NEBRASKA
PROFIT OPPORTUNITIES FOR FOOD PROCESSORS

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EXECUTIVE SUMMARY

Nebraska offers a wide range of locational advantages to manufacturers of food and related products. An attractive business climate, a well educated and productive labor force, reliable supplies of low cost energy, ready access to raw materials and intermediate processed inputs, and a location central to the national consumer market are among the leading advantages the state offers manufacturers of food products. Although there are exceptions, such as the meat processing industry subgroup, much of the food products industry is characterized by small- and medium-sized production facilities. Nebraska provides substantial advantages for both small and large food production facilities in reducing costs, expanding capacity, and otherwise becoming more competitive.

This study has been developed specifically for use by manufacturers of food and related products to show how a Nebraska plant location can help them better respond to market conditions and significantly improve their competitive positions. Discussed are the many locational advantages the state offers, including performance-based tax incentives that enhance Nebraska's high ranking business climate. To demonstrate quantitatively Nebraska's locational advantages, the study includes an analysis of geographically variable labor and energy costs—two areas important to food products manufacturers where Nebraska compares particularly favorably.

The analysis makes costs 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 for the food products industry as a whole. Sixteen states are examined in the analysis. Besides Nebraska, these states include those that currently have the largest production in the industry as well as 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 average labor costs for the 15 alternative states, Nebraska is found to offer an annual savings of $335,969 in labor related costs, which is 11.9 percent less than the average labor costs for the other states.

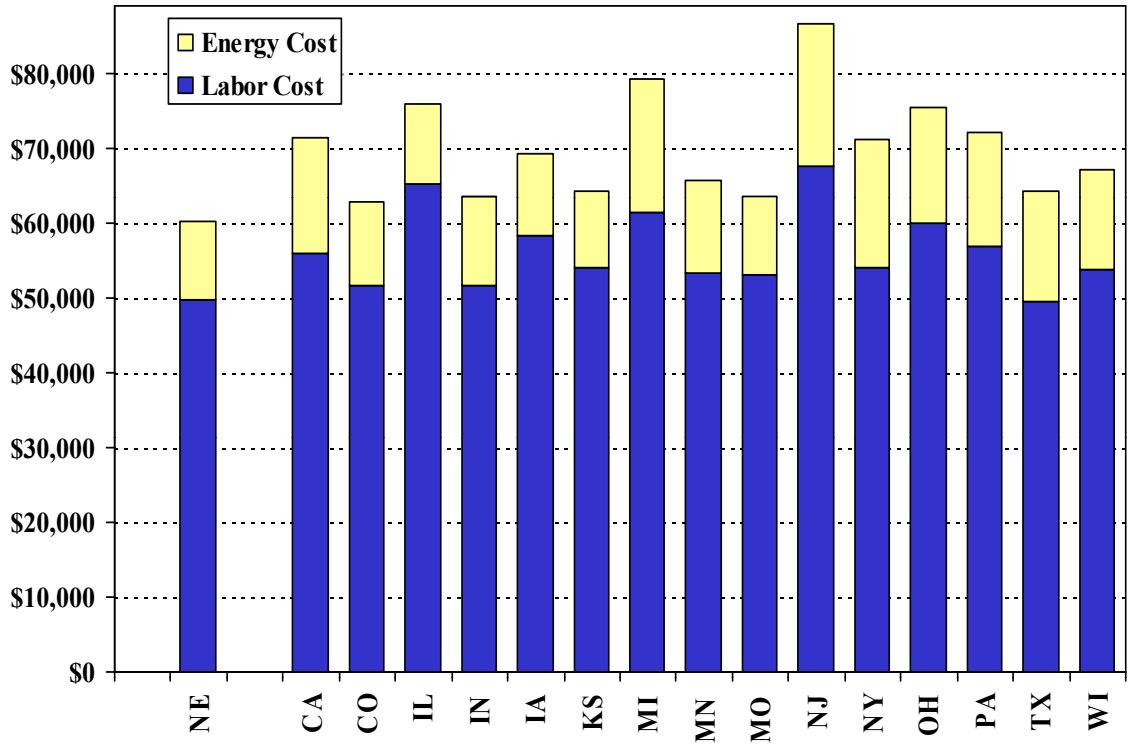
This study also concludes that a Nebraska plant location offers a significant energy cost advantage. Industrial electric rates for the 15 alternative states average 31.0 percent more than the Nebraska rate and the average industrial gas rate is 17.1 percent more. Combining these advantages, Nebraska's energy cost for the model plant is 23.0 percent less than the average energy cost for the 15 alternative locations.

Together, Nebraska's annual labor and energy costs for the model plant are $493,777, or 14.1 percent less than the average annual labor and energy costs for the 15 alternative states. Conversely, the average labor and energy costs in the other 15 states are 16.4 percent more than the Nebraska labor and energy costs for the food processing model plant.

Figure 1 provides a summary of the labor and energy costs for the model plant for Nebraska and for each of 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 a Food Processing Model Manufacturing Plant (NAICS 311)



Calculated labor (wages, workers' compensation insurance, unemployment insurance, social security and fringe benefits) and energy (electricity and natural gas) costs for a food products manufacturer (NAICS 311).

Source: Nebraska Public Power District, et. al. *Nebraska Profit Opportunities for Food Processors, 2009*

Part A

The Food Processing Industry

I. Industry Characteristics and Trends

The food processing industry (NAICS 311) is one of the largest manufacturing sectors in the United States. The *Census of Manufactures, Detailed Statistics by Industry for the U.S., 2007*[1] *(2007 Census of Manufactures)* indicates the food processing sector accounted for 11.1 percent of the total value of shipments by U.S. manufacturers in 2007. Moreover, food processing establishments represented 7.7 percent of total U.S. manufacturing establishments and accounted for 11.0 percent of total manufacturing employment in the United States.

As the data shown in Table 1 indicate, the value of shipments for the food processing industry in the U.S. totaled $587,040.1 million in 2007. Value added in the industry totaled $239,937.5 million, with total employees numbering 1,466,800 and production workers numbering 1,141,100. Capital expenditures for the food processing industry totaled $13,145.1 million in 2007.

Data for the 1997–2007 review period provided in Table 1 show there has been significant nominal growth in value added, the value of shipments, and capital expenditures, while industry employment has been relatively stable. Between 1997–2007, the value of shipments by industry establishment grew by 39.2 percent, industry value added increased by 46.6 percent and annual capital expenditures grew by 21.7 percent. During the same period, the number of production workers increased by 2.6 percent and total employment in the food processing industry decreased by 0.1 percent. Obviously, the growth in value added and the value of shipments occurring during the ten-year review period resulted from increases in worker productivity.

Worker productivity in the food processing industry has been enhanced by growth in capital expenditures made by industry establishments. During the 1997–2007 review period, annual capital expenditures increased 21.7 percent, from $10,799.2 million in 1997 to $13,145.1 million in 2007. With a 2.6 percent increase in the number of production workers during the same period, the annual capital expenditures per worker by food processing manufacturers increased by

Table 1

The Food Processing Industry (NAICS 311), Characteristics and Trends, Selected Years, 1997–2007

Year	Total Employees	Production Workers	Value Added	Value of Shipments	Capital Expenditures	Avg. Hourly Earnings, Prod. Wrkrs.
	- - - - Thousands - - - -		- - - - (Millions $) - - - -			($)
1997	1,467.0	1,112.3	163,675.3	421,737.0	10,799.2	11.27
2002	1,506.9	1,140.6	203,639.6	458,786.5	10,954.1	13.27
2003	1,468.5	1,120.8	210,688.5	481,648.2	11,693.5	13.47
2004	1,440.9	1,091.2	222,884.8	509,500.5	11,266.1	13.88
2005	1,440.3	1,099.5	234,662.2	532,402.1	12,076.0	14.31
2006	1,416.9	1,089.6	233,406.9	536,939.2	12,656.0	14.92
2007	1,466.8	1,141.1	239,937.5	587,040.1	13,145.1	15.14

Data for the food industry as defined by the 1997 definition for NAICS 311, Food Manufacturing.
Source: U.S. Bureau of the Census, *Census of Manufactures, Geographic Serices 1997 and 2002; Census of Manufactures, Industry Series 2007* (preliminary data); and *Annual Survey of Manufactures, 2004 and 2006.*

[1] The Economic Census Industry Series contains preliminary data for individual industries and their products at the U.S. level only; the Geographic Series, when released, will contain updated estimates of national values for individual industries at the U.S. level plus estimates for state, county, place, and metropolitan area levels.

18.7 percent, from $9,709 per production worker in 1997 to $11,520 in 2007.

The growth in worker productivity has not contributed to significant increases in payments to workers during the review period, at least not in real terms. As the data presented in Table 1 show, average hourly wages for production workers in the food processing industry increased by 34.3 percent, from $11.27 per hour in 1997 to $15.14 per hour in 2007. During the same period, the consumer price index increased by 34.2 percent, resulting in a much more modest increase in average hourly earnings for industry production workers in real, or inflation-adjusted terms. When average hourly earnings are adjusted using the consumer price index, the change in average hourly earnings for the 1997–2007 period was an increase of less than 0.1 percent during the ten-year review period.

II. Industry Structure

As the reader will note, the food processing industry (NAICS 311) is subdivided into nine 4-digit NAICS code classifications. And as a subsequent table will indicate, these nine 4-digit industry classifications are further divided into additional 5-digit NAICS subgroups.

The data presented in Table 2 show the general categories of products produced and sold by the food processing industry. The table also provides insights into the relative sizes of the industry subgroups and the growth in industry shipments among the primary (4-digit NAICS) industry subgroups. The fastest growing industry subgroup at the 4-digit NAICS level was "Grain and oilseed milling" (NAICS 3112), for which industry shipments grew by 44.6 percent between 2002 and 2007. The value of industry shipments for "Animal food manufacturing" (NAICS 3111), the second fastest growing industry subgroup, grew by 37.8 percent between 2002 and 2007. For the food processing industry as a whole (NAICS 311), industry shipments grew by 28.0 percent between 2002 and 2007.

Other food processing industry subgroups experiencing relatively faster growth in the value of shipments between 2002 and 2007 included "Dairy product manufacturing" (NAICS 3115), which recorded a 36.5 percent increase in the value of shipments followed by "Other food manufacturing" (NAICS 3119), for which the value of shipments experienced a growth of 31.0 percent between 2002 and 2007. "Meat product manufacturing" and "Seafood product preparations and packaging" both recorded increases of 29.8 percent.

The data in Table 2 and in Figure 2 show the relative importance of the food processing industry subgroups, in terms of the value of shipments for each subgroup. The "Meat product manufacturing" (NAICS 3116) sector is the largest industry subgroup, accounting for 27.2 percent of total industry shipments in 2007. The second largest sector "Dairy product manufacturing" (NAICS 3115), accounted for 15.4 percent of industry shipments, followed by "Other food manufacturing" (NAICS 3119 – 12.7 percent), "Grain and oilseed milling" (NAICS 3112 – 11.7 percent), "Fruit and vegetable preserving and specialty food manufacturing" (NAICS 3114 – 10.4 percent), "Bakeries and tortilla manufacturing" (NAICS 3118 – 9.4 percent), "Animal food manufacturing" (NAICS 3111 – 6.6 percent), and "Sugar and confectionery product manufacturing" (NAICS 3113 – 5.5 percent).

