

CHARLOTTE

A Leading Center for the Energy Industry

CHARLOTTE HAS ENERGY INDUSTRY muscle. The nation's premier energy supplier, Duke Energy, and over 100 highly specific 'energy cluster' firms make our city the hub of electric knowledge and resources in critical industry skills — design, operations, engineering, research and construction. Solid tech disciplines serve the energy industry and other industries that require easily accessible tech skills.

The Power Source: Duke Energy

More than 100 years of energy leadership backs Duke Energy, founded in Charlotte, now boasting multinational operations.

Duke Energy's operating companies supply approximately 36,000 megawatts of generating capacity, serving four million electric customers as the nation's second largest utility company. Duke's success has been the magnet that has drawn the energy cluster to Charlotte.

DUKE ENERGY'S SUCCESSES HAVE CREATED CHARLOTTE'S ENERGY CLUSTER MAGNET.

Other electric firms round out supply needs in the Charlotte region. EnergyUnited serves more than 117,000 electricity customers in 19 North Carolina counties. Electricities, a consortium of public power communities and municipally owned and operated electric systems, serves commercial and industrial customers in a portion of the Charlotte area.

Charlotte Delivers BTUs and Brains ...

A vibrant energy sector drives Charlotte's professional technical services sector. In addition to over 100 firms with highly focused energy industry services, more than 550 firms in the Charlotte area provide energy and technical expertise in many areas. Piedmont Natural Gas Company, a leader in the natural gas industry is also headquartered in Charlotte. Piedmont serves over one million customers in North Carolina, South Carolina and Tennessee.

Renowned Engineering and Design

Charlotte has become a center for engineering and design in the energy industry. Leading firms such as The Shaw Group, AREVA NP, Toshiba, Westinghouse, Fluor, Siemens and URS all have a significant presence in Charlotte.

The Shaw Group is an international engineering, construction, technology, fabrication, environmental and industrial services organization. It has more than 1,000 employees in Charlotte, the home of its Power Group, and that number is growing. The firm has been instrumental



in work on existing fossil and hydro plants and is part of a consortium of firms that will be highly integrated into the nuclear renaissance that is growing in the Southeast. Shaw/Charlotte is backed up by more than 26,000 additional employees internationally.

AREVA NP Inc. is a world leader in the design and construction of nuclear power plants and research reactors, engineering, instrumentation and control, modernization, maintenance and repair services, component manufacture, and supply of nuclear fuel. In the U.S. and in more than 100 countries around the world AREVA helps make energy available to all, protecting the planet, and acting responsibly toward future generations.

The company is located in the University Research Park in Charlotte and has over 500 employees in the area. Engineers from AREVA's Charlotte location work closely with students and professors at UNC Charlotte, providing them with a unique opportunity to gain valuable professional design experience.

What makes AREVA NP Inc. a U.S. market leader in key nuclear services? A few reasons: AREVA NP Inc. conducted major outage inspection and maintenance programs at 42 plants in one year; performed seven of 10 steam generator replacements done in the United States since 2003; completed reactor coolant pump and motor refurbishment work at 40 percent of U.S. plants; and provided license renewal engineering for more than 50 percent of U.S. nuclear plants extending the life of existing reactors.



COURTESY OF UNC CHARLOTTE

UNC CHARLOTTE HAS INCREASED ITS ENERGY-RELATED GRADUATES BY MORE THAN ONE-THIRD IN THE PAST FOUR YEARS.

Fluor Corporation’s Power Group recently announced the addition of 100 new engineering positions to their 180 employees already located in Charlotte. This increase is based upon Fluor’s belief that the energy sector will continue to see strong growth in the long term and that the Charlotte region will lead much of that growth. Fluor Corporation provides services on a global basis in the fields of engineering, procurement, construction, operations, maintenance and project management.

Westinghouse Electric, a Toshiba Group Company, opened a new office in Charlotte in 2008. This office currently employs 50 engineers focused on boiling water reactor instrumentation and control system development for nuclear projects. Westinghouse, with Toshiba, is a world leader in commercial nuclear power.

In 2009, Toshiba American Nuclear Energy Corporation announced its plans to open a new national project management and engineering center in Charlotte. The center will employ over 200 and will function as a base for Toshiba’s nuclear power business in the U.S.

Other engineering firms in the Charlotte area do energy work as part of their overall expertise including Optima Engineering who has power specialties in “mission critical” corporate functions with a high reliability on power. Zapata Engineering is a full service engineering firm whose engineers are experienced in designing power stations and transmission line systems.

Quality Manufacturing and Service

Siemens Generator and Turbine Repair and Manufacturing Center for the Americas is based in Charlotte. New generator production at the plant runs at typically 50 new units per year and new turbine production at eight units per year. Approximately 780 employees work on site in manufacturing operations. In 2009, Siemens announced an expansion of the facility that will locate approximately 140 engineers in the company’s engineering group in a new 75,000 square foot office facility on site.

