

A large jet engine is the central focus of the image, mounted on the side of a white aircraft. The engine's fan blades are visible, and the surrounding fuselage has several oval windows. The aircraft is inside a hangar with a blue metal truss ceiling. In the background, the landing gear and other parts of the aircraft are visible. The overall scene is brightly lit, suggesting an industrial or manufacturing environment.

**OKLAHOMA
AEROSPACE
BRIEF**



**OKLAHOMA
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All of the pieces in Oklahoma fit what we were looking for. We wanted a state that is supportive of the business we're in, supportive of the military, supportive of advancements of our capability testing, have a close proximity to military bases and have the potential for a flight test facility.

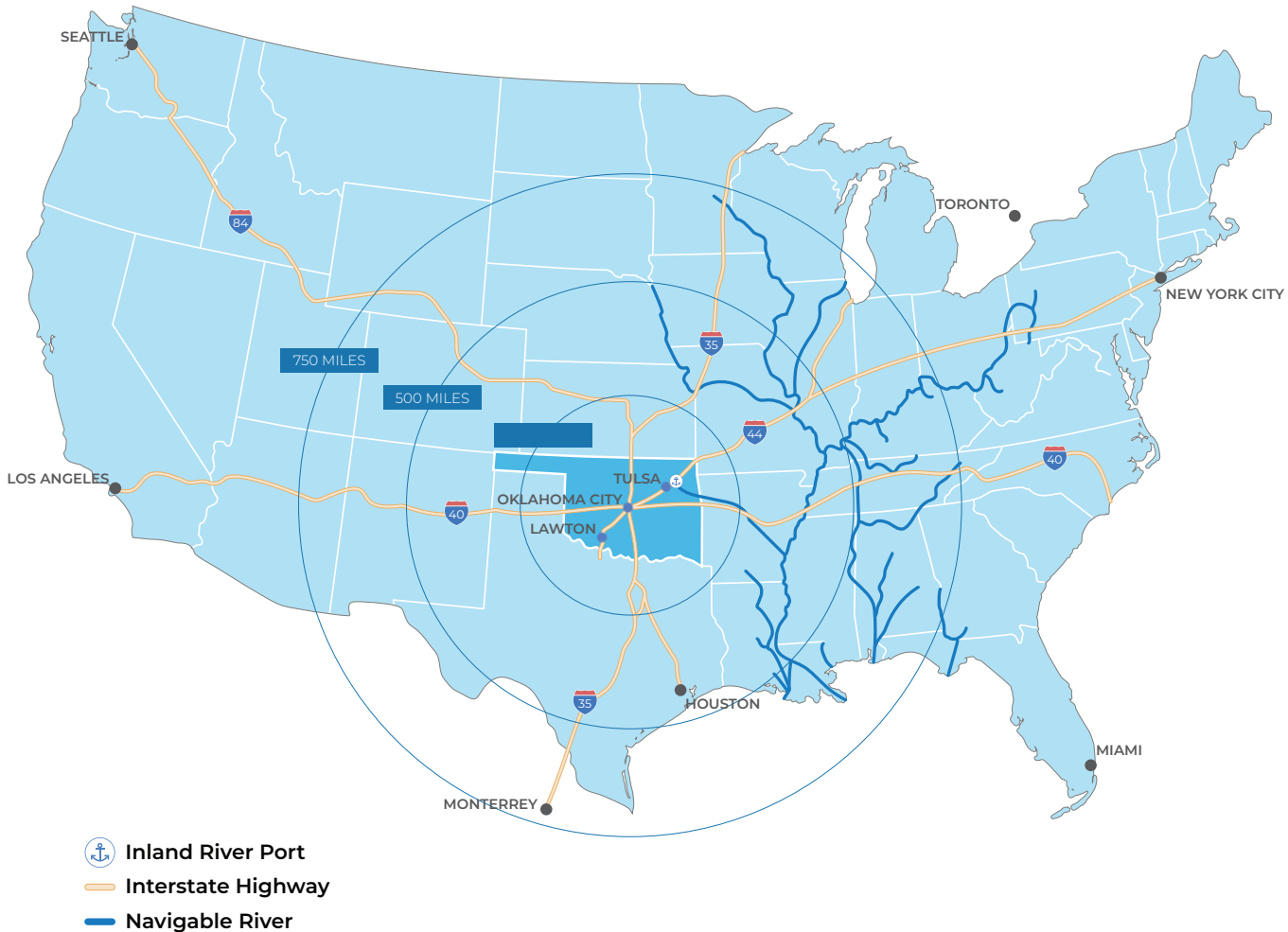
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– Steve Fendley
President Unmanned Systems Division
Kratos Defense & Security Solutions Inc.

KRATOS
FROM STRENGTH TO SUCCESS

A World Hub for Aerospace

Oklahoma is centrally located and easily accessible by land, water and air.



88 Million People

within a 500-mile radius — Oklahoma has a population of nearly 4 million, with 1.5 million in the Oklahoma City metro and nearly 1 million in the Tulsa metro.

135 Public-Use Airports

including 2 international airports — 95% of Oklahoma's population is within a 30-minute drive of a jet-capable airport.

Centrally Located

between New York, Los Angeles, Miami, Seattle, Toronto and Mexico City.

4 Inland Ports

including one of the largest, most inland, ice-free river ports in the U.S.

3 Intersecting Interstate Highways

offering access to every corner of the country.

