



# THE THREAT OF OIL & GAS POLLUTION

## Michigan

Methane, the primary component of gas, is an invisible, odorless greenhouse gas that is a powerful driver of climate change — 87 times as powerful as carbon dioxide during the time it remains in the atmosphere.<sup>1</sup> The oil and gas sector is the largest source of methane in the U.S., leaking or intentionally venting large quantities of this dangerous pollutant into our air every day. In 2014, the oil and gas industry emitted over 9.8 million metric tons of methane, a number 34% higher than previous estimates.<sup>2</sup> The near-term climate impact of these emissions is equal to the pollution caused by more than 200 coal-fired power plants over 20 years.

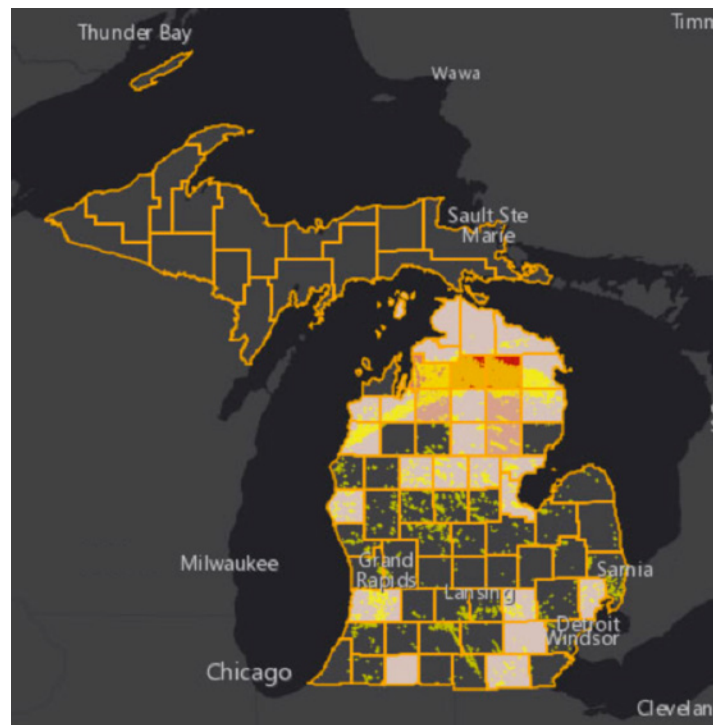
Along with methane, oil and gas facilities often release other air pollutants that can harm our health, including formaldehyde, benzene, acetaldehyde, and ethyl benzene. These toxins can cause cancer, respiratory symptoms, anemia, brain damage and birth defects, eye irritation, and blood and neurological disorders.

### THE THREAT RADIUS

Peer-reviewed studies have documented higher levels of harmful air pollutants in and around areas with oil and gas production activity, and have shown that oil and gas facilities are the source of the excess pollution. Research indicates links between risks and/or prevalence of disease and proximity to facilities.<sup>3</sup> The half mile “threat radius” is a very conservative estimate of the area within which higher levels of toxic pollution are seen, and the distance within which health impacts have most clearly been correlated with the presence of oil and gas facilities.<sup>4</sup>

There are currently 12.4 million people living within a half mile of one of 1,193,118 active oil and gas wells, compressors, and processors in the United States. In total, 184,578 square miles are covered by the threat radius<sup>5</sup>, which includes 11,543 schools and 639 medical facilities.

Nationwide, 238 counties in 21 states face a cancer risk that exceeds EPA’s one-in-a-million threshold level of concern, **including Otsego County and Montmorency County in Michigan.**<sup>6</sup>



MAP: [OILANDGASTHREATMAP.COM/THREAT-MAP/MICHIGAN](http://OILANDGASTHREATMAP.COM/THREAT-MAP/MICHIGAN)

## OIL & GAS THREATENS MICHIGAN

In 2013, oil and gas producers in Michigan emitted 20,000 metric tons of methane from their 14,000 wells. This is the greenhouse gas equivalent to the emissions from over 100,000 cars. Methane pollution also leads to increased ground level ozone and, in 2013, eleven counties in Michigan exceeded the EPA's national ozone standard over 13 days.<sup>7</sup>

More than 4% of Michigan's residents live within a half mile threat radius of one of the state's 16,540 methane-emitting facilities. In addition to Otsego and Montmorency counties exceeding EPA's cancer risk level of concern, **Antrim County has a cancer risk in the highest 10%.**