The Siemens Charlotte facility has also specialized in heavy apparatus service for more than 30 years. From the upgrade and

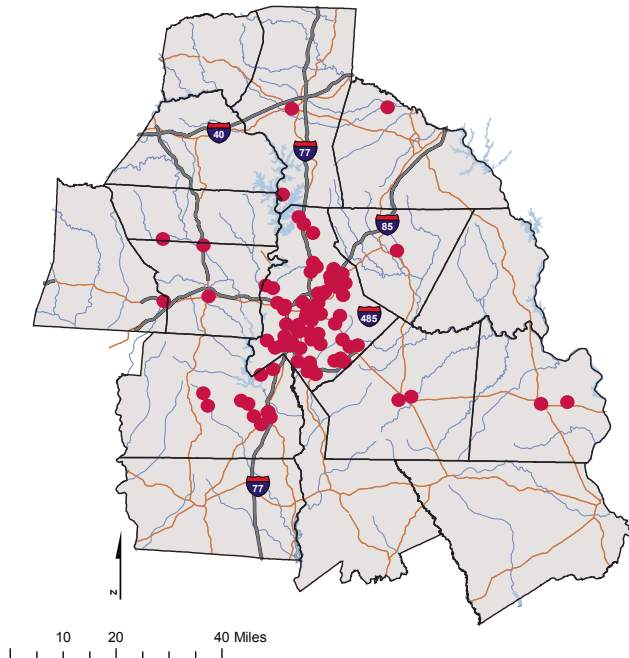
Engineers in Charlotte Metro, 2009

	Number	Average Hourly Wage
Chemical	160	\$39.05
Civil	1,370	34.96
Computer Hardware	180	33.62
Computer Software	3,700	27.45
Electrical	650	33.64
Electronics	390	34.95
Environmental	180	36.92
Health & Safety	210	31.22
Industrial	1,120	31.40
Materials	30	30.27
Mechanical	990	35.29

Source: North Carolina Employment Security Commission

Charlotte Region Power Industry 2009

100 companies in the power industry



repair of generator rotors and exciters to weld restorations and re-blading of turbine rotors and cylinders, the plant offers a single-source solution for power plants throughout the Americas. In addition, it specializes in service repair for the entire Siemens steam-turbine and generator fleet.

CoaLogix and its' SCR-Tech and MetallifIX divisions, based in Charlotte, are leading providers of SCR management and catalyst regeneration technologies for selective catalytic reduction (SCR) systems used by coal and gas fired power plants to reduce nitrogen oxides (NOx) emissions. MetallifIX is focused on mercury removal and remediation in coal-fired power plants. The company's campus houses their headquarters, research and development, manufacturing and distribution operations.

SPX is a Fortune 500 global multi-industry manufacturing leader with headquarters in Charlotte, North Carolina. The company has operations in more than 20 countries and more than 17,000 employees. SPX excels at devising solutions that support the expansion of global infrastructure, with particular emphasis on the growing worldwide demand for energy and power.

SPX's innovative, environmentally-friendly product portfolio includes cooling systems for all types of power plants throughout the world; custom engineered pumps, valves and mixers that assist a variety of flow processes including oil and gas exploration, distribution and refinement; and power transformers that regulate voltage for electrical transmission and distribution

CHARLOTTE IS HOME TO MORE THAN 100 ENERGY-RELATED COMPANIES.

by utility companies. With products designed for new power plant construction, as well as refurbishments, SPX is helping to increase global power capacity, particularly in new, developing and emerging markets including the Middle East, Africa and Asia.

Strategic Power Systems, Inc. (SPS) is a recognized leader in the energy industry as a result of ORAP (Operational Reliability Analysis Program), a widely accepted source of data for combustion and steam turbine plants worldwide. The ORAP database and engineering review process is strongly endorsed and supported by EPRI, DOE, GE, ALSTOM, Rolls-Royce, Direct Energy, Chevron and hundreds of global power plants. SPS is also focused on the future and understands that the energy industry is facing significant changes through other technologies, too, such as wind, fuel cell and combined heat and power.

VA Tech Hydro USA Corp. is part of a global supplier of turn-key electro-mechanical equipment and services. It offers new hydroelectric power plants as well as service and rehab and upgrading of existing power stations. The firm also offers the development, planning and manufacture of large-scale pumps for selected applications, pumps for the primary and secondary loops in nuclear power stations, centrifugal pumps for the pulp and paper industry as well as space technology components.



At this time of intense interest about energy infrastructure and engineering issues, Charlotte has on-the-ground expertise.

Alternative Energy Innovations

Charlotte also has diversity within the energy sector. While much of the activity still centers on the traditional sources of energy production, emerging sectors are gaining strength in Charlotte.

