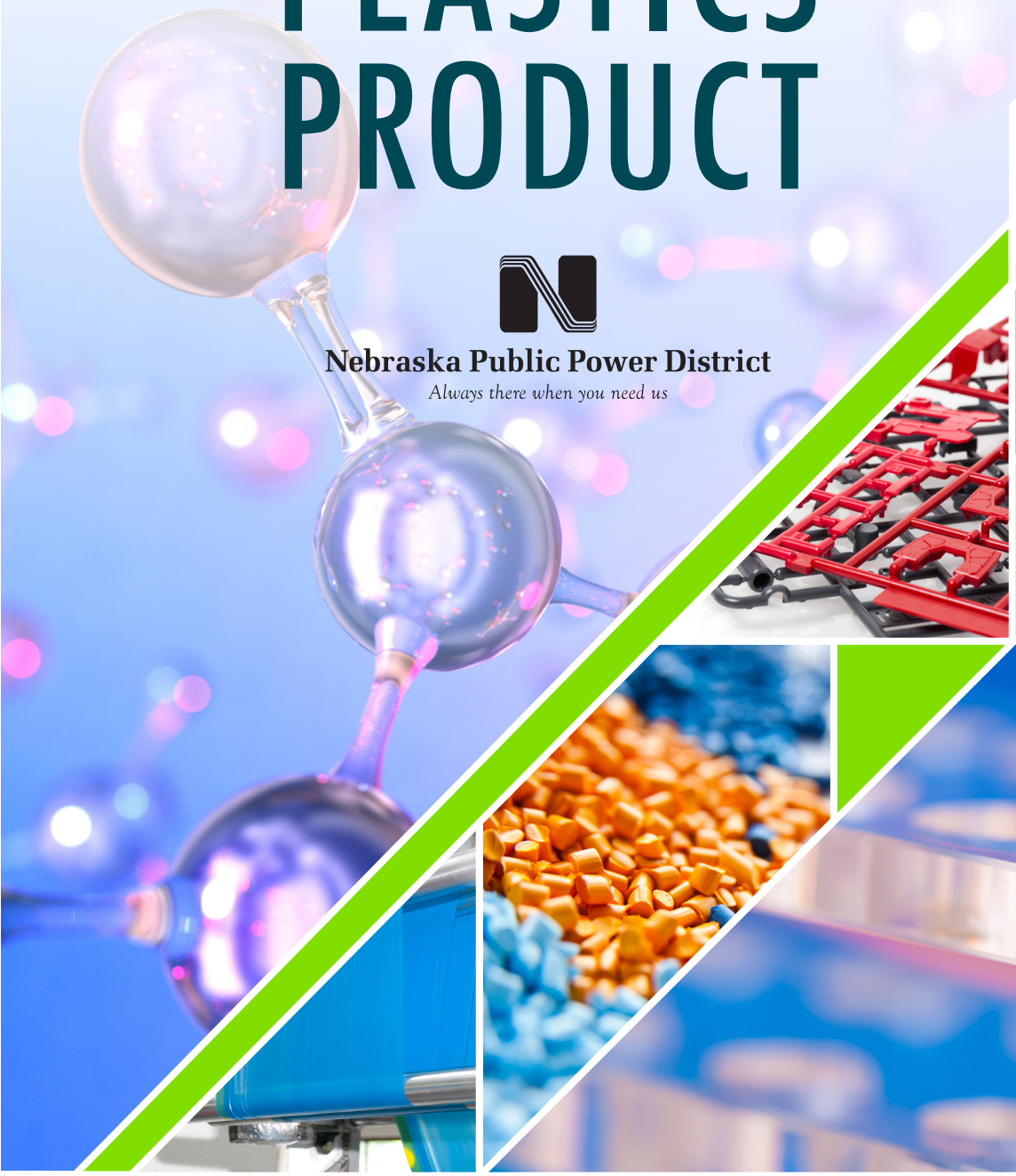
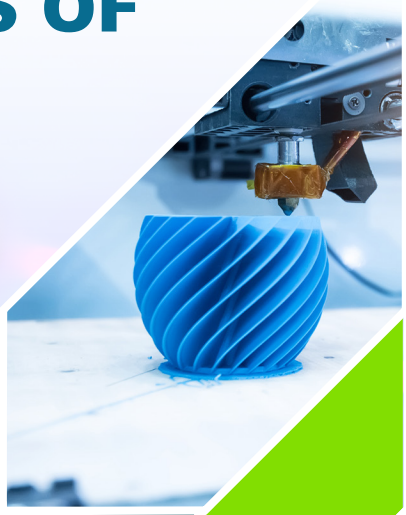
Nebraska
PROFIT OPPORTUNITIES
FOR MANUFACTURERS OF
PLASTICS PRODUCT





Nebraska Public Power District

Always there when you need us

Nebraska Wins Governor's Cup for Second Consecutive Year.

Businesses are moving to Nebraska!
People are locating to Nebraska!

What worked for Nebraska in 2016 worked just as well in 2017, as the state successfully defended its claim to the Governor's Cup it won last year. The recognition is based on the number of projects per capita, and Nebraska gained 110.

Ask Gov. Ricketts why he thinks Nebraska won Site Selection's facilities race again in 2017, and he'll point first to the workforce.

"The main reason people want to invest in Nebraska is the people," Gov. Ricketts told Site Selection. "We consistently have one of the highest workforce participation rates. From personal experience, when you hire a Nebraskan, you know he or she is well-educated and has a great work ethic. They are customer-focused and loyal — they really want to work."

Parts of this article and photo courtesy Site Selection.

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EXECUTIVE SUMMARY

Plastics Product Manufacturing was the largest manufacturing industry group, when measured by employment, in the United States in 2016. As the demand for plastics products is tied to overall economic growth, the industry underwent a dramatic contraction during the 2007–2009 Recession. As data shown in Table 1 indicate, industry shipments declined by 18.8 percent, from $170,467.7 million in 2007 to $138,503.1 million in 2009. More recently, the industry has experienced a rebound due to lower feedstock costs and improving economic conditions. From 2010 to 2016, industry shipments grew by 27.7 percent, reaching $193,239.4 million in 2016.

This study has been developed specifically for use by manufacturers of plastics product to show how a Nebraska plant location can help them better respond to market conditions and significantly improve their competitive positions.

As the U.S. economy experienced two major recessions between 2000 and 2010, manufacturing employment in Nebraska outperformed the Plains Region and the nation. This suggests that companies with Nebraska manufacturing plants benefit from location and other competitive advantages associated with doing business in Nebraska.

Nebraska's attractive business climate, a productive and well-educated labor force, competitive labor and energy costs, and central location are among the wide range of advantages the state offers manufacturers.

For an industry characterized by many small- and medium-sized production facilities, Nebraska provides substantial advantages in reducing costs, expanding capacity, and otherwise becoming more competitive.

Included in this study are example companies that have recently expanded their operation in Nebraska. These companies have found Nebraska to be a place to grow their companies and their profits.

Also included in this study is an analysis of geographically variable labor and energy costs. The analysis makes cost comparisons among states on the basis of a model manufacturing plant. The model plant assumes employment of 50 production workers and the manufacture of a product representative of the "Plastics Product Manufacturing" industry (NAICS 3261).

Sixteen states are examined in the analysis. These states include the top ten states in terms of employment and value of shipments by the Plastics Product Manufacturing industry and other states near Nebraska with which it typically competes for industrial location projects.

In the model plant analysis, estimated labor-related costs include the direct wages paid to production workers and costs associated with workers' compensation insurance, unemployment insurance, social security, and fringe benefits. Compared to the 15 alternative states, Nebraska is found to offer an annual savings of $323,191 in labor-related costs, which is 12.2 percent less than the average labor costs for the other states.

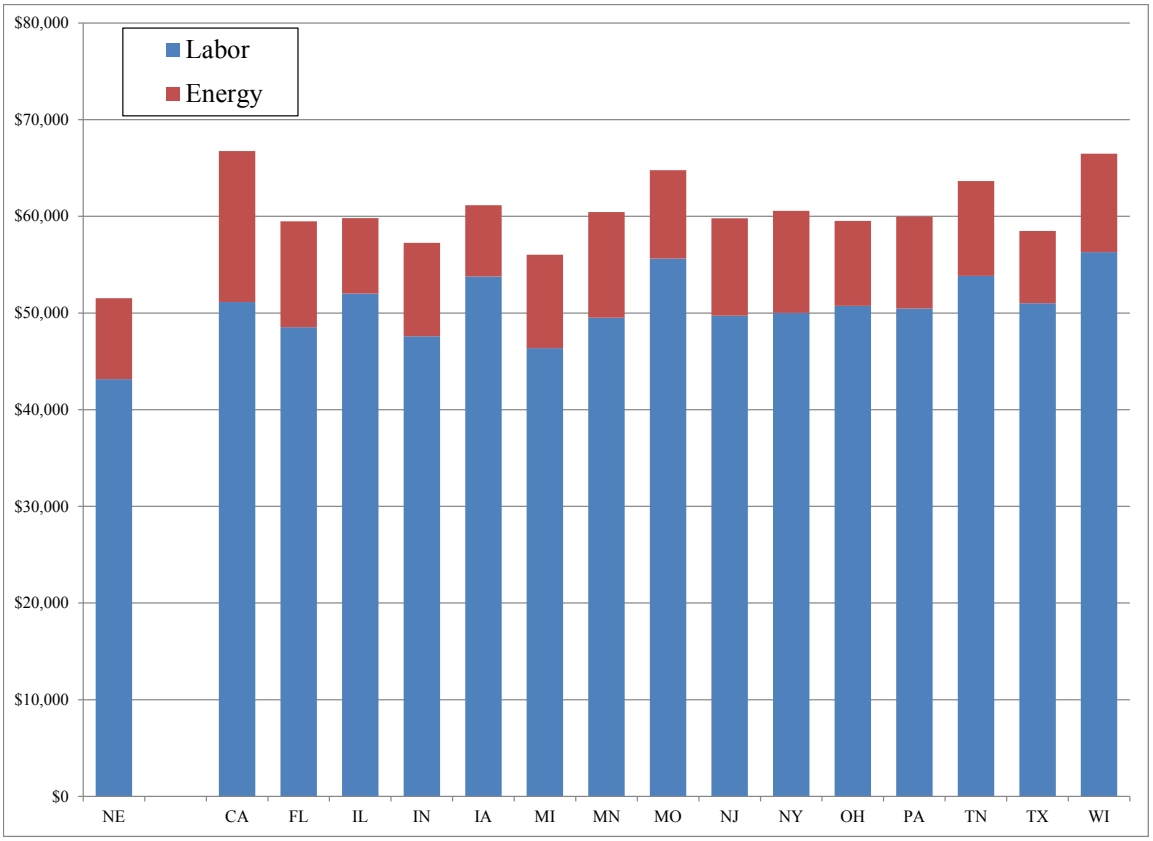
This study also concludes that a Nebraska plant location offers a significant energy cost advantage when compared to the average cost of the other 15 states. Industrial electric rates in the alternative states average 17.0 percent higher, and the average industrial gas rate is 17.8 percent more. Combining these advantages, Nebraska's energy cost for the model plant is 15.1 percent less than the average for the other 15 alternative locations.

Together, Nebraska's annual labor and energy costs for the model plant are $393,340, or 12.6 percent less than the average costs for the 15 alternative states. Conversely, the average labor and energy costs in the other 15 states are 14.4 percent more than the Nebraska labor and energy cost.

Figure 1 provides a summary of the labor and energy costs for the model plant for Nebraska and the 15 alternate plant sites. These costs are shown on a per-production-worker basis.

Figure 1

Labor and Energy Costs per Production Worker for Plastics Product Manufacturers (NAICS 3261)



Calculated labor (wages, workers' compensation insurance, unemployment insurance, social security, and fringe benefits) and energy (electricity and natural gas) costs for a manufacturer of plastics product (NAICS 3261).

Source: Calculated from data presented in Tables A-4 and A-5.

PART A
THE PLASTICS PRODUCT INDUSTRY

Plastics Product Manufacturing was the largest manufacturing industry group, when measured by employment, in the United States in 2012. As the demand for plastics products is tied to overall economic growth, the industry underwent a dramatic contraction during the 2007–2009 Recession. As the data shown in Table 1 indicate, industry shipments grew by 20.6 percent, from $141,387.9 million in 2002 to $170,467.7 million in 2007, before declining by 11.2 percent from 2007 to 2010. From 2010 to 2016, industry shipments grew by 27.7 percent, reaching $193,239.4 million in 2016.

