



# HUNTSVILLE AND THE ENERGY ECONOMY

2016

*A look at the energy economy in Huntsville/North Alabama*

# HUNTSVILLE AND THE ENERGY ECONOMY

## To Readers:

### HUNTSVILLE/NORTH ALABAMA AS A CENTER FOR ENERGY

Huntsville is seeking to make its name in the Energy sector. With a significant amount of intellectual capital, a pro-business climate, and abundant natural resources, the condition is set to be successful in this field. Whereas most communities would need to start from scratch, Huntsville has laid the groundwork for success already.

### ENERGY HUNTSVILLE

Mayor Battle created Energy Huntsville with the goal of diversifying the economy away from traditional government contracts into new business related to the energy sector. The community that can understand how to fully exploit energy technologies will be the next leaders in the new economy. Energy Huntsville seeks to help companies leverage their engineering, modelling & simulation, and other high-tech capabilities into energy-related fields.

### PURPOSE OF THIS REPORT

This report will provide readers a glimpse of energy and energy-related fields within the Huntsville area. This report is based upon a study by the Tennessee Advanced Energy Business Council on the impact of the Advanced Energy Industry on the State of Tennessee. TAEBC used information from the U.S. Government to tabulate the number of businesses as well as the number of employees involved in energy and energy-related fields. This report will also highlight a number of university research activities, private sector companies, and government programs related to energy.

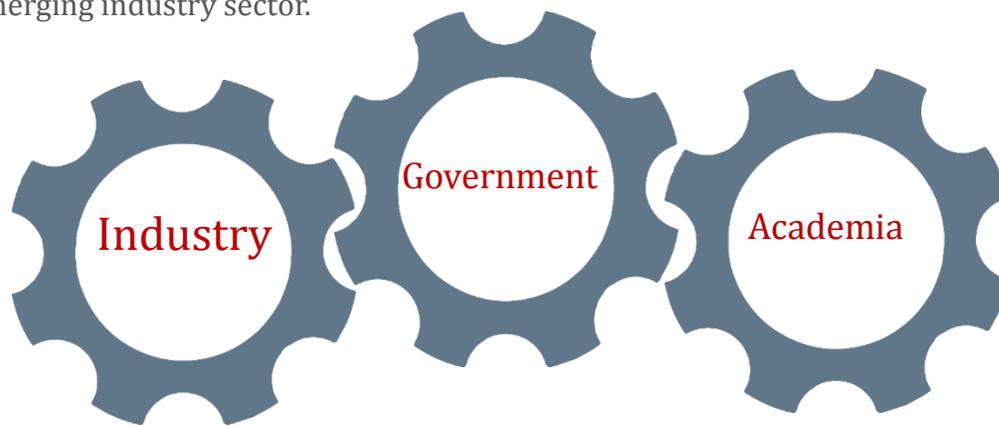
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## The Energy Ecosystem

The Huntsville Region has many resources at its disposal to be a center of excellence for energy. A highly skilled workforce in compatible skills, an active existing industry, federal contract opportunities, and academic programs to provide a pipeline of students are all assets for the region. In the Huntsville Region, there is a successful working relationship among industry, government, and academia that is beginning to pay dividends for this emerging industry sector.



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## A Strong Workforce and Growing Energy Corporate Ecosystem

According to data compiled from the U.S. Government, there are nearly 2,500 companies that have some set of transferable skills in the Advanced Energy Sector<sup>i</sup> within the Huntsville region. The Huntsville region in this report refers to the Metropolitan Statistical Areas of Huntsville, Decatur, and the Shoals. These 2,500 companies represent some 50,000 workers and total wages of \$3B.

<b>Advanced Energy Sector</b>	<b>Number of Establishments</b>	<b>Annual Average Employment</b>	<b>Total Annual Wages</b>
Advanced Energy Utilities and Construction	910	8,266	\$368,155,832
Advanced Energy Manufacturing	102	12,358	\$982,548,351
Advanced Energy Information	19	108	\$5,459,094
Advanced Energy Professional, Scientific, and Technical Services	1,486	29,063	\$2,615,490,948
Advanced Energy Other Services	48	345	\$16,132,805
<b>TOTAL</b>	<b>2,565</b>	<b>50,140</b>	<b>\$3,987,787,030</b>

- AZ Technology-Manufacturer and developer of specialty thermal coatings and optical instrumentation used for energy efficient projects
  - BASF-Manufacturer of emissions catalysts for power plants
  - Bentley Systems-Developer of modeling and simulation technology for utilities
  - BP-Producer of petrochemical products
  - DRS Test & Energy Management Services-Manufacturer of rugged energy management systems for the military
  - CFD Research Corporation-Developer of alternative energy products and materials
  - Emerson Network Power (Avocent)-Developer of data center energy monitoring software
  - GE-Manufacturer of energy efficient appliances and fuel efficient jet engine components
  - Intergraph-Developer of GIS systems for power plants and utilities
  - Hart & Cooley-Manufacturer of products for HVAC systems
  - Shoals Tubular-Manufacturer of air conditioning manifolds/headers
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## **A Diverse Government Presence**

The federal government has been a major employer in the Huntsville region for decades. TVA operates power plants and hydroelectric dams in the region and Redstone Arsenal tenants such as the US Army and NASA have been working on energy projects to meet the needs of securing the nation and exploring the cosmos. Nearby is Oak Ridge National Laboratory and its expertise in nuclear power and supercomputing.

