

PREPARED FOR **AMERICAN PETROLEUM INSTITUTE**

PREPARED BY **ICF**

9300 LEE HIGHWAY | FAIRFAX VA

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# Benefits and Opportunities of Natural Gas Use, Transportation, and Production



## Michigan

### Economic Impacts of Natural Gas

There were 17,400 jobs in the state related to natural gas. These jobs represented 2.9 percent of total state jobs. The top three sectors with the greatest number of jobs were chemical manufacturing, natural gas distribution, and industrial equipment repair and maintenance. The contribution to the Michigan economy in terms of direct, indirect, and induced value added in 2015 was \$16.75 billion, of which \$10.7 billion was related to the end use segment, \$4.53 billion was from the infrastructure segment, and \$1.57 billion was from the production segment.

### Natural Gas Consumers

In 2015, Michigan consumed 827 Bcf of natural gas in all sectors. There were a total of 3.48 million customers. The value of natural gas delivered to consumers was \$5.15 billion.

Michigan has 3.21 million residential customers who consumed 312 Bcf in 2015. Average consumption per was 97 Mcf per household. Residential demand was 69 percent for space heating, 21 percent for water heating, 3 percent for cooking, 1 percent for clothes drying and 6 percent for other uses.

Michigan has 254,000 commercial customers who consumed 168 Bcf in 2015. Average consumption per customer was 6.6 MMcf. Commercial demand was 72 percent for space heating, 12 percent for water heating, 3 percent for cooking, and 13 percent for other uses.

There are 7,900 industrial customers who consumed 171 Bcf in 2015. Average consumption per industrial customer was 22 MMcf. The top industries for gas consumption were Chemicals (325), Transportation Equipment (336), Primary Metals (331), Food (311), and Fabricated Metal Products (332), representing 82 percent of industrial demand.

Michigan has 94 power plants consuming natural gas. Gas consumed was 175 Bcf, representing 18 percent of power generation in the state. Average consumption per customer was 1,859 MMcf.

### Natural Gas Infrastructure

In 2015, Michigan had 3,900 producing oil wells and 9,900 producing gas wells. There were 2,500 miles of gas gathering lines and 13 gas processing plants in the state with a capacity of 126 MMcf/d. In addition, there were 8,700 miles of gas pipelines, 1,550 miles of crude oil pipelines, 580 miles of NGL pipelines, 1,390 miles of product pipelines, and no CO2 pipelines. There were 57,900 miles of gas distribution mains and 54,200 miles of service lines. There were 44 natural gas storage sites in the state with a working gas capacity of 686 Bcf.

### Natural Gas and Oil Production

In 2015, Michigan produced 106 Bcf of dry natural gas, 1.6 million barrels of plant liquids, no lease condensate, and 6.4 million barrels of crude.

## Exhibit 7-24: Michigan State Factsheet

Michigan			Employment (# of Workers)			Labor Income (\$ million)			Value Added (\$ million)		
Summary	Segment	Category	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total	Direct & Indirect	Induced	Total
	End-Use	Power Generation	3,372	7,371	10,744	251	362	614	736	648	1,384
		Industrial	14,422	23,426	37,848	1,209	1,216	2,424	4,505	2,066	6,571
		Residential/ Commercial	7,084	8,205	15,289	469	422	891	1,690	741	2,431
		Export	1,475	1,583	3,058	111	81	192	122	141	263
		Transportation	22	20	42	1	1	2	4	2	5
	Infrastructure	Processing	1,840	2,907	4,746	125	138	263	143	265	408
		Pipelines	6,671	7,591	14,262	524	390	914	969	696	1,666
		Distribution	8,716	8,667	17,383	669	449	1,118	1,611	785	2,397
		Wholesalers, Marketers, Other	224	233	457	17	12	29	38	21	60
	Production	Natural Gas/ NGLs	7,710	9,716	17,426	606	472	1,078	702	866	1,568
	All Segments	Grand Total	51,535	69,720	121,255	3,982	3,543	7,526	10,520	6,232	16,752

Jobs by Top Industries	Rank	NAICS	Industry Sector	Direct and Indirect Jobs
	1	325	Chemical Manufacturing	6,302
	2	221210	Natural Gas Distribution	2,207
	3	811310	Industrial Equip. & Machinery Repair & Maint.	1,493
	4	237120	Oil & Gas Pipeline Construction	1,258
	5	45431NGL	NGL Retail	936
	6	811412	Household Appliance Repair & Maintenance	903
	7	333994	Industrial Process Furnace & Oven Manufacturing	857
	8	236210	Industrial Construction	747
	9	486210	Pipeline Transportation of Natural Gas	746
	10	213112	Support Activities for Oil & Gas Operations	622

Customers	Sector	Customer Count	Consumption Volume (MMcf/ year)	Value of Natural Gas Delivered to Customers (\$million)
	Residential Sector	3,213,910	312,098	\$2,745
	Commercial Sector	254,484	168,360	\$1,199
	Industrial Sector	7,931	171,196	\$654
	Transportation	24	493	\$4
	Power Sector	94	174,770	\$545
	All Sectors	3,476,443	826,917	\$5,147

Infrastructure	Gas Distribution Main (miles)	Gas Distribution Services (miles)	Gas Gathering (miles)	Gas Pipelines (miles)	Crude Oil Pipelines (miles)	NGL Pipelines (miles)	Oil Product Pipelines (miles)	CO2 Pipelines (miles)
	57,867	54,232	2,491	8,698	1,554	582	1,390	0

Production	Product	Annual Production
	Dry Natural Gas (mmcf)	105,841
	Gas Plant Liquids (barrels)	1,565,000
	Lease Condensate (barrels)	0
	Crude Oil (barrels)	6,424,000
	Annual Value Counted Toward Natural Gas Value Chain (\$million)	\$333
	Annual Value of All Produced Oil, Gas, NGLs (\$million)	\$624

Wells	Well Type	Operating Wells	New Wells Drilled
	Oil Wells	3,930	29
	Gas Wells	9,929	1
	All Wells	13,859	30

Annual 2015 Data for Michigan  
Natural Gas Value Chain Basis