Sencera International Corporation built a new manufacturing facility in Charlotte in 2008 that produces thin film solar (photovoltaic) modules. The company, which is also headquartered in Charlotte, develops and manufactures amorphous and microcrystalline thin film solar modules using its proprietary Viper plasma enhanced chemical vapor deposition platform.

Saertex USA, located in Huntersville, is a leading developer and manufacturer of high-composite materials used in blades for the wind turbine industry. Their multi-axial fabrics give strength to the products with the benefit of an ultra light weight.

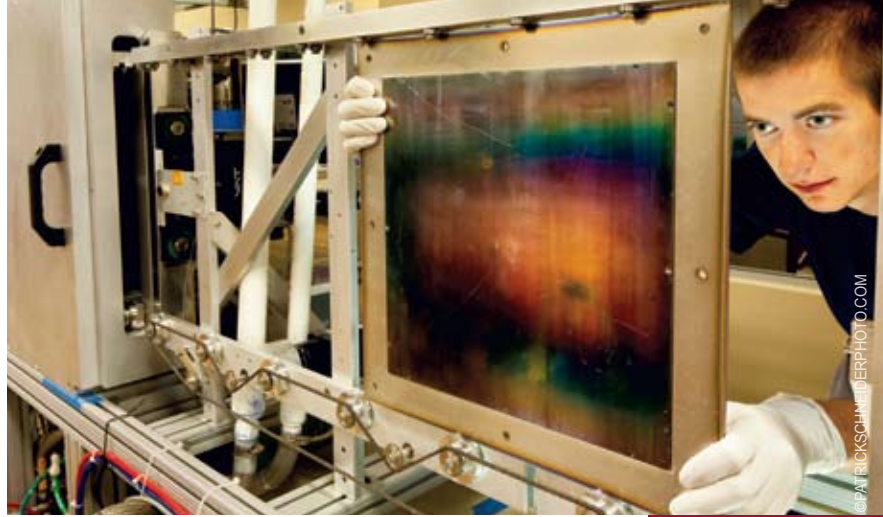
Celgard, LLC, a wholly owned subsidiary of Polypore International, Inc, is a global leader in the development and production of specialty microporous membranes, including separators used in rechargeable lithium-ion batteries for personal electronic devices such as notebook computers, mobile telephones, digital cameras, and other high performance applications such as outdoor power equipment, hybrid-electric vehicles (HEV's) Electric Vehicles (EV's), fuel cells and electricity grid storage. Celgard has both its company headquarters and significant manufacturing operations based in Charlotte.

Superior Research and Education

The University of North Carolina at Charlotte, a national academic leader in patents and spin-outs, is extending its applied research reputation in energy. Industry enlists the University for research in areas as diverse as integrated force arrays, vacuum microelectronics, radiation hardened devices, analysis and measurement of interface traps, electromechanics, economic operation of power systems, communications traffic modeling and field programmable gate arrays. Graduates ready for work in energy-related jobs — from bachelors to Ph.D.s — have increased by more than a third in the past four years.

The University's Energy Production and Infrastructure Center (EPIC) will drive closer collaboration between civil, electric, environmental and computer engineering disciplines to respond to the energy needs of our region and nation.

Central Piedmont Community College, with its six campuses and on-line learning, serve more than 82,000 students annually. Technical course work, from welding to electrical engineering technology to industrial maintenance and even



environmental technology support the energy industry and other firms relying on tech strength.

The Electric Power Research Institute (EPRI), with R&D headquarters in Charlotte, addresses challenges in electricity generation, delivery and use — including health, safety and the environment. EPRI's technological policy and economic analyses drive long-range research and development planning, and support multi-discipline research in emerging technologies and issues. EPRI's members represent more than 90 percent of the electricity generated in the United States. International participation extends to 40 countries.

EPRI's Nondestructive Evaluation Center develops robotics and other technologies for nuclear plant inspections, and qualifies procedures and industry personnel for inspections. This helps utilities maintain nuclear plant safety and maintain reliable operations.

Beginning in 2006, the Charlotte Mecklenburg School System introduced the Academy of Engineering to prepare students for post-secondary education and careers in engineering. The academy operates as a small learning community designed to encourage women and minorities to pursue careers in engineering.

Efficient Energy Management

Numerous companies are located in Charlotte with a focus on energy conservation and management. Companies such as Power Plant Management Services, LLC, Viking Energy Management, Schweitzer Engineering Laboratories (SEL) and others, specialize in managing electricity and energy sources as higher fuel costs demand the attention of senior executives. The energy professionals at these companies balance risk, data and procurement for companies to invigorate corporate bottom lines. They also optimize the performance of various power plants located around the nation. They have chosen to operate in Charlotte due to the access to highly experienced power industry professionals that they find here.

