



Clean Energy

Austin's made a commitment to clean energy. And to the environment.

Whether you're working with solar or wind power, fuel cells, biomass and geothermal resources, biofuels or sustainable energy-saving technologies, Austin is the right place, and now is the right time, to plug in to the clean energy industry.

As the capital of Texas, Austin offers unmatched access to the power players of the global energy industry. A community with a strong commitment to the environment, sustainability and quality of life, Austin is ready and willing to make its mark as the clean energy capital of the world. The private and public sectors, local utilities, major energy users, nonprofits and educational institutions are all working together to put Austin at the center of the clean energy map. In fact, Austin is No. 1 in both SustaineLane Government's Cleantech incubation ranking and the U.S. Renewable Energy Laboratory's green power program ranking.

A recognized center of technology innovation, Austin has the infrastructure and talent to support pioneering clean energy efforts. From major manufacturing to services and start-ups, Austin is a proven location for the knowledge-based economy.

We are committed to purchasing and generating renewable energy. We feel it's vital to our economy and our environment to develop and implement clean energy. We look forward to the opportunity to purchase plug-in hybrids for our transportation needs.

Will Wynn, Mayor of Austin

LEADING THE INDUSTRY

The State of Texas has for a century been the national and global leader in the energy industry. As the world looks forward to a future beyond fossil fuels, Texas is committed to leading the way in renewable energy.

- The state's \$200 million Emerging Technology Fund establishes energy as a state funding priority.
- Texas is the largest generator of wind power in the nation and has enormous capacity to increase production from wind, solar and biomass sources.
- The state General Land Office, which manages Texas' vast public lands and offshore

claims, has made developing more and better renewable resources a top priority.

- A 2005 law sets Texas' statewide goals for generating capacity from renewable energy at 5,880 MW by 2015 and 10,000 MW by 2025, including 500 MW from a renewable source other than wind energy.
- For two years, Texas has been the top wind producer in the United States. As of April 2007, Texas installed enough wind generating capacity to power over 600,000 average-sized homes a year.

CITY OF AUSTIN INITIATIVES

Austin Energy, the municipally-owned utility, is a recognized national leader in conservation and clean energy programs and has ranked first in the nation for its Green Power Program for five consecutive years.

- GreenChoice is the nation's largest and most successful retail renewable energy program delivering more than 665 million kWh of electricity annually to residential and commercial customers. Nearly 500 Austin businesses use GreenChoice power, as does Austin Independent School District and Austin City Hall.
- The city's Green Building Program, another nationally ranked program, raises the bar on sustainability and energy efficiency in new construction of all kinds.
- Austin Energy has plans to build the renewables' share of Austin's energy portfolio to 30 percent by 2020 and to build solar power's share to 100MW by 2020.
- Aggressive rebates are in place for consumers and businesses for energy saving appliances, photovoltaic systems, high efficiency lighting, solar hot water systems, energy miser products and radio frequency thermostats.

CLEAN ENERGY COMPANIES IN AUSTIN

- **Active Power's** flywheel storage systems store kinetic energy for short-term backup power – providing reliable battery-free power supply solutions.
- **Austin Biofuels** has joined with Triple S Petroleum to expand the supply of vegetable-oil based fuel for fleet and commercial customers. The National Biodiesel Board ranked Austin as having the highest concentration of retail biodiesel in the nation in 2006.
- **AccuWater** delivers product and internet-based services that enable property owners to optimize landscape irrigation using modeling and local weather conditions. AccuWater received funding from the Central Texas Angel Network in 2007. They are a graduate of Clean Energy Incubator.
- **Advanced Micro Devices' (AMD)** new Lone Star Campus in southwest Austin is striving for a Gold LEED certification from the U.S. Green Building Council through

features such as one of the largest roof-based rainwater collection and recycling systems in the world, as well as using 100 percent renewable energy from the Austin Energy's GreenChoice program and recycling 75 percent of waste from construction.

- **CleanFUEL USA** in Georgetown, Texas has established itself as the leading global manufacturer of certified and alternative fuel equipment for both propane and E-85.
- **HelioVolt**, founded in Austin four years ago, raised venture funding for the development of solar-enabled power-generating building materials (BIPV), created by coating substrates such as metal roofing, architectural glass and polymeric membranes with thin film photovoltaic integrated circuits (PVICs).
- **nanoCoolers**, a company specializing in advanced thermoelectric cooler (TEC) technology, received a \$3,000,000 Texas Emerging Technology Fund (ETF) grant to accelerate the commercialization of its innovative "refrigerator on a chip" technology development.
- **Xtreme Power**, a 2007 recipient of the Texas ETF (\$2,000,000), provides power systems to utilities and large energy users resulting in energy conservation.
- **TECO-Westinghouse Motor Co.** formed a partnership with California-based Composite Technology Corp., a wind turbine company, to produce next generation technology for wind turbines at TECO-Westinghouse's facility in Round Rock.

TALENT

Austin is not only a dynamic business destination; our workforce is a dynamic business asset. It's all about the people, and the labor pool in Austin is by far one of the most innovative, youthful and educated in the country. Also, one of the primary reasons why solar photovoltaic (PV) technology companies are migrating to Austin, is due to our well-established semiconductor industry and the vast similarities that exist between semiconductor and PV technologies. PV startup companies are finding that Austin Texas has available semiconductor talent on which to draw.

