


# Michigan

## KEY FINDINGS (BY 2025)

- Job Impacts (in 2025): **-516,000**
- GDP Impacts: **-\$159 Billion**
- Household Income Impacts: **-\$88 Billion**
- State and Local Tax Revenues Impacts: **-\$13.5 Billion**
- Federal Tax Revenues Impacts: **-\$26.4 Billion**
- Cost-of-Living Increase (per capita): **\$5,170**



In 2018, Michigan generated \$528 million in GDP,<sup>66</sup> had 4.7 million employed workers, and had an unemployment rate of 4.1 percent, which is higher than the national average of 3.9 percent.<sup>4</sup> The manufacturing sector is a very important part of the Michigan economy, accounting for nearly 20 percent of the state's GDP and ranking sixth in the nation.<sup>66</sup> So while the state might not be a major producer of oil and natural gas, home heating and energy intensive manufacturing in the state – particularly in the automotive sector – make these resources vital to Michigan's overall economic health.

Michigan's crude oil reserves and production account for less than 0.15 percent of the nation's total,<sup>2</sup> and natural gas reserves and production are all lower than 0.3 percent of the U.S.<sup>3</sup> The Antrim Gas Field in Michigan's Lower Peninsula is one of the nation's top 100 natural gas fields ranked by proved reserves.<sup>32</sup> Michigan has the largest underground natural gas storage capacity in the nation at nearly 1.1 trillion cubic feet, more than one-ninth of the U.S. total.<sup>67</sup>

Michigan's natural gas production and oil has declined over the past decades. In 2018, gross withdrawals of natural gas were less than 30 percent of the state's 1997 peak.<sup>68</sup> At the same time, oil production declined from a peak of about 35 million barrels per year in 1981 to less than 5.5 million barrels in 2018.<sup>69</sup> Still, according to a study commissioned by the Michigan Oil and Gas Association, Michigan's oil and natural gas industry creates tens of thousands of jobs and billions of dollars in income for Michigan residents.<sup>70</sup>

The significance of oil and natural gas in Michigan, however, is primarily in the roles these resources play in manufacturing. The manufacturing of transportation equipment accounts for almost half of the state's manufacturing gross domestic product, which totaled over \$102 billion in 2018, sixth-largest in the country.<sup>46</sup> In total, Michigan's manufacturing sector accounts for over 14 percent of state employment.<sup>71</sup>

Synonymous with the automotive industry, it's no surprise that motor vehicles and vehicle parts make up the majority of Michigan's manufacturing output.<sup>71</sup> Michigan is home to 96 of the top 100 automotive suppliers in North America<sup>72</sup> and accounts for 17 percent of U.S. automotive production.<sup>73</sup> Further, \$12 billion in automotive research and development spent in the state annually.<sup>72</sup>

Production of these vehicles and their parts at such a scale is an extremely energy intensive process. Industrial energy consumption accounts for over a quarter of the state's total consumption,<sup>74</sup> with the sector representing 20 percent of Michigan's overall natural gas use in 2017.<sup>75</sup> Used for heating, power generation and

as a feedstock, natural gas has continued to play an important role in state manufacturing. In fact, natural gas consumption in Michigan's industrial sector growing 25 percent between 2008 and 2018.<sup>76</sup> A ban on hydraulic fracturing would therefore cripple the Michigan manufacturing, driving up energy and natural gas costs.

Unsurprisingly, due to the importance of manufacturing and the state's colder climate, Michigan is among the top states in the nation in total energy consumption.<sup>66</sup> In 2018, Michigan's total natural gas consumption was almost ten times greater than the state's natural gas production.<sup>77</sup>

At the residential level, more than three-fourths of Michigan households use natural gas as their primary source for home heating, which is the largest natural gas consumer in the state.<sup>78</sup> The state is also a top consumer of propane – derived from petroleum – with Michigan being the largest residential consumer of hydrocarbon gas liquids in the United States.<sup>66</sup> Crude oil consumption in Michigan is greater than 80 percent of the states and is one of the top five states in residential petroleum use (heating oil and propane).<sup>79</sup>

In a scenario where hydraulic fracturing were banned, we find that nearly 516,000 jobs would be lost in Michigan in 2025 (Table 32). If the ban takes effect in 2021, our modeling indicates that \$51 billion in state GDP in Michigan would be lost, with most of those losses attributed to the higher costs for energy.