Competitive Cost & Central Location

Oklahoma offers a competitive environment when it comes to the cost of doing business. The chart below shows how Oklahoma compares to other states. The state's competitive costs are even more appealing when combined with the available incentive programs.

20-30% Lower Industrial Electric Rates

Oklahoma's industrial electrical power costs are 22% lower than the national prices at 6.65¢ per kWh with an average savings of \$16,300 per million kWh.

Constitutional Right-to-work State

for lower labor costs and faster economic growth.

#1 Lowest Business Tax Burden

-Anderson Group, 2018

Oklahoma vs. the Competition

See how Oklahoma stacks up against other aerospace states.

State	State and Local Tax Business Burden	State and Local Tax Business Burden Rank	Unit Labor Cost	Sales Tax Rank	Property Tax Rank	Cost of Living Index	Avg. Electricity Price-Industrial Cents/kWh
Oklahoma	6.60%	1	\$73,709	34	2	88.1	5.02
Alabama	8.40%	15	\$88,062	32	5	89.5	5.87
California	8.20%	17	\$146,681	28	8	137.3	11.91
Colorado	8.20%	16	\$107,057	28	29	105.5	7.01
Florida	9.60%	32	\$84,721	44	29	98.9	7.77
Kansas	9.70%	33	\$78,122	41	36	89.7	7.38
Mississippi	12.10%	46	\$60,682	41	46	85.7	6.29
Missouri	7.00%	8	\$83,430	15	16	88.8	6.22
South Carolina	10.10%	36	\$78,271	15	44	98.3	6.2
Texas	8.30%	18	\$104,320	39	34	91.3	5.14

Sources: Anderson Economic Group, Jose, EIA, C2ER and others.

Oklahoma Aerospace Industry Overview

Aerospace companies find success operating in Oklahoma — and for good reason. The state is a major hub for MRO, flight training, defense operations and manufacturing.

The Two Largest MRO Facilities in the World

The American Airlines Maintenance and Engineering Center, the largest commercial MRO, employs more than 6,000 in Tulsa; the Oklahoma City Air Logistics Complex at Tinker Air Force Base is the largest air depot maintenance facility for the U.S. Department of Defense.

120,000+ Employees

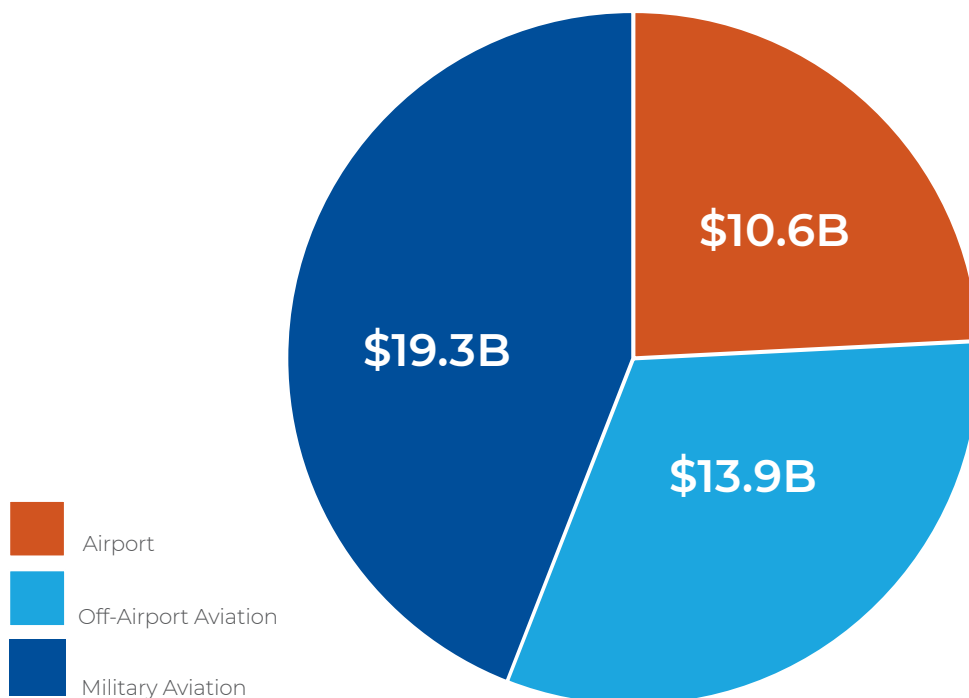
More than 120,000 Oklahomans are employed in Oklahoma's aerospace and defense industries. More than 200,000 jobs are impacted by aerospace operations.

1,100+ Aerospace Entities

More than 1,100 aerospace entities operate in the state including manufacturers, MRO, research and development, military and others.

