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



North Dakota

Economic Impacts of Natural Gas

There were 32,300 jobs in North Dakota related to natural gas. These jobs represented 7.5 percent of total state jobs. The top three sectors with the greatest number of jobs were support activities for oil and gas, oil and gas pipeline construction, and drilling oil and gas wells. The contribution to the North Dakota economy in terms of direct, indirect, and induced value added in 2015 was \$3.84 billion, of which \$0.32 billion was related to the end use segment, \$1.10 billion was from the infrastructure segment, and \$2.43 billion was from the production segment.

Natural Gas Consumers

In 2015, North Dakota consumed 58 Bcf of natural gas in all sectors. There were a total of 163,000 customers. The value of natural gas delivered to consumers was \$307 million.

North Dakota has 141,000 residential customers who consumed 11 Bcf in 2015. Average consumption was 75 Mcf per household. Residential demand was 70 percent for space heating, 23 percent for water heating, 3 percent for cooking, and 4 percent for other uses.

North Dakota has 21,000 commercial customers who consumed 12 Bcf in 2015. Average consumption per commercial customer was 577 Mcf. Commercial demand was 74 percent for space heating, 14 percent for water heating, 4 percent for cooking, and 8 percent for other uses.

There are 286 industrial customers in North Dakota who consumed 32 Bcf in 2015. Average consumption per industrial customer was 111 MMcf. The top industries for gas consumption were Chemicals (NAICS Code 325), Agriculture (11), Food (311), Mining (21), and Machinery (333), representing 98 percent of industrial demand.

North Dakota has 7 power plants consuming natural gas. In 2015, Gas consumed was 3.7 Bcf, representing 2 percent of power generation in the state. Average consumption per customer was 524 MMcf.

Natural Gas Infrastructure

In 2015, North Dakota had 13,420 producing oil wells and 462 producing gas wells. There were 7,536 miles of gas gathering lines and 14 gas processing plants in the state with a capacity of 950 MMcf/d. In addition, there were 2,479 miles of gas pipelines, 3,058 miles of crude oil pipelines, 266 miles of NGL pipelines, 774 miles of product pipelines, and 167 miles of CO₂ pipelines. There were 3,591 miles of gas distribution mains and 2,492 miles of service lines. There are no natural gas storage sites in the state.

Natural Gas and Oil Production

In 2015, North Dakota produced 0.38 Tcf of dry natural gas, 62 million barrels of gas plant liquids, 1 million barrels of lease condensate, and 428 million barrels of crude. North Dakota is the location of most of the drilling activity in the Bakken oil play. Activity in the play has generated a surge of oil production since 2011, and current basin production is in the range of one million b/d. A large effort has been underway to improve transportation out of the basin, and to better accommodate the increase in associated gas production. Rail transportation of crude has been important. In April of 2017, North Dakota drilling activity was about 43 rigs.

Exhibit 7-36: North Dakota State Factsheet

North Dakota			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	144	447	591	11	22	33	31	39	70
		Industrial	258	917	1,175	17	45	63	34	81	115
		Residential/ Commercial	332	478	810	22	25	47	82	43	125
		Export	57	96	153	4	5	9	4	9	13
		Transportation	0	0	0	0	0	0	0	0	0
	Infrastructure	Processing	445	374	818	26	15	42	219	34	254
		Pipelines	3,007	1,771	4,778	232	89	322	383	162	545
		Distribution	1,489	1,033	2,522	112	55	167	192	94	286
		Wholesalers, Marketers, Other	59	37	96	5	2	6	8	3	11
	Production	Natural Gas/ NGLs	15,503	5,891	21,394	1,532	315	1,847	1,900	525	2,425
	All Segments	Grand Total	21,292	11,046	32,338	1,961	573	2,534	2,853	991	3,843

Jobs by Top Industries	Rank	NAICS	Industry Sector	Direct and Indirect Jobs
	1	213112	Support Activities for Oil & Gas Operations	6,909
	2	237120	Oil & Gas Pipeline Construction	2,098
	3	213111	Drilling Oil & Gas Wells	1,851
	4	211111	Crude Petroleum & Natural Gas Extraction	1,762
	5	811310	Industrial Equip. & Machinery Repair & Maint.	207
	6	4821	Freight Rail	164
	7	4247NGL	NGL Wholesale	146
	8	221210	Natural Gas Distribution	145
	9	236210	Industrial Construction	129
	10	327310	Cement Manufacturing	95

Customers	Sector	Customer Count	Consumption Volume (MMcf/ year)	Value of Natural Gas Delivered to Customers (\$million)
	Residential Sector	141,465	10,552	\$86
	Commercial Sector	21,345	12,317	\$82
	Industrial Sector	286	31,660	\$108
	Transportation	1	0	\$0
	Power Sector	7	3,671	\$31
	All Sectors	163,104	58,201	\$307

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)
	3,591	2,492	7,536	2,479	3,058	266	774	167

Production	Product	Annual Production
	Dry Natural Gas (mmcf)	381,653
	Gas Plant Liquids (barrels)	62,009,000
	Lease Condensate (barrels)	1,000,000
	Crude Oil (barrels)	428,447,000
	Annual Value Counted Toward Natural Gas Value Chain (\$million)	\$2,315
	Annual Value of All Produced Oil, Gas, NGLs (\$million)	\$20,061

Wells	Well Type	Operating Wells	New Wells Drilled
	Oil Wells	13,420	1,710
	Gas Wells	462	4
	All Wells	13,882	1,714

Annual 2015 Data for North Dakota
Natural Gas Value Chain Basis