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# Economic Emergency Program: St. Cloud Household Refrigeration and Home Freezer Manufacturing Plant Closure (Electrolux)

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## ECONOMIC EMERGENCY PROGRAM

# St. Cloud Household Refrigeration and Home Freezer Manufacturing Plant Closure

On January 30, 2018, Electrolux announced the closure its manufacturing facility in St. Cloud, Minnesota. The plant currently has 860 employees. Their jobs will be lost once Electrolux completes its closure as planned in 2019. Electrolux plans to invest in its Tennessee and South Carolina plants. Upright freezer production will move to South Carolina. There will likely be few viable opportunities for local workers at the Electrolux facility to re-locate to South Carolina.

St. Cloud area decision-makers will benefit from timely information regarding the potential economic impact of the closure. In response, University of Minnesota Extension and the St. Cloud State University School of Public Affairs Research Institute have prepared this economic emergency report. This report is presented with support from the EDA Center at the University of Minnesota-Crookston.

## SUMMARY OF FINDINGS

The loss of 860 jobs at a household refrigeration and home freezer manufacturing plant will affect an estimated 1,800 jobs in Stearns, Sherburne, and Benton counties. Beyond jobs at the plant, workers at Main Street businesses—restaurants, grocery stores, and general merchandise retailers—will see their jobs affected as plant workers have less disposable income to spend in the community. Businesses supplying the plant, such as wholesalers and trucking companies will also be affected.

The loss of 860 jobs is predicted to cause a decline in economic output of an estimated \$670.1 million in the three counties. This includes an estimated \$102.6 million of lost labor income in the county. **These figures are based on an average household refrigeration and home freezer manufacturing plant in Stearns, Benton, and Sherburne counties, Minnesota.**

On a positive note, the relatively tight labor market may provide an opportunity for workers to obtain new employment, should these conditions persist into 2019. As this happens, the effects of lost income should dissipate relatively quickly. The lost business-to-business transactions, however, may linger as suppliers adjust.

However, demographic data indicate some Electrolux workers may face difficulties in career transitions. More than half of the company's workforce is aged 50 or older. Many of these employees have spent the majority of their work career at Electrolux. The future local employment prospects of those aged 55-64 who have spent a majority of their work life at Electrolux and whose skills are not easily transferable to available job vacancies may be limited. The possibility of structural employment for these workers is a reality that local officials will wish to consider.

Finding jobs that provide comparable compensation may also be a challenge. The data suggests Electrolux employees are compensated more than the local average for all industries (primarily because average hours worked are longer at Electrolux).

Finally, note that while the Electrolux workforce is geographically dispersed around Central Minnesota, the greatest impact will be felt locally. Nearly 400 of the company's local workforce call St. Cloud home, and another 194 live in the adjoining cities of Waite Park, St. Joseph, Sauk Rapids, and Sartell. Thus, 585 of Electrolux's 860 employees live in the immediate St. Cloud metropolitan area. There is little doubt that this is the epicenter of the economic shock that will be felt when Electrolux closes its doors in 2019.

The data, analysis, and findings described in this report are specific to the geography, period, and project requirements of Stearns, Sherburne, and Benton counties. Findings are not transferable to other jurisdictions.

## WHAT IS AN ECONOMIC EMERGENCY?

Communities often face a sudden and unanticipated change in their local economy. A major employer announces it is reducing its workforce, a fire destroys an operating facility, or a flood damages downtown. In these situations, communities often need to make quick, but important, decisions about how to react. They work closely with the local business(es) affected and work to help the business(es) and community recover. The University of Minnesota Extension's economic emergency program is designed to provide community leaders with information to assist in making decisions regarding the community's future. Extension partnered with the St. Cloud State University School of Public Affairs Research Institute to produce this report.

There are a few important things to note related to this analysis and the tool used. Information from the IMPLAN (MIG, Inc.) model is used in this analysis. In the IMPLAN model, one job is one job regardless of whether the job is full-time, part-time, or seasonal, which should be considered when interpreting the results related to employment in this report. Further, core IMPLAN data is gathered from a variety of government sources. **Electrolux was not asked to furnish data (beyond employment statistics and some supply chain information) for this report.** Estimates of the economic impact of the plant closure on labor income and output are constructed from national and state benchmarks for the industry. When data are incomplete or missing, econometric techniques are implemented to fill in the gaps.

## HISTORY OF HOUSEHOLD REFRIGERATION AND HOME FREEZER MANUFACTURING AND ELECTROLUX IN THE ST. CLOUD AREA

From its beginning, St. Cloud has had an industry in working with metals. In 1860, two producers in Stearns County created "tin, copper and sheet-ironware" worth \$4,000 (\$114,618 in today's dollars), generating \$480 of income for these producers.

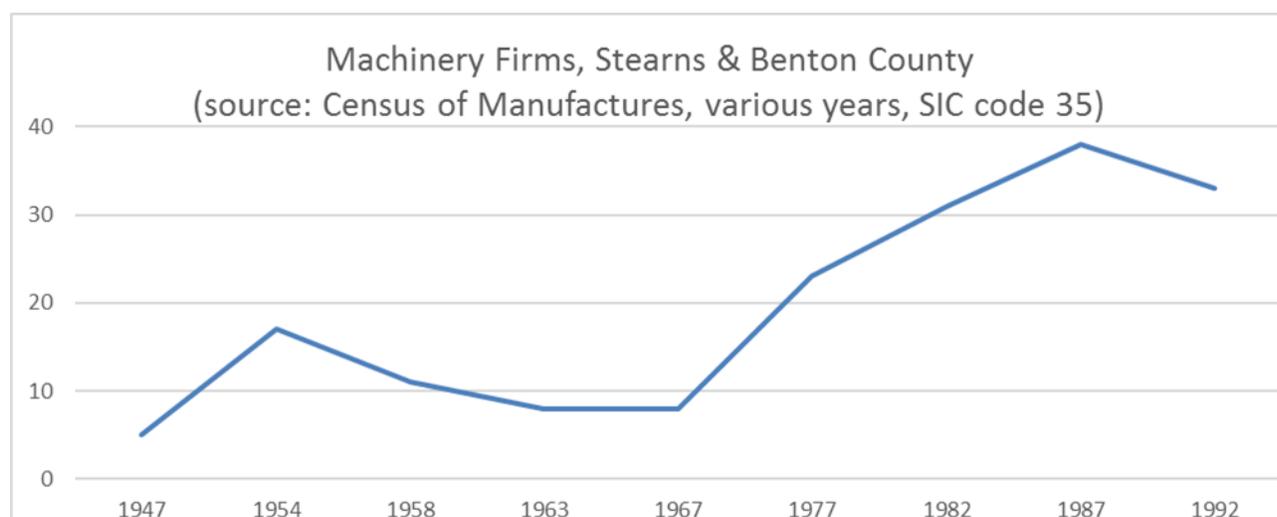
The Electrolux plant in St. Cloud sits on 33rd Avenue North. Bounded on the south side by the railroad tracks for the Burlington Northern Railroad and on the north by what is now Veterans Drive, its history begins with the Pan Motor Company. At its peak, Pan Motors hired 700 workers, mostly housed in the immediate facility in an area known to this day as Pantown. Created at the end of World War I and closed by 1923, the site was used for machining by Diamond Motor Parts (1925-28) and Aluminum Industries (1929-32). The Pantown area fell into disrepair as workers left the region.