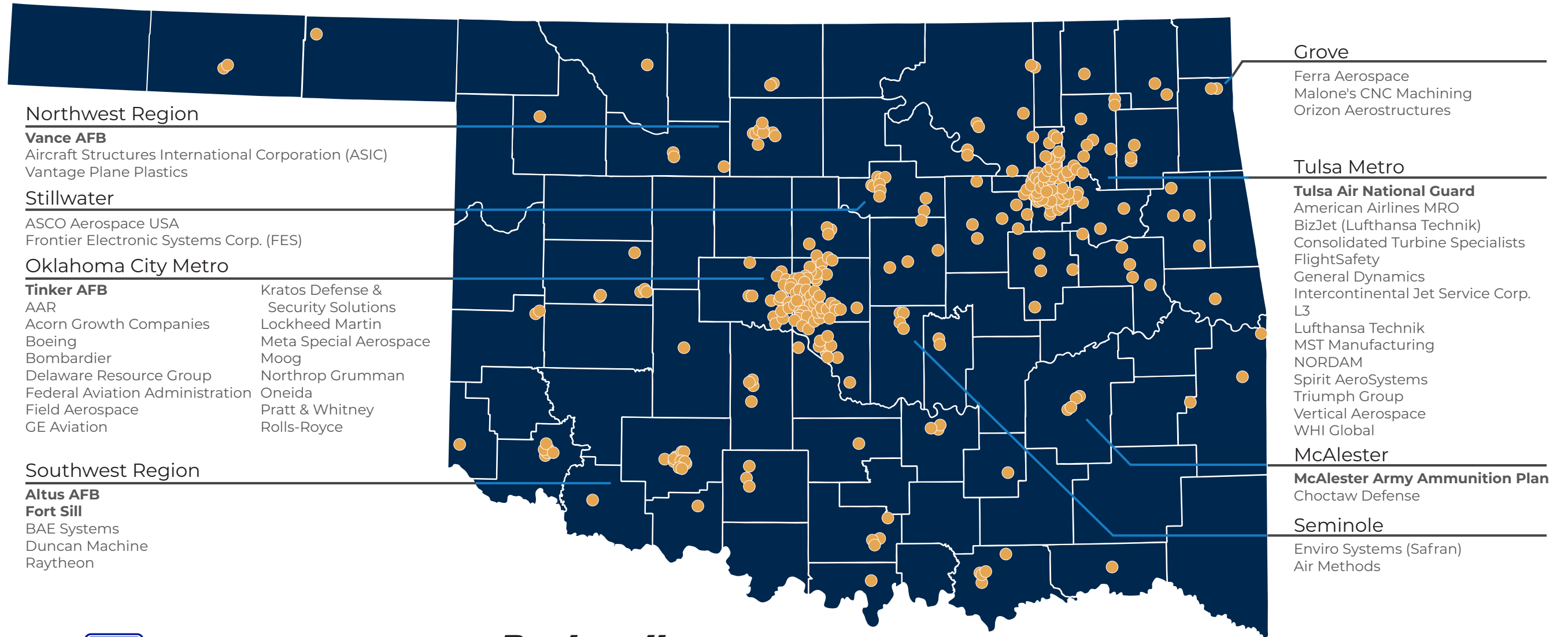
Aerospace Industry Economic Impact

Aerospace and Defense is one of Oklahoma's largest sectors with an economic impact approaching \$44 billion annually. Additionally, aerospace manufacturing is one of the state's fastest-growing industries.



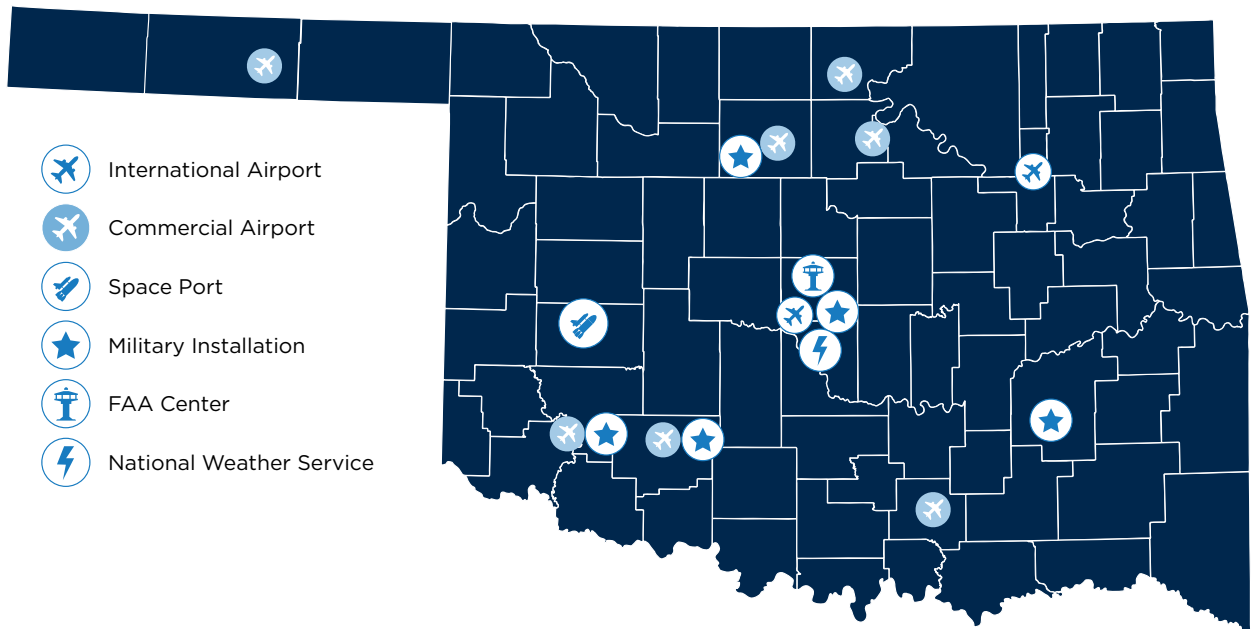
Oklahoma's Aerospace Cluster Map

Oklahoma's aerospace and defense clusters are comprised of 1,100+ entities including manufacturers, MRO, research and development, military and others.



