

EXECUTIVE SUMMARY

Wichita Falls, Texas, is an especially attractive location for plants that manufacture electronic, measurement, control, and other aerospace parts and components.

This has been documented by BFPC, LLC, a leading site selection and location strategy consulting firm. BFPC recently completed an in-depth investigation of the Wichita Falls economy. One key purpose of the study was to identify industries and business operations that can benefit from the unique business advantages of Wichita Falls. The business of designing and making aerospace parts and components is undergoing tremendous technological changes as the result of new products, new business models, and new manufacturing technologies.

Electronic, measurement, control, and other aerospace parts and components were selected for their particular ability to take advantage of business and other conditions in Wichita Falls. Reasons for selecting this business as a target include the following Wichita Falls assets:

- Selected business costs **almost 19% below typical or national average costs for a similar manufacturing facility**. Projected costs for staffing, construction, utilities, and other expenses to establish and operate such a production plant in Wichita Falls are over **\$1.4 million per year below** the comparable US national average.
- A location in the midst of **one of the world's largest concentrations of aerospace design, assembly, testing, and operations**. Texas is tied with California for having the nation's most large aircraft manufacturing plants (those employing 100 or more—11 each); and with the addition of nearby Oklahoma and Kansas, this number doubles. Major airline maintenance bases are within a few hours' drive. Clearly there is a large local market for aerospace parts and components.
- **Well-established aerospace industrial environment**. Wichita Falls has a large existing base of aerospace and related activity including manufacturing of parts for aircraft and aircraft engines. It has been proven that this industry can succeed here. Aerospace and aviation has been an anchor industry in Wichita Falls since the development of what is now Sheppard Air Force Base in 1941. With more than 10,000 employees at any one time, Sheppard AFB is by far the city's largest employer.
- **Above-average availability of high-caliber, aerospace expertise** drawn from a wide area of North Texas and Southern Oklahoma including professional technical personnel from the Dallas/Fort Worth area.

- **Low tax burden and highly ranked positive business climate in Texas.** The absence of state income taxes and other favorable features lead to a total corporate tax burden estimated to be more than 30% lower than the nationwide average for similar facilities. The City of Wichita Falls is known for its responsiveness to employers on code compliance and minimizing regulatory impact on businesses.
- **Excellent transportation on one of the busiest trade corridors** in the South Central US. Interstate and four-lane Federal highways, regional air service, and two major railroad lines cooperating with an efficient local shortline give businesses and residents many transportation options for commerce and travel.
- **Growing local business and industrial sector.** Community and business leaders have an exceptional record of consensus-based decision making that has led to a string of recent business attraction successes in Wichita Falls.
- Attractive **package of industrial development incentives.**
- **Cost-of-living advantages and lifestyle** that support recruitment, transfer, and retention of staff. Health care, retail trade, dining, entertainment and year-round cultural activities are more abundant than in typical medium-size metropolitan areas. Many favor living in the affordable urban environment of Wichita Falls, with an occasional weekend spent in Dallas/Fort Worth.

More data about Wichita Falls
and the region's advantages for your company are available from the

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INTRODUCTION

The leadership of Wichita Falls is committed to expanding and enhancing the regional economy. As part of that goal, the Wichita Falls Chamber of Commerce & Industry has begun a campaign to market this area as a location for aerospace businesses and industries that can profit from its appealing features.

Consistent with Texas's role as one of the top states for aerospace and ongoing growth, Wichita Falls shows great promise to expand its already prominent local aerospace presence. Nearly 4% of its workforce is engaged in aerospace-related sectors, more than twice the national average. A facility designing and manufacturing electronic, measurement, control and other aerospace parts and components would not be a pioneer in Wichita Falls!

BFPC, LLC, a major international site selection and location consulting firm, has been retained to provide professional counsel to this program. It was charged to identify aerospace business activities that are a particularly good fit with the locational attributes of Wichita Falls, and that can benefit by establishing a facility in the community.

The study concluded that Wichita Falls is an especially appropriate and attractive location for facilities that design and manufacture electronic, measurement, control and other aerospace parts and components.

This report provides details and points out the strong business case why companies in these industries should consider Wichita Falls.