Table 2

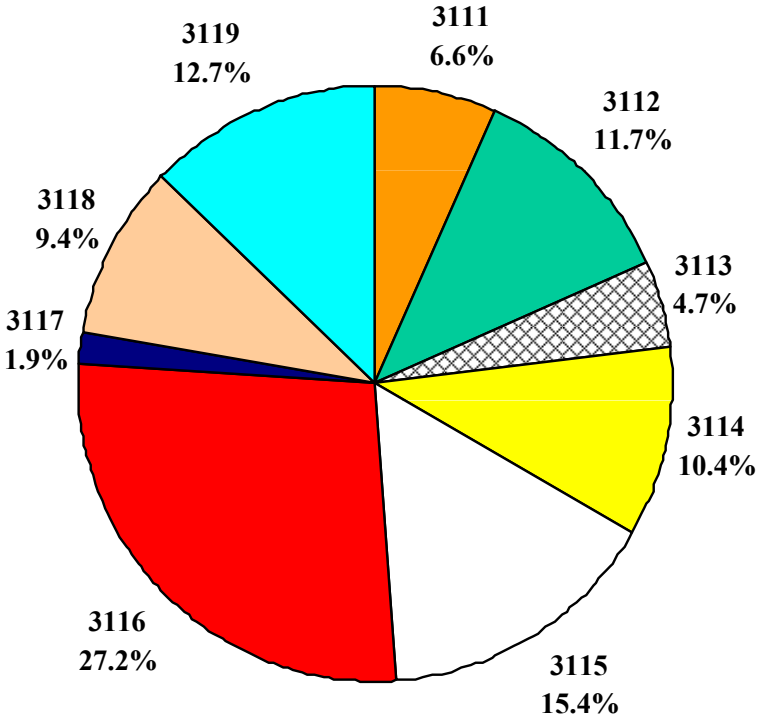
The Food Processing Industry (NAICS 311),
Value of Industry Shipments by Major Industry Subgroup, 2002 and 2007

NAICS	Industry Subgroup	Value of Shipments 2002	Value of Shipments 2007	% Change 2002–2007	% of Total 2007
		- - - Million Dollars - - -		(%)	(%)
311	**Food Manufacturing**	**458,786.5**	**587,040.1**	**28.0**	**100.0**
3111	Animal food mfg	28,025.0	38,610.7	37.8	6.6
3112	Grain & oilseed milling	47,616.6	68,854.2	44.6	11.7
3113	Sugar & confectionery product mfg	25,455.1	27,445.5	7.8	4.7
3114	Fruit & vegetable preserving & specialty food mfg	53,667.9	60,885.9	13.4	10.4
3115	Dairy product mfg	66,175.9	90,318.0	36.5	15.4
3116	Meat product mfg	122,920.6	159,564.7	29.8	27.2
3117	Seafood product preparation & packaging	8,809.8	11,434.4	29.8	1.9
3118	Bakeries & tortilla mfg	49,068.0	55,195.1	12.5	9.4
3119	Other food mfg	57,047.8	74,731.4	31.0	12.7

Source: U.S. Bureau of the Census, *Census of Manufactures, Geographic Series 2002 and Census of Manufactures, Industry Series 2007* (preliminary data).

Figure 2

Value of Shipments by Industry Subgroup, Food Processing Industry (NAICS 311), 2007



Total Industry 2007 Shipments - $587,040.1 Million

NAICS 3111 Animal food mfg
NAICS 3112 Grain & oilseed mfg
NAICS 3113 Sugar & confectionery prod.
NAICS 3114 Fruit & vegetable preserving and specialty mfg
NAICS 3115 Dairy product mfg
NAICS 3116 Meat product mfg
NAICS 3117 Seafood product preparation & packaging
NAICS 3118 Bakeries & tortilla mfg
NAICS 3119 Other food mfg

Source: See Table 2

The data presented in Table 3 provide further detail for the industry subgroups that comprise the food processing manufacturing industry. Data showing the number of companies, number of establishments, employees, production workers, value added, value of shipments, and capital expenditures are shown for the food processing industry as a whole (NAICS 311) for 2007 and for the NAICS 4-digit and 5-digit subgroups that make up the food manufacturing industry. As previously shown, the "Meat product manufacturing" sector (NAICS 3116) is the largest industry subgroup in terms of industry shipments. As the data presented in Table 3 show, it is also the largest food industry sector in terms of employees, production workers, value added, and capital expenditures. It is also of interest to note that the largest 5-digit NAICS subgroup is the "Animal slaughtering & processing" (NAICS 31161), which is identical to the 4-digit NAICS 3116 sector.

The largest industry subgroup, in terms of the number of companies and establishments, is the "Bakeries and tortilla manufacturing" (NAICS 3118) subgroup. This industry subgroup accounts for 9,537 of the total 21,947 companies in the food processing industry and 10,221 of the total 25,468 industry establishments. Further inspection of the data for this sector reveals that the 5-digit sector, "Bread and bakery product manufacturing" (NAICS 31181), account for most of the companies and establishments in this industry sector.

Table 3

The Food Processing Industry (NAICS 311),
Number of Companies and Establishments, Employment, Value of Shipments, Value Added, and
Capital Expenditures by Major Sector and Industry Subgroups, 2007

NAICS Code	Industry Description	Number of Companies	Number of Establishments	All Employees	Production Workers	Value Added	Value of Shipments	Capital Expenditures
						- - - - - (Thousand $) - - - - -		
311	**FOOD MANUFACTURING**	**21,947**	**25,468**	**1,466,762**	**1,141,111**	**239,937,457**	**587,040,074**	**587,040,074**
3111	**Animal food mfg**	**1,180**	**1,753**	**45,836**	**30,847**	**13,873,011**	**38,610,736**	**685,438**
31111	Animal food mfg	1,180	1,753	45,836	30,847	13,873,011	38,610,736	685,438
3112	**Grain & oilseed milling**	**484**	**783**	**52,306**	**38,754**	**22,908,066**	**68,854,159**	**1,546,794**
31121	Flour milling & malt mfg	246	380	15,022	11,147	3,620,448	13,347,738	436,521
31122	Starch & vegetable fats & oils mfg	205	346	24,360	17,135	12,636,403	45,822,254	825,399
31123	Breakfast cereal mfg	33	57	12,924	10,472	6,651,215	9,684,167	284,874
3113	**Sugar & confectionery product mfg**	**1,657**	**1,846**	**71,425**	**54,733**	**14,427,101**	**27,445,487**	**788,990**
31131	Sugar mfg	42	76	13,462	10,964	2,707,976	7,441,241	324,689
31132	Chocolate & confectionery mfg from cacao beans	151	162	7,721	5,762	1,934,115	4,383,548	82,109
31133	Confectionery mfg from purchased chocolate	1,058	1,176	31,956	23,921	6,451,693	10,030,008	224,819
31134	Nonchocolate confectionery mfg	406	432	18,286	14,086	3,333,317	5,590,690	157,373
3114	**Fruit & vegetable preserving & specialty food mfg**	**1,289**	**1,603**	**173,081**	**143,643**	**29,264,455**	**60,885,934**	**1,632,366**
31141	Frozen food mfg	503	627	87,027	71,901	11,970,783	24,810,179	705,714
31142	Fruit & vegetable canning, pickling & drying	786	976	86,054	71,742	17,293,672	36,075,755	926,652
3115	**Dairy product mfg**	**1,126**	**1,584**	**130,336**	**97,758**	**26,874,932**	**90,318,028**	**1,839,225**
31151	Dairy product (except frozen) mfg	780	1,190	111,855	83,084	22,036,133	81,464,902	1,632,595
31152	Ice cream & frozen dessert mfg	346	394	18,481	14,674	4,838,799	8,853,126	206,630
3116	**Meat product mfg**	**3,201**	**3,757**	**500,808**	**433,945**	**51,631,903**	**159,564,738**	**2,715,689**
31161	Animal slaughtering & processing	3,201	3,757	500,808	433,945	51,631,903	159,564,738	2,715,689
3117	**Seafood product preparation & packaging**	**561**	**648**	**39,999**	**34,201**	**4,939,962**	**11,434,416**	**301,620**
31171	Seafood product preparation & packaging	561	648	39,999	34,201	4,939,962	11,434,416	301,620
3118	**Bakeries & tortilla mfg**	**9,537**	**10,221**	**285,164**	**185,629**	**34,346,702**	**55,195,131**	**1,511,367**
31181	Bread & bakery product mfg	8,517	9,056	218,730	131,798	21,972,948	33,865,474	973,509
31182	Cookie, cracker & pasta mfg	694	800	50,814	41,021	10,862,352	18,745,603	461,542
31183	Tortilla mfg	326	365	15,620	12,810	1,511,402	2,584,054	76,316
3119	**Other food mfg**	**2,912**	**3,273**	**167,807**	**121,601**	**41,671,325**	**74,731,445**	**2,123,660**
31191	Snack food mfg	465	562	45,887	34,290	15,017,298	23,986,560	656,986
31192	Coffee & tea mfg	335	358	12,887	8,282	3,620,996	7,944,571	263,540
31193	Flavoring syrup & concentrate mfg	148	168	6,867	4,398	7,155,129	9,054,377	100,622
31194	Seasoning & dressing mfg	589	673	33,000	21,930	6,950,563	14,341,763	398,045
31199	All other food mfg	1,375	1,512	69,166	52,701	8,927,339	19,404,174	704,467

Source: U.S. Bureau of the Census, *Census of Manufactures, Industry Series 2007* (preliminary data).

III. Industry Production and Location Characteristics

The food processing industry encompasses a very large and diverse industry. In 2007, 25,468 establishments were primarily engaged in food processing, a decrease of 8.8 percent from 2002 (see Table 4). It is of interest to note, that most of the decline in the number of establishments in the food processing industry occurred in establishments with fewer than 20 employees. Between 2002 and 2007, the number of establishments with 20 or more employees (accounting for 33.4 percent of 2007 establishments) declined by 2.1 percent. Establishments with fewer than 20 employees decreased by 11.8 percent between 2002 and 2007.

The data presented in Table 4 compares selected characteristics for the food processing industry as a whole for 1997, 2002, and 2007. Over the 1997–2007 period, the number of employees remained almost constant while production workers increased by 2.6 percent, from 1,112,300 in 1997 to 1,141,100 in 2007.

The cost of materials (purchased inputs) increased by 35.2 percent, from $258.5 billion in 1997 to $349.4 billion in 2007. A more important factor contributing to the 39.2 percent increase in the value of shipments or the value of output produced by the food processing industry was the value added by manufacture, which increased by 46.6 percent, from $163.7 billion in 1997 to $239.9 billion in 2007.

Table 4

Production Characteristics for the Food Processing Industry (NAICS 311), 1997, 2002, and 2007

	1997	2002	2007	Percent Change 1997-2002	Percent Change 2002-2007
Establishments					
Number	26,302	27,915	25,468	6.1	-8.8
With 20+ Employees	8,726	8,736	8,556	0.1	-2.1
All Employees					
Number [thousands]	1,467.0	1,506.8	1,466.8	2.7	-2.7
Payroll [million $]	38,266.2	45,490.1	50,329.4	18.9	10.6
Production Workers					
Number [thousands]	1,112.3	1,140.7	1,141.1	2.6	0.0
Hours [millions]	2,234.2	2,283.7	2,287.4	2.2	0.2
Wages [million $]	25,185.8	30,284.3	34,639.0	20.2	14.4
Average Hourly Wage [$]	11.27	13.26	15.14	17.6	14.2
Value Added by Manufacture [million $]	163,675.3	203,500.9	239,937.5	24.3	17.9
Cost of Materials [million $]	258,538.0	255,344.3	349,434.8	-1.2	36.8
Value of Shipments [million $]	421,737.0	458,205.8	587,040.1	8.6	28.1
Cost of Purchased Fuels and Electric Energy					
Electric Energy [million $]	3,117.4	3,554.7	4,842.7	14.0	36.2
Purchased Fuels [million $]	2,466.8	3,182.6	5,383.8	29.0	69.2
Quantity of Purchased Electric Energy [million kWh]	60,622.6	67,310.8	80,153.5	11.0	19.1

Source: U.S. Bureau of the Census, *Census of Manufactures Geographic Series 1997 and 2002*; *Census of Manufactures, Industry Series 2007* (preliminary data).

The Table 4 data, along with data from the *2007 Census of Manufactures*, indicate that establishments in the food processing industry (NAICS 311) are more labor intensive than manufacturing establishments generally. In 2005, production workers accounted for 77.8 percent of total employment in the food processing industry, compared to 70.0 percent for all manufacturing.

The importance of production workers relative to total employment in the food processing industry has also increased over time. The number of production workers in the industry increased slightly from 1,112,300 in 1997 to 1,141,100 in 2007—an increase of 2.6 percent. Total industry employment declined by less than 0.1 percent for the same period. Total production worker hours grew by a slightly smaller rate, 2.2 percent, than total production workers and total production worker wages grew by 37.5 percent between 1997 and 2007. These data highlight the increasing importance of reliable and productive sources of labor for the food processing industry.

As previously noted, the total cost of materials increased by 35.2 percent between 1997 and 2007. Energy inputs are an important production input for which the cost has increased more rapidly during the same time period. The cost of purchased electricity increased by 55.3 percent, while the cost of purchased fuels increased by 118.3 percent from 1997 to 2007.

Table 5 provides data for selected additional production characteristics for the food processing industry for 2007. The industry data presented in Table 5 is for the food processing industry as a whole (NAICS 311), the meat products sector (NAICS 3116), and the balance of the industry, excluding the meat products sector. As the data indicate, there were 21,947 companies and 25,468 industry establishments in the food processing industry in 2007. Establishments in the meat products sector totaled 3,757 in 2007, or 14.8 percent of the total industry establishments. Further inspection of the data indicates that the meat products sector had, on average, larger establishments than for the balance of the industry.