- NASA/Marshall Space Flight Center-Developer of next-generation propulsion systems
- TVA-Public utility providing electricity from nuclear and hydro energy
- U.S. Department of Defense
  - U.S. Army Corps of Engineers U.S. Army Engineering and Support Center, Huntsville-Responsible for net-zero initiatives for the U.S. Army
  - U.S. Army Aviation and Missile Research Development and Engineering Center-Provides solutions for propulsion with all Army Aviation and Missile Platforms as well as development of new technologies
  - U.S. Army Space and Missile Defense Command-Leads the Army's efforts to develop directed energy weapons

## **An Active Non-Profit Sector**

Many non-profit groups have emerged to help bring awareness of the importance of renewable energy and developing entrepreneurs in the energy economy.

- Energy Huntsville-A collection of leaders in industry, academia, and government focused on diversifying the local industry base into the energy sector
  - BizTech-Huntsville's high-tech incubator is working with UAH to develop a test bed for energy entrepreneurs to validate their products
  - HudsonAlpha Institute for Biotechnology-The institute applies knowledge gained from genomic research into applications such as alternative energy
  - Nexus Energy Center-Non-Implements energy efficiency projects, workforce development, and renewable energy promotion projects
  - Alabama Center for Sustainable Energy-Focuses efforts to make Alabama a Net Zero State through green building, deployment of electric vehicles, and using renewable energy
  - Solid Waste Disposal Authority-Converts up to 690 tons of waste into steam that powers Redstone Arsenal's HVAC systems.
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## Innovative Academic Institutions to Meet the Needs of Industry

For a community to remain competitive, it must have access to skilled labor. Huntsville has remained one of the leading communities in the country for engineers due to the high-tech nature of its economy. Universities, two-year colleges, and the local school system have consistently met the needs of industry through both hands on learning as well as performing research into complex problems. Four-year colleges in the area regularly contract with government agencies such as Department of Defense, National Science Foundation, the National Oceanic and Atmospheric Administration, the Department of Energy, and the National Institutes of Health on a variety of projects. Huntsville has programs locally that ensure it will have the workforce needed in the future for energy jobs.

- University of Alabama in Huntsville-Research into micro grid technology, more efficient fuel cells, and energy modelling
- Alabama A&M University-Renewable energy development related to biofuels representing the intersection of agriculture and engineering
- Calhoun Community College-Curriculum for renewable energy sources in construction
- J.F Drake State Technical & Community College-Curriculum for renewable energy sources in construction
- Huntsville City Schools-Active participants in Green Power electric challenge and headquarters for Green Power USA



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## Public Sector Initiatives

There are numerous public sector initiatives designed to conserve energy consumption. When companies and residents can save money on their utility bills, it leaves them with more disposable income for hiring, expansions, shopping or dining out.

- Georgetown University Energy Prize-The City of Huntsville, Huntsville Utilities, and Huntsville City Schools joined together for a \$5 million prize competition to develop a plan to reduce energy consumption citywide. The business community will be engaged through Energy Huntsville.
- Extreme Home Energy Makeover Project- Huntsville Utilities has been awarded \$11.7 million through a grant from TVA to launch the Huntsville Extreme Energy Makeovers project to perform whole-home, deep energy retrofits for qualified customers in 20-year-old (or older) owner occupied homes. The project goal is a 25 percent reduction in the home's energy usage. Energy audits will be performed to determine which energy saving measures can be utilized to achieve the 25% reduction in energy consumption.
- TVA Valley Sustainable Communities-The City of Huntsville is one of only a handful of communities awarded with TVA's Valley Sustainable Communities designation. The program, now in its third year, works with cities, towns and counties throughout the region to help them commit to long-term economic development with a focus on the Triple Bottom Line: Financial, Social, and Environmental.



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<sup>i</sup> This report uses the same job classification as a report done by the Tennessee Advanced Energy Business Council for its Advanced Energy Sector analysis available at [www.tnadvancedenergy.com](http://www.tnadvancedenergy.com). For complete data on the various MSAs, please see the Appendix.