OVERVIEW OF WICHITA FALLS

Community Description

Wichita Falls—the largest city along the north central Texas border with Oklahoma—is a regional hub for employment, education, health care, and trade. Located less than 90 minutes from the Dallas/Fort Worth Metroplex, it has easy access to DFW Airport and other metropolitan services.

But at the same time it is a well-rounded smaller metro area with its own individual character and a size and scale that many people like. The Wichita Falls MSA population is 150,780, according to the 2015 US Census estimate, making it 19th-largest in Texas. It has its own state university, commercial airport, comprehensive, health care network, and other desirable features. If people want access to the attributes of a 6.5-million population metro area, but the advantages of living in a well-managed, medium-sized city, Wichita Falls combines the best of both.

Its **cost of living index is 19.4% lower** than the national average, according to the Third Quarter 2016 report of the Council for Community and Economic Research. This COLI of 81.6 places Wichita Falls among the Top 10 low-cost living areas in the US (100 = national average). The COLI for Dallas is 103.2; and for Fort Worth 101.7—both more than 20 percentage points higher than Wichita Falls.

The City of Wichita Falls is located in the Red River Valley in the cross-timbers area of the gently rolling plains of north-central Texas. The area's climate is classified as continental, a generally mild four-season environment. Normal rainfall for the year is nearly 29 inches.

Wichita Falls is located at the western terminus of Interstate 44, a major highway linking the city to Oklahoma City (about two hours), Tulsa and St. Louis. The community is readily accessible to many other Texas and Oklahoma destinations in all directions via an excellent network of Interstate and US Highways, most of which are four-lane with a speed limit of 70 MPH or more.

Both BNSF Railway and Union Pacific Railroad serve the Wichita Falls area. Most local switching is by the Wichita, Tillman, & Jackson shortline railroad. This means that shippers and receivers have benefits of a competitive situation for long haul transportation via the two Class 1 railroads, as well as the advantage of a locally-based small company for direct service. Freight handling is facilitated by the use of a rail yard located in downtown Wichita Falls and has an excellent service record.

Two airports serve Wichita Falls. Wichita Falls Regional Airport shares facilities with Sheppard Air Force Base, whose runways (up to 13,100 feet) will accommodate virtually anything flying. The city recently completed a \$32 million terminal that hosts American Eagle Regional Jet flights to DFW. The city also owns Kickapoo Airport, a general aviation field located in southeastern Wichita Falls that provides fixed base operations and training facilities for both rotary and fixed-wing aircraft. Sheppard AFB provides pilot training for Army, Navy, Marine and Air Force personnel for the US and many foreign allies, as well as delivering aircraft maintenance, civil engineering, bio-medical equipment maintenance, dental technician, combat medicine and communications training. Its presence for 75 years is a key reason for the Wichita Falls reputation as a center for aerospace and aviation history.

Economic Development Trends

Founded in 1876, Wichita Falls was named for a local Native American tribe and the low-water, river waterfalls that existed there until 1886, when they were washed away by a flood. Upon the arrival of the Fort Worth and Denver City Railroad in 1882, it became a cattle center. With the discovery of oil and gas fields in the 1900s, the city developed extensive petroleum industries as well as a large network of supporting businesses such as the manufacture of heavy-duty Wichita Trucks. By 1940, 40% of the state's petroleum production came from Wichita County.

Railroading, agriculture, ranching, oil, and manufacturing led to a boom-town atmosphere in the 1920s. Prosperity was evident in its commercial buildings, beautiful residential areas, and impressive cultural features. It was in 1921 that the city of Wichita Falls began to call itself, "The City That Faith Built." People had "faith" in the city to build big and have big dreams, according to the 1920s Chamber of Commerce promotions. The slogan has survived the city's economic ups and downs and is recalled even today.

In 1917 aviation first came to Wichita Falls in a big way when construction began on Call Field, a pilot training camp. What is now Sheppard Air Force Base started just before World War II; by 1945 it had 46,650 military personnel and was the largest concentration of air troops in the world.

Wichita Falls had over 100 manufacturing companies in the 1950s, earning enviable recognition as a "Factory City." Agriculture (cotton, grains, and cattle), based on the surrounding irrigated region, was an important part of the economy. The economy continued on a strong track until the 1985 downturn in domestic oil production. Such recent economic challenges have spurred a renewed economic development effort of which this program is a part.