Franklin Transformers was created in Minneapolis in 1929. It established a plant in St. Cloud in the old Pan Motor building in November 1945. In August 1947, seeking to expand, Franklin invested \$200,000 to rebuild

the old Pan Motor factory. It quickly grew from 20 to 385 workers. The expanded plant was to build chest and upright freezers, refrigerators, battery chargers and dryers. Its aim was to hire 1,000 workers. By June 1955 the firm, now Franklin Manufacturing, had 1,175 workers, using 515,000 square feet.<sup>1</sup>

The Franklin plant changed hands, operating as White Consolidated Industries between 1967 and 1986, when WCI was purchased by Electrolux. At its peak the plant had 1,700 production workers, with nearly 1,500 employees as recently as 2004.

Small machining shops were present in St. Cloud from before World War I, and as seen in the accompanying chart, there were five such firms in Stearns and Benton Counties in 1947. By 1992, value added from this industry, a measure of its output, had reached \$37.2 million, more than 1.5 percent of area personal income. Of the machinery firms existing in 1992, 4 produced equipment similar to that produced in what was now Electrolux. Further comparisons to later years are made very difficult by the change in industry classifications from SIC to NAICS in 1997. We do note that employment at Electrolux has continued to decline since the mid-2000's. For example, the City of St. Cloud Assessor's Annual Report lists 2005 Electrolux employment of 1,472 in January 2006 and 1,202 in January 2011. January 2012 employment was listed as 1,259 in the City of St. Cloud's Community Profile.



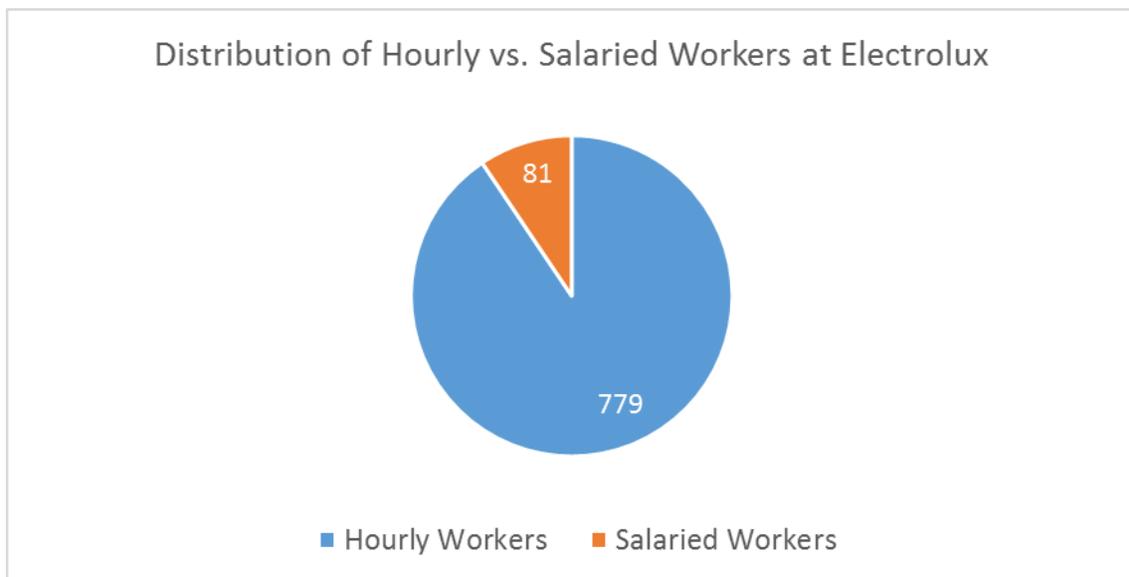
## THE ELECTROLUX WORK FORCE

Upon request, Electrolux furnished study researchers with information about their St. Cloud workforce. This information is the primary source of the tables and charts found in this section of the report. Data from the Minnesota Department of Employment and Economic Development's (DEED) *Quarterly Workforce Indicators*

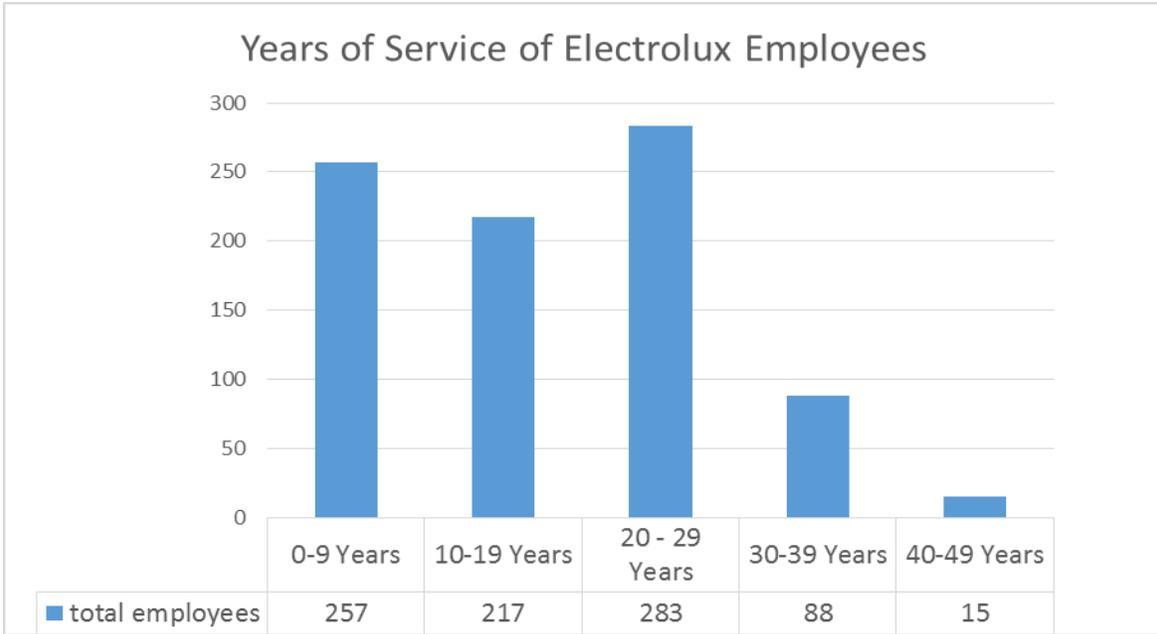
<sup>1</sup>Data from "Franklin Manufacturing Company Grows Rapidly in 9 Years," St. Cloud Times, Friday, June 17, 1955, p. 8 and Nora G. Hertel, "History of St. Cloud freezer facility full of layoffs and growth," St. Cloud Times, January 30, 2018, online at <https://www.sctimes.com/story/news/local/2018/01/30/electrolux-history-freezer-manufacturing-jobs-st-cloud/1079617001/>

(these data are ultimately derived from US Census reports) were used to prepare industry charts on worker educational attainment. DEED's *Quarterly Employment Demographics* data set was used to estimate wages for the Electrical Equipment and Appliances industry in Stearns County.