Data showing the distribution of manufacturing establishments by size is also of interest as one compares the meat products sector to the balance of the food processing industry. Food processing establishments with 20 or more employees accounted for 33.6 percent of total industry establishments in 2007. For the meat products sector, establishments with 20 or more employees

Table 5

Establishment Characteristics for the Food Processing Industry (NAICS 311) and the Meat Products Industry (NAICS 3116), 2007

	NAICS 311 Food Products	NAICS 3116 Meat Products	Other Food Products
Number of Companies	21,947	3,201	18,746
Number of Establishments	25,468	3,757	21,711
Est. - with 20+ Employees	8,556	1,456	7,100
Est. - with 20+ Emp (% of Total)	33.6	38.8	32.7
Est. - with 100+ Employees	3,188	756	2,432
Est. - with 100+ Emp (% of Total)	12.5	20.1	11.2
Establishments per Company	1.16	1.17	1.16
Production Workers	1,141,111	433,945	707,166
Average Prod. Workers per Estab.	44.8	115.5	32.6
Value Added (Million $)	239,937	51,632	188,305
Per Establishment ($1,000)	9,421	13,743	8,673
Per Production Worker ($)	210,266	118,983	266,281
Value of Shipments (Million $)	587,040	159,565	427,475
Per Establishment ($1,000)	23,050	42,471	19,689
Per Production Worker ($)	514,446	367,708	604,490

Source: U.S. Bureau of the Census, *Census of Manufactures, Industry Series 2007* (preliminary data).

accounted for 38.8 percent of establishments, while for the balance of the industry the comparable statistic was 32.7 percent. The differences between the meat products sector and the balance of the industry are more pronounced when looking at the number and share of establishments with 100 or more employees. For the food processing industry as a whole, 12.5 percent of the establishments had 100 or more employees. This statistic for the meat products industry was 20.1 percent, compared to only 11.2 percent of establishments with 100 employees or more for the balance of the industry.

The average establishment in the food processing industry had 44.8 production workers in 2007. Further review of the data in Table 5 indicate establishments in the meat products sector were much larger, with an average of 115.5 production workers per establishment, which was 3.5 times the average size of 32.6 production workers per establishment for the balance of the industry. Obviously, a few very large plants and many small establishments characterize the meat products sector.

Companies in the food processing industry tend to locate plants in areas that provide a balance between access to material inputs and market orientation. Over the past few years, however, the location orientation has shifted somewhat, with access to material inputs combined with access to national markets gaining in importance, relative to a location orientation to local and regional markets.

The data in Table 6 show the transportation characteristics of commodities produced by the food processing industry. Data in Table 6 demonstrate that shipping distances for these commodities have generally been increasing. As the data presented indicate, the average distance shipped in 2002 for the four commodity subgroups in Table 6 was 195 miles. In 2007, the average distance shipped for all four commodity subgroups exceeded 200 miles. For the subgroup "Milled grain products and preparations and bakery products," the average distance shipped in 2007 exceeded 380 miles.

To provide an indication of the geographic dispersion of the food processing industry, Table 7 presents 2006 data, the most recent year these data are available for this report on employment, production workers, value added by manufacture, and value of shipments for 16 selected states. As indicated in the table, establishments located in the 16 states for which data are presented contribute 60.6 percent of total value added in the food processing industry. Moreover, these states account for 64.6 percent of total industry

Table 6

Shipment Characteristics for the Food Processing Industry (NAICS 311), Related Commodities, 2002 and 2007

Commodity Sector	Value (Mil. $) 2007	Tons (1,000) 2007	Ton-miles 2007 (Mil.)	Average Miles 2002	Average Miles 2007	% Change 2002-2007
Milled grain products and preparations and bakery products	**742,150**	**904,403**	**341,902**	**195**	**N/A**	**N/A**
Animal feed and products of animal origin, n.e.c.	82,357	231,495	70,558	141	383	242.0
Meat, fish, seafood, and their preparations	258,620	90,236	44,157	192	243	51.0
Grains, alcohol, and tobacco products	137,360	115,314	50,309	265	262	-3.0
Other prepared foodstuffs and fats and oils	489,767	461,975	159,873	206	230	24.0

N/A - Not Available.

Source: U.S. Bureau of the Census, *Census of Transportation, 2002 and 2007 Commodity Flow Survey.*

shipments and 57.9 percent of total production workers in the food processing industry.

Included among these states are Nebraska and neighboring states that typically compete with Nebraska for plant locations. Also included are the leading states with the greatest concentrations of food processing activity. 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 2006, California, with total shipments by food processing establishments of $55,792.3 million, was the largest food processing state, accounting for 10.4 percent of the total U.S. food product shipments. Texas, with shipments of food products totaling $34,067.2 million, ranked second among the states and contributed 6.3 percent of the total industry shipments. In terms of the value of shipments of food products, Illinois ranked third, followed by Pennsylvania, Iowa, Wisconsin, and Ohio. Nebraska, with shipments of food products totaling $20,528.0 million, ranked eighth among the states and accounted for 3.8 percent of total industry shipments.

The average hourly earnings of production workers in the food processing industry shown in Table 7 indicate Nebraska production workers had average hourly earnings ($15.41) that were 3.3 percent higher than the U.S. average of $14.92, and 11.4 percent less than the average of $17.40 for the other 15 selected states. In highlighting Nebraska's average hourly earnings, it is notable that Nebraska has a higher concentration of its food processing industry (and workers) in the meat products sector (NAICS 3116). And, as wages in the meat products sector are generally lower than in other food industry sectors, one would expect Nebraska wages to be less than other areas.

Table 7

The Food Processing Industry (NAICS 311), Production Workers, Average Wages, Value Added, and Value of Shipments, Selected States and the U.S., 2006

State	Employees (1,000)	Production Workers (1,000)	Average Hourly Earnings ($)	Value Added ($1,000)	Value of Shipments ($1,000)	% of U.S. Value of Shipments
Nebraska	35.9	29.0	15.41	5,609,131	20,527,989	3.8
California	157.7	116.9	17.21	24,939,066	55,792,340	10.4
Colorado	15.3	11.6	15.78	2,054,480	6,368,035	1.2
Illinois	73.7	55.9	19.12	12,903,814	31,765,757	5.9
Indiana	34.0	24.9	18.55	6,375,926	14,247,146	2.7
Iowa	49.4	39.9	18.19	9,416,335	26,478,126	4.9
Kansas	29.9	24.6	15.77	4,086,608	16,054,115	3.0
Michigan	24.7	18.7	19.23	5,854,480	11,202,845	2.1
Minnesota	42.9	33.1	17.92	6,294,930	17,672,688	3.3
Missouri	37.5	30.5	15.67	5,895,791	14,158,570	2.6
New Jersey	25.7	17.7	19.64	4,111,672	9,348,536	1.7
New York	45.1	30.9	17.24	7,076,878	14,818,940	2.8
Ohio	50.9	36.9	17.92	10,371,805	21,097,260	3.9
Pennsylvania	69.4	51.4	18.18	13,786,695	27,274,779	5.1
Texas	81.0	62.7	14.95	14,046,485	34,067,200	6.3
Wisconsin	57.2	45.7	18.00	8,646,704	26,163,995	4.9
Total Sel. States	830.3	630.4	17.40	141,470,800	347,038,321	N/A
Percent of U.S.	58.6	57.9	N/A	60.6	64.6	65.1
Total U.S.	1416.9	1089.6	14.92	233,406,940	536,939,160	100.0

N/A - Not Available.

Source: U.S. Bureau of the Census, *Annual Survey of Manufactures, Geographic Area Statistics, 2006.*

IV. Capital Investment and Industry Outlook

Capital expenditures in the food processing industry exceeded $13.1 billion in 2007. As the data presented in Table 8 show, capital investment totaled $13,145.1 million, a 20.2 percent increase from 2002.

As data provided in Table 8 also indicate, the growth and rate of capital investment in the food products industry varied significantly among the industry subgroups. The "Grain and oilseed milling" (NAICS 3112) sector recorded the greatest increase (51.3 percent) in capital expenditures between 2002 and 2007, followed by the "Other food manufacturing" sector (NAICS 3119) (50 percent). In the case of the "Fruit & vegetable preserving & specialty food manufacturing" (NAICS 3114) subgroup, capital expenditures decreased by 10.9 percent between 2002 and 2007.

The food processing industry in the United States is expected to record stable employment and moderate output growth trends over the long term. As indicated by the data presented in Table 9, employment in the food processing industry (NAICS 311) declined slightly during the 1996–2006 period, and is projected to grow slightly between 2006 and 2016. This projected positive employment growth compares with an average annual decline of 1.9 percent for all manufacturing employment between 1996 and 2006 and a projected average annual decline of 1.1 percent for the 2006–2016 period.

Output in the food processing industry is projected to increase by 19.6 percent, or by an average annual rate of 1.8 percent, in real, inflation-adjusted terms between 2006 and 2016. As the data presented in Table 9 indicate, this is less than the projected increase in output for the total manufacturing sector (27.0 percent, or an average annual rate of 2.4 percent) for the 2006–2016 projection period.

The on-going, global economic downturn that began in December 2007 has dampened the near-term outlook for the food processing industry. In the long term, expanding global markets and incomes will provide large and growing markets for this industry. On balance, the factors affecting individual companies producing food products will depend to a great extent on their ability to compete within their industry and in the markets for their products. 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. Part B of this study discusses how food processing establishments can better respond to market conditions and significantly improve their competitive positions with a Nebraska plant location.

Table 8

Capital Expenditures in the Food Processing Industry (NAICS 311), by Industry Subgroup, 2002 and 2007

NAICS	Industry Group	Capital Expenditures 2002	Capital Expenditures 2007	% Change 2002–2007	2007 Cap. Exp. as Percent of Value Added
		- - - - - - ($1,000) - - - - - - -			
311	**Food mfg**	**10,936,876**	**13,145,149**	**20.2**	**5.48**
3111	Animal food mfg	576,171	685,438	19.0	4.94
3112	Grain & oilseed milling	1,022,322	1,546,794	51.3	6.75
3113	Sugar & confectionery product mfg	741,572	788,990	6.4	5.47
3114	Fruit & veg. pres. & specialty food mfg	1,831,645	1,632,366	-10.9	5.58
3115	Dairy product mfg	1,735,787	1,839,225	6.0	6.84
3116	Meat product mfg	2,041,808	2,715,689	33.0	5.26
3117	Seafood product prep. & packaging	202,464	301,620	49.0	6.11
3118	Bakeries & tortilla mfg	1,369,400	1,511,367	10.4	4.40
3119	Other food mfg	1,415,707	2,123,660	50.0	5.10

Source: U.S. Bureau of the Census, *Census of Manufactures, Geographic Series 2002 and Industry Series 2007* (preliminary data).

Table 9

Employment and Output, Food Processing Sector, by Industry Subgroup, and for All Manufacturing, 1996, 2006, and Projected 2016

		Part A -- Employment				
		Thousands of Jobs			Avg. Ann. Rate of Change	
NAICS	Industry Sector / Subgroup	1996	2006	2016	1996–2006	2006–2016
31–33	**Manufacturing**	**17,236.6**	**14,197.3**	**12,694.5**	**-1.9**	**-1.1**
311	**Food manufacturing**	**1,562.1**	**1,484.3**	**1,489.3**	**-0.5**	**0.0**
3111	Animal food manufacturing	55.8	50.3	42.5	-1.0	-1.7
3112	Grain and oilseed milling	69.0	60.5	51.4	-1.3	-1.6
3113	Sugar and confectionery product manufacturing	99.4	74.9	61.4	-2.8	-2.0
3114	Fruit and vegetable preserving and specialty food manufacturing	209.9	177.4	155.5	-1.7	-1.3
3115	Dairy product manufacturing	133.5	131.7	126.6	-0.1	-0.4
3116	Animal slaughtering and processing	486.3	509.0	569.2	0.5	1.1
3117	Seafood product preparation and packaging	52.8	40.0	35.6	-2.7	-1.2
3118	Bakeries and tortilla manufacturing	306.3	280.5	284.7	-0.9	0.1
3119	Other food manufacturing	149.1	160.0	162.5	0.7	0.2

		Part B -- Value of Output				
		Billions of Chained-Weighted 2000 Dollars[(a)]			Avg. Ann. Rate of Change	
NAICS	Industry Sector / Subgroup	1996	2006	2016	1996–2006	2006–2016
31–33	**Manufacturing**	**3,610.5**	**4,145.8**	**5,263.6**	**1.4**	**2.4**
311	**Food manufacturing**	**384.9**	**460.7**	**550.9**	**1.8**	**1.8**
3111	Animal food manufacturing	19.9	26.2	35.1	2.8	3.0
3112	Grain and oilseed milling	38.1	43.1	51.7	1.2	1.8
3113	Sugar and confectionery product manufacturing	22.7	24.3	28.2	0.7	1.5
3114	Fruit and vegetable preserving and specialty food manufacturing	45.9	52.5	65.7	1.4	2.3
3115	Dairy product manufacturing	57.8	65.1	76.4	1.2	1.6
3116	Animal slaughtering and processing	98.6	126.8	154.7	2.6	2.0
3117	Seafood product preparation and packaging	8.6	10.1	11.4	1.6	1.2
3118	Bakeries and tortilla manufacturing	43.0	51.9	58.4	1.9	1.2
3119	Other food manufacturing	51.5	61.1	70.0	1.7	1.4

[(a)] Output shown in billions of chain-weighted constant (2000) dollars.