Today the city of Wichita Falls is the economic hub of a 60-mile radius trade area of North Texas and South Central Oklahoma, populated by an estimated 380,000 people. Of that population, an estimated 240,000 are currently in the workforce, and look to Wichita Falls for their employment, shopping, entertainment, educational, cultural and healthcare needs.

Since the early 1990s health care services in Wichita Falls have expanded at a pace that exceeds all other industry sectors. United Regional Health Care System offers state-of-the-art technologies and facilities and a broad spectrum of health care services normally associated with larger metro centers. The 370-bed hospital employs 1,600 including 379 physicians and medical staff.

Numerous other medical facilities sustain the medical demands of the trade area, as well as provide support services to United Regional. Kell West Regional Hospital, the Clinics of North Texas, the Wichita Falls Endoscopy Center and the Texoma Cancer Center offer world-class medical services.

Wichita Falls's educational institutions are recognized as major economic drivers. Wichita Falls has strong educational institutions (Midwestern State University, Vernon College, and the Wichita Falls Independent School District). MSU attracts students from throughout Texas, especially Dallas/Fort Worth. MSU's well-respected MBA and engineering programs are growing in response to their increasing attractiveness to local employers. More than 84% of the MSA population has at least a high school diploma or equivalent, and more than 50% has at least some college education. Employers recognize the strong work ethic, trainability and capabilities of the regional workforce.

The community's economic profile is favorable for business relative to the US as well as to Texas, whose business climate is among the best nationally. Texas has a low tax burden and ranks high in

assessments by **Site Selection** and **Forbes** magazines and the Tax Foundation. Wichita Falls is highly competitive for staffing, industrial construction, and other capital and operating expenses.

On the ledger's profit side, Wichita Falls is located within one of the most rapidly growing parts of the US, not to mention relative proximity to Mexico. New facilities can benefit in many ways from the region's expected ongoing growth and diversification.

Public Policy Backing of Economic Development

A noteworthy local characteristic found in the BFPC Study as well as previous investigations is the virtually universal support of economic development. The importance of this cause was expressed by interviewees and in meetings of diverse groups and members of the Wichita Falls community.

This has translated into favorable public policies. Existing businesses have few concerns about permitting and regulatory matters, taxes and other government or public involvement at either local or state level. Over the years, Wichita Falls has shown remarkably consistent community support for economic growth. Entities involved in economic development process work cooperatively and achieve consensus for decisive action, an unusually positive ability for a community of this size.

Texas ranks very high in the world for manufacturing of aircraft and aerospace components and parts; maintenance and upgrading; air transport; and research, training, and education. Its investment and employment in aerospace has held steady through challenging economic conditions. About 30% of its industry is related to or supported by aerospace so this business has the attention of Texas' leadership.

Nearly 4% of the Wichita Falls workforce is engaged in aerospace or related sectors—more than twice the national average. Wichita Falls offers business the potential for a moderate cost profile relative to typical capital and operating costs and enhanced performance and productivity metrics for many aerospace activities.

ADVANTAGES OF WICHITA FALLS AS A LOCATION FOR MANUFACTURE OF ELECTRONIC, MEASUREMENT, AND CONTROL PARTS FOR AEROSPACE

Wichita Falls comprises a particularly attractive location for facilities that manufacture parts and components for aerospace applications, especially those for electronic, measurement, and control parts and components. These manufacturers comprise primarily three sectors:

- Manufacturing of precision accessories, measurement devices, and support systems (portions of NAICS Code 336413).
- Assembly of search, detection, navigation, guidance, aeronautical, communication devices, systems, and instruments for aerospace applications (NAICS Code 334511).
- Manufacturing of aerospace lighting and related electrical equipment (NAICS Code 336320).

While these sectors appear broad, they reflect that many facilities manufacture a range of related products. A key capability in Wichita Falls is manufacturing devices and integrating them into systems for monitoring and operating aircraft.

This section begins with a review of business conditions and trends in aerospace parts production overall and in the related sectors listed above. It then points out how Wichita Falls is especially well suited to serve many unique needs and objectives of companies engaged in these business sectors.