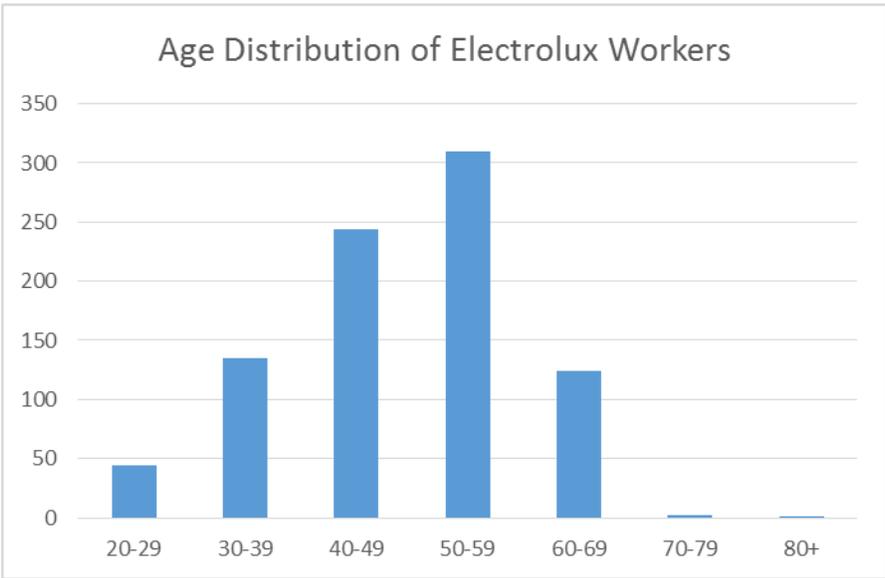
Seven hundred seventy-nine of the 860 employees at Electrolux have "Bargained/Hourly Titles". Of these workers, 341 are involved in "general production" and 57 are "lift-truck operators". Another 21 are "leak testers", 18 are "plastic machine operators", 17 are "maintenance mechanics", and 15 are "auto press machine operators". All other hourly titles have fewer than 15 employees. The remaining 81 employees are categorized as "Non-Bargained/Salaried Titles". Job titles in this salaried category include production supervisors, accounting clerks, engineers, human resource professionals, managerial staff, etc.



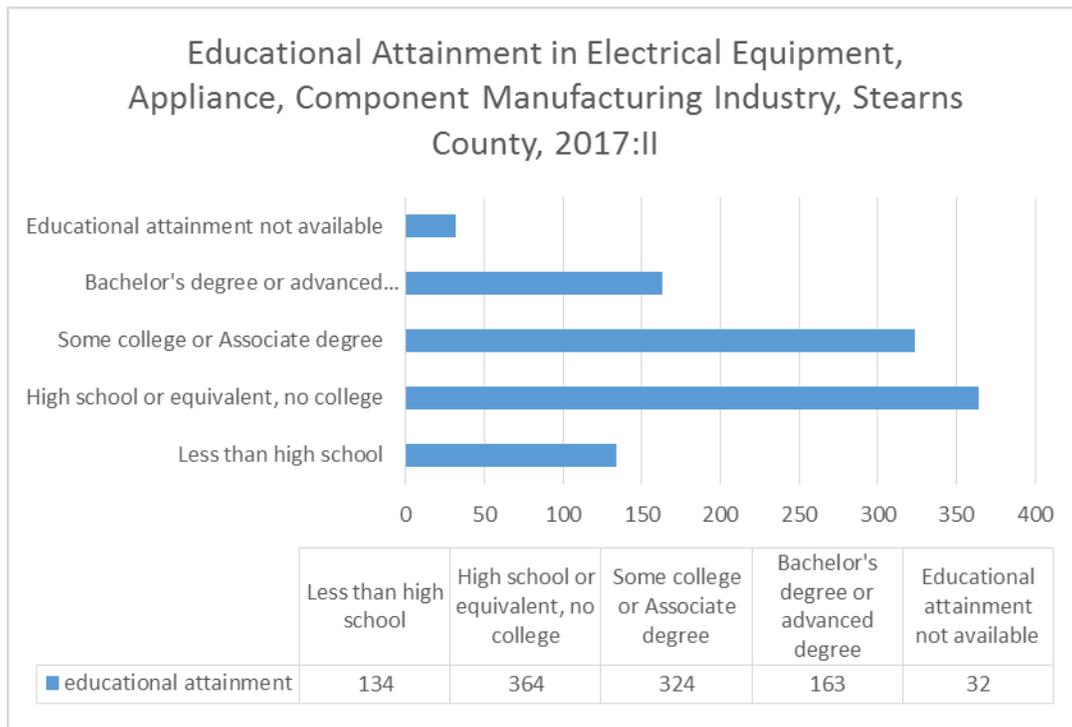
The distribution of employees' years of service at Electrolux ranges from 0 – 49 years. Fifteen employees have worked for 40 years or longer and another eighty-eight workers have been there for 30-39 years. The largest share of workers at Electrolux have a job tenure of between 20 and 29 years (283 employees are in this category) and another 217 workers have 10-19 years of experience. Two hundred fifty-seven employees have worked at Electrolux for less than ten years.



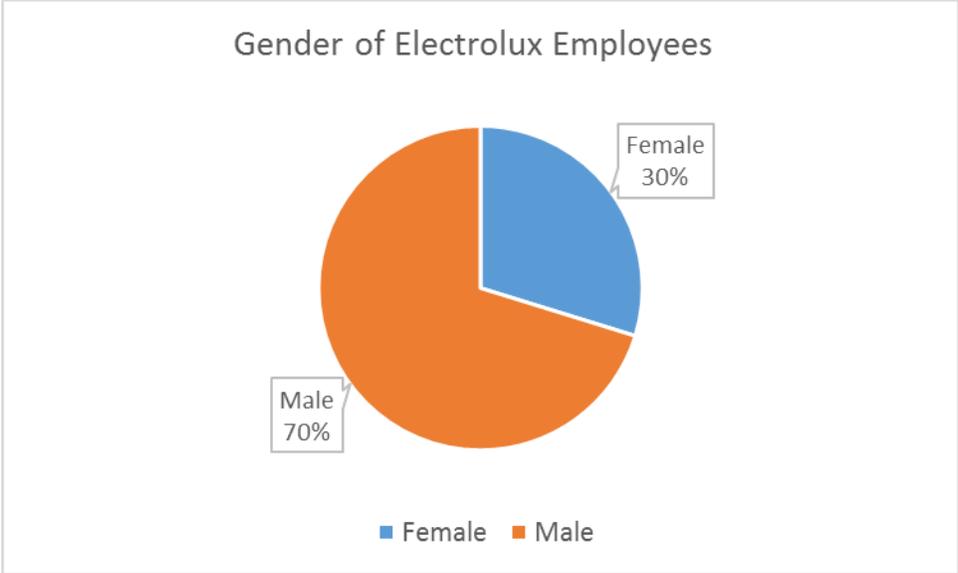
More than half of the company’s workforce is aged 50 or older. Many of these employees have spent the majority of their work career at Electrolux. Perhaps retirement awaits those workers who are aged 65 or older (there are 20 of these workers), but the future local employment prospects of those aged 55-64 who have spent a majority of their work life at Electrolux and whose skills are not easily transferable to available job vacancies may be limited. The possibility of structural employment for these workers is a reality that local officials will wish to consider. There are 271 workers in this age 55-64 cohort. Those workers who are aged 45-54 still have more than ten years before they reach normal retirement age, so new educational opportunities and retraining may be options for them to consider.