Aerospace Assets

Oklahoma boasts five military installations, two air national guard operations and numerous aerospace assets that make the state a premier location for aerospace business.



Military Installations and Operations

- Tinker AFB
- Vance AFB
- Fort Sill
- Altus AFB
- McAlester Army Ammunition Plant
- 7 National Guard assets — 2 Air National Guard campuses and 5 Army National Guard complexes

Oklahoma Air & Space Port

One of only 10 licensed U.S. spaceports — the only one in unrestricted airspace. The “Infinity One” space flight corridor is 152 miles long and 45 miles wide, with the ability to launch cargo at 350 degrees for High Inclination Orbit (HIO). The facility contains 50,000 square feet of manufacturing space, 6 commercial aircraft hangars (100,000 sq. ft.) for lease, and a 13,503 x 300 ft. primary runway. The site was used as an alternate landing site for shuttle missions.

FAA Mike Monroney Aeronautical Center

The Mike Monroney Aeronautical Center is the nation’s central FAA and USDOT support and training facility. Hosting 87,000 students annually, every U.S. pilot and air traffic controller will work through the center in some capacity throughout their training.

Unmanned Systems

Unmanned systems are a key priority in Oklahoma. The state's 3 research universities, Oklahoma State University (OSU), the University of Tulsa (TU) and the University of Oklahoma (OU), are setting themselves apart nationally through degree programs, facilities, research, grants and more, with emphasis on environmental sensing, defense and weather prediction.

UAS Graduate Degree Programs

The nation's first graduate (MS and PhD) degree programs in unmanned aerial systems engineering at a research university (OSU).

Unmanned Systems Research Institute

OSU is home to the Unmanned Systems Research Institute (USRI) which accesses expertise across the university, combining cutting edge product development with academic knowledge and resources to create unique solutions to critical problems. USRI was the first in the U.S. to receive approval from the FAA to fly an unmanned fixed-wing aircraft swarm within national airspace.

National Weather Center

The NWC is the largest confederation of federal, university and private sector weather and climate research, education, operational and public outreach organizations on the planet. The Norman facility is the headquarters for severe storm tracking and prediction across the U.S., and is home to one of the world's foremost programs and exceptional research laboratories in radar science and engineering.

National Severe Storms Laboratory

NOAA's National Severe Storms Laboratory (NSSL) in Norman conducts research on both cold and warm season hazardous weather events. NSSL collaborates with OU as well as OSU in Stillwater to characterize severe storms using UAS.

The Choctaw Nation Emerging Aviation Technology Test Center

The Emerging Aviation Technology Test Center is a 44,000+ acre test site that includes ground-based radar, test facilities and experienced staff. The center is one of nine active UAS integration pilot program sites selected by the U.S. Department of Transportation, and the Choctaw Nation is the first tribal government recognized as a public aircraft operator by the FAA.

Projects & Partners

Between 2014 and 2019, \$44 million in contracts were awarded to Oklahoma companies and institutions in support of unmanned aerial systems from sponsors that include the National Science Foundation, NASA, the Department of Energy, the National Oceanic and Atmospheric Administration, the Department of Defense, the Federal Aviation Administration, and numerous private companies.

Oklahoma's Aerospace Workforce

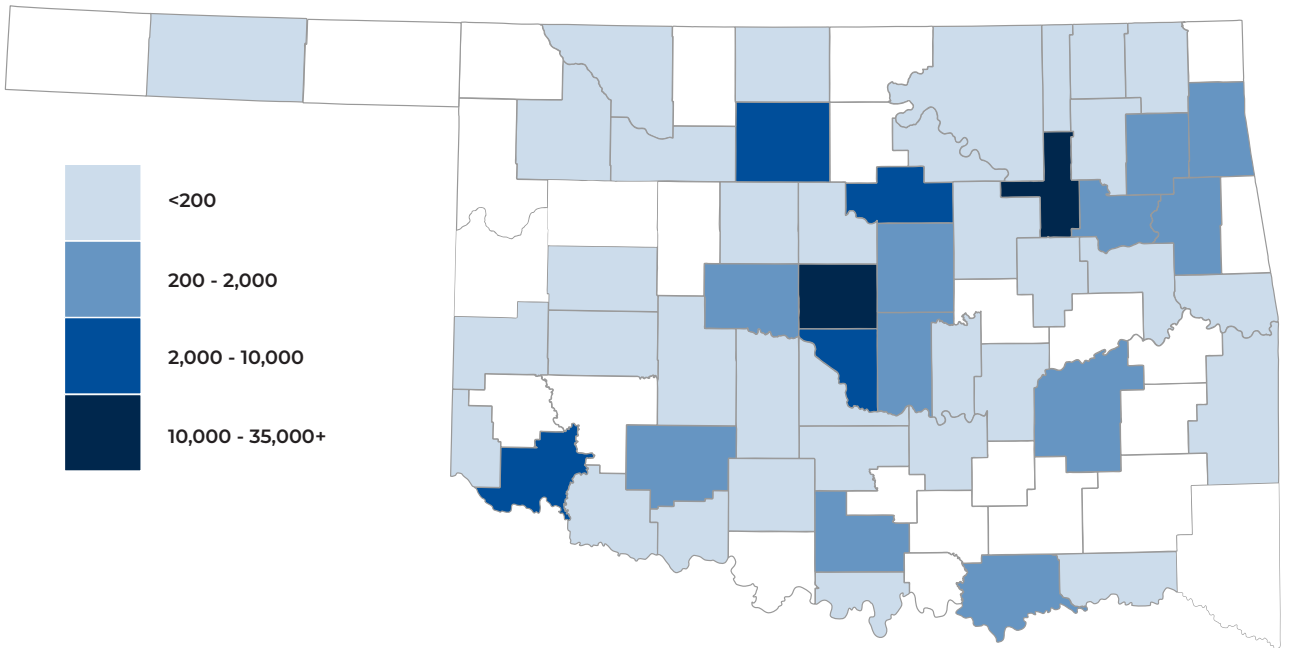
Oklahoma aerospace companies employ more than 120,000 aerospace and defense professionals, including engineers, sheet metal mechanics and skilled pilots.