The data presented in Table 1 also show total employment declining 32.3 percent from 802,200 in 2002 to 543,400 in 2010 before increasing 12.9 percent to 613,700 in 2016. The total decrease during the fourteen-year period was 23.5 percent. During the same fourteen-year period, the number of production workers declined 24.1 percent. In 2009, annual capital expenditures, $4,463.8 million, was 29.3 percent below its 2002 level of $6,311.3 million. From 2009 to 2016 annual capital expenditures increased 87.5 percent to $8,368.9 million.

Over time, advances in the plastics products manufacturing industry can generally be attributed to a strong demand for plastics used in motor vehicles, construction, consumer goods, packaging, and electric/electronic equipment. Recent economic data suggest both the U.S. and world economies are likely to continue their recent growth and this is a very positive sign for the Plastics Product Manufacturing Industry.

Table 1

The Plastics Product Manufacturing Industry (NAICS 3261), Characteristics and Trends, Selected Years, 2002–2016

Year	Total Employees	Production Workers	Value Added	Value of Shipments	Capital Expenditures	Avg. Hourly Earnings, Prod. Wrkrs.
	- - - - Thousands - - - -		- - - - (Millions $) - - - -			($)
2002*	802.2	624.1	75,189	141,387.9	6,311.3	13.78
2007	700.0	540.7	81,892	170,467.7	6,144.5	15.34
2008	647.2	496.3	75,997	166,434.3	6,248.2	16.15
2009	549.1	421.1	66,892	138,503.1	4,463.8	16.02
2010	543.4	419.8	72,575	151,291.4	4,850.8	16.82
2011	549.6	425.9	73,601	160,534.1	5,579.4	17.22
2012	572.0	440.5	82,180	173,082.4	5,026.1	17.47
2013	573.9	441.6	85,979	181,448.7	6,250.9	17.65
2014	583.7	450.8	88,163	189,857.9	7,127.8	18.19
2015	601.2	462.6	91,261	192,226.4	7,102.1	18.62
2016	613.7	474.0	97,809	193,239.4	8,368.9	18.96

*Due to minor changes in industry definitions, data for 2002 are not strictly comparable with later years.
Sources: U.S. Bureau of the Census, *Census of Manufactures, Summary Series 2002, 2007 & 2012*;
U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Series: 2009, 2011, 2014 & 2016.*

I. Industry Structure

The *2012 North American Industrial Classification System (NAICS)* subdivides the Plastics Product Manufacturing Industry (NAICS 3261) into seven 5-digit categories in order to define the major components of the industry. Some of the 5-digit groupings are divided further into divisions of 6-digit NAICS categories. The components of the Plastics Product Manufacturing Industry by NAICS code are:

3261 Plastics Product Manufacturing

- **32611 Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing**
  - *326111* Plastics Bag and Pouch Manufacturing
  - *326112* Plastics Packaging Film and Sheet (including laminated) Manufacturing
  - *326113* Unlaminated Plastics Film and Sheet (except packaging) Manufacturing
- **32612 Plastics Pipe, Pipe Fitting, and Unlaminated Profile Shape Manufacturing**
  - *326121* Unlaminated Plastics Profile Shape Manufacturing
  - *326122* Plastics Pipe and Pipe Fitting Manufacturing
- **32613 Laminated Plastics Plate, Sheet (except packaging), and Shape Manufacturing**
- **32614 Polystyrene Foam Product Manufacturing**
- **32615 Urethane and Other Foam Product (except polystyrene) Manufacturing**
- **32616 Plastics Bottle Manufacturing**
- **32619 Other Plastics Product Manufacturing**
  - *326191* Plastics Plumbing-Fixture Manufacturing
  - *326199* All Other Plastics Product Manufacturing

The data presented in Table 2 provide a basic description of the Plastics Product Manufacturing Industry with further disaggregation into the major 5-digit NAICS industry subgroups. As indicated by these data, the largest industry subgroup is NAICS 32619 (Other Plastics Product Manufacturing), which recorded 2012 shipments of $84,367.8 million, or 48.7 percent of the total for NAICS 3261 (Plastics Product Manufacturing). This industry subgroup also accounted for 63.0 percent of the total establishments in the industry and 59.9 percent of the production workers.

In terms of the average size of establishments, the NAICS 32619 (Other Plastics Product Manufacturing) subgroup had 38.9 production workers per establishment in 2012. This average size was only slightly smaller than that for the plastics product industry as a whole, 40.9 production workers. The industry subgroup NAICS 32616 (Plastic Bottle Manufacturing) had the largest average size of establishment with 56.8 production workers per establishment. In terms of value of shipments or output, the subgroup NAICS 32611 (Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing) led the rest of the industry with average shipments per establishment of $29.5 million. This level of shipments was 83.2 percent greater than the average of $16.1 million for the industry as a whole.

Capital investment for the Plastics Product Manufacturing Industry in 2012 totaled $5,751.2 million, which represented an investment of $0.062 for each dollar of value added (6.2 percent of value added). Industry subgroups where the ratio of capital investment to value added exceeded this industry average in 2012 were NAICS 32616 (Plastics Bottle Manufacturing) at 6.5 percent, and NAICS 32619 (Other Plastics Product Manufacturing) 7.7 percent.

Table 3 presents total employment, number of production workers, value of shipments, value added, and capital expenditures for the plastics product industry for 2016. Also, data are included for major 5- and 6-digits NAICS industry subgroups. Figure 2 shows the distribution of industry shipments for each of the major 5-digit industry subgroups.

Table 2

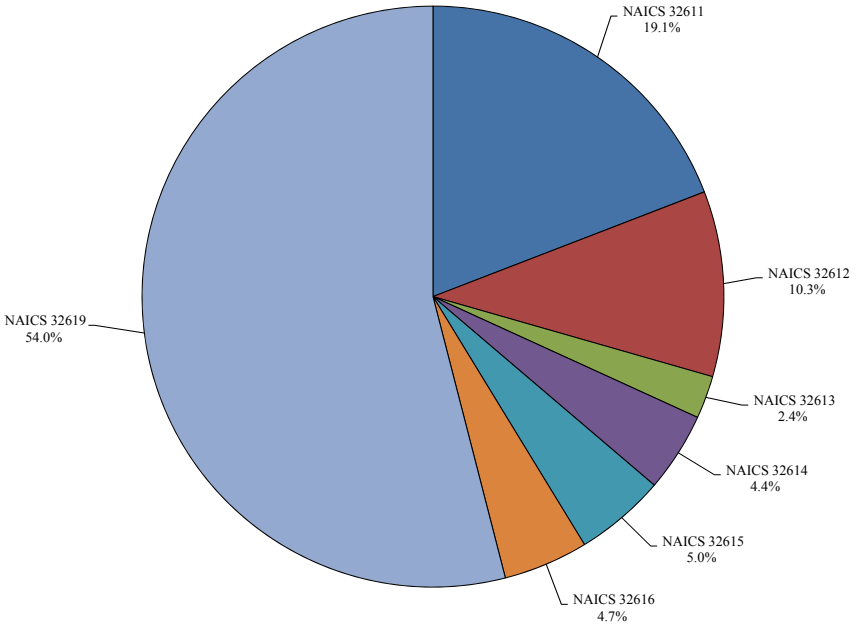
Plastics Product Manufacturing (NAICS 3261), Number of Companies and Establishments and All Employees and Production Workers, Value of Shipments, Value Added, and Capital Expenditures by Industry Group, 2012

NAICS Code	Industry Description	Number of Companies	Number of Establishments	All Employees	Production Workers	Value of Shipments	Value Added	Capital Expenditures
						- - -(Thousand Dollars)- - -		
3261	**Plastics product manufacturing**	**8,790**	**10,772**	**573,285**	**440,495**	**173,371,044**	**92,025,156**	**5,751,172**
32611	Unsupported plastics film, sheet, and bag manufacturing	1,090	1,344	93,053	71,604	39,623,165	23,113,265	1,249,440
32612	Plastics pipe, pipe fitting, and unsupported profile shape manufacturing	665	881	39,709	30,007	15,355,365	7,988,584	439,753
32613	Laminated plastics plate, sheet, and shape manufacturing	223	237	11,114	8,235	3,597,228	1,819,660	80,765
32614	Polystyrene foam product manufacturing	296	426	24,076	19,014	8,465,538	4,584,876	172,420
32615	Urethane and other foam product (except polystyrene) manufacturing	448	642	28,552	21,547	9,609,572	5,693,676	149,815
32616	Plastics bottle manufacturing	186	459	32,919	26,073	12,352,394	7,516,861	491,180
32619	Other plastics product manufacturing	5,882	6,783	343,862	264,015	84,367,782	41,308,234	3,167,799

Source: U.S. Bureau of the Census, *Census of Manufactures, Industry Series: 2012.*

Figure 2

Value of Shipments by Industry Subgroup, Plastics Product Manufacturers (NAICS 3261), 2016



Total 2016 Shipments - $193,239.4 Million

NAICS 32611 Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing

NAICS 32612 Plastics Pipe, Pipe Fitting, and Unlaminated Profile Shape Manufacturing

NAICS 32613 Laminated Plastics Plate, Sheet (except packaging), and Shape Manufacturing

NAICS 32614 Polystyrene Foam Product Manufacturing

NAICS 32615 Urethane and Other Foam Product (except polystyrene) Manufacturing

NAICS 32616 Plastics Bottle Manufacturing

NAICS 32619 Other Plastics Product Manufacturing

Source: See Table 3

Table 3

Plastics Product Manufacturing Industry (NAICS 3261), Employment, Annual Pay, Hourly Wages, Value Added, Value of Shipments, and Capital Expenditures by Major Sector and Industry Subgroups, 2016

NAICS Code	Industry Description	All Employees	Production Workers			Value Added	Value of Shipments	Capital Expenditures
			Number	Annual Pay Thousand	Average Hourly Wage			
				(Thousand $)	($)	----- (Thousand $) -----		
3261	**Plastics product manufacturing**	**613,682**	**473,969**	**18,444,551**	**18.96**	**97,808,621**	**193,239,440**	**8,368,866**
32611	Plastics packaging materials and unlaminated film and sheet manufacturing	96,069	74,195	3,486,437	21.90	18,712,700	41,449,879	1,503,292
326111	Plastics bag and pouch manufacturing	27,094	22,819	955,082	19.11	4,967,440	10,901,881	398,481
326112	Plastics packaging film and sheet (including laminated) manufacturing	31,414	25,415	1,263,290	23.44	5,577,386	13,218,499	558,693
326113	Unlaminated plastics film and sheet (except packaging) manufacturing	37,560	25,961	1,268,065	22.91	8,167,873	17,329,500	546,117
32612	Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	43,318	33,693	1,372,566	19.60	10,088,438	18,682,070	468,884
326121	Unlaminated plastics profile shape manufacturing	19,555	14,363	583,914	18.88	5,765,784	8,350,481	206,944
326122	Plastics pipe and pipe fitting manufacturing	23,763	19,330	788,652	20.17	4,322,655	10,331,589	261,940
32613	Laminated plastics plate, sheet (except packaging), and shape manufacturing	11,060	8,297	392,610	23.74	2,326,924	4,040,031	123,175
326130	Laminated plastics plate, sheet (except packaging), and shape manufacturing	11,060	8,297	392,610	23.74	2,326,924	4,040,031	123,175
32614	Polystyrene foam product manufacturing	25,319	20,506	787,318	18.09	4,321,235	8,515,235	251,382
326140	Polystyrene foam product manufacturing	25,319	20,506	787,318	18.09	4,321,235	8,515,235	251,382
32615	Urethane and other foam product (except polystyrene) manufacturing	30,234	23,309	809,749	16.95	4,926,468	10,815,699	250,752
326150	Urethane and other foam product (except polystyrene) manufacturing	30,234	23,309	809,749	16.95	4,926,468	10,815,699	250,752
32616	Plastics bottle manufacturing	28,179	23,406	997,998	20.48	4,612,718	10,977,989	515,116
326160	Plastics bottle manufacturing	28,179	23,406	997,998	20.48	4,612,718	10,977,989	515,116
32619	Other plastics product manufacturing	379,504	290,563	10,597,873	18.05	52,820,139	98,758,537	5,256,264
326191	Plastics plumbing fixture manufacturing	16,713	12,502	397,144	15.52	2,341,930	4,084,417	92,255
326199	All other plastics product manufacturing	362,791	278,061	10,200,729	18.17	50,478,209	94,674,120	5,164,009

Source: U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Series: 2016.*

Among the 6-Digit NAICS Industry Subgroup, NAICS 326130, Laminated plastics plate, sheet (except packaging), and shape manufacturing had the highest average hourly wage ($23.74) and the third highest value added per production worker ($280,454). NAICS 326112, Plastics packaging film and sheet (including laminated) manufacturing had the second highest average hourly wage ($23.44) and the second highest capital investment ($20,261) per production worker. NAICS 326113, Unlaminated plastics film and sheet (except packaging) manufacturing had the third highest average hourly wage ($22.91) plus the highest sales ($667,521), the second highest value added ($314,621) and the third highest investment per production worker ($21,036).

