2.2% below the Promoting Energy Supplies case by 2020.

Michigan Gains Jobs and Better Wages with Policies that Promote Energy Supplies

Michigan's economic performance would benefit from policies that encourage development of domestic energy supplies, but could be damaged by stringent controls on mercury and greenhouse gas emissions. Michigan's economy would expand by 2.5% per year next decade, resulting in more and better paying jobs.

Stronger Economic Outlook for Michigan under the Promoting Energy Supply Scenario

Michigan	2010			2015			2020		
	PES	RES	%diff.	PES	RES	%diff.	PES	RES	%diff.
Gross State Product (million 2000\$)	423980	419720	-1.0%	480053	466980	-2.7%	545073	526147	-3.5%
Manufacturing Output (mil. 2000\$)	124780	122952	-1.5%	164326	157202	-4.3%	215619	202649	-6.0%
Manufacturing, Durables	110501	108920	-1.4%	149083	142644	-4.3%	199419	187453	-6.0%
Manufacturing, Nondurables	14280	14033	-1.7%	15243	14558	-4.5%	16200	15195	-6.2%
Non-Manufacturing Output (mil. 2000\$)	299199	296768	-0.8%	315727	309778	-1.9%	329454	323498	-1.8%
Government	32906	32986	0.2%	31184	31221	0.1%	28957	29129	0.6%
Agriculture, Forestry, & Fishing	2524	2502	-0.9%	3410	3326	-2.5%	4531	4400	-2.9%
Construction	15725	15403	-2.0%	17444	16203	-7.1%	19318	17516	-9.3%
Mining	390	377	-3.1%	367	350	-4.7%	340	292	-14.1%
Educational & Health Services	25627	25580	-0.2%	25967	25763	-0.8%	25686	25590	-0.4%
Financial Activities	62570	62190	-0.6%	61335	60766	-0.9%	58833	58465	-0.6%
Information	11515	11527	0.1%	11968	11896	-0.6%	12219	12081	-1.1%
Leisure & Hospitality	10195	10162	-0.3%	10005	9871	-1.3%	9683	9591	-0.9%
Professional & Business Services	58419	57644	-1.3%	66170	65532	-1.0%	73777	74388	0.8%
Trade & Transportation	65289	64673	-0.9%	74067	71963	-2.8%	82851	80407	-3.0%
Utilities	6641	6257	-5.8%	6395	5297	-17.2%	6041	4233	-29.9%
Other Services	7398	7466	0.9%	7414	7589	2.4%	7218	7406	2.6%
Employment (thousands)									
Total Nonfarm	4554	4527	-0.6%	4623	4556	-1.5%	4745	4688	-1.2%
Manufacturing									
Manufacturing, Durables	540	533	-1.2%	487	462	-5.1%	455	420	-7.8%
Manufacturing, Nondurables	143	142	-0.7%	134	132	-1.6%	131	130	-0.9%
Non-Manufacturing									
Government	711	713	0.3%	729	732	0.5%	749	758	1.2%
Construction, Natural Rsrcs, Mining	215	210	-2.0%	236	220	-6.7%	262	239	-8.8%
Educational & Health Svcs	573	572	-0.1%	586	584	-0.4%	607	608	0.2%
Financial Activities	221	220	-0.6%	218	217	-0.5%	215	215	0.0%
Information	69	69	0.2%	69	69	-0.2%	71	70	-0.5%
Leisure & Hospitality	423	421	-0.3%	425	421	-0.9%	429	427	-0.3%
Professional & Business Svcs	630	622	-1.3%	685	681	-0.6%	745	755	1.4%
Trade & Transportation	822	814	-0.9%	837	816	-2.4%	852	832	-2.4%
Utilities	20	19	-2.6%	20	18	-11.0%	20	16	-19.0%
Other Services	189	191	1.0%	199	204	2.8%	210	216	3.2%
Wages (2000\$)									
Avg. Hourly Earnings, Manufacturing	25.98	25.75	-0.9%	30.59	30.01	-1.9%	36.11	34.95	-3.2%
Income (Millions, 2000\$)									
Personal Income	345550	341625	-1.1%	380401	371642	-2.3%	420875	409664	-2.7%
Disp. Personal Income	304335	301244	-1.0%	332150	325732	-1.9%	368241	359989	-2.2%
Population (Thousands)	10358	10358		10557	10557		10750	10750	

Source: Global Insight, Inc.

Note: The Promoting Energy Supply Case is denoted by PES, Restricting Energy Supply Case is RES.

Scenario Descriptions

	Promoting Energy Supply Scenario	Restricting Energy Supply Scenario
Climate Change Policy Assumptions	No federal requirements for mandatory reduction in greenhouse gases (GHG)	McCain-Lieberman (S. 139) enacted for GHG emission reductions in 2010 and 2016
Mercury Policy Assumptions	15-ton cap by 2018, with a cap and trade program, no MACT	Emissions reduced by 90% by 2010-2012 through MACT standards, without regard to coal type, no cap and trade and assuming limited technology advancement by 2012
SO₂, NO_x Assumptions	CAIR and all ongoing regulatory programs, including required future phases	CAIR and all ongoing regulatory programs, including required future phases
Natural Gas Supply Assumptions		
Offshore drilling	Restrictions/moratoria removed	No leasing of new areas
Federal Onshore	Federal changes to increase access (excluding Wilderness and Parks) reduce permitting costs and delays by 50% in first five years (as in 9/03 NPC study)	Highly restrictive federal impediments [to access]
Alaskan gas pipeline	Pipeline completed by 2018	No pipeline
Canadian gas	Imports ramp down to 1.0 tcf by 2015	Imports ramp down to zero by 2015
LNG	As many as 5-7 regasification terminals are built before 2015	No new LNG regasification terminals are built other than the facilities that are contracted and under construction.
Nuclear Power Assumption	4 new gigawatts on-line by 2015 (in addition to the rise in nuclear generation due to returning units, uprates of existing units, and increased utilization)	0 new gigawatts on-line by 2015 (but, does include the rise in nuclear generation due to returning units, uprates of existing units, and increased utilization)
Renewable Portfolio Standards Assumption	No new federal or state standards and a permanent extension of the Renewable Energy Production Tax Credits	No new federal or state standards and a permanent extension of the Renewable Energy Production Tax Credits