Source: U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections, **www.bls.gov/emp/** Employment and output projections for 2016 (2007).

Part B

Nebraska Advantages for Manufacturers of Food Products

The food processing industry appears to have both a market orientation and a resource orientation depending on the specific product produced, the type of establishment, and the market area served. Those establishments which appear to be oriented to plant locations near markets they are serving tend to be the smaller industry establishments which may have identified local market opportunities. Establishments which appear to be more resource oriented in terms of their plant locations tend to be the larger establishments, which produce goods for national distribution or serve significant regional markets. For the industry as a whole, the location orientation tends to favor a combination of resource availability and market access.

I. Availability of Inputs in Nebraska

Agriculture and agribusiness represent an important segment of the Nebraska economy and provide the basic economic foundation for continued expansion of the state's economy.

Essential services available to the agricultural sector and the processing, distribution, and packaging for related food products have provided much of the impetus for growth of the Nebraska economy. The substantial availability of agricultural and agriculturally-related resources represent a significant advantage for Nebraska's existing food processing sector and for new and expanding food manufacturing establishments.

Table 10 provides data on Nebraska companies engaged in various types of food processing activity. The largest concentration of Nebraska food industry establishments is found in NAICS 31161, "Animal slaughtering and processing," followed by NAICS 31111, "Animal food manufacturing." As indicated by the data provided in the table, 70 establishments in the

Table 10

Nebraska Food Processing Establishments by Industry Subgroup and Employment Size

NAICS	Industry Group	Total	Employment Size: Less Than 100 Emp.	100-499 Emp.	500-999 Emp.	1,000 or More Emp.
		- - - - - (Number of Establishments) - - - - -				
31111	Animal food mfg	45	41	3	1	--
31121	Flour milling & malt mfg	7	6	1	--	--
31122	Starch & vegetable fats & oils mfg	9	6	1	2	--
31123	Breakfast cereal mfg	2	--	1	--	1
31131	Sugar mfg	1	--	--	1	--
31132	Chocolate & confectionery mfg from cacao beans	3	3	--	--	--
31133	Confectionery mfg from purchased chocolate	4	3	1	--	--
31141	Frozen food mfg	3	2	--	1	--
31142	Fruit & vegetable canning, pickling & drying	--	--	--	--	--
31151	Dairy product (except frozen) mfg	10	6	4	--	--
31152	Ice cream & frozen dessert mfg	1	1	--	--	--
31161	Animal slaughtering & processing	70	49	7	8	6
31171	Seafood product preparation & packaging	--	--	--	--	--
31181	Bread & bakery product mfg	29	25	2	2	--
31182	Cookie, cracker & pasta mfg	2	2	--	--	--
31183	Tortilla mfg	3	2	--	1	--
31191	Snack food mfg	2	2	--	--	--
31192	Coffee & tea mfg	1	1	--	--	--
31194	Seasoning & dressing mfg	1	1	--	--	--
31199	All other food mfg	12	10	2	--	--
311	**Total Food Manufacturing**	**205**	**160**	**22**	**16**	**7**

Source: U.S. Census Bureau *County Business Patterns: 2007*

state slaughter and further process animal and meat products. Moreover, this industry subgroup employs the most workers, with 21 of these establishments employing more than 100 workers, 14 employing more than 500 workers, and 6 employing more than 1,000 workers.

A review of the types of existing food product manufacturers reported in Table 10 reveals that many of the significant inputs required by other food processing industry establishments are currently available in Nebraska. Major beef processors operate some of the industry's largest processing facilities in Nebraska. A variety of additional food processors will be able to take advantage of these significant and important local inputs.

The significant concentration of major food processors within Nebraska is related to the substantial availability of agricultural commodities produced in the state. Nebraska provides substantial agricultural inputs for beef, poultry, and dairy product processors. Moreover, the food and feed grains and other crops in the state represent an important agricultural resource both for supporting the livestock, poultry, dairy, and related products industry and as a raw material input for further processing by Nebraska's food products manufacturers.

Table 11 provides data on agricultural production for selected crops (Part A) and livestock commodities (Part B) in Nebraska. As these data illustrate, the state accounts for a substantial share of total U.S. production for these agricultural commodities.

Nebraska ranks third in the production of corn with 1,393.6 million bushels in 2008. As shown in Part A of Table 11, Nebraska's corn crop accounted for 11.5 percent of total U.S. production. Sorghum production in Nebraska totaled 19.1 million bushels, accounting for 4.0 percent of total U.S. production. Nebraska also produced significant amounts of soybeans (7.6 percent of U.S. production), wheat (2.9 percent of U.S. production), hay (4.3 percent of U.S. production), and dry edible beans (11.3 percent of U.S. production).

Table 11

Production of Selected Agricultural Commodities in Nebraska

	Part A -- Selected Crops			
	Corn for Grain, 2008		Sorghum for Grain, 2008	
	Acres Harvested	Production	Acres Harvested	Production
	(1,000)	(1,000 Bu.)	(1,000)	(1,000 Bu.)
Nebraska	8,550	1,393,650	210	19,110
% of U.S.	10.9	11.5	2.9	4.0
U.S. Total	78,640	12,101,238	7,271	472,342
	Wheat, 2008		Soybeans, 2008	
	Acres Harvested	Production	Acres Harvested	Production
	(1,000)	(1,000 Bu.)	(1,000)	(1,000 Bu.)
Nebraska	1,670	73,480	4,860	225,990
% of U.S.	3.0	2.9	6.5	7.6
U.S. Total	55,685	2,499,524	74,641	2,959,174
	All Hay, 2008		Dry Edible Beans, 2008	
	Acres Harvested	Production	Acres Harvested	Production
	(1,000)	(1,000 Tons)	(1,000)	(1,000 Bu.)
Nebraska	2,570	6,232	126.0	2,885
% of U.S.	4.3	4.3	8.7	11.3
U.S. Total	60,062	145,672	1,445.2	25,558

Table continued on following page (including source notes).

Table 11, Continued

	Part B -- Selected Livestock, Poultry, and Related Products			
	Cattle on Feed, Jan. 1, 2008		All Cattle & Calves, Jan. 1, 2008	
	Number		Number	
	(1,000 Head)		(1,000 Head)	
Nebraska	2,700		6,450	
% of U.S.	18.2		6.7	
U.S. Total	14,827		96,035	
	Milk Cows, 2008		Commercial Cattle Slaughter, 2008	
	Number		Number	Live Weight
	(1,000 Head)		(1,000 Head)	(1,000 Pounds)
Nebraska	58		7,112.5	9,415,367
% of U.S.	0.6		20.7	21.4
U.S. Total	9,315		34,364.9	43,894,899
	Hogs & Pigs, Dec. 1, 2009		Commercial Hog Slaughter, 2008	
	Number		Number	Live Weight
	(1,000 Head)		(1,000 Head)	(1,000 Pounds)
Nebraska	2,700		7,950.6	2,121,754
% of U.S.	18.2		6.8	6.8
U.S. Total	14,827		116,451.9	31,198,694
	Milk Produced, 2008		Chicken Inventory, Dec. 1, 2008	
	Quantity		Number	Value
	(Million Pounds)		(Number Head)	($1,000)
Nebraska	1,080		11,505	25,311
% of U.S.	0.6		2.6	1.7
U.S. Total	189,992		446,072	1,506,573
	Layers and Eggs, 2008			
	Avg. Number of Layers	Eggs		
	(1,000 Head)	(Millions)		
Nebraska	9,752	2,777		
% of U.S.	2.9	3.1		
U.S. Total	339,642	90,151		

Source: U.S. Department of Agriculture, National Agricultural Statistics Service (USDA, NASS), *Agricultural Statistics, 2008,* **www.nass.usda.gov**.

One of the most significant attributes of Nebraska, in terms of agricultural output, is the production of livestock and livestock products. As the data provided in Part B of Table 11 show, 18.2 percent of the nation's cattle on feed as of January 1, 2008, were in Nebraska, which ranked second among the states in terms of this measure. Nebraska also led the nation in the commercial cattle slaughter in 2008, accounting for 21.4 percent of the total.

Other livestock and livestock products, of which Nebraska produced significant quantities in 2008, include hogs (6.8 percent of the U.S. total, commercial slaughter of hogs), chickens (2.6 percent of the U.S. total inventory, and 2.9 percent of layers), and egg production (3.1 percent of the total, U.S. eggs produced).

II. Nebraska Location Resources

In addition to the significant availability of raw material and intermediate inputs, Nebraska offers a wide range of other locational advantages for food processors. In this section of the study, Nebraska resources and location attributes important to establishments in the food processing industry are presented and discussed. An evaluation of geographically variable labor and energy costs for selected states is presented in the following section, using a model manufacturing establishment producing a representative food product.

Nebraska lies near both the population and the 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 in Crawford County, Missouri, and the geographic center is in Butte County, South Dakota (the geographic center of the 48 contiguous states is Smith County, Kansas). Because of this central location, more than 50 million people live within a 500-mile radius of Nebraska.

In addition to being a prominent location for national markets, Nebraska is well situated to serve international markets, which are important to many food 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/Operator: Dock Board of the City of Omaha/Douglas Civic Center) and in Lincoln (Zone No. 59, Grantee/Operator: Lincoln Chamber of Commerce Foreign Trade Zone). 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."

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. That system includes a 482-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 I-29, which passes along the state's

Figure 3

Truck Access to Regional and National Markets

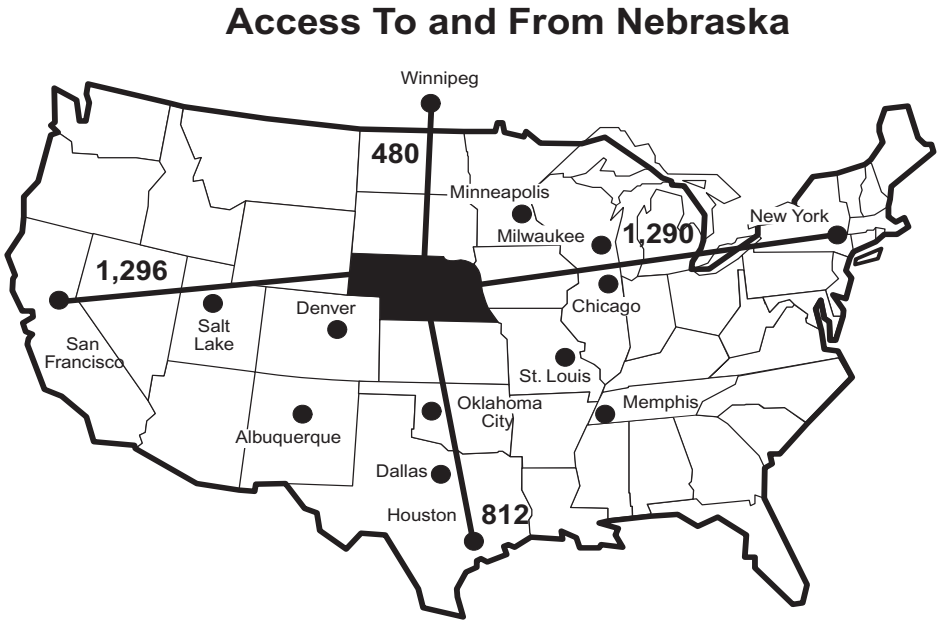
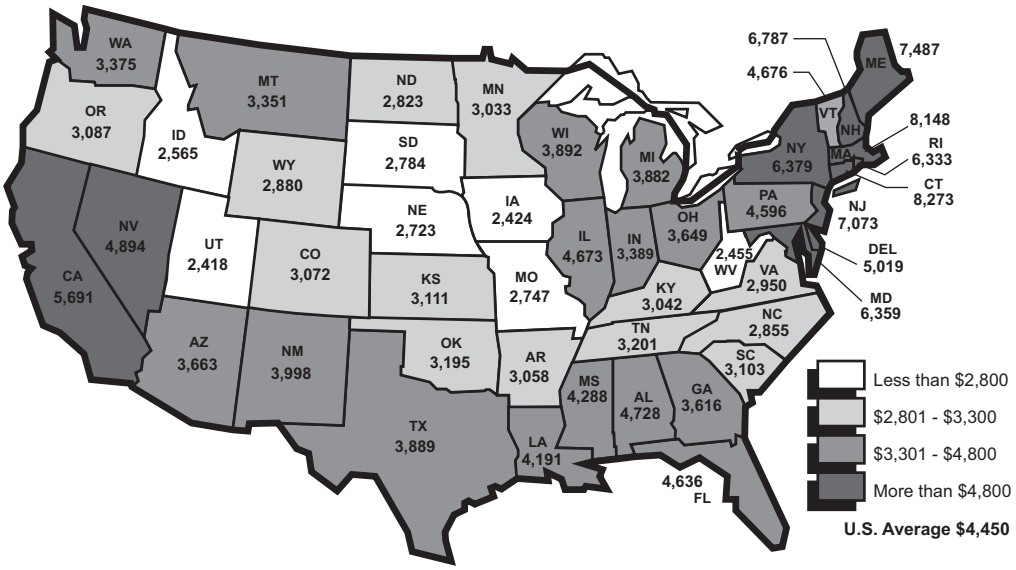


Figure 4

Electric Costs for Industrial Service, Summer 2008 - Winter 2009
Average Monthly Bills



SOURCE:
Edison Electric Institute, "Typical Bills and Average Rates Report," January 1, 2009 and July 1, 2008. State averages are weighted using eight months of January 2009 data and four months of July 2008 data. Nebraska data represent the average for Omaha Public Power District, Lincoln Electric System, and Nebraska Public Power District using the same seasonal weighting.

eastern border in Iowa, and I-25, which passes in close proximity to the state's western border.