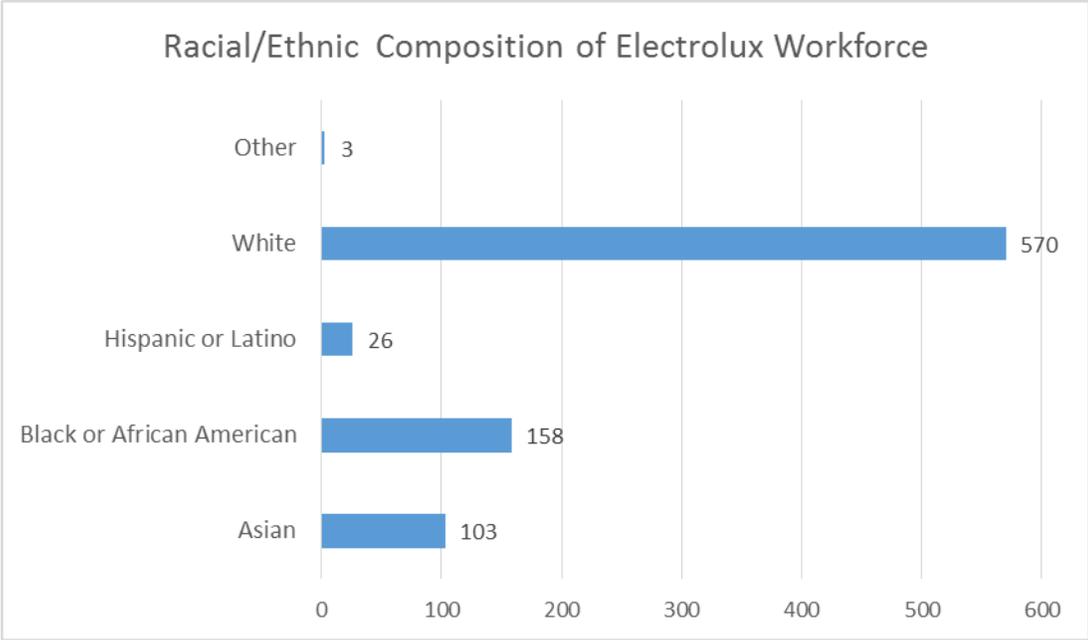
In 2017, Quarter 2, forty-nine percent of Stearns County workers in the 3-digit NAICS classification of Electrical Equipment, Appliance, and Component Manufacturing had a high school degree or less. By comparison, in all Stearns County industries, the share of workers with no higher than a high school degree was much lower (32.1 percent). One hundred thirty-four (13.1 percent) workers in this industry have less than a high school degree. With 860 of the 1,017 total of Stearns County worker in this 3-digit industry, Electrolux clearly accounts for the majority of workers that are reported in DEED’s *Quarterly Workforce Indicators*. This means that average educational attainment is low at Electrolux compared to other industries in Stearns County. The prospects for long-term structural employment of Electrolux workers with limited educational attainment are considerable.



Seventy percent of company employees are male and 30 percent are female.

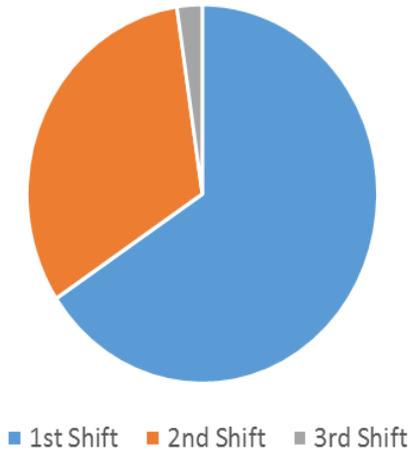


The majority of Electrolux’s St. Cloud workers are white: five Hundred seventy of their 860 employees are white and another 158 are black or African American. Another 103 workers are Asian and 26 employees are Hispanic or Latino.

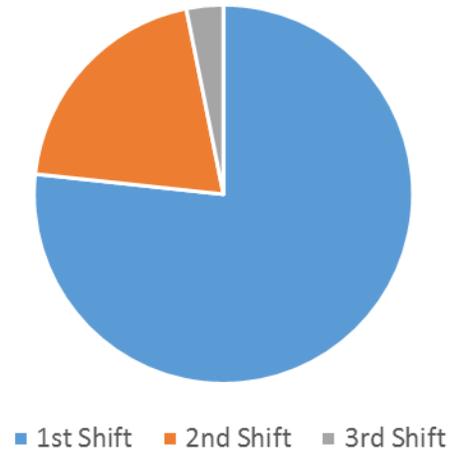


While the majority of Electrolux employees work the first shift (and only 20 employees are assigned to the third shift), a disproportionately large share of black or African American and Asian workers are employed on the second shift. What this implies about transferability within the area workforce is unclear.

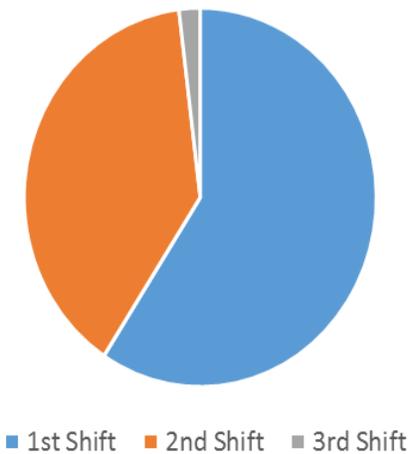
Distribution of Electrolux Workers by Shift