II. Industry Production Characteristics

Plastics products manufactures can be widely distributed geographically because of the relatively high per unit value of their products. According to the 2012 Commodity Flow Survey conducted by the U.S. Bureau of the Census, the value per ton of plastics products shipped was 2.4 times that for all commodities shipped.

Table 4 provides data for selected production characteristics for the plastics product industry for 2007, 2012, and 2016. These data indicate that establishments in the Plastics Product Manufacturing Industry (NAICS 3261) are more labor intensive than manufacturing establishments generally. In 2016, production workers accounted for 77.2 percent of total employment in the industry, compared to 69.6 percent for all manufacturing. The industry's value added per production worker was $206,361 in 2016, while for all industry groups it was 51.0 percent greater ($311,515).

From 2007 to 2012 manufacturers of plastics products experienced stable material costs and large reductions in energy—primarily fuel prices. During this period the cost of materials per dollar of output increased by 1.3 percent; the cost of electricity per dollar of output decreased 1.6 percent; and the cost of purchased fuel per dollar of output decreased 43.3 percent. From 2012 to 2016, input prices declined and the cost of materials per dollar of output fell 6.4 percent. During the same 2012 to 2016 period the cost of purchased fuels per dollar of output decreased 3.4 percent and the cost of electricity per dollar of output decreased 5.5 percent.

In terms of total energy costs relative to value added by manufacturer, the plastics product

Table 4

Production Characteristics for the Plastics Product Manufacturing Industry (NAICS 3261), 2007, 2012, and 2016

				Percent Change	
	2007	2012	2016	2007-2012	2012-2016
Establishments					
Number	12,136	10,825	(N/A)	-10.8	(N/A)
With 20+ Employees	5,894	5,367	(N/A)	-8.9	(N/A)
All Employees					
Number [thousands]	700.0	572.0	613.7	-18.3	7.3
Payroll [million $]	26,321.0	24,921.6	28,787.1	-5.3	15.5
Production Workers					
Number [thousands]	540.7	440.5	474.0	-18.5	7.6
Hours [millions]	1,102.5	892.7	973.0	-19.0	9.0
Wages [million $]	16,910.4	15,594.6	18,444.6	-7.8	18.3
Average Hourly Wage [$]	15.34	17.47	18.96	13.9	8.5
Value Added by Manufacture [million $]	81,892.1	82,180.4	97,808.6	0.4	19.0
Cost of Materials [million $]	89,034.1	91,552.1	95,625.8	2.8	4.4
Value of Shipments [million $]	170,467.7	173,082.4	193,239.4	1.5	11.6
Cost of Purchased Fuels and Electric Energy					
Electric Energy [million $]	3,200.2	3,195.7	3,371.9	-0.1	5.5
Purchased Fuels [million $]	804.3	463.3	499.6	-42.4	7.8
Quantity of Purchased Electric Energy [million kWh]	51,814.1	44,663.4	45,106.8	-13.8	1.0

N/A - Not Available.

Sources: U.S. Bureau of the Census, *Census of Manufactures, Summary Series: 2007 & 2012;*
U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Series: 2016.*

industry is 17.4 percent more energy intensive than the manufacturing sector as a whole. Moreover, the plastics product industry has a much higher reliance on electricity in its energy mix. As the data presented in Table 4 indicate, the cost of purchased electricity in 2016 comprised 87.1 percent of total energy costs for manufacturers of plastics products, compared to 63.1 percent for all manufacturing establishments.

Given the high degree of dependence on electricity as an energy source, it is evident the plastics product industry derives above average benefits from readily available, relatively low-cost sources of electricity.

III. Industry Location Characteristics

Showing the geographic distribution of the plastics product industry, Table 5 presents data on employment and wages, value of shipments, and capital expenditures for 16 selected states. As indicated in Table 5, the 16 states accounted for $132.0 billion or 68.3 percent, of the $193.2 billion of total shipments of manufactured plastics products in 2016.

Included among these states are the top ten plastics producing states as well as Nebraska and neighboring states that typically compete with Nebraska for plant locations. The 16 states are included in this study as alternative sites for plant locations and are evaluated in Part B of this report using the geographically variable labor and energy costs.

In terms of value of shipments, the plastics product manufacturing industry is largest in Ohio, followed closely by Texas, California, and Michigan. Illinois, Pennsylvania, Indiana, Wisconsin, North Carolina, and New York also ranked in the top ten in terms of value of shipments.

As the data presented in Table 5 indicate, the 16 states included in this study accounted for 68.3 percent of the production workers and 70.8 percent of the total capital expenditures by the plastics product manufacturing industry in 2016. Ohio, with 44,564 production workers, led the nation in this category for the plastics product manufacturing industry group in 2016.

Table 5

Plastics Product Manufacturing Industry (NAICS 3261)
Employees, Production Workers, Average Wages, Capital Expenditures, and Value of Shipments, Selected States and the U.S., 2016

State	Employees	Production Workers	Average Hourly Earnings ($)	Capital Expenditures	Value of Shipments	% of U.S. Value of Shipments
	- - - - - Thousands- - - -			- - - - - Thousand $- - - - -		
Nebraska	**3,744**	**2,830**	**16.68**	**33,001**	**912,709**	**0.5**
California	45,368	34,003	19.42	523,976	13,765,103	7.1
Georgia	21,383	17,360	18.05	252,842	7,817,619	4.0
Illinois	33,254	25,283	20.75	427,606	11,613,657	6.0
Indiana	32,317	25,602	17.26	443,447	8,828,291	4.6
Iowa	8,581	7,063	18.77	83,588	2,279,990	1.2
Kansas	8,213	6,551	17.95	87,095	2,451,919	1.3
Michigan	45,519	33,930	18.05	348,512	12,630,768	6.5
Minnesota	13,642	10,396	19.81	(N/A)	3,512,721	1.8
Missouri	11,166	8,666	18.25	133,680	3,129,384	1.6
New York	19,727	15,134	18.31	176,019	7,946,258	4.1
North Carolina	24,901	19,014	17.98	472,729	8,006,376	4.1
Ohio	55,914	44,564	18.85	1,776,785	15,871,486	8.2
Pennsylvania	30,234	23,364	19.55	322,872	10,284,748	5.3
Texas	38,000	28,811	19.03	438,458	14,830,208	7.7
Wisconsin	27,084	21,243	21.17	405,727	8,118,764	4.2
Total Sel. States	**419,047**	**323,814**	**17.32**	**5,926,337**	**132,000,001**	**(N/A)**
Percent of U.S.	68.3	68.3	(N/A)	70.8	68.3	68.3
Total U.S.	**613,682**	**473,969**	**18.96**	**8,368,866**	**193,239,440**	**100.0**

N/A - Not Available.
Source: U.S. Bureau of the Census, *Annual Survey of Manufactures, Industry Series: 2016.*

IV. Capital Investment and Industry Outlook

Capital investment in the plastics product manufacturing industry exceeded $8.0 billion in 2016. As the data presented in Table 6 show, capital investment totaled $8,368.9 million, a 66.5 percent increase from 2012.

As data provided in Table 6 also indicate, the growth of capital investment in the plastics products manufacturing industry increased greatly from 2012 to 2016, with rates of capital investment varying significantly among the industry subgroups. Only NAICS 32612 industry subgroup experienced a higher level of capital expenditures in 2012 than in 2002. By way of contrast, all seven of the 5-digit, plastics product manufacturing industry subgroups had higher levels of capital investment in 2016 than in 2012. NAICS 32613 Laminated plastics plate, sheet (except packaging), and shape manufacturing experienced the largest increase in capital investment growth from 2012 to 2016, 147.5 percent. NAICS 32619 Other plastics product manufacturing experienced both the largest increase in expenditures ($2,119.8 million) and percent growth (67.6 percent) from 2002 to 2016.

The plastics product manufacturing industry in the United States is expected to record slight declines in employment and moderate growth in output over the long term. As indicated by the data presented in Table 7 (next page), employment in the plastics product manufacturing industry (NAICS 3261) declined significantly (10.1 percent) during the 2006–2016 period and is projected to decline by an average rate of 0.8 percent per year between 2016 and 2026. This projected decline is less than the average annual decline of 1.1 percent per year for plastics product manufacturing employment between 2006 and 2016 but more than the projected average annual decline of 0.6 percent for all manufacturing for the period 2016–2026.

Real, constant-dollar, output in the plastics product manufacturing industry is projected to increase by 14.7 percent, or by an average annual rate of 1.4 percent between 2016 and 2026. As the data presented in Table 7 indicate, this is slightly less than the projected increase in output for the total manufacturing sector (19.4 percent, or an average annual rate of 1.8 percent) for the 2016–2026 projection period.

While there are increasing environmental concerns, the long run outlook for the plastics product manufacturing industry is positive. Expanding global markets and incomes will provide growing markets for this industry. On balance, the factors affecting individual companies producing plastics products will depend to a great extent on their ability to compete within their industry and in the markets for their products.

Table 6

The Plastics Product Manufacturing Industry Group (NAICS 3261)
Capital Expenditures by Major Industry Groups, 2007, 2012, and 2016

NAICS	Industry Subgroup	Capital Expenditures			% Change		% of Total
		2007	2012	2016	2007–2012	2012–2016	2016
		- - - Million ($) - - -					
3261	**Plastics product manufacturing**	**6,144.5**	**5,026.1**	**8,368.9**	**-18.2**	**66.5**	**100.0**
32611	Plastics packaging materials and unlaminated film and sheet manufacturing	1,315.2	1,040.4	1,503.3	-20.9	44.5	18.0
32612	Plastics pipe, pipe fitting, and unlaminated profile shape manufacturing	393.0	411.0	468.9	4.6	14.1	5.6
32613	Laminated plastics plate, sheet (except packaging), and shape manufacturing	106.2	57.5	123.2	-45.9	114.3	1.5
32614	Polystyrene foam product manufacturing	330.0	151.5	251.4	-54.1	65.9	3.0
32615	Urethane and other foam product (except polystyrene) manufacturing	230.0	149.8	250.8	-34.9	67.4	3.0
32616	Plastics bottle manufacturing	633.7	486.6	515.1	-23.2	5.9	6.2
32619	Other plastics product manufacturing	3,136.5	2,729.3	5,256.3	-13.0	92.6	62.8

Sources: U.S. Bureau of the Census, *Census of Manufactures, Summary Series: 2007 & 2012;*
U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Series: 2016.*

While many external factors will influence the overall performance of the industry, the outlook for the individual companies that can control costs and respond to emerging and changing market opportunities and consumer tastes and behavior will be significantly enhanced. Appendix A of this study discusses how plastics product manufacturing establishments can better respond to market conditions and significantly improve their competitive positions with a Nebraska plant location.

Table 7

Projections of Employment and Output for the Manufacturing Sector and the Plastics Product Manufacturing Industry, 2006–2026

Sector	2006	2016	2026	% Change 2006-2016	% Change 2016-2026
All Manufacturing					
Employment (Thousands)	14,155.8	12,348.1	11,611.7	-12.8	-6.0
Output (Billion $)[(a)]	5,298.3	5,449.9	6,509.8	2.9	19.4
Plastics Product Manufacturing					
Employment (Thousands)	629.5	565.7	522.0	-10.1	-7.7
Output (Billion $)[(a)]	184.5	164.1	188.3	-11.1	14.7

[(a)] Output in billions of chain weighted constant (2009) dollars.

Source: U.S. Department of Labor, U.S. Bureau of Labor Statistics, Employment Projections Program, **www.bls.gov/emp/**.

State and local dignitaries along with representatives of Nebraska Public Power District (NPPD) and Norris Public Power District joined with officials from Monolith Materials and broke ground on October 20, 2016, at the company's site near Hallam.