More than 8,000 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.

Two major railroads serve the state—the BNSF Railway Company and the Union Pacific. There are 12 freight railroads operating more than 3,475 miles of track throughout Nebraska. A reciprocal switching agreement is in effect for all railroads. Omaha is one of the nation's major rail centers, serving as the headquarters of the Union Pacific. The most direct mid-continent route to the West Coast passes through Nebraska with branches that terminate in Portland, Spokane, Seattle, and Los Angeles. No major city in the United States is more than five days away by rail from Nebraska.

Commercial airline service is available in nine Nebraska cities, providing direct service to major hubs. Air freight service is provided to five additional communities with on-demand service available. A total of 82 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.

Utilities

In providing a full range of reliable utilities with many cost advantages, Nebraska offers additional benefits to food processors. Nebraska's electric rates for typical industrial customers are 38.8 percent less than the U.S. average and are among the lowest of the 48 contiguous states (Figure 4). This benefit is of particular importance to the "Food processing" 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. It is also the only state in the nation with electric service 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, wind, gas, oil, and diesel sources.

Some major electric-generating facilities in Nebraska are:

- 1,300-megawatt 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 at Nebraska City, Unit No. 1, on-line in 1979 and Unit 2 on-line in 2009
- 800-megawatt NPPD Cooper Nuclear Station near Brownville, on-line in 1974
- 486-megawatt OPPD Fort Calhoun Nuclear Station, on-line in 1973

NPPD owns and operates a 59 MW wind generation facility near Ainsworth and has long term agreements to purchase 122 MW of wind generated power from facilities located near Bloomfield. In 2009, NPPD plans to enter into a long-term purchase agreement for an additional 61 MW of power from a wind generation facility that will be located in Custer County, Nebraska.

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 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.

Labor Quality

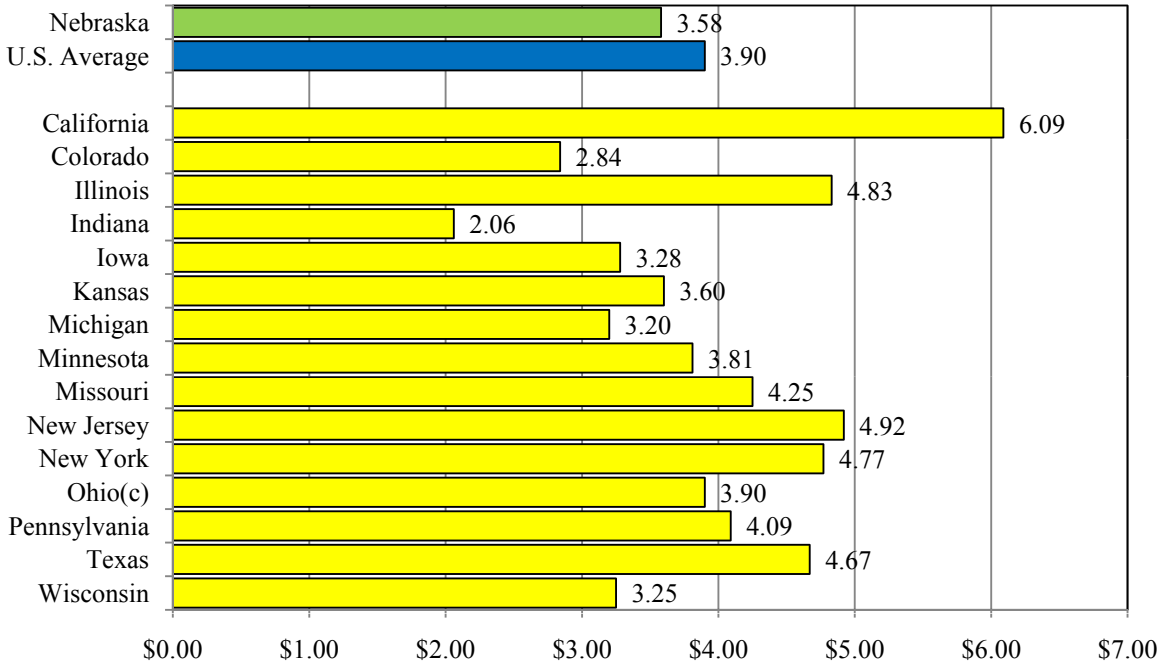
Any industry derives benefits from a productive and well-educated labor force. Nebraska's labor force has a strong work ethic and technical proficiency. Individuals with the foresight and diligence to transform it into a world center of agricultural production settled the state. Their descendants maintain a work ethic and mechanical aptitude that carry over to 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.

In the case of workers' compensation rates, Nebraska's rate of $3.58 per $100 of manufacturing payroll is 9.8 percent lower than the average for the other 15 alternative plant location states included in this study and 8.9 percent less than the U.S. average (see Figure 5A and Table 18). Nebraska's unemployment insurance provides a more significant cost advantage. The state's estimated unemployment insurance cost of $127 per worker is 42 percent of the $301 average cost for the other states included in the comparison (Figure 5B) and 52.4 percent less than the U.S. average of $267 per worker.

Nebraska's work force quality is also highly rated by the state's employers and by various national comparisons. In 2007, 89.4 percent of the state's population 25 years of age or older were high school graduates, compared to 84.0 percent nationally. In addition, the 2005–06

Figure 5A

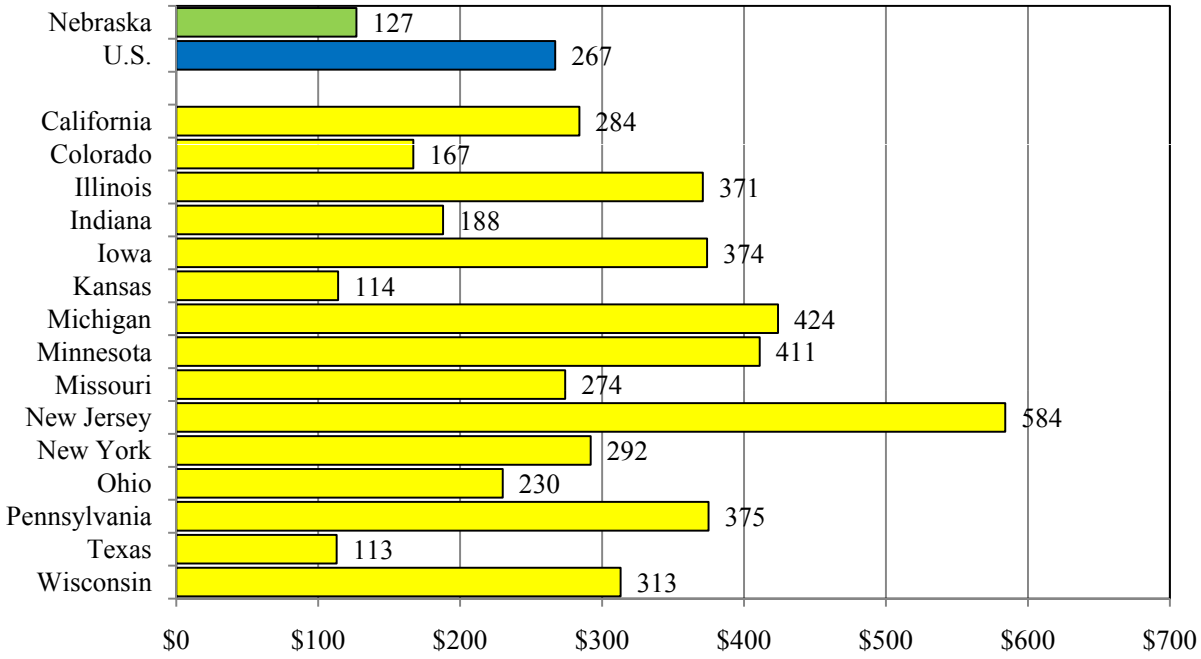
Workers' Compensation Rates,
Alternative Plant Locations



[c]Ohio Workers Compensation not rated so assumed to equal national average.

Figure 5B

Per Worker Unemployment Insurance Costs,
Alternative Plant Locations



Source: See Table 16.

Nebraska public high school graduation rate of 87.0 percent, ranking among the highest in the nation. One reason for the high graduation rate is the state's comparatively low student-teacher ratio—13.4:1 in 2007 compared to 15.5:1 for the nation. Finally, Nebraska students consistently score above the U.S. average on both standardized achievement tests and college entrance exams. In 2008 Nebraska students averaged 22.1 on the ACT college entrance test, compared to 21.1 nationally. Moreover, Nebraska's average composite ACT score was achieved with 72 percent of graduates taking the exam, compared to 43 percent of graduates nationwide.

Higher Education Resources and Research

Companies within the food processing industry can be major beneficiaries of flexible, state-of-the-art education resources helping assure a trained, technically skilled work force in Nebraska.

The industry relies on the presence of quality institutions of higher learning for research, teaching, and a flow of skilled workers. The University of Nebraska system, with campuses in Lincoln, Omaha, and Kearney, 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 45,000.

Founded in 1869, the Lincoln campus of the University of Nebraska is the state's land-grant university. The University of Nebraska (NU) is one of a select group of research universities that holds membership in the Association of American Universities—a distinction granted in 1909. Nebraska was the first university west of the Mississippi to establish a graduate college (in 1896); today, NU is one of the top 50 American universities in the number of doctoral degrees granted annually. The University of Nebraska boasts 22 Rhodes Scholars and 2 Nobel laureates among its alumni.

The Food Processing Center—University of Nebraska-Lincoln (www.fpc.unl.edu)

Food is both a science and a business. The Food Processing Center understands the relationship of these two different, yet interconnected worlds. The Food Processing Center at the University of Nebraska-Lincoln provides technical support to the food industry in product and process development as well as business and marketing assistance. Through a unique combination of science, engineering, and business development services that parallel the growing needs of the industry, the Food Processing Center supports the food industry by way of improving their market and economic vitality.

The mission statement of the Food Processing Center is to advance the value-added food manufacturing industry by partnering on technical and business development from idea through ongoing market support. The Center's goals are to stimulate the development of new food businesses, assist current manufacturers to become more efficient, productive, and diverse. The Food Processing Center assists new, as well as existing food processors through educational programs for administrators, managers, and employees within the industry. Current programs and services are provided to meet the ever-changing challenges of the food industry, with new, innovative services and workshops continually added in order to meet these needs. All services are provided on a strictly confidential basis.

The Food Processing Center Team

The Food Processing Center team is made up of food scientists and business professionals that are wholly committed to providing services to the food industry. These services include but are not limited to product and process development, market research and business planning, and laboratory testing. The Food Processing Center professional team works in conjunction with the Food Science and Technology faculty as well as faculty in other departments within the University of Nebraska-Lincoln, such as Agricultural Economics, Animal Science, Agronomy and Horticulture, Plant Sciences, Biological Systems Engineering, and Business Administration.

Technical Assistance

The Food Processing Center's technical assistance team has access to state-of-the-art pilot plants, which allow them to provide assistance with

process development, ingredient functionality, scale-up, and research. They also provide the industry with a wide range of support through workshops and seminars including Better Process Control, Ingredients and Ingredient Functionality, Extrusion, Artisan Cheese Processing, and Organic Food Processing, just to name a few. Additionally, the team supports the industry with process engineering needs including front end engineering, equipment specifications, process optimization, and quality assurance as well as food safety and security issues.

Another area of expertise is product development and design. Formulation, concept, and prototype development are provided to food processors ranging from the micro-business entrepreneur to the Fortune 500 business. The Food Processing Center provides support and assistance with line extensions and quality improvements by assisting with developing "new and improved" products. In addition, labeling assistance for nutritional fact panels and ingredients statements as well as general label requirements is provided.

To round out the assistance, the Food Processing Center provides laboratory service that offers pathogen, general microbiology, environmental, and mycotoxin testing. Moreover, the laboratory service includes the capabilities to conduct microarray testing and offers spotted platforms for both DNA and protein microarrays. The microarray laboratory has all of the necessary instruments for complete array experiments, from array fabrication to primary data analysis. In addition, the laboratory services include high-throughput genotyping (e.g. PFGE, RFLP, AFLP, MLST, OBGS) and microbial identification using 16 or 23S rDNA technology.