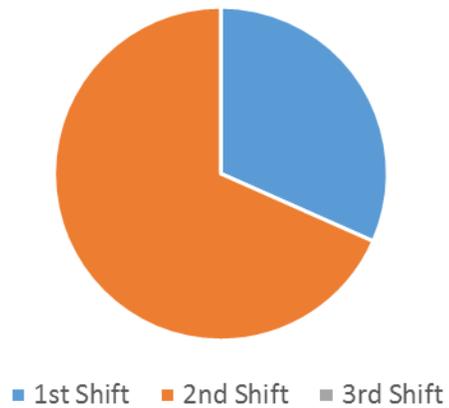
White Employees: Distribution by Shift



Asian Employees: Distribution by Shift



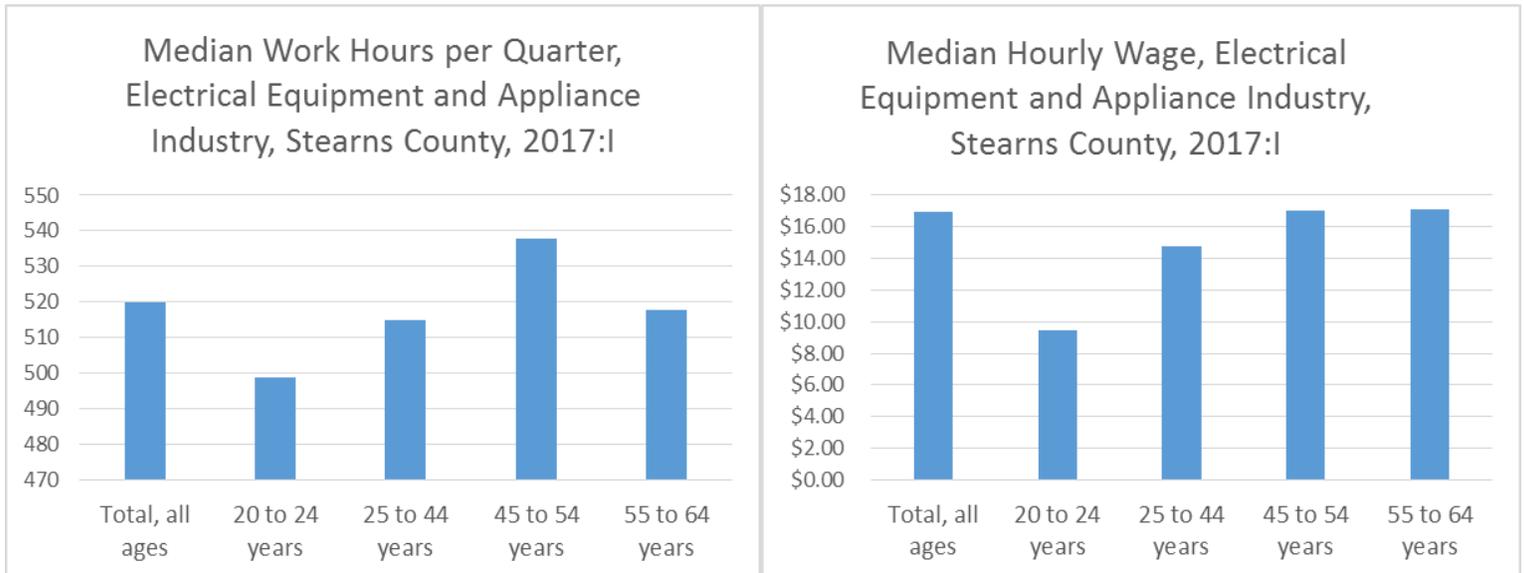
Black or African American Employees: Distribution by Shift



Obtaining accurate wage data at the industry level can be challenging, but DEED's *Quarterly Employment Demographics* data tool is helpful in finding median hourly wage data at the 3-digit sub-sector for the Electrical Equipment and Appliance industry in Stearns County for Quarter 1, 2017. These data, indicate the hourly median wage in this industry for all ages was \$16.90 in the first quarter of 2017. However, the median

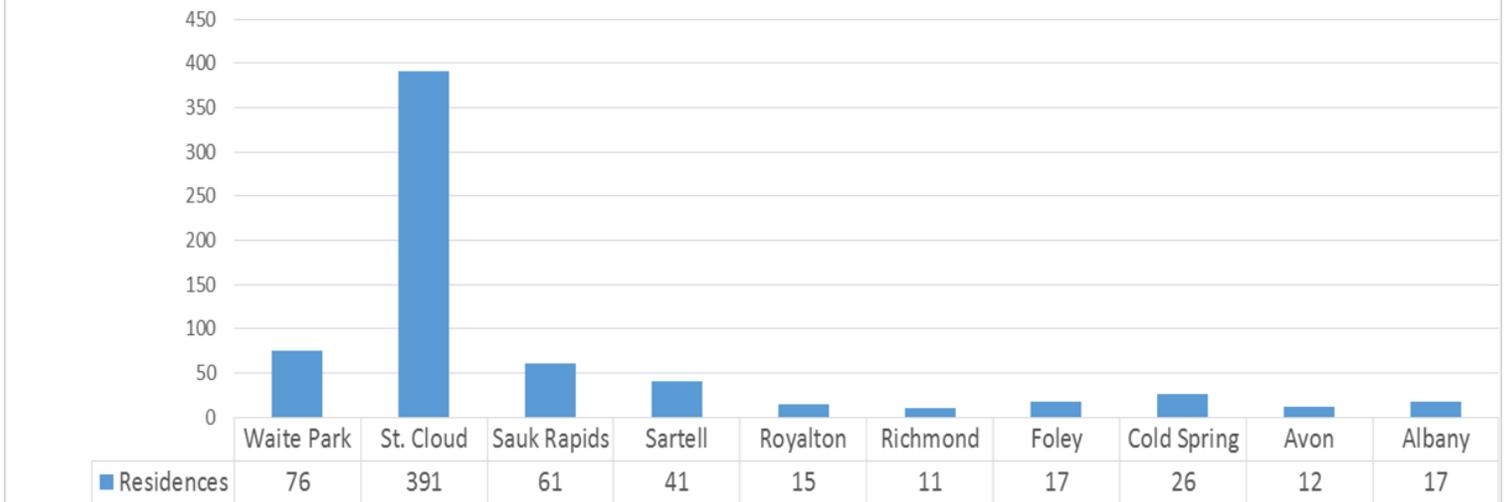
wage was slightly higher for those aged 45 and higher. It is important to note that median work hours in the first quarter of 2017 was 520 for Stearns County workers in this industry. This is considerably higher than the median work hours for all industries in Stearns County (the corresponding number was 445 in 2017:1). Thus, despite a higher median hourly wage for all industries in Stearns County (it was \$17.50 in last year’s first quarter), it appears workers in Stearns County’s Electrical Equipment and Appliance Industry have annual earnings that are several thousand dollars greater than a composite of all local industries.

To see this, consider the data for the Electrical Equipment and Appliance Industry in Stearns County (recall that most of this industry is accounted for by Electrolux) for 2016—the last year for which an annual calculation is feasible. Weighting the median hourly wage in each quarter by median quarterly hours worked yields an annual earning computation of \$36,077. By comparison, performing the same calculation for “all industries” in Stearns County yields yearly earnings of \$29,930—an annual earnings differential in excess of \$6,000. While this is an admittedly crude calculation of earnings differentials, it nevertheless suggests Electrolux employees are compensated more than the local average (primarily because hours worked are longer at Electrolux).



Finally, note that while the Electrolux workforce is geographically dispersed around Central Minnesota, the greatest impact will be felt locally. Nearly 400 of the company’s local workforce call St. Cloud home, and another 194 live in the adjoining cities of Waite Park, St. Joseph, Sauk Rapids, and Sartell. Thus, 585 of Electrolux’s 860 employees live in the immediate St. Cloud metropolitan area. There is little doubt that this is the epicenter of the economic shock that will be felt when Electrolux closes its doors in 2019.