Overview of the Aircraft Parts and Components Sector

The economic sector of the US focused on manufacturing parts and components is the fastest-growing part of the overall aerospace industry. Over the past ten years—one of the most difficult decades in the nation's history for manufacturing, which saw a job loss of 17.3%—Aircraft Parts was a rare and bright counter-trend, growing 29.7% and adding over 26,000 new jobs. Growth in the value of output of overall Aircraft Manufacturing has rebounded strongly since the end of global economic problems starting around 2008, and was 7.3% between 2013 and 2014, the most recent annual term for which complete data are available.

But Aircraft Parts output grew even faster, 8.6%; and some parts grew over 12%. Revenue growth by some parts manufacturers has exceeded that of the major aircraft assembly firms.

Companies within the broad Aircraft Parts sector include those categorized in NAICS Code 336413. These companies share much in common with manufacturers of electronic,

measurement and control parts in NAICS Codes 334511 and 336320. Manufacturers within NAICS 336413 produce precision accessories, measurement devices, and support systems for aerospace control, communications, guidance, and other electronic and optical systems. Specific devices include fittings, enclosures, mounts, connectors (electrical, fiber optic), antennas and waveguides for communication, radar, sensory, and measuring equipment, interconnection devices (metal wiring, fiber optics, radio frequency), and system diagnostics.

There are several reasons why the Aircraft Parts business overall has shown such robust performance:

- One is simply the constant need for new parts. Good practices, and in many cases regulations, require regular replacement of parts and components of airplanes, helicopters, and other aerospace equipment. Over the life of a commercial or business aircraft, the money spent on ongoing parts replacement and similar maintenance may exceed the original capital cost by several times. Thoughtful application of new parts and components can add new capabilities to aircraft and help extend their commercial lifespan.
- Another is a shift in the business model by which most aircraft and aerospace products are manufactured. Larger aerospace original equipment manufacturers have shifted much of their production to their suppliers and vendors. Much of what make up an airplane—more than half the added value in some cases—is actually manufactured as subcomponents. Following practices successfully established in the automotive manufacturing business, aircraft OEMs' focus on consolidation of those subcomponents into the final assembly. Thus the parts and subcomponents part of the industry has benefited from this new business model.

(Interestingly, some OEMs are getting back into the parts business, recognizing that they represent a “source of revenue even more lucrative than making aircraft.” See “Boeing Ramps Up Push Into the Airplane Parts Business” by Jon Ostrower in the *Wall Street Journal* of April 22, 2016.)

- US exports of aircraft parts hit a record \$56.2 billion in 2014, according to the US Commerce Department, an increase of 10.2% over the previous year and growth more than four times as fast as US goods exports in general (US International Trade Administration, **2016 Top Markets Report: Aircraft Parts**).
- Another reason for growth in aerospace parts and components is constant research and development, contributing to new parts and components which make aircraft and other aerospace equipment safer, more efficient, more environmentally friendly, and more pleasant and comfortable for operators and passengers.

Overview of Search, Detection, Navigation and Guidance Systems

This sector includes assembly of search, detection, navigation, guidance and communication devices, systems, and instruments for aerospace. It also includes electrical, electronic, mechanical, hydraulic, and other dynamic measurement and control equipment (NAICS 334511). Manufacturers develop a wide array of products for commercial and military markets.

Examples of products are aircraft instruments (except engine), flight recorders, navigational instruments and systems. Other major products include radar (radio detection and ranging), sonar (sound navigation ranging), and thermographic technology.

Products for commercial markets include depth finders; fish finders; air traffic control systems; navigational aids for ships, planes, and land vehicles; and speed detection devices. Military applications include most of these products, along with radar defense systems.

Major companies include FLIR Systems and divisions of defense contractors such as Boeing, General Dynamics, Northrop Grumman, Raytheon, Airbus Group, BAE Systems, and Thales. The US industry is highly concentrated: the largest eight companies account for about 75% of revenue; the largest 50 account for about 95%.