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## Huntsville MSA Advanced Energy Professions

Industry Group	NAICS 4-Digit Industry	Establishments	Employment	Annual Wages
<b>Advanced Energy Utilities and Construction</b>	2361 Residential building construction	167	613	\$27,304,586
	2381 Building foundation and exterior contractors	98	482	\$18,085,177
	2382 Building equipment contractors	219	2,275	\$91,876,074
	2383 Building finishing contractors	92	513	\$16,780,786
	Subtotal	576	3,883	\$154,046,623
<b>Advanced Energy Manufacturing</b>	3333 Commercial and service industry machinery	4	196	\$10,097,663
	3339 Other general purpose machinery manufacturing	6	92	\$5,867,065
	3341 Computer and peripheral equipment mfg.	6	1,634	\$101,169,031
	3364 Aerospace product and parts manufacturing	20	4,791	\$495,336,823
	3339 Other general purpose machinery manufacturing	6	92	\$5,867,065
	3341 Computer and peripheral equipment mfg.	6	1,634	\$101,169,031
	Subtotal	48	8,439	\$719,506,678
<b>Advanced Energy Information</b>	5182 Data processing, hosting and related services	12	91	\$4,484,337
	Subtotal	12	91	\$4,484,337
<b>Advanced Energy Professional, Scientific, and Technical Services</b>	5413 Architectural and engineering services	467	11,962	\$1,097,898,428
	5415 Computer systems design and related services	419	9,669	\$928,382,920
	5416 Management and technical consulting services	238	1,602	\$123,222,657
	5417 Scientific research and development services	115	4,076	\$394,656,143
	5419 Other professional and technical services	96	903	\$32,228,715
	Subtotal	1,335	28,212	\$2,576,388,863
<b>Advanced Energy Other Services</b>	5622 Waste treatment and disposal	4	97	\$6,429,052
	Subtotal	4	97	\$6,429,052
<b>Total</b>		<b>1,975</b>	<b>40,722</b>	<b>\$3,460,855,553</b>

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## Decatur MSA Advanced Energy Professions

Industry Group	NAICS 4-Digit Industry	Establishments	Employment	Annual Wages
<b>Advanced Energy Utilities and Construction</b>	2211 Power generation and supply	3	147	\$14,627,593
	2362 Nonresidential building construction	30	579	\$26,212,512
	2382 Building equipment contractors	98	1,477	\$75,874,348
	Subtotal	131	2,203	\$116,714,453
<b>Advanced Energy Manufacturing</b>	3211 Sawmills and wood preservation	7	110	\$3,999,698
	3251 Basic chemical manufacturing	8	545	\$60,743,956
	3252 Resin, rubber, and artificial fibers mfg.	6	1,439	\$128,097,986
	3339 Other general purpose machinery manufacturing	6	78	\$4,223,557
	Subtotal	27	2,172	\$197,065,197
<b>Advanced Energy Information</b>	5182 Data processing, hosting and related services	4	5	\$275,396
	Subtotal	4	5	\$275,396
<b>Advanced energy Professional, Scientific and Technical Services</b>	5415 Computer systems design and related services	29	174	\$12,176,760
	5419 Other professional and technical services	24	163	\$4,851,793
	Subtotal	53	337	\$17,028,553
<b>Advanced energy Other Services</b>	6215 Medical and diagnostic laboratories	13	82	\$3,226,368
	8112 Electronic equipment repair and maintenance	4	20	\$532,391
	Subtotal	17	1,02	\$3,758,759
<b>Total</b>		<b>232</b>	<b>4,819</b>	<b>\$334,842,358</b>

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## Shoals MSA Advanced Energy Professions

Industry Group	NAICS 4-Digit Industry	Establishments	Employment	Annual Wages
<b>Advanced energy Utilities and Construction</b>	2361 Residential building construction	40	93	\$3,050,101
	2362 Nonresidential building construction	25	322	\$16,901,539
	2371 Utility system construction	13	185	\$9,012,718
	2381 Building foundation and exterior contractors	32	185	\$6,511,421
	2382 Building equipment contractors	71	1,209	\$55,414,624
	2383 Building finishing contractors	22	186	\$6,504,353
	Subtotal	203	2,180	\$97,394,756
<b>Advanced Energy Manufacturing</b>	3211 Sawmills and wood preservation	7	182	\$6,211,561
	3363 Motor vehicle parts manufacturing	9	1,286	\$51,589,119
	3391 Medical equipment and supplies manufacturing	5	35	\$1,155,072
	3399 Other miscellaneous manufacturing	6	244	\$7,020,724
	Subtotal	27	1,747	\$65,976,476
<b>Advanced Energy Information</b>	5179 Other telecommunications	3	12	\$699,361
	Subtotal	3	12	\$699,361
<b>Advanced Energy Professional, Scientific, and Technical Services</b>	5413 Architectural and engineering services	34	166	\$8,786,939
	5415 Computer systems design and related services	25	137	\$6,110,827
	5416 Management and technical consulting services	18	53	\$3,181,792
	5419 Other professional and technical services	21	158	\$3,993,974
	Subtotal	98	514	\$22,073,532
<b>Advanced Energy Other Services</b>	6215 Medical and diagnostic laboratories	8	37	\$1,444,042
	8112 Electronic equipment repair and maintenance	4	5	\$169,858
	8113 Commercial machinery repair and maintenance	15	104	\$4,331,094
	Subtotal	27	146	\$5,944,994
<b>Total</b>		<b>358</b>	<b>4,599</b>	<b>\$192,089,119</b>