### THE NUMBERS<sup>8</sup>

<b>TOTAL POPULATION</b> Living in the Threat Radius (within a half mile of a facility)	444,957
<b>TOTAL NUMBER</b> of Active Oil and Gas Wells, Compressors, and Processors	16,540
<b>NUMBER OF COUNTIES</b> that Exceed EPA's Cancer Risk Level of Concern	2
<b>NUMBER OF SCHOOLS</b> in the Threat Radius	363
<b>NUMBER OF MEDICAL FACILITIES</b> in the Threat Radius	54
<b>SQUARE MILES COVERED</b> by the Threat Radius	4,629

### STRONG FEDERAL STANDARDS ARE KEY

On May 12, 2016, the Environmental Protection Agency (EPA) finalized the first-ever federal standards addressing new and modified sources of methane pollution from

the oil and gas sector. These standards require, among other things, that companies regularly monitor for and repair leaks.<sup>9</sup> The EPA expects this rule to cut 510,000 tons of methane pollution from oil and gas facilities and equipment, the emissions equivalent of 11 coal-fired power plants or taking 8.5 million cars off the road every year.<sup>10</sup> These standards will also significantly impact public health by curbing emissions of smog-forming volatile organic compounds (VOCs) and toxic air pollutants.

The 2016 standards were an important first step, but in 2018, nearly 90% of methane emissions will come from existing sources not covered by this rule.<sup>11</sup> Strong methane standards for both new *and existing* sources are key to the Administration's ability to meet its Paris climate commitments to reduce greenhouse gas emissions 26-28% below 2005 levels by 2025.<sup>12</sup> Therefore, the EPA must develop strong and effective standards for existing sources as soon as possible, both to meet its legal commitments and to protect public health and welfare.

**Without strong standards on existing sources, millions of people — including the more than 444,000 in Michigan within the threat radius — will continue to be at risk.**

### COMMON-SENSE SOLUTIONS ARE READILY AVAILABLE

Thankfully, common-sense solutions exist not only to clean-up and fix methane leaks, but to boost local economies as well. More than 500 locations in 46 states are already manufacturing the equipment and providing the services needed to reduce methane pollution, **including one company headquarters and two service facilities in Michigan.** These businesses are helping to grow the local economy by creating highly skilled, good-paying jobs.<sup>13</sup>

### ENDNOTES

- [1 http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5\\_Chapter08\\_FINAL.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5_Chapter08_FINAL.pdf)
- [2 https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf](https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf)
- [3 http://ehp.niehs.nih.gov/1306722/](http://ehp.niehs.nih.gov/1306722/)
- [4 http://oilandgasthreatmap.com/about/threat/](http://oilandgasthreatmap.com/about/threat/)
- [5 http://oilandgasthreatmap.com/threat-map/](http://oilandgasthreatmap.com/threat-map/)
- [6 http://www.catf.us/resources/publications/files/FossilFumes.pdf](http://www.catf.us/resources/publications/files/FossilFumes.pdf)
- [7 http://methanefacts.org/files/2015/08/MI-Methane-Rule-Fact-sheet.pdf](http://methanefacts.org/files/2015/08/MI-Methane-Rule-Fact-sheet.pdf)

- [8 http://oilandgasthreatmap.com/threat-map/michigan/](http://oilandgasthreatmap.com/threat-map/michigan/)
- [9 https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector](https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector)
- [10 https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector](https://www.epa.gov/newsreleases/epa-releases-first-ever-standards-cut-methane-emissions-oil-and-gas-sector)
- [11 https://www.edf.org/sites/default/files/methane\\_cost\\_curve\\_report.pdf](https://www.edf.org/sites/default/files/methane_cost_curve_report.pdf)
- [12 https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc](https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc)
- [13 https://www.edf.org/sites/default/files/us\\_methane\\_mitigation\\_industry\\_report.pdf](https://www.edf.org/sites/default/files/us_methane_mitigation_industry_report.pdf)