Aerospace Industry Wage Profile

Oklahoma's aerospace wages are approximately 20% lower than the national average.

Description	Current Jobs (2019)	Entry-Level Wages	Experienced-Level Wages	Okla. Avg. Hourly Earnings	National Avg. Hourly Earnings
Architectural and Engineering Managers	2,145	\$40.38	\$74.90	\$63.37	\$70.34
Logisticians	2,702	\$25.24	\$42.12	\$36.49	\$37.84
Business Operations Specialists, All Other	5,682	\$21.54	\$41.06	\$34.57	\$36.39
Computer Systems Analysts	3,727	\$22.64	\$45.96	\$38.17	\$44.57
Software Developers, Applications	4,841	\$26.49	\$50.19	\$42.31	\$51.30
Software Developers, Systems Software	3,061	\$23.80	\$45.10	\$38.03	\$53.75
Aerospace Engineers	1,274	\$29.47	\$50.14	\$43.22	\$55.43
Electrical Engineers	1,791	\$29.52	\$52.16	\$44.62	\$47.88
Industrial Engineers	2,135	\$26.39	\$48.13	\$40.87	\$43.41
Materials Engineers, Composites	296	\$25.38	\$48.13	\$40.53	\$47.40
Mechanical Engineers	3,295	\$28.08	\$48.08	\$41.39	\$43.99
Engineers, All Other	1,603	\$20.43	\$51.44	\$41.11	\$47.74
Industrial Engineering Technicians	813	\$19.38	\$35.63	\$30.24	\$27.79
Production, Planning, and Expediting Clerks	5,224	\$14.28	\$27.69	\$23.22	\$23.56
Avionics Technicians	720	\$23.08	\$31.01	\$28.37	\$30.63
Aircraft Mechanics and Service Technicians	3,943	\$17.21	\$32.16	\$27.16	\$30.05
Industrial Machinery Mechanics	5,090	\$17.02	\$28.94	\$24.95	\$25.53
First-Line Supervisors of Production and Operating Workers	8,038	\$16.97	\$33.65	\$28.08	\$30.14
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	1,079	\$16.20	\$25.72	\$22.55	\$26.63
Structural Metal Fabricators and Fitters, Composites	1,409	\$13.13	\$19.86	\$17.60	\$19.47
Team Assemblers	12,678	\$10.38	\$17.12	\$14.86	\$15.96
Computer-Controlled Machine Tool Operators, Metal and Plastic	2,508	\$12.50	\$21.92	\$18.80	\$19.71
Machinists	5,651	\$14.28	\$24.66	\$21.20	\$21.25
Inspectors, Testers, Sorters, Samplers, and Weighers	5,942	\$12.16	\$23.94	\$20.00	\$19.71

Aerospace Employment by County



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Oklahoma has a remarkable workforce; a supportive, stable political environment; and an excellent quality of life our employees appreciate. The Engineer Workforce Tax Credit for Aerospace is an invaluable tool in the attraction and retention of employees with skills critical to the success of our customers, and to the health and viability of the industry as a whole.

– Steve Hendrickson
Director of Government Operations, Boeing

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The Pathway to Your Talent Pipeline

Oklahoma's extensive education system, business development team and workforce organizations work together to ensure aerospace businesses have access to a pipeline of talent to get started and keep going. Here's a look at a few programs available to set companies down the pathway to profit in Oklahoma.