Monolith Materials will use a safe, patented, and environmentally friendly process to manufacture carbon black, a common material found in thousands of products Americans use every day including tires, rubber, plastics, printing inks, and batteries. Monolith uses natural gas as feedstock in its process instead of oil or coal-tar as in the conventional process. A co-product of its manufacturing process is plentiful hydrogen, which NPPD intends to use to generate electric energy.

Monolith was looking to build their world scale facility in a location where people share their values, who are very hardworking, and who they can trust. Nebraska and NPPD's Sheldon Station were found to be that site. They also wanted a supportive state government and a partner that shares their passion for the environment but still wanted to grow the economy. Those partners are Nebraska Public Power District, Norris Public Power District, and the State of Nebraska.

"Americans care about the quality of their air and water, and the sustainability of their everyday household products and energy use," said Robert Hanson, Monolith's co-founder and Chief Commercial Officer. "Together, Monolith and NPPD are helping reduce pollution, while still adding jobs and maintaining energy production. Additionally, Monolith plans to bring a cleaner process to a carbon black plant for the first time in the United States, which will help our country grow this important industry and expand America's manufacturing economy."

Part B
Nebraska Advantages for Manufacturers Of Plastics Product

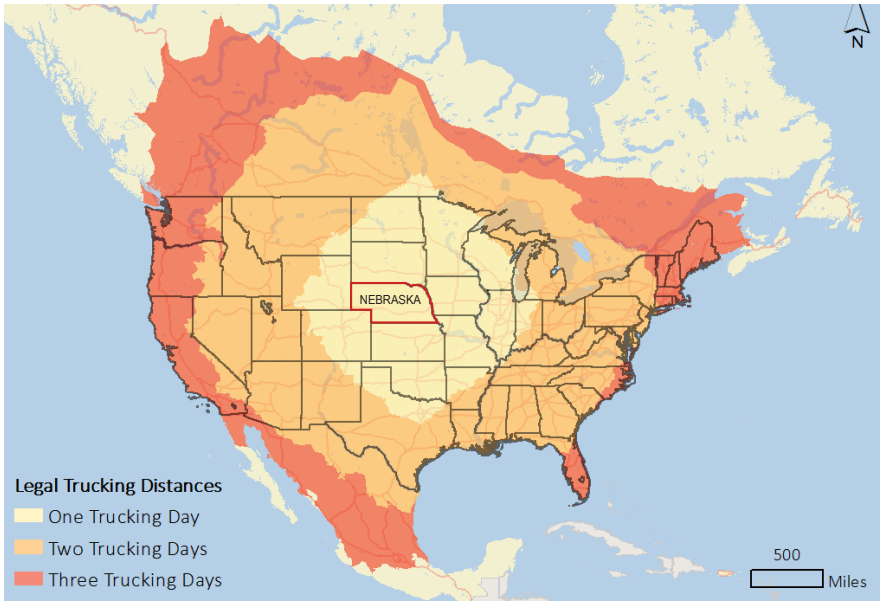
Nebraska offers a wide range of locational advantages to manufacturers of plastics products. In the continuing portion of this study, Nebraska resources and location attributes important to manufacturers of plastics products are discussed. An evaluation of geographically variable labor and energy costs for selected states follows using a model establishment manufacturing plastics products is included in Appendix A.

I. Nebraska Location Resources

Nebraska lies near both the population and geographic centers of the United States (Figure 3). The nation's population center moved across the Mississippi River for the first time in 1980 and continues to shift westward. The current population center is near Plano, Missouri, and the geographic center is in Butte County, South Dakota (the geographic center of the 48 contiguous states is Smith County, Kansas). Within one day, goods shipped by truck from Nebraska reach more than 25 percent of the U.S. population; add a second day and the percentage skyrockets to more than 90 percent.

In addition to being a prominent location for national markets, Nebraska is well situated to serve international markets, which are important to many plastics products manufacturers. For example, the Union Pacific's main railroad line in central Nebraska is the busiest freight corridor in the world; many of the trains carry grain to West Coast ports for shipment around the world. Also, the state currently has operating Foreign Trade Zones in Omaha (Zone No. 19, Grantee: Greater Omaha Chamber of Commerce) and in Lincoln (Zone No. 59, Grantee: Lincoln Chamber of Commerce). Foreign trade zones reduce or eliminate duties and excise taxes by allowing domestic activity involving foreign items to take place as if it were outside of U.S. Customs territory.

Figure 3
Truck Access to Regional and National Markets



Source: Nebraska Department of Economic Development. Legal Trucking Distances from Columbus, Nebraska [maps]. 2016; ESRI Business Analyst Desktop 10.2.1 Software and Data.

Access to Markets - Transportation

Nebraska's central location is especially advantageous for transportation services. The state's communities are connected by a good highway system that includes 8,539 miles of interstate, freeway, and arterial roads. The system includes a 455-mile stretch of Interstate 80, the most traveled east-west transcontinental route of the interstate highway system. North-south interstate highways that add to Nebraska's market include Interstate 29, which passes along the state's eastern border in Iowa, and Interstate 25, which passes in close proximity to the state's western border.

More than 13,500 licensed motor carriers with worldwide connections are based in Nebraska and serve businesses throughout North America. Largely because of Nebraska's good interstate connections, one of the largest trucking companies in the country, Werner Enterprises, is headquartered in Omaha.

The nation's two largest rail companies—BNSF Railway Company and Union Pacific Railroad—provide rail service to many Nebraska communities. Ten freight railroads operate more than 3,200 miles of track throughout Nebraska. No major city in the United States is more than five days by rail from Nebraska. Amtrak provides passenger service in Nebraska with stops in five communities.

The Union Pacific (UP) maintains headquarters in Omaha and is one of the largest railroads in North America with 32,000 miles of track in the western two-thirds of the country. UP operates more than 1,000 miles of track in Nebraska. The Harriman Dispatching Center in Omaha is the most technologically advanced dispatching facility in the country. Union Pacific's Bailey Yard in North Platte is the largest rail freight car classification yard in the world. The yard covers 2,850 acres, switches 10,000 rail cars daily, and has 300 miles of track. Union Pacific's main line in central Nebraska is the busiest rail freight corridor in the world, with more than 115 trains operating over the line every 24 hours.

BNSF Railway Company (BNSF) operates more than 1,500 route miles of track in Nebraska, is one of the state's primary railroads transporting two million carloads of freight in Nebraska each year, and employs more than 4,000 people in the state. BNSF has rail yards in Alliance, Lincoln, McCook, and Omaha; intermodal and automotive facilities in Omaha; and mechanical shops in Alliance and Lincoln.

Commercial airline service is available in nine Nebraska cities, providing direct service to major hubs. Scheduled air freight service is provided to five additional communities with on-demand service available. A total of 81 public-use airports are located throughout the state.

With the Missouri River forming Nebraska's eastern border, the state is a western terminus for barge traffic. Barges have access to both the Gulf of Mexico via the Mississippi River and to the Atlantic Ocean via the Great Lakes and the St. Lawrence Seaway.

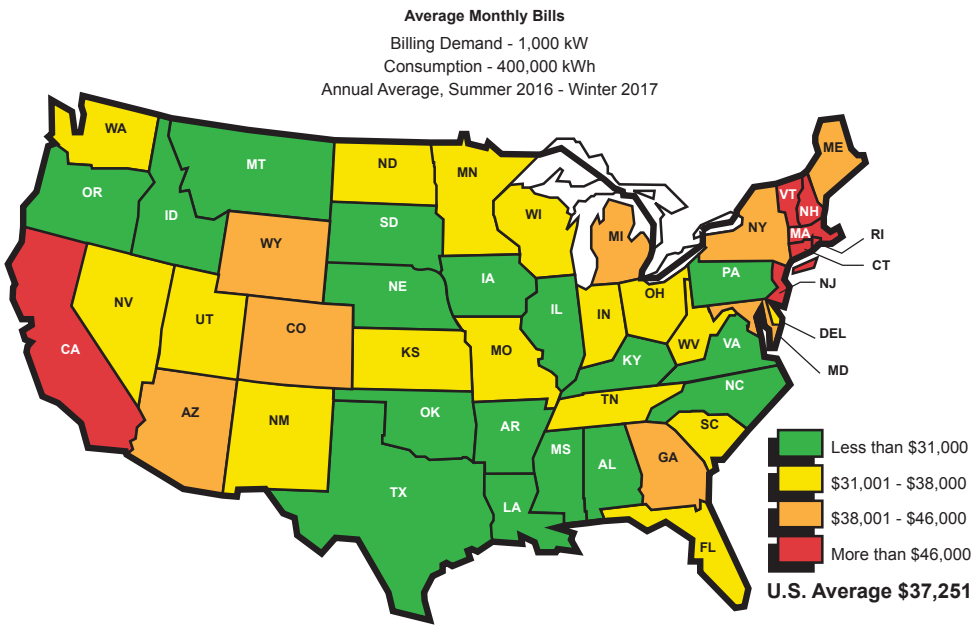
Low Cost Utilities

In providing a full range of reliable utilities with many cost advantages, Nebraska offers additional benefits to plastics products manufacturers. Nebraska's electric rates for typical industrial customers are 19.1 percent less than the U.S. average and are among the lowest of the 48 contiguous states (Figure 4, next page). This benefit is of particular importance to the plastics products manufacturing industry, with its high level of electricity use relative to total energy consumption. A statewide grid system with regional interconnections assures reliability of service and adequacy of supply.

One of the reasons for Nebraska's low electric rates is its close proximity to the vast low-sulfur coal fields of eastern Wyoming. Nebraska is also the only state in the nation with electricity provided entirely by public power. Nebraska's two largest electric utilities, Nebraska Public Power District (NPPD) and Omaha Public Power District (OPPD), have under their control an efficient and dependable "mix" of generating systems to supply current and projected needs; the mix includes coal, nuclear, hydro, gas, oil, wind, solar, and diesel sources.

Figure 4

Electric Costs for Industrial Service, Summer 2016–Winter 2017



Source: Edison Electric Institute, "Typical Bills and Average Rates Report," January 1, 2017 and July 1, 2016. State averages are weighted using eight months of January 2017 data and four months of July 2016 data. Nebraska data represent the average for Omaha Public Power District, Lincoln Electric System, and Nebraska Public Power District using the same seasonal weighting.

Some major electric-generating facilities in Nebraska are:

- 1,300-megawatt (MW) NPPD coal-fired Gerald Gentleman Station near Sutherland, Unit No. 1 on-line in 1979 and Unit No. 2 on-line in 1982
- 1,330-megawatt OPPD coal-fired Nebraska City Station near Nebraska City, Unit No. 1 on-line in 1979 and Unit No. 2 online in 2009
- 800-megawatt NPPD Cooper Nuclear Station near Brownville, on-line in 1974

NPPD owns and operates a 59 MW wind generation facility near Ainsworth. NPPD has long-term agreements to purchase 122 MW of wind generated power from Nebraska facilities located near Bloomfield, 80 MW from a facility near Petersburg, 75 MW from a facility located in Custer County, Nebraska, and 75 MW from a facility near Steele City.

Nebraska utilities also operate 12 hydroelectric plants and receive a power allotment from the Western Area Power Administration (WAPA) hydroelectric facilities on the Missouri River. The utilities operate with a reserve capacity that protects users against voltage reductions and brownouts. Furthermore, the utilities are members of the Mid-Continent Area Power Pool (MAPP), the Southwest Power Pool (SPP), and the Western System Power Pool (WSPP).

Natural gas in Nebraska is also attractive to industry for service, supply, and price. A gas-producing state, Nebraska is close and well-connected by pipeline to the major gas fields of the central and southern plains. The state's average cost of industrial gas is less than both the regional and national averages.

The pipelines of two major companies, Northern Natural Gas and Kinder Morgan, provide an ample supply of natural gas to most areas of Nebraska. Depending on usage requirements, natural gas is offered both on a "firm" and "interruptible" basis.

High Quality Work Force

Any industry derives benefits from a productive and well-educated labor force. Nebraska's labor force has a strong work ethic and technical proficiency. The state was settled by individuals with the foresight and diligence to transform it into a world center of agricultural production. Their descendants maintain a work ethic and mechanical aptitude that carry over into the state's manufacturing sector. Contributing to Nebraska's high labor productivity are very low absenteeism and labor turnover rates. Furthermore, Nebraska employers pay among the lowest unemployment insurance and workers' compensation costs in the nation.