Michigan consumers will be hit hard by a ban on hydraulic fracturing, paying an additional \$442 per capita for goods and services in 2021 compared to today and increasing to \$1,575 per capita in 2025. Cumulatively, Michigan consumers will pay an astounding \$5,170 more than today through 2025. Table 33 summarizes the impacts that would be felt starting 2021 and going on through 2025.

As we discussed above, Michigan is one of the top energy-consuming states in the United States. The ban would cause high energy costs that would affect both residents and businesses. Our analysis finds that Michigan households would experience an \$88 billion reduction in income by 2025 (Table 34) and that the state would experience a nearly \$13.5 billion reduction in state and local tax revenue by 2025 (Table 35). Federal receipts would be \$26.4 billion less by 2025.

**Table 32: Michigan Jobs Impacts from Hydraulic Fracturing Ban (thousands)**

Type of Economic Shock	2021	2022	2023	2024	2025
Due to higher residential energy costs	-71	-119	-175	-211	-252
Due to higher business energy costs	-78	-142	-224	-271	-324
Upstream production losses	-3	-4	-6	-7	-8
Windfall profits	42	53	59	63	68
<b>Total Michigan employment impacts</b>	<b>-109</b>	<b>-212</b>	<b>-345</b>	<b>-426</b>	<b>-516</b>

**Table 33: Michigan GDP Impacts from Hydraulic Fracturing Ban (2018 \$ billions)**

Type of Economic Shock	2021	2022	2023	2024	2025	Cumulative
Due to higher residential energy costs and windfall profits	-6	-11	-15	-19	-22	-73
Due to higher business energy costs	-8	-15	-24	-29	-35	-111
Upstream production losses	0	0	0	-1	-1	-2
Windfall profits	4	5	5	6	6	26
<b>Total Michigan GDP impacts</b>	<b>-11</b>	<b>-21</b>	<b>-34</b>	<b>-42</b>	<b>-51</b>	<b>-159</b>

**Table 34: Michigan Household Income Impacts from Hydraulic Fracturing Ban (2018 \$ billions)**

Type of Economic Shock	2021	2022	2023	2024	2025	Cumulative
Due to higher residential energy costs	-3	-6	-9	-10	-12	-40
Due to higher business energy costs	-5	-8	-13	-16	-19	-61
Upstream production losses	0	0	0	0	0	0
Windfall profits	2	3	3	3	3	14
<b>Total Michigan household income impacts</b>	<b>-6</b>	<b>-12</b>	<b>-19</b>	<b>-23</b>	<b>-28</b>	<b>-88</b>

**Table 35: Michigan State and Local Tax Revenues Impacts from Hydraulic Fracturing Ban (2018 \$ millions)**

Type of Economic Shock	2021	2022	2023	2024	2025	Cumulative
Due to higher residential energy costs and windfall profits	-518	-872	-1,281	-1,546	-1,850	-6,067
Due to higher business energy costs	-687	-1,268	-2,031	-2,462	-2,948	-9,395
Upstream production losses	-16	-26	-35	-43	-50	-170
Windfall profits	316	403	448	477	515	2,159
<b>Total Michigan tax revenues impacts</b>	<b>-905</b>	<b>-1,763</b>	<b>-2,899</b>	<b>-3,574</b>	<b>-4,333</b>	<b>-13,473</b>

**Table 36: Michigan Federal Tax Revenues Impacts from Hydraulic Fracturing Ban (2018 \$ millions)**

Type of Economic Shock	2021	2022	2023	2024	2025	Cumulative
Due to higher residential energy costs and windfall profits	-1,015	-1,708	-2,510	-3,028	-3,624	-11,885
Due to higher business energy costs	-1,346	-2,484	-3,978	-4,823	-5,774	-18,405
Upstream production losses	-31	-52	-68	-84	-98	-332
Windfall profits	620	790	877	934	1,008	4,229
<b>Total Michigan tax revenues impacts</b>	<b>-1,772</b>	<b>-3,454</b>	<b>-5,678</b>	<b>-7,001</b>	<b>-8,489</b>	<b>-26,394</b>