Business Consulting

The Food Processing Center team works closely with food businesses in development of business plans and feasibility studies as well as assists with the development of strategic plans. The team provides expertise in marketing research to help companies understand their competition, analyze the current trends, and conduct surveys to collect primary information. The Food Processing Center works closely with the state economic developers and communities to assist with new food business recruitment and existing food business retention. Some examples of these partners are: the Nebraska Department of Economic Development, Nebraska Public Power District, other statewide utilities, and community economic development organizations. The Food Processing Center assists these developers with plant relocation and/or expansion needs of a food manufacturer. The Food Processing Center is an active partner in the Nebraska Manufacturing Extension Partnership, which is part of the National Manufacturing Extension Partnership. This national network consists of more than 2,000 professionals working in all 50 states providing direct support and assistance to manufacturers.

Assistance is provided with seeking sources of funds through identification of grant opportunities, as well as assisting companies and individuals with writing "winning" proposals is another important program within the Food Processing Center. Assistance includes interpreting RFP's (Request for Proposals), developing budgets, and reviewing finalized documents for completeness.

Entrepreneur and Start-up Assistance

The Food Entrepreneur Assistance program assists food business start-ups by providing a one-day seminar designed to inform and educate businesses with understanding the food industry. In addition, the Food Processing Center provides one-on-one consulting to assist each individual with their product concept from development to the package and marketing. The clients high rate of success speaks for itself about the success of the program.

In addition to the University of Nebraska system, Nebraska operates a state college system with campuses at Chadron, Peru, and Wayne. A variety of private colleges and universities are also located in Nebraska including Creighton University in Omaha, Nebraska Wesleyan University in Lincoln, and others located throughout the state (see Figure 6A).

Another important facet of higher education in Nebraska is the statewide community college system that provides specialized training programs for new and expanding Nebraska industries. As indicated in Figure 6B, the state has six community

Figure 6A

Location of Colleges and Universities in Nebraska

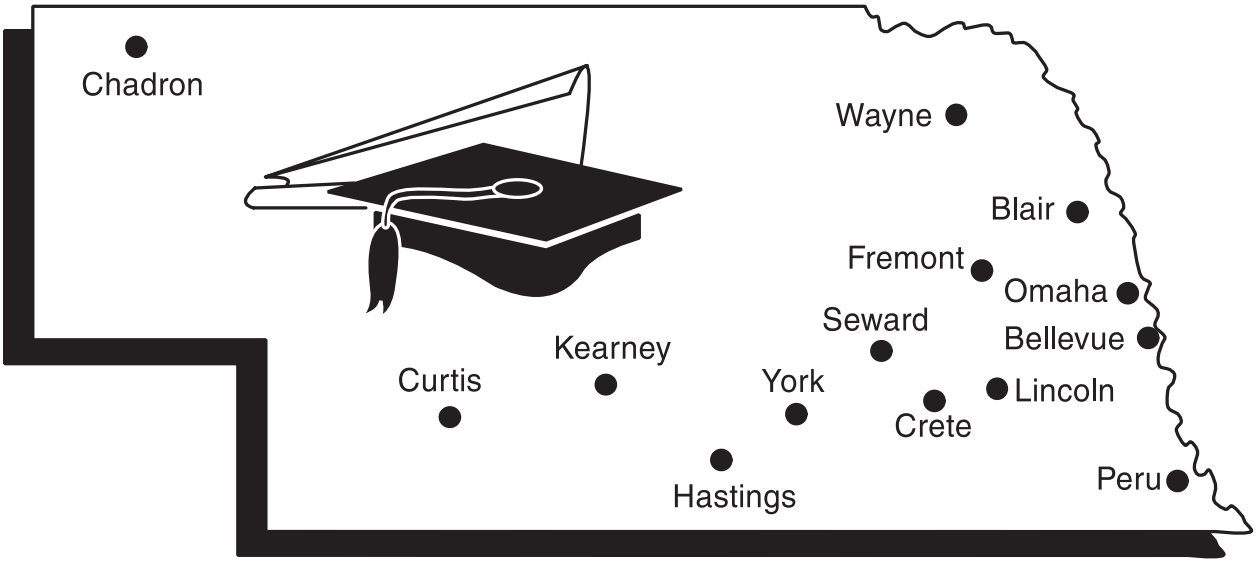
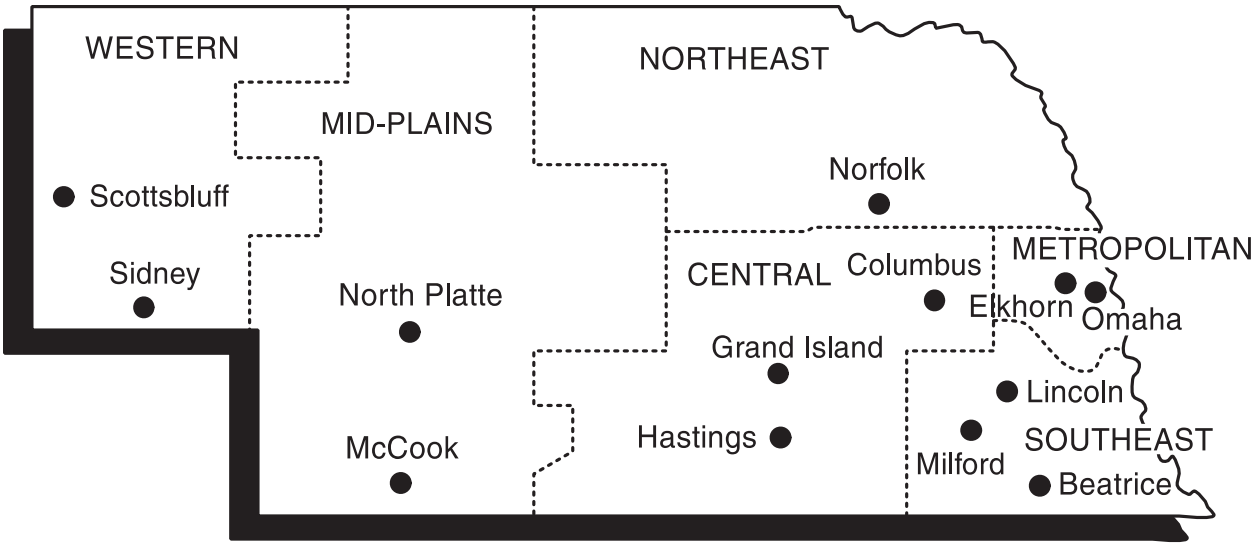


Figure 6B

Community Colleges in Nebraska



college areas, which operate campuses in 13 cities across the state. The colleges offer 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. Training is accomplished through the extensive use of hands-on activities and is centered around practical application of technical knowledge gained in lecture and laboratory sessions.

Other Development Assistance Programs

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

- **Customized Job Training Program**
  Provides a flexible job training 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. You can design your own training or a statewide training team can assist with training assessments, training plans, curriculum development, and instruction.

- **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 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.

Performance-Based Tax Incentives

In 2005 and 2008, the Nebraska legislature enacted and amended the Nebraska Advantage tax incentive program. The Nebraska Advantage package replaced and improved 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 below and is available at **www.NebraskaAdvantage.biz**.

The legislative components of the Nebraska Advantage package include:

Nebraska Advantage Act (LB312)

- 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 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.

Nebraska Agricultural Innovation Advantage (LB90)

- 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
Companies can design their own training or a statewide training team can assist with training needs assessments, training plans, curriculum development, and training instruction.

Nebraska Research and Development Advantage
Offers a tax credit for research and development activities undertaken by any business entity. The credit is equal to 15 percent of the federal credit allowed under Section 41 of the Internal Revenue Code of 1986. 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.

The credit is increased to 35 percent of the federal credit allowed under Section 41 of the Internal Revenue Code of 1986 if the business firm makes expenditures on the campus of a college or university in Nebraska or a facility owned by a college or university in Nebraska.

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 impact. The credits would apply to new expenditures for wages, buildings, and non-vehicle depreciable personal property.

Additional tax savings:

- Nebraska state and local sales tax exemptions of manufacturing machinery, equipment, and related services
- Inventory tax exemptions

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 $22,139.4 million and 115,858 jobs.

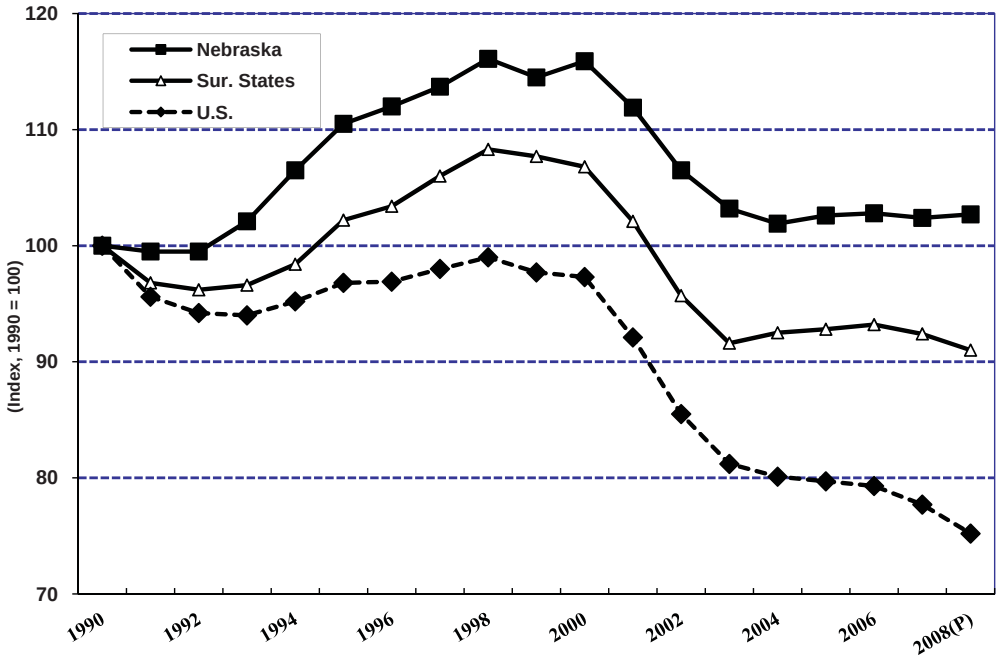
One additional incentive program of note is Nebraska's Tax Increment Financing (TIF). TIF is a method of financing the public improvements associated with a private development project in a blighted area by using the projected increase in property tax revenue that will result from the private development.

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.

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 of the U.S. as a whole. Manufacturing employment in Nebraska grew by 15.9 percent between 1990 and 2000, declined slightly during the 2000–2004 period, grew slightly between 2004 and 2006, and was relatively steady through the first full year of the recession that began in December 2007. For the 1990–2008 period as a whole, Nebraska manufacturing employment increased by 2.7 percent, compared with a decline in manufacturing employment for the U.S. as a whole of 24.8 percent (see Figure 7). For Nebraska's neighboring states as a group (Colorado, Iowa, Kansas, Missouri, South Dakota, and Wyoming), manufacturing

Figure 7

Manufacturing Employment, Nebraska, Surrounding States, and the U.S., 1990–2008 (Index, 1990 = 100)



Surrounding States include data for the states contiguous to Nebraska, as a group, including Colorado, Iowa, Kansas, Missouri, South Dakota, and Missouri.
Source: Bureau of Labor Statistics, **www.bls.gov**.

2008(P): Preliminary data.

employment declined by 9.0 percent for the 1990–2008 period. These data suggest that companies with Nebraska manufacturing plants benefit from the locational 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 below 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.

The cost of living in Nebraska remains below the national average. Data presented in Table 12 indicate, on average, the cost of living in Nebraska is 2.4 percent less than the U.S. average. Of particular interest is the cost of housing, which, in Nebraska averages 9.6 percent less than for the U.S. as a whole for families renting a home and the cost of utilities, which is 8.3 percent less than the U.S. average.

Table 12

Cost of Living in Nebraska, Compared to the National Average, Second Quarter, 2009

	All Items Index [a]	Consumables	Transportation [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	97.6	90.9	100.2	94.0	90.6	91.6	91.7	100.1
Omaha, NE	94.6	87.1	100.7	93.6	102.6	84.6	87.9	100.9
Lincoln, NE	105.5	90.9	100.2	93.9	90.0	118.7	91.7	95.4
Nonmetro NE [d]	96.7	89.1	100.3	93.2	88.3	91.6	91.1	100.2

[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.

Source: Index values computed from cost-of-living data obtained from Economic Research Institute (ERI), Relocation Assessor Database for the second quarter of 2009.