Nebraska's work force quality is also highly rated by the state's employers and by various national comparisons. In 2016, 90.9 percent of the state's population 25 years of age and older were high school graduates, compared to 87.5 percent nationally. In addition, the 2015 Nebraska high school graduation rate was 90.0 percent. One reason for the high graduation rate is the state's comparatively low student-teacher ratio—13.60:1 in 2014–2015 compared to 16.07:1 for the nation. Finally, Nebraska students consistently score above the U.S. average on both standardized achievement tests and college entrance exams. In 2017 Nebraska students averaged 21.4 on the ACT college entrance test, compared to 21.0 nationally. Moreover, Nebraska's average composite ACT score was achieved with 84.0 percent of graduates taking the exam, compared to 60.0 percent of graduates nationwide.

Higher Education Resources

As part of a growing and rapidly changing industry, plastics products manufacturers can benefit greatly from flexible state-of-the-art educational resources. The University of Nebraska, state colleges, and the community college network are important elements in providing resources to assist manufacturers in maintaining an educated and well trained work force.

The University of Nebraska, is comprised of four campuses: The University of Nebraska-Lincoln, the University of Nebraska at Omaha, the University of Nebraska Medical Center, and the University of Nebraska at Kearney. It has the largest facilities among the state's 21 colleges and universities and offers advanced degrees in most professional fields. It is a major center for both basic and applied research and has a combined student enrollment of more than 52,000.

Founded in 1869, the University of Nebraska-Lincoln (UNL) is the state's land-grant university. Nebraska was the first university west of the Mississippi to establish a graduate college (in 1896). UNL boasts 22 Rhodes scholars and 2 Nobel laureates among its alumni.

Research

The University of Nebraska-Lincoln is among the top 35 public universities in the U.S. in spending on research and development. Research funding has more than doubled since 2002, and extensive new research facilities have been built on the Lincoln campus and at the Medical Center. UNL has embarked on an exciting partnership called Nebraska Innovation Campus, a 249-acre private-public research and technology center adjacent to City Campus. The Innovation Campus is being developed with the support of 2015 Vision, a group of Lincoln, Nebraska, business leaders dedicated to strengthening research, education, and economic development through entrepreneurship and investment. The Innovation Campus will leverage UNL's research capacity by attracting private sector companies to locate near the university where they can work closely with university researchers, generating jobs, and economic activity.

Engineering

The UNL College of Engineering is situated on three campuses: Lincoln (City and East Campuses) and Omaha. Currently, the college has over 3,550 students enrolled and 300 permanent faculty and staff. A total of 13 undergraduate majors and numerous graduate programs are offered in the departments of Biological Systems Engineering (includes Agricultural Engineering), Chemical & Biomolecular Engineering, Civil Engineering, Computer Science & Engineering, the Durham School of

Architectural Engineering and Construction, Electrical & Computer Engineering, and Mechanical & Materials Engineering.

Research at the College of Engineering is progressive and collaborative, supporting innovative research through two core facilities, housing six areas of research, and more than 16 research centers and laboratories. The two core facilities are supported by the Nebraska Research Initiative funded by the Nebraska Legislature to significantly enhance the scientific and research capabilities at UNL in technological areas with commercial potential. The Advanced Electro Optics Engineering Core Facility houses state-of-the-art lasers for producing a range of novel materials, thin films, and coatings that can be deposited with atomic precision on nanometer- to millimeter-sized areas/volumes. The Advanced Manufacturing Engineering Core Facility has the unique capability of synthesizing biological products, nanocomposites, and nanomachined electrical components. The programs residing in the research centers/ laboratories include a $10-million program for transportation research, an organization developing the technologies for the next generation of bridges and pavement, a trauma mechanics research initiative advancing the experimental and theoretical understanding of the mechanics of traumatic brain injury resulting from improvised explosive devices, and a facility developing vaccines against biological warfare agents and products that can be used as therapeutic countermeasures to treat people who have been exposed to biological agents.

The **Engineering and Science Research Support Facility (ESRSF)** is a dedicated, highly diverse technical facility with expertise in mechanical design, manufacturing, machining, fabrication, and technical services. The ESRSF technical staff combines high technical aptitude and background in hands-on instrument design, advanced machining, welding, fabrication, and materials testing. ESRSF will provide manufacturers with consulting services, prototyping, new part production runs, and other machining and construction services. Consulting services include: Workflow Management, Product/Process Design, Employee Technical Training, Machining Procedures, and Project Life Cycle Management.

- CNC & Conventional Machining, Welding, Fabrication, and Electroplating/Anodizing
- Flexible Machining
- Materials Testing Equipment

Equipment housed within the ESRS machine shop includes:

CNC Cincinnati-Milacron 1250 Sabre with Ab Acramatic 2100 Control

- has four-axis operation with a maximum of three-axis interpolation. This machine is used to machine a variety of drill system parts and components. Its large capacity allows for work pieces up to 50” x 30” x 26”. This CNC machining center utilizes the latest computer technology for the machining of complex contours through parametric programming (equational programming), solid modeling programming through CAM software, and online quick programming of simple geometries. This feature enhances the technical staff’s ability to accommodate a wide range of machining jobs.

BridgePort Series 1 CNC Milling Machines (2)

- provide additional resources for high volume machining and drastically cut delivery time to the customer. They are capable of machining smaller complex and simple 2-dimensional work pieces. Their conversational shop floor programming features allow tool makers to quickly program and machine the work piece.

CNC BridgePort Interact 412 Machining Center

- a three-axis, 12-tool station with a GE Fanuc Series O-Mate control that is available for multiple part production. Off-line part programming using a CAD workstation facilitates part design and production.

CNC Mazak Quick Turn ATC Lathe

- has a unique feature of live tooling on the turret. This feature allows the technical staff to perform turning and milling operations

in one setup. The result is a high precision machining process that can be performed without ever having to remove the work piece from the chuck, which eliminates costly secondary machining processes. The Mazak CNC lathe has been used to machine drill system components for the past eight years.

Engis Lapping Machine

- for precision machining, is used to machine and polish work pieces of extreme tolerances (.000001 inch). Common applications are thin film polishing and material removal, sharpening to razor edges, and finish machining of hardened materials. This lapping machine is located in the clean room facility of the engineering machine shop. During and after machining, the work piece is inspected with precision inspection equipment.

25" x 18" Nardini Gap Bed Lathe

- where much of the large cumbersome work pieces that require turning operations are performed. Drill system equipment such as barrels, large pulleys, housings, winch hubs, etc. are currently machined on the Nardini Lathe. Other heavy applications include the machining of train axles and wheels for material science research projects.

Conventional BridgePort Milling Machines (3)

- used for such applications as milling, drilling, boring, key-way cutting, etc.

Conventional 15" x 50" Clausing Lathes (2)

- used for turning, threading, and boring of cylindrical work pieces. All of the conventional machining equipment contains state-of-the-art digital readouts and tooling.

Kent Automatic Surface Grinder

- used for grinding flat and angular surfaces. This grinder has been used for sharpening ice coring cutters, core dogs, reamers, and surface grinding precision drill system parts. An Oliver tool cutter grinder is used for the complex geometry grinding on double angle cutters, core dogs, and reamers.

Tig, Mig, Gas, and Arc Welders

- all have a capacity ranging from very intricate applications to heavy-duty. The Tig and Mig welders can accommodate a wide range of steel and non-ferrous alloys. The shop has an acetylene/oxygen gas torch for brazing and flame cutting, along with a Plasma cutting unit.

Haas CNC Lathe

- allows technical staff to perform turning operations for high-presision machining.

Betenbender Heavy Duty Shear, Edwards 100 Ton Iron Worker, and Additional Hand Brakes and Foot Shears

- turn in-house fabrication and sheet metal work into routine services for the machine shop.

Materials Testing Bay

- the bay houses computer-controlled testing machines that can perform a variety of material and structural tests. The capacities of these testing machines are from 0 to 440,000 pounds. A torsion testing machine is available for testing barrels, well screens, drive shafts, gears, and more. Impact testing equipment is also accessible for impact tests on metals, plastics, and other materials.

A brief description of centers offering special expertise of interest to manufacturers of plastics products follows.

Nebraska Center for Materials and Nanoscience (NCMN) is a multi-disciplinary organization with more than 90 faculty members from UNL and other University of Nebraska campuses. The concern is with atomic manipulation, properties affected by nanoscale dimensions, self-assembly, ordered nanoarrays, quantum dots and wires, nanoelectronics, quantum computing, nanomechanics, nanooptics, molecular design, nanoelectro-mechanical systems, nanobiological function, and life sciences.

There are eight central facilities to support the NCMN's mission: Electron Microscopy, Materials Preparation, Mechanical and Materials Characterization, Scanning Probe Microscopy, X-Ray Structural Characterization, Nanofabrication, and Cryogenics. These facilities

are available to all UNL faculty as well as companies in Nebraska and elsewhere.

Center for Nontraditional Manufacturing Research is dedicated solely to the examination of nontraditional manufacturing methods. Projects involve both basic and applied research on numerous nontraditional manufacturing processes such as EDM, ECM, and USM.

Along with research and development efforts at the University of Nebraska, Nebraska operates a state college system with campuses at Chadron, Peru, and Wayne. Undergraduate degrees are offered at these institutions in Industrial Technology and Industrial Management and teaching endorsements are offered in Industrial Technology Education and Trade and Industrial Education. A variety of private colleges and universities are also located in Nebraska including Creighton University in Omaha, Wesleyan University in Lincoln, and others throughout the state (see Figure 5A, page 18).

Another important facet of higher education in Nebraska is the statewide community college system that provides specialized training programs for new and expanding industries. As indicated in Figure 5B (page 18), the state has six community college areas, which provide services in 25 cities across the state. The colleges offer a full curricula of occupational courses, which provide a steady flow of skilled graduates to Nebraska industries. As examples, Hastings and Milford Community College Campuses offer vocational/technical training in more than 50 different one-year and two-year programs, including Associate of Applied Science degrees in "Machine Tool Technology," "Manufacturing Engineering Technology," "Nondestructive Testing Technology," and "Welding Technology." Training is accomplished through the extensive use of hands-on activities and is centered around practical application of technical knowlege gained in lecture and laboratory sessions.

Performance-Based Tax Incentives

In 2005 the Nebraska Legislature enacted the Nebraska Advantage Tax Incentive Program and amended the program in 2008, 2010, 2011, and 2012. The Nebraska Advantage package replaced and improved on Nebraska's existing tax incentive programs and created a business climate that makes Nebraska the preferred location for business start-ups and expansions. The Nebraska Advantage rewards businesses that invest in the state and hire Nebraskans. In this progressive, pro-business climate, corporate income and sales taxes are reduced or virtually eliminated. Further information about the Nebraska Advantage is summarized in this study and is available at **www.opportunity.nebraska.gov/why-nebraska/incentives/**.

The legislative components of the Nebraska Advantage package include:

Nebraska Advantage Act (LB 312)

- Expanded incentives for six "tiers" of investment and/or job creation
- Small business advantage
- Research and development advantage
- Microenterprise tax credit advantage
- Rural development advantage
- State and local sales tax exemptions of manufacturing machinery, equipment, and related services

Qualified businesses for Tier One include scientific testing, research and development, manufacturing, and targeted export services. Qualified businesses for Tiers Two, Three, Four, and Five include the above plus data processing, telecommunications, insurance, financial services, distribution, storage, transportation, and headquarters (administrative). All businesses other than retail qualify for Super Tier Six. Retail sales of tangible personal property to specified markets can also qualify under tiers Two through Six.