Overview of Aviation Lighting and Other Electrical Equipment

This sector includes manufacturing of aviation lighting and other electrical equipment for aerospace uses (NAICS 336320). Aircraft lighting is a vital component of aviation structure. It provides safety, visibility, and accurate navigation for the operation of the aircraft. Various developments have been carried out based on the technology, which improves performance and fuel efficiency. These lights provide pilots the visibility to avoid collisions and to rectify paths in harsh climatic conditions. Aircraft lighting is useful to ground staff during takeoff and landing.

Aircraft lighting is operated and is functionally based on various factors. This includes segmentation based on mounting position such as with interior and exterior lights. Lighting is further sub-segmented into navigational lights, beacon lights, logo lights, landing lights, and anti-collision lights. Similarly, the interior lights are sub-classified as panel lights, washroom, floor lights, and map lights. Moreover, based on the fitment type of the aircraft lighting, the market is diversified as line fit and retrofit.

A wide range of technologies have been used in aircraft lighting such as photo luminescent lights, LED lights, traditional lights, Organic LED lights, and controlling lights. The end-use application of lighting systems depends on the type of aircraft, which is segmented into large, narrow-body, wide-body, regional transport, and fighter aircraft.

According to projections by a recent **Research And Markets** report, the aircraft lighting market is estimated to grow from \$1.99 billion in 2016 to \$2.55 billion by 2021, at a Compound Annual Growth Rate of 5.08%. Factors that drive the aircraft lighting market include increasing aircraft orders and deliveries, and more use of energy-efficient aircraft lights.

Other Sector Trends

- Strong growth potential due to numerous practical benefits of these products to the overall aerospace industry: improved safety, simplified input from pilots and operators, communications and interface with other systems, greater awareness of the aircraft's position relative to other traffic, weather conditions, and need to avoid certain areas. Greater

use of technology to monitor and control aircraft and to take over functions that do not demand the full attention and skills of pilots, reducing the costs of operating aircraft.

- Applicability to emerging sectors such as unmanned vehicles. On one hand, need to increase an unmanned aircraft's ability to function autonomously in some respects; but on the other, to increase the links with pilots in ground-based control centers and to support greater and more sophisticated feedback.
- Relative ease of retrofitting many of these systems and components to older aircraft and other aerospace equipment, thus upgrading their capabilities and usefulness without completely replacing expensive airframe and propulsion systems.

Why Locate a Plant for Electronic, Measurement, and Control Parts for Aerospace in Wichita Falls?

Wichita Falls is particularly well suited as a location for producing aerospace parts and components, especially those for electronic, measurement, and control equipment. BFPC has summarized its key locational advantages into the following categories:

1. Favorable Economics. A plant in Wichita Falls can possibly save nearly 19% in capital and operating costs relative to the US average for the industry, representing over \$1.4 million dollars for some facilities. It is also one of the lowest-cost locations within Texas. This asset is so compelling that it deserves more detail, which is provided in the following chapter.

2. Huge Local/Regional Market for Aerospace Parts and Components.

Wichita Falls enjoys a location in the midst of one of the world's largest concentrations of businesses in aerospace design, assembly, testing, and maintenance/repair/overhaul (MRO). Texas ties with California for having the nation's most large aircraft manufacturing plants (those employing 100 or more—11 each); but with the addition of nearby Oklahoma and Kansas, this number doubles.

Texas is second in the US to only Florida in the number of US facilities in the industry sector that includes aftermarket maintenance and testing of aircraft. With the addition of Oklahoma and Kansas, the region has the nation's largest number of such facilities.

The air transport industry is also a huge and nearby consumer of aircraft components. American Airlines, headquartered in Fort Worth, has major maintenance facilities at Alliance Airport and in Tulsa. Southwest is headquartered in and has a large maintenance base in Dallas.

Clearly there is a very large market for aerospace parts and components within easy driving distance of Wichita Falls. Plants located here will enjoy faster and cheaper shipping, better interaction with customers, and the opportunity to use the large network of established support facilities and services oriented to aerospace.

3. Above Average Availability of Skilled Aerospace Workforce. Wichita Falls has an above-average percentage of employees in aerospace and related jobs, employing nearly 4% of the total workforce. This is more than twice the percentage of similar jobs on the national level and does not include uniform military personnel at Sheppard AFB, the city's largest employer.