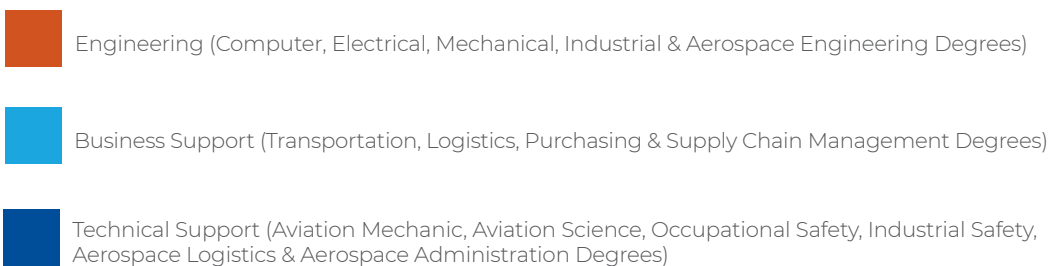
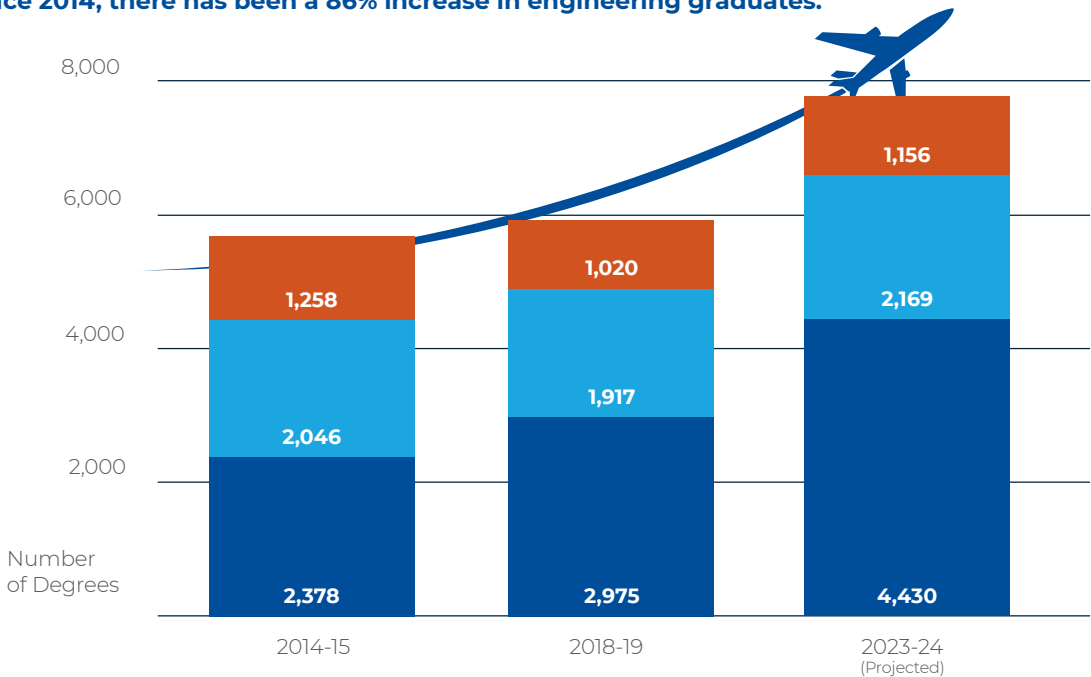
Higher Education Supports Aviation & Aerospace

Higher education institutions provide aerospace companies with a pipeline of skilled workers and industry innovation.

- 9 Oklahoma colleges and universities offer aerospace degrees and certifications
- Oklahoma State University is the first university in the nation with a PhD program focused on UAS design.
- 4,146 aerospace and engineering program completions in Oklahoma (2017-2018)
- The University of Oklahoma offers an Executive MBA in Aerospace and Defense, specifically designed to develop the managerial and leadership skills of the aerospace and defense workforce.

Oklahoma's Aerospace Degrees Are on the Rise

With aerospace being one of the state's key industries, degrees in aerospace and aviation are increasing, year over year. Degrees in 2023-24 are projected to grow by 36% from 2014-15. Since 2014, there has been an 86% increase in engineering graduates.

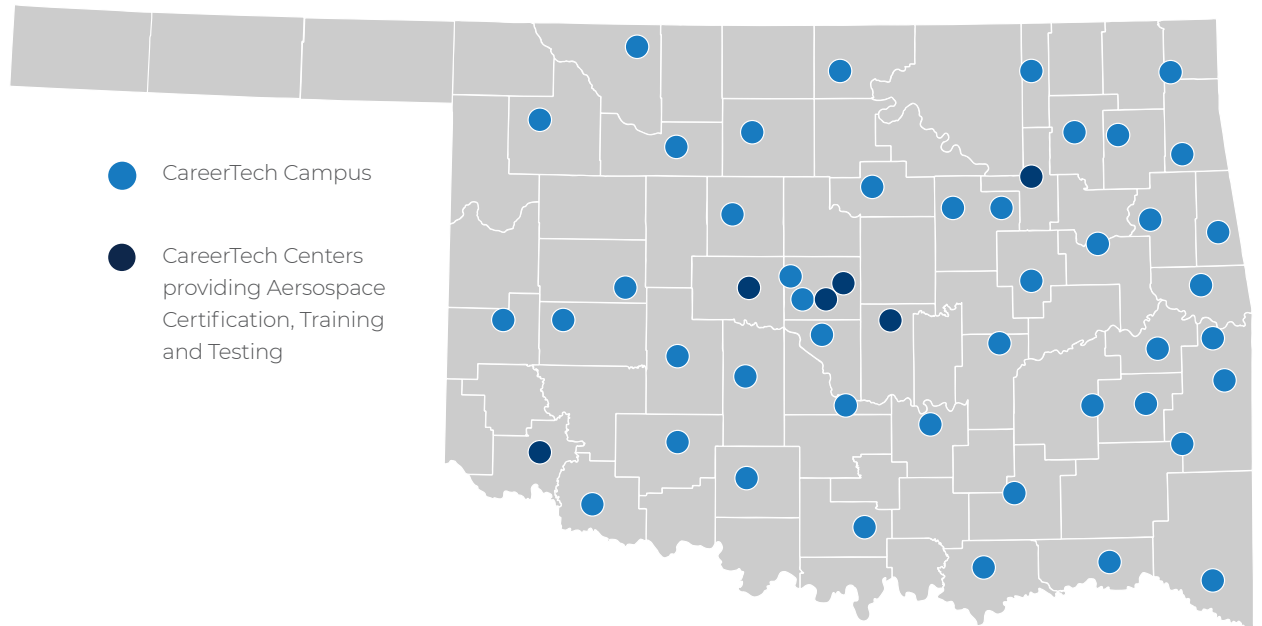


Oklahoma's CareerTech Network

Oklahoma's CareerTech has the ability to respond quickly to the aviation industry's need to develop skilled workers through specialized training programs and facilities located across the state.