Nebraska Agricultural Innovation Advantage (LB 90)

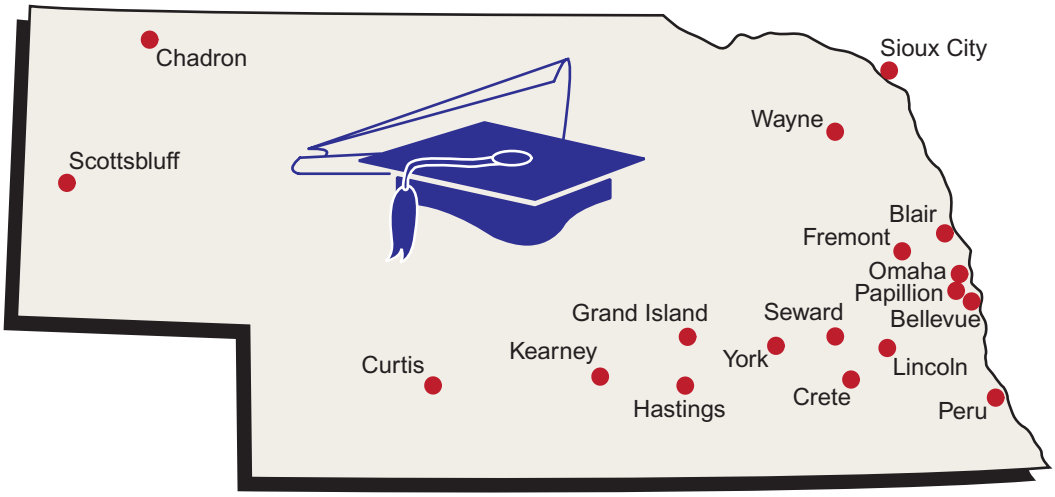
- Agriculture opportunities and value-added partnership act
- Building entrepreneurial communities act
- Ethanol production incentive cash fund enhancement

Other components in the Nebraska Advantage package are:

Nebraska Customized Job Training Advantage - Provides a flexible job training

Figure 5A

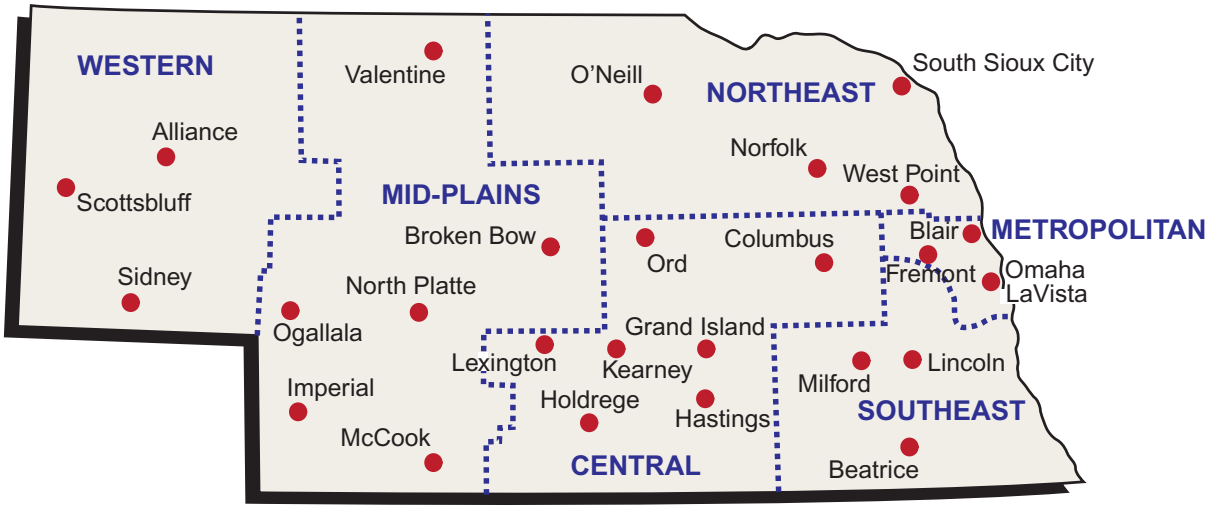
Location of Nebraska Area Colleges and Universities



Source: Nebraska Coordinating Commission for Postsecondary Education.

Figure 5B

Community Colleges in Nebraska



Source: Nebraska Community College System.

program with grants from $500 to $4,000 per job. Additional funds may be available for new jobs created in rural or high poverty areas. Companies can design their own training or a statewide training team can assist with training assessments, training plans, curriculum development, and instruction.

Nebraska Research and Development Advantage - Offers a refundable tax credit for research and development activities undertaken by a business entity. The credit is equal to 15 percent of federal credit allowed under Section 41 of the Internal Revenue Code of 1986. The credit is increased to 35 percent of the federal credit allowed under Section 41 if the business firm makes expenditures on the campus of a Nebraska college or university or a facility owned by a college or university in Nebraska. An important feature—businesses with little or no income may take advantage of the tax credit by receiving a sales tax refund or a refundable income tax credit.

Nebraska Microenterprise Tax Credit Advantage - Provides a 20 percent refundable investment tax credit to micro businesses on new investment in targeted communities. Applicants may qualify for a maximum $10,000 throughout the life of the program. The credit is geared to companies with five or fewer employees, including start-ups. Credits are approved through an application process with the Nebraska Department of Revenue and evaluated on expected local economic impacts. The credits are earned on new expenditures for wages, buildings, certain expenses, and non-vehicle depreciable personal property.

Additional Tax Savings:

- Sales Tax Exemption On:
  - Manufacturing equipment
  - Manufacturing or processing raw materials
  - Common carrier vehicles
  - Utilities used in manufacturing
- No Tangibles Tax
- No Inventory Tax
- Sales Tax Refund on Pollution Control Equipment
- 100% Tax Exemption on Certain Personal Property

In a tax policy incentive, Nebraska determines the taxable income attributable to Nebraska operations using a single factor, or "sales only" formula. This method for determining corporate income tax allocation provides a significant advantage to multi-state unitary firms that sell products or services outside Nebraska. Nebraska also provides a capital gains exemption. State residents may elect, on a one-time basis, to subtract from their income tax liability the gain from the sale of capital stock of a corporation acquired during Nebraska-based employment with the corporation.

New Economic Development Initiatives

Nebraska has recently adopted several new legislative initiatives and programs designed to build Nebraska's innovation economy and foster new high-quality job opportunities. Additional information on all these initiatives can be viewed at **opportunity.nebraska.gov**.

Talent & Innovation Initiative (TI2). The four-part TI2 was developed to enhance momentum in Nebraska's fastest growing industries, maintain Nebraska's world-class workforce, and leverage private sector innovation.

Nebraska Internship Program (InternNE), LB 476, is a partnership with Nebraska businesses to create paid internship opportunities for full-time students. The program provides matching grants to create internship opportunities for full-time students studying at four-year institutions or students at a community college.

Grant awards are capped at 10 per business, 5 per location. Internships must pay at least minimum wage and have a duration of at least 160 hours. Applications are accepted continuously and reviewed for consideration bi-monthly. The program will reimburse a business 50 percent of their cost of wages paid, up to $5,000 per internship.

Business Innovation Act, LB 387, is intended to help businesses develop new technologies and leverage innovation to enhance quality job opportunities in the state. It will provide competitive matching grants for research,

development, and innovation and will also help expand small business and entrepreneurial outreach efforts. Eligible grant activities may include: prototype development, product commercialization, applied research in the state, and support for small business and microenterprise lending.

Site & Building Development Fund, LB 388, makes state resources available to increase industrial site and building availability and support site ready projects. State funding will be focused initially on land and infrastructure development and building rehabilitation, with 40 percent of funding available to non-metro areas. Communities will provide matching funds. This program also makes funding available to assist with demolition of dilapidated residential and industrial buildings and offers direct support to communities that lose a major employer.

Angel Investment Tax Credit, LB 389, encourages investment in high-tech startup enterprises in Nebraska by providing a 35–40 percent refundable state income tax credit to qualified Nebraska investors investing in qualified early-stage companies. Capped at $3,000,000 annually, the program requires a minimum investment of $25,000 for individuals and $50,000 for investment funds. Eligible small businesses must have fewer than 25 employees, with the majority based in the state.

Other Development Assistance Programs

Building on traditional advantages, Nebraska offers additional development assistance programs. Among those programs are the following:

Tax Increment Financing (TIF) - An additional incentive program of note is Nebraska's Tax Increment Financing. TIF is a method of financing the public improvements associated with a private development project in a blighted area by using the projected increase in property tax revenue that will result from the private development.

Community Development Block Grants (CDBG) - Eligible businesses may be able to qualify for CDBG through local governments so they may make improvements to the public infrastructure serving the project site. Performance based loans of up to $1,000,000 may be awarded to qualifying companies creating new investments and jobs. Fifty-one percent of the new jobs must be held by or made available to low- or moderate-income persons. Other federal requirements apply. The program is administered by the Nebraska Department of Economic Development. More details are available at **opportunity.nebraska.gov**.

Industrial Revenue Bonds - All Nebraska counties and municipalities, as well as the Nebraska Development Finance Fund, are authorized to issue industrial revenue bonds to finance land, buildings, and equipment for industrial projects. No general election is required for an issue.

Other Financing Assistance - Supplementing traditional sources, financing assistance is also available through the Nebraska Investment Finance Authority, the Business Development Corporation of Nebraska, and the local development corporations. The Nebraska Department of Economic Development also administers development finance services, with staff helping assemble government financing with conventional financing to put together the best comprehensive package.

Nebraska Process Loan Fund - Focuses on making loans to qualifying small businesses. The minimum loan is $50,000, with a maximum of $2,000,000. Advantages with this loan are interest rates ranging from 0 percent to 4 percent, payment deferrals, and the ability to support loans that lack sufficient collateral to qualify the loan(s) from a private lender.

It is important to recognize the Nebraska Advantage package replaces and significantly enhances Nebraska's previous performance based tax incentive programs. Those earlier incentives, the first of which was passed by the Nebraska Legislature in 1987, had a profound effect in stimulating business investment, expansion, and job creation. Nebraska's previous tax incentive

programs contributed to substantial investment and job creation, including total investment of more than $23.5 billion and 121,000 jobs.

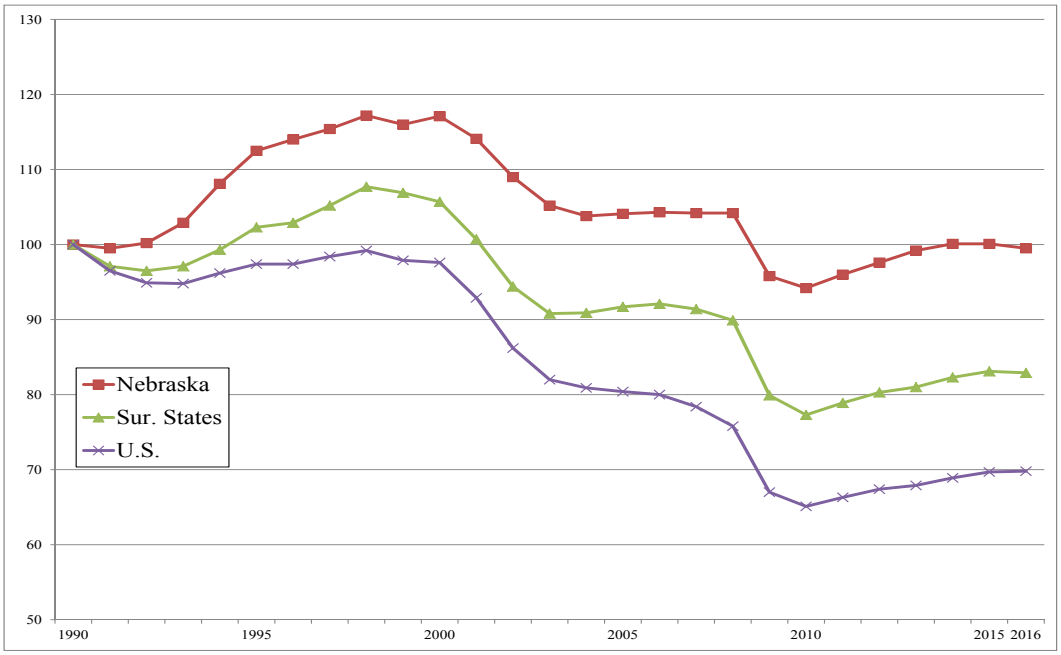
The combination of many factors, including Nebraska's attractive business climate, tax incentives, labor productivity, and effective job training programs as well as other positive attributes, has resulted in Nebraska's manufacturing sector significantly outperforming both that of the surrounding states and the U.S. as a whole. Manufacturing employment in Nebraska grew by 17.1 percent between 1990 and 2000. As the U.S. economy experienced two major recessions between 2000 and 2010, manufacturing employment in Nebraska declined but outperformed the Plains Region and the nation (Figure 6). These data suggest that companies with Nebraska manufacturing plants benefit from location and other competitive advantages associated with doing business in Nebraska.

Quality of Life

For a potential newcomer to Nebraska, the state's livability is obviously also a consideration. Nebraska ranks high in quality of life studies—and at or slightly above average in cost of living measures. The state's landscape is clean and spacious, both in urban and rural areas. Residents blend Midwestern values with Western enthusiasm for growth and change. This helps create a high degree of citizen participation in both neighborhood and community-wide activities.