III. Labor and Energy Cost Analysis

As shown in the previous sections, Nebraska offers a wide range of locational advantages for manufacturers of food and related products. In this section of the study, labor and energy production cost factors that have geographic variability are analyzed. Such analysis permits the identification of the plant site providing the greatest advantage relative to 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.

Alternative Plant Locations

Sixteen alternative plant locations were selected for comparison in this analysis. The plant locations essentially included two groups of states: 1) states that currently have the largest concentration of manufacturers of food products, and 2) neighboring states that typically compete with Nebraska for industrial location projects. The first group of states includes California, Illinois, Indiana, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin. The second group of states includes Colorado, Iowa, Kansas, Missouri, and Nebraska. Combined, these two groups of states account for 60.5 percent of the value added by manufacture in the food processing industry (see Table 13).

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.

Table 13

Alternative Locations for a Model Plant for the Food Processing Industry (NAICS 311)

State	Percent of Value Added by Manufacture [(a)]
Nebraska	**2.4**
California	10.7
Colorado	0.9
Illinois	5.5
Indiana	2.7
Iowa	4.0
Kansas	1.8
Michigan	2.5
Minnesota	2.7
Missouri	2.5
New Jersey	1.8
New York	3.0
Ohio	4.4
Pennsylvania	5.9
Texas	6.0
Wisconsin	3.7
Total Selected States	**60.5**

[(a)] Percent of the 2006 U.S. total value added by manufacture for establishments in NAICS 311.

Source: U.S. Bureau of the Census, *Annual Survey of Manufactures,* 2006.

The model plant is assumed to manufacture a product representative of the food products industry (NAICS 311) as a whole. To specify the relevant labor and energy costs, information was obtained from the *2007 Census of Manufactures* and the U.S. Energy Administration, *2006 Manufacturing Energy Consumption Survey.*

Table 14 presents industry characteristics used in developing the model plant, which is assumed to employ 50 production workers. Estimated production worker hours total 100,000 annually or 2,000 hours per worker. Value added by manufacture is estimated to be $10,513,450 and the total annual output (value of shipments) is estimated to be $25,722,550. Energy inputs are estimated at 59,144 million BTUs, with all energy inputs supplied by electricity and natural gas.

Table 14

Characteristics of a Model Plant for the Food Processing Industry (NAICS 311)

	Total Model Plant	Per Production Worker
Production Workers	50	- - -
Value Added [dollars] [(a)]	10,513,450	210,269
Total Output [dollars] [(b)]	25,722,550	514,451
Energy Inputs [million BTUs] [(c)]	59,144	1,183

[(a)] Estimated value added applies the 2007 value added per production worker for the Food Processing Industry (NAICS 311) to the model plant (see Table 4).

[(b)] Estimated value of shipments derived by applying the 2007 value of shipments per production worker to the model plant (see Table 4).

[(c)] Estimated by applying the 2007 ratio of energy inputs per production worker to the model plant (see Table 15).

Source: Calculated from data presented in Tables 3 and 15.

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 15 presents data estimating energy use for the industry in 2007. 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 15 indicates that model plant, employing 50 production workers, will have

Table 15

Energy Use in the Food Processing Industry

Part A

Estimated 2007 Industry Energy Inputs

	Trillion BTUs	Percent
Purchased Fuels and Electric Energy	966.4	100.0
Purchased Electric Energy	273.5	28.3
Purchased Fuels	692.9	71.7

Part B

Energy Inputs for the Plastics Products Model Plant

	Million BTUs	Percent
Purchased Electricity	16,737.6 (3,512,081 kWhs)	28.3
Natural Gas	42,405.9	71.7
Total Energy Inputs	59,143.5	100.0

Source: Energy use estimated from data from the U.S. Bureau of the Census, *Census of Manufactures, 2007, Industry Series* (preliminary data) and U.S. Energy Information Administration, *2006 Manufacturing Energy Consumption Survey.*

annual energy inputs of 59,143.5 million BTUs. Electric energy inputs are estimated to be 16,737.6 million BTUs (3,512,081 kWhs), or 28.3 percent of the total energy inputs, while natural gas inputs are estimated at 42,405.9 million BTUs, 71.7 percent of the total energy requirements.

Labor-Related Costs

Labor costs in the food products industry are affected by several factors: wage rates, productivity of workers, fringe benefits, and unemployment insurance and workers' compensation costs. Table 16 includes data on wage rates for workers engaged in food manufacturing for the states identified as alternative plant locations.

An analysis of state wage levels indicates Nebraska's food manufacturing production workers have hourly earnings, which are significantly less than the alternative plant sites. For example, 2008 average hourly earnings for Nebraska food processing workers ($17.50) are 11.4 percent less than the average hourly wage rates for the other 15 states included as alternative plant locations.

Other associated costs contributing to the total labor-related wage bill are shown in Table 17. These costs include rates for unemployment insurance and workers' compensation.

Table 16

Average Annual and Hourly Earnings of Food Manufacturing Workers, Alternative Plant Locations, 2008

Plant Locations	Average Annual Wages	Average Hourly Earnings
Nebraska	**$36,422**	**$17.50**
California	40,123	$19.30
Colorado	38,083	$18.30
Illinois	47,213	$22.70
Indiana	38,212	$18.38
Iowa	42,577	$20.48
Kansas	39,521	$19.00
Michigan	44,949	$21.60
Minnesota	38,800	$18.65
Missouri	38,523	$18.53
New Jersey	48,758	$23.45
New York	39,058	$18.78
Ohio	43,746	$21.03
Pennsylvania	41,234	$19.83
Texas	36,055	$17.33
Wisconsin	39,309	$18.90

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Quarterly Census of Employment and Wages, August 2009*

Table 17

Other Labor Costs, Alternate Plant Locations

Plant Locations	Workers' Compensation Rates [a]	Unemployment Insurance Factors [b]		
		Per Worker Costs	Tax Rate	Wage Base
	($)	($)	(%)	($)
Nebraska	**3.58**	**127.00**	**1.4**	**9,000**
California	6.09	284.00	4.1	7,000
Colorado	2.84	167.00	1.7	10,000
Illinois	4.83	371.00	3.0	12,300
Indiana	2.06	188.00	2.7	7,000
Iowa	3.28	374.00	1.6	23,700
Kansas	3.60	114.00	1.4	8,000
Michigan	3.20	424.00	4.7	9,000
Minnesota	3.81	411.00	1.6	26,000
Missouri	4.25	274.00	2.2	12,500
New Jersey	4.92	584.00	2.0	28,900
New York	4.77	292.00	3.4	8,500
Ohio[c]	3.90	230.00	2.6	9,000
Pennsylvania	4.09	375.00	4.7	8,000
Texas	4.67	113.00	1.3	9,000
Wisconsin	3.25	313.00	2.6	12,000

[a] Rates for all manufacturing classifications from: Acturial & Technical Solutions, *Workers Compensation State Rankings, Manufacturing Industry Costs and Statutory Benefit Provisions,* 2008 Edition, October 2008.

[b] Unemployment Factors from: U.S. Department of Labor, Employment and Training Administration, Unemployment Insurance Data Summary, 3rd Quarter 2008 *"Per Worker Cost"* calculated by Ken Lemke, Nebraska Public Power District.

[c] Ohio Workers Compensation not rated so assumed to equal national average.

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 $300.93, more than double the Nebraska cost of $127.00. Insurance rates for workers' compensation average $3.97 per $100 of payroll for the 15 alternative states, 10.9 percent more than Nebraska's rate of $3.58.

Estimated annual labor-related costs for operating the model plant producing food products are presented in Table 18 and in Figure 8. These labor-related costs include direct wages paid to production workers and estimates of other labor-related costs, including the costs of workers' compensation and unemployment insurance, social security, and other fringe benefits.

If located in Nebraska, the model plant has a significant labor cost advantage over most of the alternative locations. The Nebraska labor cost advantage reaches as high as $898,521 in annual savings when compared to New Jersey. When compared to the average labor costs for the 15 alternative locations, Nebraska's annual labor cost advantage is $335,969 or 11.9 percent lower.

Table 18

Total Annual Labor-Related Costs for a Model Plant for the Food Processing Industry (NAICS 311)

Plant Location	Hourly Wage Rate	Number of Production Workers	Total Payroll	Workers' Compensation Insurance	Unemployment Insurance	Social Security [a]	Fringe Benefits [b]	Total Labor Costs	Cost Difference Other States (-) Nebraska	Cost Relative Other States (/) Nebraska
	($)		($)	($)	($)	($)	($)	($)	($)	($)
Nebraska	**17.50**	**50**	**1,820,000**	**65,156**	**6,350**	**139,230**	**455,000.0**	**2,485,736**	**0**	**100.0**
California	19.30	50	2,007,200	122,238	14,200	153,551	501,800.0	2,798,989	313,253	112.6
Colorado	18.30	50	1,903,200	54,051	8,350	145,595	475,800.0	2,586,996	101,260	104.1
Illinois	22.70	50	2,360,800	114,027	18,550	180,601	590,200.0	3,264,178	778,442	131.3
Indiana	18.38	50	1,911,500	39,377	9,400	146,230	477,875.0	2,584,382	98,646	104.0
Iowa	20.48	50	2,129,900	69,861	18,700	162,937	532,475.0	2,913,873	428,137	117.2
Kansas	19.00	50	1,976,000	71,136	5,700	151,164	494,000.0	2,698,000	212,264	108.5
Michigan	21.60	50	2,246,400	71,885	21,200	171,850	561,600.0	3,072,935	587,199	123.6
Minnesota	18.65	50	1,939,600	73,899	20,550	148,379	484,900.0	2,667,328	181,592	107.3
Missouri	18.53	50	1,927,100	81,902	13,700	147,423	481,775.0	2,651,900	166,164	106.7
New Jersey	23.45	50	2,438,800	119,989	29,200	186,568	609,700.0	3,384,257	898,521	136.1
New York	18.78	50	1,953,100	93,163	14,600	149,412	488,275.0	2,698,550	212,814	108.6
Ohio	21.03	50	2,187,100	85,297	11,500	167,313	546,775.0	2,997,985	512,249	120.6
Pennsylvania	19.83	50	2,062,300	84,348	18,750	157,766	515,575.0	2,838,739	353,003	114.2
Texas	17.33	50	1,802,300	84,167	5,650	137,876	450,575.0	2,480,568	-5,168	99.8
Wisconsin	18.90	50	1,965,600	63,882	15,650	150,368	491,400.0	2,686,900	201,164	108.1

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

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

Source: Compiled from data in Tables 14, 16 & 17.

Figure 8

Estimated Total Labor Costs* for a Model Plant for the Food Processing Industry, Alternative Plant Locations

* Calculated labor costs include wages, workers' compensation insurance, unemployment insurance, social security, and fringe benefits.
Source: See Table 18.

Energy Cost

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 19. For both energy sources, Nebraska's rates are substantially less than the alternative locations. The average electric rates for a 1,000 kW billing demand with monthly usage of 400,000 kWhs for the 15 alternative plant sites is $0.0829 per kWh or 45.0 percent more than the Nebraska rate of $0.0572.

In the case of industrial rates for natural gas, the average for the 15 other states is 13.8 percent more than the Nebraska rate of $7.73 per million BTUs.

Table 19

Industrial Rates for Electric Energy and Natural Gas
Alternative Plant Locations

Plant Locations	Average Cost of Industrial Natural Gas, 2006 [(a)]	Cost of 1,000 kW Billing Demand With 400,000 kWh, 2008 [(b)]	
	($/MM BTU)	($/Monthly)	($/kWh)
Nebraska	**7.73**	**22,878**	**0.0572**
California	8.79	45,372	0.1134
Colorado	6.99	29,752	0.0744
Illinois	8.72	18,658	0.0466
Indiana	8.18	28,204	0.0705
Iowa	8.29	22,389	0.0560
Kansas	6.95	25,663	0.0642
Michigan	9.18	31,346	0.0784
Minnesota	7.42	26,071	0.0652
Missouri	10.68	24,488	0.0612
New Jersey	9.33	55,590	0.1390
New York	10.98	53,370	0.1334
Ohio	10.30	34,714	0.0868
Pennsylvania	10.31	37,829	0.0946
Texas	6.55	33,122	0.0828
Wisconsin	9.32	30,956	0.0774

Sources:

[(a)] Natural Gas: American Gas Association, *Gas Facts: 2006 Data.*

[(b)] Electric: Edison Electric Institute, *Typical Residential, Commercial, and Industrial Bills,* January 1, 2009 and July 1, 2008. State average weighted using eight months of January 2009 data and four months of July 2008 data. Nebraska data represent average for Nebraska Public Power District, Omaha Public Power District, and Lincoln Electric System using the same seasonal weighting.

Table 20 and Figure 9 provide an analysis of the energy costs for the operation of the model plant. The total energy costs for the alternative locations include the cost for the assumed level of electrical energy and natural gas inputs for the operation of the plant.