- 6 technology centers around the state provide aerospace-focused certification, training and testing
- Part of a larger system of 29 technology center districts with 58 campuses statewide
- Oklahoma CareerTech covers all aspects of aircraft maintenance, repair and overhaul (MRO), aircraft manufacturing and supporting industries, and can customize any of their courses to meet a particular industry's need to include incorporation of the company's standards.

CareerTech Locations



Aerospace-Related Programs

Over the next five years, Oklahoma CareerTech projects more than 10,000 graduates from its aerospace-related programs.

Description	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Aerospace Maintenance Pathway (A&P Mechanics)	305	184	203	207	211	215	220
Aerospace Sheet Metal Technician	70	78	115	50	55	60	65
Production Pathway (Machinists)	342	291	256	261	266	272	277
Programming & Software Development Pathway (Software)	70	38	38	39	40	40	41
Welding & Metal Fabrication Pathway (Metal Workers)	765	793	741	756	771	786	802

Incentive Programs

Oklahoma has some of the lowest tax rates and some of the best tax incentives in the nation. With some incentives, businesses can choose between a cash incentive or a tax credit package, and in some cases, qualifying businesses can take advantage of both programs. The following are incentives often utilized by aerospace companies.

Quality Jobs Program

Cash payments of up to 5% of new payrolls for up to 10 years

- \$2.5 million annual payroll within 3 years of start date
- Create new full-time positions
- Pay new Oklahoma employees average wages above the state index wage

Small Employer Quality Jobs Program

Cash payments of up to 5% of new payrolls for up to 7 years

- Qualifying small employer (500 employees or less)
- Create new full-time positions
- Pay new Oklahoma employees average wages above the state index wage

21st Century Quality Jobs

Cash payments of up to 10% of new payrolls for up to 10 years

Create 10 new full-time positions within 3 years

- Pay average wage of at least \$99,485 annually (wage threshold can be lower if 300% of the average county wage)
- Requires 50% out-of-state sales

Engineer Workforce Tax Credit for Aerospace

Employer Benefits

New engineer graduates

- 50% tax credit for reimbursed tuition costs for first 4 years of employment

Hire Oklahoma graduates

- Up to 10% of wages paid during first 5 years of employment
(Maximum of \$12,500 per employee annually)

Hire non-OK graduates

- Up to 5% of wages paid during first 5 years of employment
(Maximum of \$12,500 per employee annually)

Employee Benefits

Engineers currently employed in aerospace industry are eligible to receive individual tax credit up to \$5,000 per year for 5 years.

Business Expansion Incentive Program

Annual cash payments

- Helps existing companies expand in Oklahoma
 - Targets major capital investments in depreciable items like equipment and buildings
 - Qualifying companies may choose between direct cash payments or payments that service private bonds
-

Investment/New Jobs Tax Credit Package

Provides growing manufacturers with a substantial tax credit based on either an investment in depreciable property or on the addition of full-time-equivalent employees engaged in manufacturing, processing or aircraft maintenance.

- Choice of tax credit based on investment or new employees
- 5-year state tax credit on the greater of 1% per year of investment in new depreciable property or \$500 per new job
- Credit doubles to 2% or \$1,000 per employee in Enterprise Zones or for investments of \$40 million

Training for Industry Program (TIP)

A program of Oklahoma CareerTech, which provides low- to no-cost training

- Reimbursement of training cost
- Customized training programs
- Training delivered through local CareerTech centers
- Can be accomplished on-site
- Supports corporate start-up and expansion
- Flexible instructors, locations, curriculum, etc.

Talent Acquisition Team (TAT)

Oklahoma's Talent Acquisition Team (TAT) assists companies in meeting recruitment needs. The team will provide a single point of contact for human resource needs, identify qualified talent and develop interview schedules. Additionally, the TAT offers vocational counseling, promotes placement and provides other employment services.

New Market Tax Credits

A federal incentive created to spur private investment in low-income urban and rural communities, investors receive a 39% federal tax credit.

Five-Year Property Tax Exemption

A qualifying company can be exempt for 5 years from ad valorem taxes upon new or expanded facilities. This incentive is available for manufacturing, research and development, warehouse and distribution, and certain computer/data processing services, refineries or aircraft repair companies.