Engineering and other academic programs at Midwestern State University and specialized skills training at Vernon College are leading to rising aerospace employment. The workforce's frontier spirit and take-charge attitude are highly valuable assets to manufacturers in aerospace and other industries.

4. Synergy With Existing Sectors and Facilities. Connections with existing and possible future economic sectors in Wichita Falls include metals and alloys, plastics and other polymers, and composites. Much of the work needing to be done to make these systems effective is not in their leading-edge research or technology aspects, but in practical, concrete integration of multiple systems and assuring that they function together in real-life situations. The facilities in Wichita Falls would not, for example, fabricate computer chips, but rather use those chips as a manufacturing input, provide the sensory and input devices, develop and assemble the enclosures, connectors, and accessories, and assure that everything works together.

5. Public Policies. Texas believes that one of the characteristics most attractive to business is to maintain a fiscally sound public sector that does a good job on the essentials of government and then gives businesses as much freedom as possible. Wichita Falls takes this a step further with remarkably effective cooperation among its many public and non-governmental entities involved in the economic development process. The recent decisions by American Fuel Cell and Coated Fabrics Company (Amfuel) and GuideIT, a healthcare technology solution provider, to locate their new facilities in Wichita Falls are tangible proof of this unified effort.

6. Infrastructure and Support Services. Wichita Falls has been an important business and industrial center for many decades. Utilities and other infrastructure are in place and of adequate size and capacity to support new industry. Wichita Falls has more than 70 private-sector businesses in 11 sectors engaged completely or partially in aerospace-related fields of work. The community's century of aviation activity, the presence of MSU engineering programs, an ample supply of low-cost industrial and office space, and a geographic location close to substantial aerospace business in Dallas/Fort Worth shows great promise for new aerospace investment in Wichita Falls.

COST SAVING OPPORTUNITIES

Wichita Falls offers plants that manufacture electronic, measurement, control, and other aerospace parts and components a potential reduction of nearly 19% in some capital and operating costs, compared with national average or typical costs for such facilities. This section illustrates some of those potentials.

It estimates certain costs for a hypothetical facility in Wichita Falls and compares them with the national average or typical costs for plants in these sectors. This hypothetical plant consists of a 40,000-square foot building on a site assumed to be 25 acres. It is assumed to employ 50 people. Its electrical energy consumption is 5 million kilowatt-hours per year.

Personnel. The national average annual pay for a typical plant that manufactures electronic, measurement, control and other aerospace parts and components is estimated from various public and private sources to be \$94,400. Based on similar data sources as well as BFPC's interviews of existing plants in Wichita Falls, it is estimated that a similar pool of employees could be hired in Wichita Falls for an average of \$77,400.

On this basis, annual direct wage costs for 50 employees in Wichita Falls would be \$3,870,000, while the national average would be \$4,720,000 million, \$850,000 more.

Benefits and other payments the employer makes are estimated to cost an additional 34% in both cases. Therefore the total annual personnel cost in the hypothetical Wichita Falls production plant would be \$5,379,300 while in the national average plant, it would be \$6,419,200.

On this basis, **an aerospace parts and components plant located in Wichita Falls could save its owner more than \$1 million per year in personnel-related costs.**

Building. On a national average basis, it would probably cost \$70 per square foot to construct the building to house a production facility of this type. For a building of 40,000 square feet, the total cost would thus be \$2.8 million.

BFPC estimates that that construction costs in Wichita Falls are 21% below the national average, leading to a typical cost of \$55 per square foot. Consequently, a cost of \$2.2 million is assumed to construct the hypothetical plant here. **This is a saving in construction costs of \$600,000.**

Land. A recent national average estimate for above-average quality serviced industrial sites was \$42,000 per acre. In Wichita Falls, a comparable site may cost as little as \$12,000 per acre. If a 25-acre site is purchased, the national average cost would be \$1,050,000. In Wichita Falls, the price would be \$300,000, three-quarters of a million dollars lower.

Combined Building and Land Costs. Based on the above assumptions, the national average cost for building and land together would total \$3,850,000 while in Wichita Falls the comparable cost would be \$2,500,000. So the total in Wichita Falls would be \$1.35 million lower.