Table 20

Annual Energy Costs for a Model Plant for the Food Processing Industry (NAICS 311)

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	**$0.0572**	**$200,891**	**$7.73**	**$327,798**	**$528,689**	**$0**	**100.0**
California	0.1134	398,270	8.79	372,748	771,018	242,329	145.8
Colorado	0.0744	261,299	6.99	296,417	557,716	29,027	105.5
Illinois	0.0466	163,663	8.72	369,779	533,442	4,753	100.9
Indiana	0.0705	247,602	8.18	346,880	594,482	65,793	112.4
Iowa	0.0560	196,677	8.29	351,545	548,222	19,533	103.7
Kansas	0.0642	225,476	6.95	294,721	520,197	-8,492	98.4
Michigan	0.0784	275,347	14.37	609,373	884,720	356,031	167.3
Minnesota	0.0652	228,988	9.18	389,286	618,274	89,585	116.9
Missouri	0.0612	214,939	7.42	314,652	529,591	902	100.2
New Jersey	0.1390	488,179	10.68	452,895	941,074	412,385	178.0
New York	0.1334	468,512	9.33	395,647	864,159	335,470	163.5
Ohio	0.0868	304,849	10.98	465,617	770,466	241,777	145.7
Pennsylvania	0.0946	332,243	10.30	436,781	769,024	240,335	145.5
Texas	0.0828	290,800	10.31	437,205	728,005	199,316	137.7
Wisconsin	0.0774	271,835	9.32	395,223	667,058	138,369	126.2

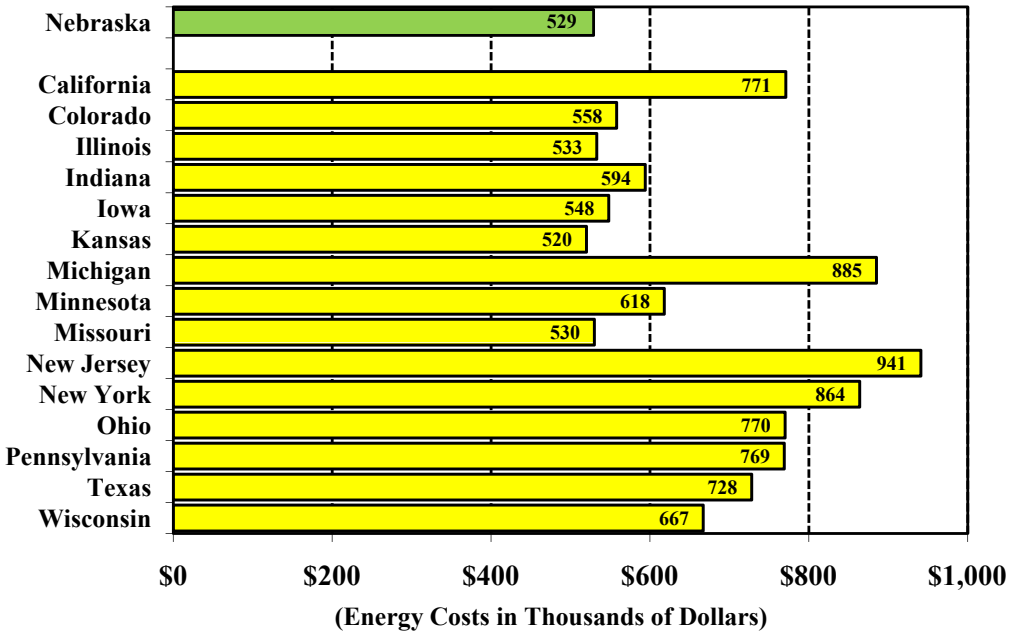
[a] Electric rate is cost per kWh using the average per kWh cost for 1,000 kW monthly demand with 400,000 kWh of consumption. The model plant is assumed to use 3,512,081 kWh annually.

[b] Natural gas rate is per million BTUs. The model plant is assumed to use 42,405.9 million BTUs annually.

Source: Calculated from data presented in Tables 15 and 19.

Figure 9

Estimated Total Energy Costs* for a Model Plant for the Food Processing Industry, Alternative Plant Locations



* Calculated energy costs include electricity and natural gas costs.

Source: See Table 20.

Nebraska provides a significant energy cost savings compared to the alternative plant locations. When considering the Michigan, New Jersey, and New York plant locations, energy costs are more than 60 percent greater than the Nebraska energy costs. In the case of the California plant location, energy costs exceed the Nebraska costs by 45.8 percent. When compared to the average total energy costs for the 15 alternative states, Nebraska energy costs are 23.0 percent lower, translating into an average annual savings of $157,808.

Labor and Energy Cost Summary

Combining the labor and energy cost findings, the results of the model plant analysis are summarized in Table 21. As the table shows, the comparative annual cost advantage associated with the Nebraska location reaches a high of $1,310,906 when compared to the New Jersey site. When considering the average labor and energy costs for the 15 alternative states, the cost advantage of the Nebraska location is $493,777 annually, or 14.1 percent less than the average costs for the other 15 plant sites considered.

Table 21

Summary of Labor and Energy Costs for a Model Plant for the Food Processing Industry (NAICS 311)

Plant Locations	Total Labor Cost	Total Energy Cost	Total Labor and Energy Cost	Cost Difference Other States (-) Nebraska	Cost Relative Other States (/) Nebraska
	($)	($)	($)	($)	($)
Nebraska	**2,485,736**	**528,689**	**3,014,425**	**0.0**	**100.0**
California	2,798,989	771,018	3,570,007	555,582.0	118.4
Colorado	2,586,996	557,716	3,144,712	130,287.0	104.3
Illinois	3,264,178	533,442	3,797,620	783,195.0	126.0
Indiana	2,584,382	594,482	3,178,864	164,439.0	105.5
Iowa	2,913,873	548,222	3,462,095	447,670.0	114.9
Kansas	2,698,000	520,197	3,218,197	203,772.0	106.8
Michigan	3,072,935	884,720	3,957,655	943,230.0	131.3
Minnesota	2,667,328	618,274	3,285,602	271,177.0	109.0
Missouri	2,651,900	529,591	3,181,491	167,066.0	105.5
New Jersey	3,384,257	941,074	4,325,331	1,310,906.0	143.5
New York	2,698,550	864,159	3,562,709	548,284.0	118.2
Ohio	2,997,985	770,466	3,768,451	754,026.0	125.0
Pennsylvania	2,838,739	769,024	3,607,763	593,338.0	119.7
Texas	2,480,568	728,005	3,208,573	194,148.0	106.4
Wisconsin	2,686,900	667,058	3,353,958	339,533.0	111.3

Source: Calculated from data presented in Tables 18 and 20.

Conversely, the average labor and energy costs for the alternative states are 16.4 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, manufacturers of food products with Nebraska facilities have a clear competitive advantage over manufacturing establishments in the industry not so fortunately located.

CONCLUSIONS

This study concludes the food processing industry is desirable for Nebraska and a Nebraska location is desirable for the industry. The locational advantages Nebraska offers appear well-suited to food products manufacturers. They cover a wide spectrum, ranging from an attractive business climate to a high quality of life at a relatively low cost, to the substantial raw materials and intermediate inputs Nebraska provides for food products manufacturers. But, as the study's model plant analysis demonstrates, the competitive advantages Nebraska offers in important cost areas which vary geographically, such as labor and energy costs, 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 is based on state-to-state comparisons applicable to the food products industry generally. Individual manufacturers will therefore need to further consider the locational requirements of their manufacturing as well as the merits of specific sites within states. Certainly in terms of a general location situation for food products manufacturers, Nebraska has much to offer.

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

Economic Development Department
NEBRASKA PUBLIC POWER DISTRICT
PO Box 499
Columbus, Nebraska 68602-0499
(402) 563-5534
(800) 282-6773
Fax: (402) 563-5090
Email: dghall@nppd.com
sites.nppd.com

Business Recruitment Division
NEBRASKA DEPARTMENT OF ECONOMIC DEVELOPMENT
PO Box 94666
Lincoln, Nebraska 68509-9466
(402) 471-3111
(800) 426-6505
Fax: (402) 471-3365
Email: DaveWright@nebraska.gov
www.neded.org

Additional information concerning University of Nebraska resources and research assistance for food products manufacturers is available from:

Food Processing Center
UNIVERSITY OF NEBRASKA-LINCOLN
Institute of Agriculture and Natural Resources
143 Food Industry Complex
Lincoln, Nebraska 68583-0930
(402) 472-2832
Fax: (402) 472-1693
Email: fpc@unl.edu
www.fpc.unl.edu

APPENDIX A

The Nebraska Advantage consists of six "tiers" of investment and job creation activity. The following example spreadsheet illustrates the job creation and investment levels required and the tax incentives generated by Tier 2, which includes the estimated investment and jobs created for the models food processing manufacturer discussed in Part B of this report.

NEBRASKA Advantage

Nebraska Advantage - TIER 2

Minimum 30 New Jobs & $3 Million Investment

Potential Tax Credits and Refunds

Project Name

October 1, 2009

I. Compensation Credit - Percent of annual compensation paid to all new employees over 7 year period.

Potential Tax Credits and Refunds

A. Assumptions are as follows -

Number of New Employees in Year 1:	50
Average Annual Salary * :	$36,422
Initial payroll:	$1,821,100
Annual Cost-of-Living Increase beginning Year 2	3.00%

**** Only positions earning at least 60% of the Nebraska Average Wage are eligible** to earn Compensation Credit.*

	Employees	Payroll	Hourly Wage	Comp % *	Comp Credit
Year 1	50	$1,821,100	$17.51	5%	$91,055
Year 2	50	$1,875,733	$18.04	5%	$93,787
Year 3	50	$1,932,005	$18.58	5%	$96,600
Year 4	50	$1,989,965	$19.13	5%	$99,498
Year 5	50	$2,049,664	$19.71	5%	$102,483
Year 6	50	$2,111,154	$20.30	5%	$105,558
Year 7	50	$2,174,489	$20.91	5%	$108,724
Total		$13,954,110			**$697,705**

Compensation Tax Credit **$697,705**

*** Use Table below to determine appropriate Compensation Percentage for each year.**

NOTE: Compensation credit can be used against employee withholding up to amount paid in.

	2008 Neb Ave Wage	60% NAW	75% NAW	100% NAW	125% NAW
Annual	**$35,227.00**	$21,136	$26,420	$35,227	$44,034
Hourly	**$16.94**	$10.16	$12.70	$16.94	$21.17
Compensation Credit %		**3%**	**4%**	**5%**	**6%**

II. Investment Tax Credits and Sales Tax Refunds

A. Assumptions about project investment are as follows *

1.	Building Cost	
	A. OWN: Purchase/New Construction	$2,500,000
	OR	**OR**
	B. LEASE: Term of Lease Amount up to Ten Years	$0
2.	**Non-Manufacturing Furniture, Fixtures and Equipment**	$450,000
3.	Additional Investment (over 7 years)	$450,000
	Total investment subject to Sales and Use Tax over a 7 year period	**$3,400,000**
4.	**Manufacturing Machinery and Equipment (Exempt from Sales Tax)**	$375,000
	TOTAL PROJECT INVESTMENT	**$3,775,000**

**** Assumes values of building, equipment, furniture and fixtures are PRIOR to*** *application of any state and local sales or use taxes.*

Note: For LB312 investment calculations, existing equipment and furnishings brought *into the state can be calculated at original purchase price, rather than at depreciated value.*

B. Sales Tax Refund

State Sales Tax Rate	5.5%
Local Sales Tax Rate *	1.0%
TOTAL SALES TAX RATE	**6.5%**

** Current Local Sales & Use Tax Rates can be found at http://www.revenue.state.ne.us/question/sales.htm*

1.	Building					
	$1,250,000	X	0.065	=	$81,250	
2.	Furniture, Fixtures and Equipment					
	$450,000	X	0.065	=	$29,250	
3.	Additional Investment (over 7 years)					Sales Tax Refund
	$450,000	X	0.065	=	$29,250	
	Total Sales Tax Refund:				**$139,750**	**$139,750**

C. Investment Credit: Percent of investment in qualified property during 6-7 year entitlement period. Includes all investment in building, equipment and components. For leased space, investment is equal to annual lease rate times term of lease for up to 10 years. This credit may be applied to state corporate income tax liability or sales and use tax liabilities.

					Investment Tax Credit
$3,775,000	**x**	**10%**	**=**	**$377,500**	**$377,500**

TOTAL TAX CREDITS AND REFUNDS	**$1,214,955**

WAIVER of LIABILITY: Officials representing the Nebraska Department of Economic Development have prepared the enclosed estimates to determine the amount of any benefits that might become available for this project under the Nebraska Advantage tax incentive program. Be advised that these represent projected benefits. The Nebraska Department of Revenue will make a final determination of any tax incentives complimenting this project. The Nebraska Department of Economic Development and its representatives waive any financial responsibility for the accuracy of these numbers should they be relied upon by anyone outside this State agency.