## Top Residences of Electrolux Employees



### THE ROLE OF HOUSEHOLD REFRIGERATION AND HOME FREEZER MANUFACTURING IN THE ST. CLOUD METROPOLITAN AREA

St. Cloud, Minnesota spans the three counties of Stearns, Sherburne, and Benton. This report therefore looks at the impact of the plant closure on these three counties.

Electrolux is a unique firm within this area: it is the only household appliance manufacturing firm in the region. Its employment was about half of the entire state's employment in the household appliances industry in 2015. There was another electrical machinery manufacturer (NAICS code 3352) in the region in 2015, but it has less than five employees according to the U.S. Census.

The industry has undergone dislocation in the most recent recession. Nationally, employment in the household refrigerator and home freezer manufacturing sector fell from 13,971 in 2007 to 8,360 in 2011.<sup>2</sup> Electrolux's decline of employment follows a similar pattern, with 1,480 employed there in 2004 versus the 860 employees we discuss in this report.

It is a member of the Trailers, Motor Homes, and Appliances cluster as defined by Delgado, Porter and Stern in their path-breaking analysis of clusters.<sup>3</sup> A cluster is defined as a group of industries "related by skill, technology, supply, demand, and/or other linkages."<sup>4</sup> These can be related to each other by examining the

<sup>2</sup> U.S. Census, Annual Survey of Manufacturers, various years. Later data is suppressed for data quality or privacy issues, but the Census Bureau reports the figure being between 5,000 and 9,999 through 2015.

<sup>3</sup> Mercedes Delgado, Michael E. Porter and Scott Stern. "Defining clusters of related industries," *Journal of Economic Geography*, 16(1), January 2016, pages 1-38.

<sup>4</sup> Delgado, Porter and Stern, p. 2.

co-location of these firms due to synergies and agglomeration economies, common input needs, intra-industry linkages, etc.

Clusters can either produce traded or local goods. Traded goods indicate goods produced in one region for sale to households and firms in other regions. Local goods are produced within a sector for sale in the same region. Education and health, now the largest sector of the St. Cloud economy, produces local goods (with the exception of international or out-of-region students who study in its higher education institutions or patients who come to CentraCare for medical services from outside the area). Electrolux is in the traded goods area, as its products sell into a national (and international) market and bring outside revenue to the St. Cloud economy.

The traded goods sector nationally is responsible for 36 percent of employment and creates 50 percent of its output. The traded goods sector is also the area where innovation happens, with 96 percent of patents applying to production of traded goods. The traded goods sector accounts for 36 percent of Stearns County employment as well.

Besides appliance manufacturing, the Trailers, Motor Homes and Appliances cluster includes parts of transportation equipment (NAICS sector 336). In Stearns County there are 12 firms in the transportation equipment manufacturing sector, including seven (7) in motor vehicle body and trailer manufacturing (NAICS code 3362). Those 7 firms had 680 employees in September 2017 (the last month for which data is available at the time of this writing) and they paid total wages of about \$35 million annually. (Source: MN DEED's *Quarterly Census of Employment and Wages*). With 860 employees estimated to work at Electrolux, the firm is the dominant player within the Trailers, Motor Homes and Appliances Cluster. The cluster is strong within the US, with the 9<sup>th</sup> largest employment of over 3,000 counties in the United States. (We list all industries in this and related clusters in Appendix B.)

There are two linked clusters within the St. Cloud area: the Automotive cluster and the Medical Devices cluster. The Automotive cluster includes iron, steel, aluminum and other foundries and parts manufacturing. Among other things, this cluster represents the areas in NAICS code 336 that are not in the Trailers, Motor Homes and Appliances cluster. These two clusters both supply each other with raw metal and share workers with the same skills. According to [clustermapping.us](http://clustermapping.us), the automotive sector in Stearns County has 1,185 workers, ranking 198 of all U.S. counties.

The Medical Devices cluster includes surgical and dental instruments, supplies for surgeons and dentists, and optical instruments and ophthalmic goods. The latter category describes a long-standing strength of the St. Cloud area, with firms such as Eye-Kraft formed in 1954. Fourteen (14) medical device cluster firms remain in the three-county area as of 2017, hiring 1,146 workers who earn about \$42 million. However, employment in this cluster has fallen significantly in the last twenty years.

There are therefore unlikely to be more than 2,300 jobs in these related clusters for which the production workers of Electrolux would be a good match with their current skill set. We assume that front-office workers will find placements, but this is less than 10 percent of the firm's workforce. The remaining workers may need to travel outside of the region to find employment, or find retraining for new fields of work.

## ECONOMIC IMPACT OF HOUSEHOLD REFRIGERATION AND HOME FREEZER MANUFACTURING PLANT CLOSURE

As has been noted, Electrolux in St. Cloud currently employs 860 workers. Since the plant is closing, all 860 employees will lose their jobs.<sup>5</sup> Under the plan, the facility will remain operational until the end of 2019. It is unclear if job layoffs will be gradual over the period or if all employees will be terminated when the plant closes.

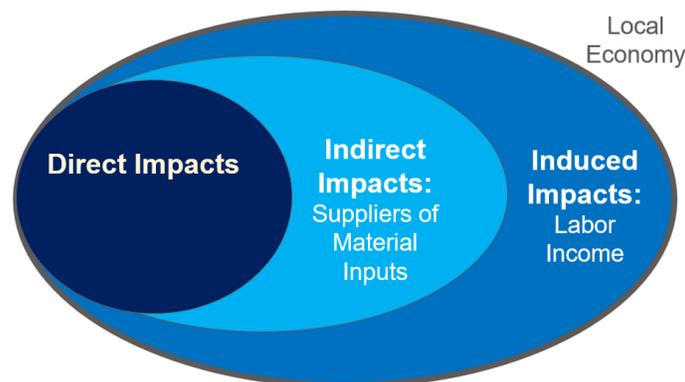
The loss of these jobs at the plant, and the corresponding decrease in sales, will affect other businesses in Stearns, Sherburne, and Benton counties. This section of the report describes the impacts of the closure of a household refrigerator and home freezer manufacturing plant in Stearns, Sherburne, and Benton counties.

**The analysis presented is for the average household refrigeration and home freezer manufacturing plant in the three counties.** Specific, individual details for the Electrolux facility may vary.

We use an input-output model to measure the economic impact of the closure of a household refrigeration and home freezer manufacturing plant. Input-output models trace the flow of goods and services throughout an economy. Once the flow is quantified, the model can measure how a change in one sector of the economy (initial change) will affect other sectors. We use the input-output model IMPLAN for this analysis.

Input-output models measure three types of impacts. They are direct, indirect, and induced. Direct effects are the initial changes in the economy that trigger additional affects. Indirect impacts are changes that occur along the supply chain due to the direct effects. The manufacturing plant purchases fewer of its supplies, causing its suppliers to produce less. These are business-to-business impacts. Induced impacts result from changes in employee spending. The employees of the manufacturing plant spend less, causing their suppliers to produce less. These are consumer-to-business impacts.