One way to express this cost in a manner comparable to wages and other ongoing expenses is to spread it across a period of years, in a manner similar to a mortgage. Even if the firm does not literally borrow money from a bank, in effect it pays an opportunity cost for money that could otherwise be invested or used profitably elsewhere.

Based on a 5% interest rate and monthly amortization over 8 years, annual payments for the national-average facility would be \$584,888. In Wichita Falls, this cost would be \$379,798. **This amounts to an annual saving of over \$205,000 in facility costs in Wichita Falls compared with the national average.**

Energy Costs. Estimates of electric costs are subject to much variation, since Texas has had electricity deregulation since 2002. This allows electric energy suppliers to negotiate many terms and conditions. However managed, Texas still enjoys some of the nation's most competitive industrial electric energy rates.

The hypothetical plant considered in this study is assumed to have an annual average electricity consumption of 5 million kilowatt-hours. According to the US Energy Information Administration, the national average cost for electric power sold to industrial users is 7.23¢/kilowatt-hour. It is thus projected that the nationwide average annual electric power cost for a plant with these requirements might be \$361,500.

It is assumed the manufacturing plant in Wichita Falls would pay the average Texas rate quoted by the EIA of 5.37¢/kilowatt-hour. This is obviously an estimate, which would vary depending upon specific conditions. If it is the case, however, the plant's total annual average electric energy cost would be \$268,500.

Using these figures, **a plant located in Wichita Falls would save \$93,000 per year in electric energy bills.**

The natural gas consumed by this plant is assumed to be purchased from a broker or wholesale supplier, rather than directly from the local gas company. The cost of such "transportation gas" is dependent on the spot price of gas at the wellhead rather than local tariffs, and so its variations are mostly not affected by location. Texas has large gas deposits that may lower costs for a plant in Wichita Falls, but no figure can be projected.

Taxes. Texas and its local governments have no taxes on corporate or personal income and their taxes on many other aspects of business are lower than the national average. BFPC has made a general estimate, based on past experience, that a plant of this magnitude would have a total annual tax cost of \$276,000 in Wichita Falls compared with \$400,000 at the national average level across the US.

Summary of Cost Items. The selected capital and operating costs associated with an aerospace parts plant are summarized below:

<u>Category</u>	<u>Specific Cost Item</u>	<u>Wichita Falls</u>	<u>US Average/ Typical</u>	
Facility	Land Cost/Acre	\$12,000	\$42,000	
	Site Size (acres)	25	25	
	Total Site Cost	\$300,000	\$1,050,000	
	Construction Cost/square foot	\$55.00	\$70.00	
	Size of Building in Square Feet	40,000	40,000	
	Total Building Cost	\$2,200,000	\$2,800,000	
	Total Facility Cost	\$2,500,000	\$3,850,000	
	Annual Amortization Cost	\$379,798	\$584,888	
	Staffing	Annual Direct Pay	\$77,400	\$94,400
		Benefits/Required Government Payments	\$30,186	\$33,984
Total Compensation Cost		\$107,586	\$128,384	
Number of Employees		50	50	
Total Staffing Costs		\$5,379,300	\$6,419,200	
Electricity	Average Cost/kWH	\$0.0537	\$0.0723	
	Annual kWH Consumption	5,000,000	5,000,000	
	Total Electricity Costs	\$268,500	\$361,500	
State Corporate Income Tax	Estimate of Net Cost Effect of State Corporate Income or Similar Tax	\$276,000	\$400,000	
TOTAL OF ABOVE ITEMS		\$6,303,598	\$7,765,588	
Difference	Annual Savings in Wichita Falls	\$1,461,990		
Index		81.2%		

Thus the total of these costs in Wichita Falls is nearly 19% below the national or typical average for a comparable facility = savings of over \$1.4 million annually.

These costs are highly generalized estimates for a hypothetical plant. Most base data are derived from figures developed by the US Commerce Department and other governmental agencies, industry organizations, and BFPC's field studies in Wichita Falls along with its experience with clients in this business.

The overall finding is very compelling. **Wichita Falls show great promise as a location for plants that manufacture electronic, measurement, control, and other aerospace parts and components, based on a wide range of cost and other advantages.**

More data about Wichita Falls
and the region's advantages for your company are available from the

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