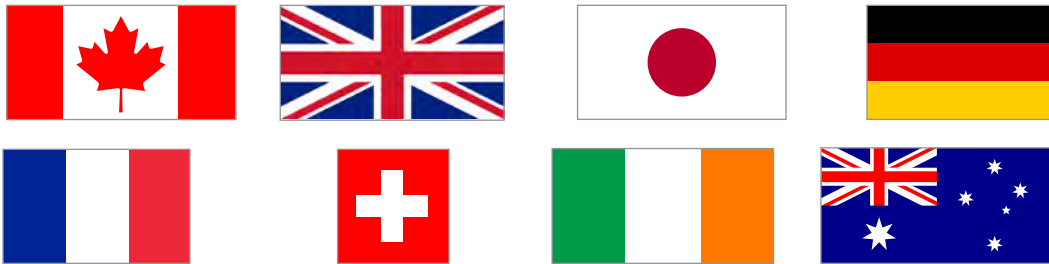
Other Incentives

- Oklahoma's 39 Native American tribes participate with communities and companies in their tribal jurisdictions.
- Each community in Oklahoma typically has local incentives available to companies expanding in or relocating to their city.
- Several aerospace companies and airport properties were designated Federal Opportunity Zones and potentially has additional state level benefits for qualified companies.

The Oklahoma Team helps identify all state and local incentives applicable to each project.

International Trade & Investment

- Major sources of foreign investment in Oklahoma include Canada, the United Kingdom, Japan, Germany, France, Switzerland, Ireland, Australia, Sweden, Mexico, Belgium and Italy.
- The largest international employers in the state are companies headquartered in the France, Ireland and the United Kingdom.
- 39% of all FDI jobs in the state are in the manufacturing sector
- In the past 5 years, Oklahoma's FDI employment has increased 8% while the state's overall private-sector employment has increased 3%.



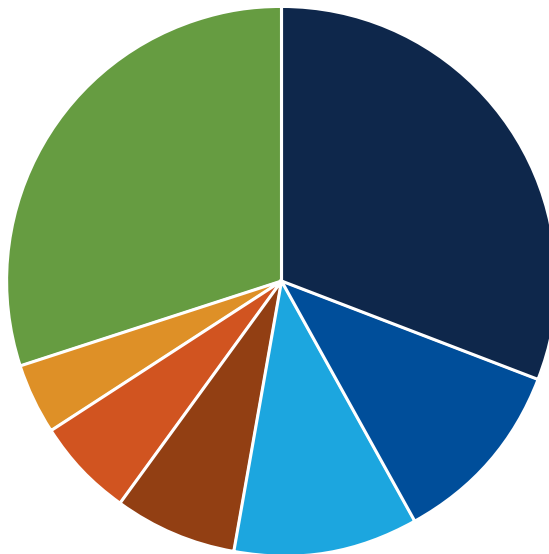
Foreign Investment in Oklahoma

Country	Business Establishments in Oklahoma	Employment in Oklahoma
Canada	71	3756
United Kingdom	64	4352
Japan	63	3139
Germany	55	2905
France	49	5765
Switzerland	36	2606
Ireland	20	5448
Australia	18	1188
Sweden	17	4270
Mexico	16	6846

Aerospace Exports from Oklahoma

Aerospace exports from Oklahoma have grown by 53% since 2014. Oklahoma exports to 180 countries with a real GDP of \$182 billion. In 2017, exports of aircraft, aircraft engines and parts exceeded \$633 million. Aerospace exports have grown by 53% since 2014 and is one of Oklahoma's top export categories. The following numbers represent Oklahoma's exports in 2019.

Top Oklahoma Export Categories:



Industrial Machinery (includes computers)	31%	\$1.88 billion
Electric Machinery	11%	\$711 million
Aircraft, Spacecraft and Parts	11%	\$664 million
Chemical Products	7%	\$430 million
Optic, Photo, Medical or Surgical Instruments	6%	\$360 million
Vehicles	4%	\$257 million
All Other	30%	\$1.8 billion

Sources: US Census Bureau Foreign Trade Division data, via WISERTrade.org

Committed to Growing Aerospace

In 2018, the state proved its commitment to the aerospace and defense industries by passing legislation to create Oklahoma ACES. Led by the Oklahoma Aerospace & Defense Team with the Oklahoma Department of Commerce, ACES has resources dedicated to developing and growing the state's aerospace industry.

Programs and Services

- **Trade Shows** - The team leads national and international trade show delegations.
- **Online Aerospace & Defense Supply Chain Directory** - The directory is designed to facilitate coordination between Oklahoma aerospace resources; strengthen collaborations between businesses, aviation, aerospace, and defense interests; and enhance Oklahoma's supply chain utilization.
- **Newsletter** - ACES Advocate delivers valuable content, including exclusive event announcements, business opportunities, program updates and relevant industry news.
- **Hiring Events** - The team coordinates hiring events across the state to facilitate connections between companies and potential employees.
- **Business-to-Business Events** - The team produces B2B events to help Oklahoma companies become suppliers to larger commercial operations as well as the U.S. DOD and prime contractors.

“Tinker AFB participates in career fairs and hiring events across the State of Oklahoma and the event ACES put together today was a valuable resource in helping us identify talented, high-quality, and enthusiastic candidates. These types of events provide Tinker AFB an opportunity to educate prospective employees on positions we have available. As a result of this event, we were able to make several job offers and expect additional job offers could be made in the future. These types of events are a huge success in helping us meet and sustain our immediate and future hiring needs.”

- Bob Amundson, Civilian Personnel Officer, Tinker AFB.



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We chose Oklahoma because of the large number of quality suppliers in the state. Ferra is an integrator and we partner with quality companies to give our customers the best product. Oklahoma has a large amount of exceptional machine shops, processors and talented workers. It has proven to be a good choice for our company.

”

Karl Strauss
Director,
Ferra Aerospace

Ferra



Oklahoma Aerospace — Join Us

Oklahoma Aerospace Team

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