Impacts are measured in output (sales), employment, and labor income. For employment, one job is one job regardless if it is full-time, part-time, or seasonal. Labor income includes wages, salaries, and benefits. See the appendix for further terms and definitions.



<sup>5</sup> News reports indicated Electrolux would discuss employment opportunities at its other facilities with its St. Cloud employees. Electrolux does not have any other facilities in Minnesota.

According to the model used in this analysis, 860 employees in the household refrigerator and home freezer manufacturing industry in Stearns, Sherburne, and Benton counties produce an estimated \$531.0 million in output (sales) annually. They earn an estimated \$57.0 million in salaries, wages, and benefits. This is the direct impact.

The loss of 860 jobs at a household refrigerator and home freezer manufacturer in Stearns, Sherburne, and Benton counties will have direct, indirect, and induced economic impacts on these counties (Table 1). When the plant lays off 860 employees, an additional estimated 940 jobs in industries that serve the manufacturing plant and its employees will also be impacted. In total, the closure of a household refrigeration and home freezer manufacturing will affect 1,800 jobs.

The manufacturing plant itself will produce an estimated \$531.0 million less in output because it is closed. This will contribute to a total loss of an estimated \$670.1 million in output (sales) in the three counties.

Labor income will also drop. Lost jobs at the plant will directly cause an estimated decrease in labor income of \$57.0 million for employees at the facility. The lost spending of these wages and other purchases by the plant will decrease total labor income in the three counties by an additional \$45.6 million. Thus, the total loss of labor income will be an estimated \$102.6 million.

**TABLE 1: ECONOMIC IMPACT OF HOUSEHOLD REFRIGERATOR AND HOME FREEZER MANUFACTURING PLANT CLOSURE WITH 860 JOBS LOST: STEARNS, SHERBURNE, AND BENTON COUNTIES, MINNESOTA**

	Direct	Indirect	Induced	Total
	At Plant	Business-Business	Consumer-Business	
Output (millions)	-\$531.0	-\$82.8	-\$56.3	-\$670.1
Employment	-860	-460	-480	-1,800
Labor Income (millions)	-\$57.0	-\$27.4	-\$18.2	-\$102.6

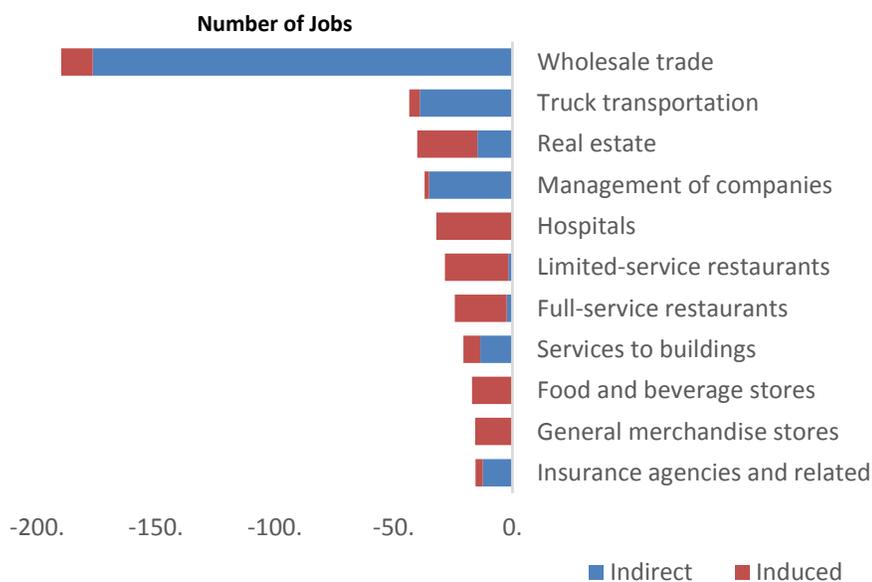
Estimates by the Extension Center for Community Vitality

The noted impacts, 1,800 jobs affected and \$670.1 million in lost output, have temporal considerations. First, as mentioned, the company plans to operate through 2019. If the layoffs are gradual and spread over the next year to two years, the impacts of the lost jobs will also occur slowly over the period. Second, the unemployment rate in the St. Cloud area is a relatively low 4.1 percent. Job seekers from the plant may be

able to retrain and find employment. As the workers find new employment, the labor income and induced effects will slowly dissipate. The indirect effects may take longer to dissipate, as suppliers may take longer to adjust.

The model can also provide estimates of the industries in Stearns, Sherburne, and Benton counties that will feel the largest magnitude of impacts from the closure of the manufacturing plant. In terms of employment, the highest level of indirect and induced impacts will be in the industries shown in Chart 1.

**Chart 1: Top Industries Impacted by the Loss of 860 Jobs at a Household Refrigeration and Home Freezer Manufacturing Plant, Stearns, Sherburne, and Benton Counties**



Indirect effects are highest in the wholesale trade, trucking, and management of companies industries. This reflects the purchasing patterns of the manufacturing plant. The wholesale trade industry includes businesses that sell raw and intermediate materials and supplies used in production. Wholesalers sell primarily to other businesses and operate from a warehouse or office. Information obtained from local economic development officials indicate Electrolux used a variety of local suppliers. An example of a local wholesale supplier to Electrolux is Blackhawk Industrial with a location in Waite Park. Blackhawk Industrial provides industrial products and equipment. Electrolux also purchased printing services from DJV Enterprises and Sentinel Printing. Further, Electrolux used the services of Wacosa for assembly work.

Induced effects are higher in areas like health care, restaurants, and retail trade. Households tend to make expenditures in these industries. When household incomes decrease due to unemployment, these are areas that might be cut.

## FOR FURTHER RESEARCH

The objective of this report is to provide the community with a sense of the scale of the economic effects of the Electrolux facility closure, which industries are most likely to be affected by the closure, and how the impacts fit within the greater context of the St. Cloud area economy.

While the report provides critical information, it undoubtedly also raises additional questions for consideration. Additional questions might broadly be grouped into two categories: what additional information is needed and how should the community proceed with this information?

Additional information might include more detail on the impacts to local and state taxing districts. The State of Minnesota will likely experience a decline in payroll and sales tax losses. Local taxing districts might incur lost property tax revenues. The community may also experience a decline in philanthropic contributions from the company and its employees. Displaced workers may request additional training and may wish to develop new job skills. Demand for community support services might increase. While some of these impacts are hinted at in the report, a more detailed analysis could be of use.

The St. Cloud area community will also be asking itself how to proceed with this information. What are the implications of these results? What can or should the community consider doing to mitigate the impact? How will Electrolux employees react to the facility closure as they consider re-employment opportunities? What potential exists for the abandoned facility? Is there an opportunity to use the available commercial space to attract a new business to the area? These are valuable questions worth exploring.