## APPENDIX

MI Counties	Total Population	Threatened Population	Number of Facilities	Threatened Schools	Threatened Medical Facilities	Threatened Square Miles	Other Risks
St. Clair County	163,040	37,266	323	20	4	114.51	
Kent County	602,622	35,809	149	17	2	30.60	
Macomb County	840,978	33,869	117	21	0	32.63	
Saginaw County	200,169	27,633	53	22	10	29.18	
Oakland County	1,202,362	26,599	33	14	0	35.02	
Otsego County	24,164	22,186	3,450	20	4	449.42	Exceeds EPA level of concern for cancer risk*
Wayne County	1,820,584	21,165	25	7	2	19.91	
Allegan County	111,408	20,917	414	35	0	168.53	
Livingston County	180,967	18,399	91	13	4	61.78	
Muskegon County	172,188	16,381	15	13	5	54.00	
Bay County	107,771	14,786	360	10	3	59.79	
Ottawa County	263,801	13,275	154	12	1	47.05	
Antrim County	23,580	13,009	1,675	7	1	351.33	County Cancer Risk is in highest 10%.
Manistee County	24,733	9,588	538	11	2	169.54	
Grand Traverse County	86,986	8,556	167	7	1	147.94	
Montcalm County	63,342	7,336	202	5	2	99.78	
Montmorency County	9,765	7,273	2,515	7	0	421.87	Exceeds EPA level of concern for cancer risk*
Ingham County	280,895	6,734	54	4	1	58.12	
Calhoun County	136,146	6,268	89	8	0	91.01	
Mecosta County	42,798	6,218	194	10	1	80.17	
Isabella County	70,311	5,891	162	4	0	102.67	
Van Buren County	76,258	5,475	8	14	0	64.36	
Eaton County	107,759	5,470	9	9	0	39.52	
Kalkaska County	17,153	5,407	320	4	0	160.27	
Jackson County	160,248	5,391	61	3	0	50.92	
Clare County	30,926	5,297	657	4	0	99.90	
Lenawee County	99,892	5,283	41	4	3	40.90	
Midland County	83,629	5,281	108	3	0	70.79	
Alpena County	29,598	3,948	887	5	0	218.98	
Ogemaw County	21,699	3,462	328	6	3	59.23	
Osceola County	23,528	3,364	415	7	1	85.35	
Hillsdale County	46,688	2,921	15	6	0	50.31	
Newaygo County	48,460	2,661	142	5	0	55.85	
Arenac County	15,899	2,498	235	2	2	52.92	
Gladwin County	25,692	2,477	185	3	0	65.78	
Oceana County	26,570	2,262	47	4	0	60.45	
Kalamazoo County	250,331	2,046	2	1	0	9.32	
Mason County	28,705	1,971	20	1	1	42.03	
Cass County	52,293	1,801	14	5	0	24.90	
Missaukee County	14,849	1,579	265	1	1	62.89	
Tuscola County	55,729	1,550	106	0	0	29.19	
Alcona County	10,942	1,514	473	1	0	140.52	
Charlevoix County	25,949	1,422	204	0	0	49.65	
Lapeer County	88,319	1,348	19	0	0	17.83	
Barry County	59,173	1,231	22	0	0	13.50	
Oscoda County	8,640	1,203	463	0	0	113.39	

**APPENDIX, CONT.**

<b>MI Counties</b>	<b>Total Population</b>	<b>Threatened Population</b>	<b>Number of Facilities</b>	<b>Threatened Schools</b>	<b>Threatened Medical Facilities</b>	<b>Threatened Square Miles</b>	<b>Other Risks</b>
Washtenaw County	344,791	1,191	38	0	0	15.32	
Graiot County	42,476	1,178	50	0	0	26.88	
Genesee County	425,790	1,029	16	0	0	9.71	
Benzie County	17,525	941	50	3	0	29.16	
Wexford County	32,735	919	13	0	0	16.45	
Crawford County	14,074	855	374	0	0	78.24	
Monroe County	152,021	439	4	0	0	9.40	
Presque Isle County	13,376	382	38	1	0	31.28	
Shiawassee County	70,648	302	5	0	0	4.29	
Lake County	11,539	265	12	1	0	15.72	
Cheboygan County	26,152	208	27	1	0	16.29	
Sanilac County	43,114	198	0	0	0	6.13	
Ionia County	63,905	193	0	0	0	5.65	
Leelanau County	21,708	180	0	0	0	3.50	
Huron County	33,118	155	2	1	0	7.44	
Berrien County	156,813	132	0	1	0	4.08	
Roscommon County	24,449	121	78	0	0	35.05	
Clinton County	75,382	103	0	0	0	2.42	
Iosco County	25,887	99	7	0	0	7.61	
Branch County	45,248	47	0	0	0	1.23	

\*County-wide average cancer risk is equal to or greater than 1 in 1 million.