Figure 6

Manufacturing Employment, Nebraska, Surrounding States, and the U.S., 1990–2016, 1990=100



Surrounding States include data for the states contiguous to Nebraska, as a group, including Colorado, Iowa, Kansas, Missouri, South Dakota, and Wyoming.

Source: Bureau of Labor Statistics, **www.bls.gov**.

The cost of living in Nebraska is slightly below the national average. Data presented in Table 8 indicates on average, the cost of living in Nebraska is 4.2 percent less than the U.S. average. Of particular interest is the cost of housing in Nebraska, which averages 7.9 percent less than for the U.S. as a whole for families renting a home and the cost of utilities which is 25.4 percent less than the U.S. average.

Table 8

Cost of Living in Nebraska, Compared to the National Average
April 1, 2018

	All Items Index [a]	Consum-ables	Transpor-tation [b]	Health Services	Monthly Rent [c]	Home Value [c]	Utilities	Income/ Payroll Taxes
U.S. Average	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nebraska	95.8	95.5	102.3	103.0	92.1	85.8	74.6	84.9
Omaha, NE	95.5	96.5	94.1	99.5	116.5	86.2	86.4	84.9
Lincoln, NE	101.2	98.6	104.0	105.5	104.7	99.4	72.1	84.9
Nonmetro NE [d]	92.7	94.6	104.0	103.4	82.0	80.1	72.1	84.9

[a] Cost of living values computed for a family of three with an annual income of $50,000.

[b] Transportation costs assumes ownership of two cars valued at $14,312, which are driven a total of 20,000 miles annually.

[c] Assumes a house of 1,613 square feet for both rental assumption and home value.

[d] Nonmetro Nebraska data represent the average of 14 Nebraska cities outside of the Omaha and Lincoln metropolitan areas. These cities include Beatrice, Columbus, Dakota City, Fremont, Grand Island, Hastings, Kearney, McCook, Norfolk, North Platte, O'Neill, Scottsbluff, South Sioux City, and Valentine Nebraska.

Source: Index values computed from cost-of-living data obtained from Economic Research Institute (ERI), Relocation Assessor Database as of April 1, 2018.

BD
Advancing the world of health

New Plastic Molding Manufacturing Center of Excellence Coming to Columbus, Nebraska-East Plant

BD (Becton, Dickinson and Company) (NYSE: BDX), a leading global medical technology company, today announced it will invest $60 million to upgrade its Columbus, Nebraska-East facility into a plastic molding manufacturing center of excellence by 2021.

The investment will add 69,000 sq. ft. to the facility to transform it into the flagship plastic molding manufacturing facility for BD, and it will become one of the largest and most sophisticated plastic molding plants in the world. The new facility will centralize and insource a majority of BD's North American plastic molding production that is currently produced by third-party manufacturers. BD is one of the largest users of plastic molded products in the world, with more than 700 billion units manufactured each year.

"With four manufacturing plants across our state, BD is a great example of a company that understands the value of investing in its Nebraska workforce to support its global business," said Gov. Pete Ricketts. "My economic development team has built a strong, collaborative relationship with BD, and we look forward to helping the company continue to invest and grow in our state."

The transformation of the Columbus-East facility will occur over a four-year period, and the company plans to continue manufacturing its current pre-fillable glass syringe production lines while transforming the facility into a plastics molding manufacturing center of excellence.

"Columbus is home to BD's largest and longest-running manufacturing facility in the world, and we are excited to bring cutting-edge technology and production to the area," said Steve Sichak, executive vice president and chief integrated supply chain officer of BD. "Columbus will be the centerpiece for our plastic molding manufacturing strategy for North America, supporting multiple business units in the U.S. and around the world."

Article courtesy of BD Medical

CONCLUSIONS

This study concludes the plastics product manufacturing industry is desirable for Nebraska and a Nebraska location is desirable for the industry. The locational advantages Nebraska offers appear well-suited to plastics products manufacturers. They cover a wide spectrum, ranging from an attractive business climate to a high quality of life at a relatively low cost. But, as the study's model plant analysis demonstrates, the competitive advantages Nebraska offers in such important cost areas as labor and energy are particularly noteworthy. The state's well-educated and productive labor force is a long-standing asset, as are its very favorable electric and natural gas rates.

Essentially, the analysis presented in this study was based on state-to-state comparisons applicable to the plastics product manufacturing industry generally. Individual manufacturers will therefore need to further consider the locational requirements of their particular kinds of plastics products manufacturing as well as the merits of specific sites within states. Certainly in terms of general locational situations for plastics products manufacturers, Nebraska has much to offer.

The three organizations cooperating in the preparation of this study can also assist plastics products manufacturers in assessing advantages in Nebraska for a specific new location or expansion project. To obtain this assistance, write or call:

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APPENDIX A
LABOR AND ENERGY COST ANALYSIS

Nebraska offers a wide range of locational advantages for manufacturers of plastics products. In this Appendix, labor and energy production cost factors that have geographic variability are analyzed. Such analysis permits the identification of the plant site providing the best advantage on these important input factors.

In the analysis of geographically variable labor and energy costs, the following procedures are used:

1) Selection of alternative plant locations for evaluation of the geographically variable labor and energy costs.
2) Definition of a model manufacturing plant for identifying labor and energy inputs and costs.
3) Evaluation of labor-related costs associated with each alternative plant location.
4) Evaluation of energy costs for each alternative plant location.

Alternate Plant Locations

Sixteen plant locations were selected for comparison in this analysis. The plant locations include the top eight states in terms of value of shipments by the "Plastics Product Manufacturing Industry" (NAICS 3261) subsector and other states near Nebraska with which it typically competes for industrial location projects. The sixteen states account for 68.2 percent of the value of shipments from the plastics products industry (see Table A-1).

Table A-1

Alternative Locations for a Model Plant for the Plastics Product Manufacturing Industry (NAICS 3261)

State	Percent of Value of Shipments [a]
Nebraska	**0.5**
California	7.1
Georgia	4.0
Illinois	6.0
Indiana	4.6
Iowa	1.2
Kansas	1.3
Michigan	6.5
Minnesota	1.8
Missouri	1.6
New York	4.1
North Carolina	4.1
Ohio	8.2
Pennsylvania	5.3
Texas	7.7
Wisconsin	4.2
Total Selected States	**68.2**

[a] Percent of the 2016 U.S. total value of shipments for NAICS 3261.

Source: U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Series: 2016.*

The Model Plant

To facilitate the analysis of the comparative labor and energy costs for the alternative states, it is useful to define a model plant for which the geographically variable costs can be quantified. The model plant is assumed to manufacture a product representative of the plastics product industry as a whole. To specify the relevant labor and energy costs, information was obtained from the *2016 Annual Survey of Manufactures* and the *2014 Energy Consumption Survey.*

Table A-2 presents industry characteristics used in developing the model plant, which is assumed to employ 50 production workers. Estimated production worker hours total 104,000 annually or 2,080 hours per worker. Value added by manufacture is estimated to be $10,317,363 and the total annual output (value of shipments) is estimated to be $20,383,903. Energy inputs are estimated at 24,016 million BTUs, with all energy inputs supplied by electricity and natural gas.

Energy Used in the Model Plant

The assumption that the model plant is representative of the industry as a whole leads to the assumption that energy used in the plant also should be characteristic of industry use patterns. Part A of Table A-3 (next page) presents data estimating energy use for the industry in 2016. The estimated energy use for the model plant was derived using the ratio of energy inputs to industry value added. It was further assumed all energy inputs for the model plant are derived from electricity and natural gas.

Part B of Table A-3 indicates the model plant, employing 50 production workers, will have annual energy inputs of 24,015.7 million BTUs. Electric energy inputs are estimated to be 16,234.6 million BTUs (4,758,101 kWhs), or 67.6 percent of the total energy inputs, while natural gas inputs are estimated at 7,781.1 million BTUs.

Table A-2

Characteristics of a Model Plant for the Plastics Product Manufacturing Industry (NAICS 3261)

	Total Model Plant	Per Production Worker
Production Workers	50	- - -
Value Added [dollars] [(a)]	10,317,363	206,347
Total Output [dollars] [(b)]	20,383,903	407,678
Energy Inputs [million BTUs] [(c)]	24,016	480

[(a)] Estimated value added applies the 2016 value added per production worker for the Plastics Product Manufacturing Industry Group (NAICS 3261) to the model plant (see Table 3).

[(b)] Estimated value of shipments derived by applying the 2016 value of shipments per production worker to the model plant (see Table 3).

[(c)] Estimated by applying the 2016 ratio of energy inputs per production worker to the model plant (see Table A-3).

Source: Calculated from data presented in Tables 3 and A-3.

Table A-3

Energy Use in Plastic Product Manufacturing Industry (NAICS 3261)
Manufacturing Establishments

Part A
Estimated 2015 Industry Energy Inputs

	Trillion BTUs	Percent
Purchased Fuels and Electric Energy	227.7	100.0
Purchased Electric Energy	153.9	67.6
Purchased Fuels	73.8	32.4

Source: Energy use estimated using data from the U.S. Bureau of the Census, *Annual Survey of Manufactures: 2016* and U.S. Energy Information Administration, 2014, *Manufacturing Energy Consumption Survey.*

Part B
Energy Inputs for the Plastics Product Manufacturing (NAICS 3261) Model Plant

	Million BTUs	Percent
Purchased Electricity	16,234.6 (4,758,101 kWhs)	67.6
Natural Gas	7,781.1	32.4
Total Energy Inputs	24,015.7	100.0

Source: Calculated from data in Table A-2 and Part A of this table.

Labor-Related Costs

Labor costs in the plastics product industry are affected by several factors: wage rates, productivity of workers, fringe benefits, unemployment insurance, and workers' compensation costs. Table A-4 (next page) and Figure A-1 (page A-5) include data on wage rates for the states identified as alternative plant locations.

An analysis of state wage levels indicates Nebraska's plastics products manufacturing production workers have hourly wage rates significantly below the average for the alternative plant sites. For example, 2016 hourly wage rates for Nebraska production workers ($16.68) are 11.7 percent below the average wage rates for the other 15 states included as alternative plant locations.

The Nebraska costs for unemployment insurance and workers' compensation are significantly less than the other states. In the case of unemployment insurance contributions, the average cost per employee for the 15 alternative states is estimated at $323.00 or 216.7 percent higher than the Nebraska cost of $102.00. Insurance rates for workers' compensation average $1.90 per $100 of payroll for the 15 alternative states, 13.8 percent more than Nebraska's rate of $1.67.

If located in Nebraska, the model plant has a significant labor cost advantage over the alternative locations. The Nebraska labor cost advantage reaches as high as $648,611 in annual savings when compared to Wisconsin. When compared to the average labor costs for the 15 alternative locations, Nebraska's annual labor cost advantage is $323,191 or 12.2 percent lower.

Table A-4

Total Annual Labor-Related Costs for a Model Plant
for the Plastics Product Manufacturing Industry Group (NAICS 3261)

Plant Location	Hourly Wage Rate	Number of Production Workers	Total Payroll	Workers' Compensation Insurance[a]	Unemployment Insurance[b]	Social Security[c]	Fringe Benefits[d]	Total Labor Costs	Cost Difference Other States (-) Nebraska	Cost Relative Other States (/) Nebraska
	($)		----- ($) -----							(%)
Nebraska	**16.68**	**50**	**1,734,700**	**28,969**	**5,100**	**132,705**	**433,675**	**2,335,149**	**0**	**100.0**
California	19.42	50	2,019,700	65,438	16,200	154,507	504,925	2,760,770	425,621	118.2
Georgia	18.05	50	1,877,200	33,790	8,900	143,606	469,300	2,532,796	197,647	108.5
Illinois	20.75	50	2,158,000	48,123	19,950	165,087	539,500	2,930,660	595,511	125.5
Indiana	17.26	50	1,795,000	18,848	10,600	137,318	448,750	2,410,516	75,367	103.2
Iowa	18.77	50	1,952,100	36,309	23,750	149,336	488,025	2,649,520	314,371	113.5
Kansas	17.95	50	1,866,800	26,322	7,900	142,810	466,700	2,510,532	175,383	107.5
Michigan	18.05	50	1,877,200	29,472	16,100	143,606	469,300	2,535,678	200,529	108.6
Minnesota	19.81	50	2,060,200	39,350	21,450	157,605	515,050	2,793,655	458,506	119.6
Missouri	18.25	50	1,898,000	36,442	11,950	145,197	474,500	2,566,089	230,940	109.9
New York	18.31	50	1,904,200	53,889	18,950	145,671	476,050	2,598,760	263,611	111.3
North Carolina	17.98	50	1,869,900	35,715	19,400	143,047	467,475	2,535,537	200,388	108.6
Ohio	18.85	50	1,960,400	28,426	10,800	149,971	490,100	2,639,697	304,548	113.0
Pennsylvania	19.55	50	2,033,200	37,411	28,450	155,540	508,300	2,762,901	427,752	118.3
Texas	19.03	50	1,979,100	28,697	10,250	151,401	494,775	2,664,223	329,074	114.1
Wisconsin	21.17	50	2,201,700	45,355	17,850	168,430	550,425	2,983,760	648,611	127.8

[a] Values calculated by Ken Lemke, NPPD, using data for all manufacturing classifications from: *Oregon Workers' Compensation Premium Rate Rankings Calendar Year 2016*.