One final question to consider is the extent to which the community can learn from previous mass layoffs and plant closures. In addition to the announced future closure of Electrolux, the St. Cloud area has also endured the recent loss of 139 jobs at Capital One (in November 2017) as well as layoffs associated with the closing of Sears in Crossroads Mall and a smaller number of front office workers at Pilgrim's Pride. While these layoffs pale in comparison to what is expected at Electrolux, there is some hope that displaced workers can learn from the lessons of those who have experienced job loss from recent local plant closings at Verso and QuadGraphics. In June 2014, QuadGraphics announced it was closing its St. Cloud facility, affecting 280 workers. Two years earlier—in August 2012--Verso shuttered its production facility in Sartell, causing job loss for 259 workers (175 additional workers had previously lost jobs there in December 2011). Of course, the most adverse local mass layoff in recent years occurred in January 2002, when Fingerhut announced its closing (affecting 2,670 employees).

There are local and regional resources—from institutions of higher education, from Career Solutions, from local workforce centers, etc.—that can assist displaced workers in exploring new employment opportunities and developing new skills. Listening to the collective voices of those who are still in the St. Cloud area who have experienced a mass layoff and plant closing could also be helpful. Where are these QuadGraphics and Verso employees now? What is their current employment experience like? Did they seek retraining and new educational opportunities? How did this work out? What advice do they have for Electrolux employees? These are some of the additional questions to consider as the closing of Electrolux approaches in 2019.

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## APPENDIX A: ASSUMPTIONS AND TERMS

Economic impact analysis is based on several critical assumptions. An understanding of the assumptions ensures the results are interpreted properly. Here are the key assumptions made in the analysis for Stearns, Benton and Sherburne counties.

First, there are assumptions that are standard for all economic impact analyses using the IMPLAN model. They are:

- One job is one job, regardless if the job is full-time, part-time, or seasonal. The jobs considered here are not full-time equivalents. Therefore, it isn't unusual for industries with high levels of part-time employment to experience higher employment impacts.
- The model is linear. Changes in output or employment can be modeled in a linear fashion.
- The model assumes all employees of the facility live in the counties. It does make adjustments to where their incomes are spent. If the regional hub is located in a nearby county, it will adjust to assume employees spend some of their wages and salaries in the nearby county. This should not be an issue here, as Stearns, Benton, and Sherburne counties are a regional economic hub.
- The database is built on publicly-available data. When data is not available for a specific industry, say due to data disclosure issues, econometric models are used to create estimates for the industry.

Second, there is an assumption unique to the analysis in Stearns, Benton, and Sherburne counties.

- The number of employees at Electrolux was taken from information furnished by the company. The IMPLAN model estimated the amount of output and labor income created by those employees based on national and state benchmarks for the industry.

The following are a few key terms used in economic impact analysis.

### Output

Output is measured in dollars and is equivalent to total sales. **The output measure can include significant double counting.** For example, think of corn. The value of the corn is counted when it is sold to the mill, again when it is sold to the dairy farmer, again as part of the price of fluid milk, and then yet again when it is sold as cheese. The value of the corn is built into the price of each of these items and then the sales of each of these items are added up to get total sales (or output).

### Employment

Employment includes full- and part-time workers and is measured in average annual jobs. Total wage and salaried employees as well as the self-employed are included in employment estimates in IMPLAN. Because employment is measured in jobs and not in dollar values, it tends to be a very stable metric.

In the model, one job is one job, regardless if the job is full-time, part-time, and seasonal.

### Labor Income

Labor income measures the value that is added to the product by the labor component. For example, in the corn example, when the corn is sold, a certain percentage of the sale goes to the farmer for his/her labor. Then when the mill sells the corn as feed to the dairy farmer it includes in the price some markup for its labor costs. When the dairy farmer sells the milk to the cheese manufacturer, he/she includes a value for his/her labor. These individual value increments for labor can be measured. This is labor income. **Labor income does not include double counting.**

### Direct Impact

The direct impact is equivalent to the initial change in the economy.

### Indirect Impact

The indirect impact is the summation of changes in the local economy that occur due to **spending for inputs** (goods and services) by the industry or industries directly impacted. For instance, if employment in a manufacturing plant increases by 100 jobs, this implies a corresponding increase in output by the plant. As the plant increases output, it must also purchase more of its inputs, such as electricity, steel, and equipment. As it increases its purchase of these items, its suppliers must also increase their production, and so forth. As these ripples move through the economy, they can be captured and measured. Ripples related to the purchase of goods and services are indirect impacts.

### Induced Impact

The induced impact is the summation of changes in the local economy that occur due to **spending by labor** by the employees in the industry or industries directly impacted. For instance, if employment in a manufacturing plant increases by 100 jobs, the new employees will have more money to spend to purchase housing, buy groceries, and go out to dinner. As they spend their new income, more activity occurs in the local economy. This can be quantified and is called the induced impact.

### Total Impact

The total impact is the summation of the direct, indirect and induced impacts.

## APPENDIX B. INDUSTRIES IN THE TRAILERS, MOTOR HOMES AND APPLIANCES AND RELATED CLUSTERS

### Industries in the Trailers, Motor Homes, & Appliances cluster (8)

- 335221 Household Cooking Appliance Manufacturing
- 335222 Household Refrigerator and Home Freezer Manufacturing
- 335224 Household Laundry Equipment Manufacturing
- 335228 Other Major Household Appliance Manufacturing
- 336212 Truck Trailer Manufacturing
- 336213 Motor Home Manufacturing
- 336214 Travel Trailer and Camper Manufacturing
- 339995 Burial Casket Manufacturing

### Industries in the Automotive cluster (21)

- 331511 Iron Foundries
- 331512 Steel Investment Foundries
- 331513 Steel Foundries (except Investment)
- 331523 Nonferrous Metal Die-Casting Foundries
- 331524 Aluminum Foundries (except Die-Casting)
- 331529 Other Nonferrous Metal Foundries (except Die-Casting)
- 332114 Custom Roll Forming
- 336111 Automobile Manufacturing
- 336112 Light Truck and Utility Vehicle Manufacturing
- 336120 Heavy Duty Truck Manufacturing
- 336211 Motor Vehicle Body Manufacturing
- 336310 Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
- 336320 Motor Vehicle Electrical and Electronic Equipment Manufacturing
- 336330 Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
- 336340 Motor Vehicle Brake System Manufacturing
- 336350 Motor Vehicle Transmission and Power Train Parts Manufacturing
- 336360 Motor Vehicle Seating and Interior Trim Manufacturing
- 336370 Motor Vehicle Metal Stamping
- 336390 Other Motor Vehicle Parts Manufacturing
- 336992 Military Armored Vehicle, Tank, and Tank Component Manufacturing
- 336999 All Other Transportation Equipment Manufacturing

### Industries in the Medical Devices cluster (5)

- 333314 Optical Instrument and Lens Manufacturing
- 339112 Surgical and Medical Instrument Manufacturing
- 339113 Surgical Appliance and Supplies Manufacturing
- 339114 Dental Equipment and Supplies Manufacturing
- 339115 Ophthalmic Goods Manufacturing