[b] Values calculated by Ken Lemke, NPPD, using data from *Unemployment Insurance Data Summary, 2016*.

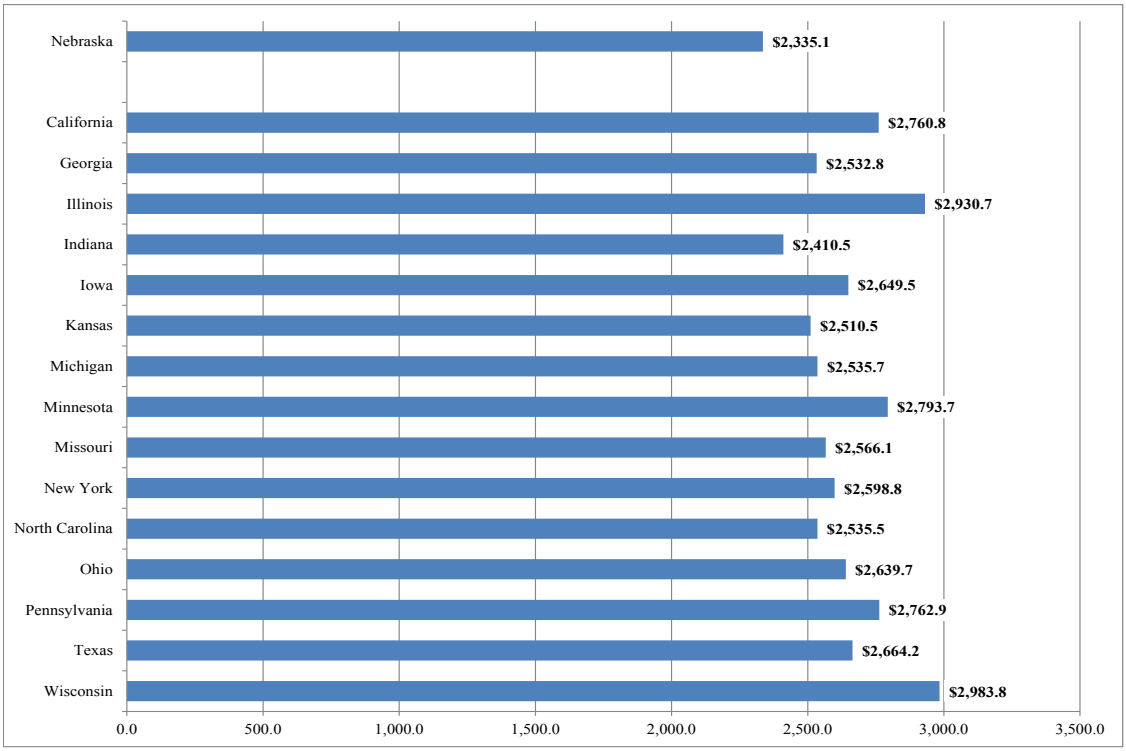
[c] Employer Social Security costs are 7.65 percent of payroll (wages).

[d] Fringe benefit costs are assumed to be 25 percent of payroll.

Sources: *Oregon State Department of Consumer & Business Services, Oregon Workers' Compensation Premium Rate Rankings Calendar Year 2016, October, 2016.*
U.S. Department of Commerce, Census Bureau, *Annual Survey of Manufactures, Geographic Series: 2016*.
U.S. Department of Labor, Employment and Training Administration, *Unemployment Insurance Data Summary: 2016*.

Figure A-1

Estimated Total Labor Costs* for the Model Plastics Product Industry, Alternative Plant Locations



*Calculated labor costs include wages, workers' compensation insurance, unemployment insurance, social security, and fringe benefits.

Source: See Table A-4.

Energy Costs

The availability and cost of energy are increasingly important factors in the industrial location process. Rates for industrial electricity and natural gas for the alternative plant locations are presented in Table A-5 (next page). For both energy sources, Nebraska's rates are substantially less than the alternative states. The average electric rate for a 1,000 kW billing demand with monthly usage of 400,000 kWhs for the 15 alternative plant sites is $0.0891 per kWh or 17.0 percent more than the Nebraska rate of $0.0761.

In the case of industrial rates for natural gas, the average for the 15 other states is 26.7 percent more than the Nebraska rate of $4.04 per million BTUs.

Table A-5 and Figure A-2 (next page) provide an analysis of the energy costs for the operation of the model plant. The total energy costs for the alterative locations include the cost for the assumed level of electrical energy and natural gas inputs for the operation of the plant.

Nebraska provides a significant energy cost savings compared to the alternative plant locations. When considering the California location, energy costs for the model plant are more than twice (200.9 percent) the Nebraska energy costs. When compared to the average total energy costs for the 15 alternative states, Nebraska energy costs are 15.1 percent lower, translating into an average annual savings of $70,149.

Table A-5

Annual Energy Costs for a Model Plant for the Plastics Product Manufacturing Industry (NAICS 3261)

Plant Locations	Electricity Rate[a]	Electricity Cost	Natural Gas Rate[b]	Natural Gas Cost	Total Energy Cost	Cost Difference Other States (-) Nebraska	Cost Relative Other States (/) Nebraska
			----- ($) -----				(%)
Nebraska	**0.0761**	**362,187**	**4.04**	**31,436**	**393,623**	**0**	**100.0**
California	0.1551	737,934	6.79	52,834	790,768	397,145	200.9
Georgia	0.0989	470,600	4.10	31,903	502,503	108,880	127.7
Illinois	0.0753	358,261	5.03	39,139	397,400	3,777	101.0
Indiana	0.0894	425,267	4.99	38,828	464,095	70,472	117.9
Iowa	0.0713	339,431	4.70	36,571	376,002	-17,621	95.5
Kansas	0.0876	416,762	3.69	28,712	445,474	51,851	113.2
Michigan	0.0959	456,302	5.75	44,741	501,043	107,420	127.3
Minnesota	0.0870	414,026	4.19	32,603	446,629	53,006	113.5
Missouri	0.0912	433,939	6.29	48,943	482,882	89,259	122.7
New York	0.0975	463,974	5.92	46,064	510,038	116,415	129.6
North Carolina	0.0747	355,525	5.43	42,251	397,776	4,153	101.1
Ohio	0.0790	376,009	4.81	37,427	413,436	19,813	105.0
Pennsylvania	0.0700	332,972	7.40	57,580	390,552	-3,071	99.2
Texas	0.0718	341,774	2.65	20,620	362,394	-31,229	92.1
Wisconsin	0.0917	436,294	5.05	39,295	475,589	81,966	120.8

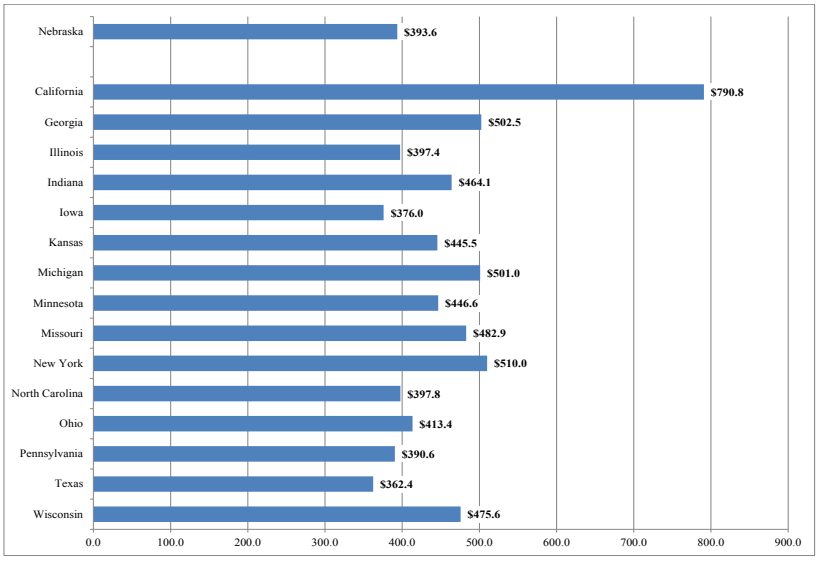
[a] Electric rate is cost per kWh using the average per kWh cost for 1,000 kW monthly demand with 400,000 kWh of consumption. The model plant is assumed to use 4,758,101 kWh annually.

[b] Natural Gas rate is per million BTUs. The model plant is assumed to use 7,781.1 million BTUs annually.

Sources: Natural Gas: U.S. Energy Information Administration, Natural Gas Data, Industrial Price, Annual, **www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm.**
Electric: Edison Electric Institute, "Typical Bills and Average Rates Report," January 1, 2016 and July 1, 2016. State averages weighted using eight months of January 2017 and 4 months of July 2017 data. Nebraska data represent average for Omaha Public Power District, Lincoln Electric System, and Nebraska Public Power District.

Figure A-2

Estimated Total Energy Costs* for a Model Plant for the Plastics Product Industry Alternative Plant Locations



(Energy Costs in Thousands of Dollars)

* Calculated energy costs include electricity and natural gas costs for a manfacturer of plastics product (NAICS 3261).

Source: See Table A-5.

Labor and Energy Cost Summary

Combining the labor and energy cost findings, the results of the model plant analysis are summarized in Table A-6. As the table shows, the comparative annual cost advantage associated with a Nebraska location ranges from a low of $145,839, compared to the Indiana plant site, to a high of $822,766 when compared to the California site. When considering the average labor and energy costs for the 15 alternative states, the cost advantage of the Nebraska location is $393,340 annually, or 12.6 percent less than the average costs for the other 15 plant sites considered.

Conversely, the average labor and energy costs for the alternative states are 14.4 percent more than the costs associated with a Nebraska location. Inescapable from these results is the conclusion that, in terms of major labor and energy input costs, Nebraska manufacturers of plastics products have a clear competitive advantage over manufacturing establishments in the industry not so fortunately located.

Table A-6

Summary of Labor and Energy Costs for a Model Plant for the Plastics Product Manufacturing Industry (NAICS 3261)

Plant Locations	Total Labor Cost	Total Energy Cost	Total Labor and Energy Cost	Cost Difference Other States (-) Nebraska	Cost Relative Other States (/) Nebraska
	----- ($) -----				(%)
Nebraska	**2,335,149**	**393,623**	**2,728,772**	**0**	**100.0**
California	2,760,770	790,768	3,551,538	822,766	130.2
Georgia	2,532,796	502,503	3,035,299	306,527	111.2
Illinois	2,930,660	397,400	3,328,060	599,288	122.0
Indiana	2,410,516	464,095	2,874,611	145,839	105.3
Iowa	2,649,520	376,002	3,025,522	296,750	110.9
Kansas	2,510,532	445,474	2,956,006	227,234	108.3
Michigan	2,535,678	501,043	3,036,721	307,949	111.3
Minnesota	2,793,655	446,629	3,240,284	511,512	118.7
Missouri	2,566,089	482,882	3,048,971	320,199	111.7
New York	2,598,760	510,038	3,108,798	380,026	113.9
North Carolina	2,535,537	397,776	2,933,313	204,541	107.5
Ohio	2,639,697	413,436	3,053,133	324,361	111.9
Pennsylvania	2,762,901	390,552	3,153,453	424,681	115.6
Texas	2,664,223	362,394	3,026,617	297,845	110.9
Wisconsin	2,983,760	475,589	3,459,349	730,577	126.8

Source: Calculated from data presented in Tables A-4 and A-5.

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