INNOVATION

Austin is a world-renowned technology region founded on outstanding university-based research, an entrepreneurial culture, venture funding, a broad array of support services and a rich pool of intellectual talent and leadership – providing business a framework for innovation and growth. In 2006, over 2,300 patents were assigned to inventors in Austin. Over the past five years, Austin's patent activity outpaced the national rate and clearly showed Austin's competitiveness as a location for research and innovation. In 2006, *The Wall Street Journal* ranked Austin third among the nation's most inventive cities.

THE UNIVERSITY OF TEXAS AT AUSTIN

As a world-class research institution, the University of Texas at Austin (UT) has annual research expenditures of more than \$411 million, with engineering research dollars exceeding \$137 million. UT Austin's Electrical and Computer Engineering Department has ranked as one of the top 10 in the country for more than a decade, while the University ranks in the top 10 nationally for the number of science and engineering doctoral degrees.

- The UT Center for Electromechanics is leading the nation in hydrogen research by steam-refining natural gas to produce hydrogen, and along with the Texas Energy Conservation Office, has organized an electric and hybrid-electric vehicle program in Texas – four interdependent projects to develop efficient low-cost homopolar electric vehicle traction motors, large and small flywheel batteries and hybrid electric railroad locomotives.
- Scientists and engineers at UT have begun a three-year, \$750,000 study of the impact of climate change and land-use patterns on the release of airborne chemicals from plants, a studied process believed to affect statewide smog production.
- UT has already patented an inexpensive metallic fuel cell electrocatalyst that will soon be market ready.
- The UT Bureau of Economic Geology is researching the development of integrated gasification and combined cycle power generation.

PLUG-IN HYBRID TECHNOLOGY

Imagine a gasoline at less than one dollar a gallon – that's what it would cost to power the car that charges its electric battery from your household electrical outlet. Austin is leading a national campaign of Plug-In partners to create the demand for mass production of a Plug-in Hybrid vehicle capable of triple-digit fuel economy and up to 35 miles of all-electric driving. Austin's template for demonstrating to automakers that a market exists today for plug-in hybrids has been widely adopted.



Left photograph: Courtesy of Sarah Fields.

Above photograph: Applied Materials solar array.

Austin's long time support of clean energy and conservation, along with the growing coordination of angel and regional venture groups across Texas, made it clear to us that Austin was the right spot to establish AccuWater.

Tom Watson, CEO of AccuWater

THE CLEAN ENERGY INCUBATOR™

The Clean Energy Incubator (CEI) offers an environment dedicated to helping young clean energy companies succeed. The CEI provides the resources and facilities necessary for start-ups to attract funding, aggressively compete in the free market and turn ideas into reality. Through their R&D partnership with the University of Texas and an active collaboration with forward-looking Austin Energy, CEI has helped 150 companies to receive more than \$780 million from investors. Graduates include early-stage companies focusing on the development of commercialization of proprietary technology in areas including renewable energy, energy efficiency, energy management, distributed resources, energy storage, fuel cells, microturbines, power quality, alternative fuels and transportation.

CLEAN ENERGY VENTURE SUMMIT

In 2007, Austin hosted the inaugural Clean Energy Venture Summit, a partnership with the Austin Energy, UT's IC² Institute and the Clean Energy Incubator. More than 400 attendees from across the globe came to Austin to learn about the latest technologies, businesses, challenges and advancements for clean energy.

A CRITICAL MASS OF COMPANIES

Austin offers a wealth of potential partners and high-value customers for clean energy products and services. Austin's status as a high-tech mecca is reflected every day in the constant innovation and creativity of our unmatched educated workforce.

- **Applied Materials'** Austin production line will feature new tandem cell technology – an innovative dual-junction approach that combines an amorphous silicon top film to absorb short wavelengths of light with a microcrystalline silicon bottom layer to absorb longer wavelengths. These tandem cells are expected to deliver significant energy efficiencies at a cost per Watt that is comparable to that of single junction technologies. Their new solar array, on track to be completed later this year, will be the largest in Austin.
- **Freescale Semiconductor** produces chips in Austin for auto power train systems that help manage emissions and make fuel usage more efficient, as well as sensor chips that reduce energy use in industrial environments.
- **IBM's Pervasive Computing Advanced Technology Lab** in Austin has created a "home of the future" where appliances respond to voice and electronic signals and track energy consumption.

AUSTIN RANKS NUMBER ONE IN CLEANTECH INCUBATION CLUSTERS.

SustainLane Government analyzed US cities to see which led in combining Cleantech investments, infrastructure and supportive policies into a physical "cluster." The ideal existing model for a Cleantech incubation cluster combines start-up or advanced stage venture capital (VC) and investor network access, including mentoring, Academic or federal research lab collaboration and active state or local government participation (field testing, prototyping, and pilot programs) and incentives.

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INCENTIVES FOR EMERGING TECHNOLOGIES

The Emerging Technology Fund (ETF), along with other incentives programs such as the Texas Enterprise Fund, provides financial benefits to businesses creating high quality new jobs in Texas. The Central Texas Angel Network (CTAN) and The Central Texas Regional Center for Innovation and Commercialization (CenTex RCIC) offer funding and expertise for early stage technology companies. A variety of state and local tax exemption and tax credit programs are also available, including a complete exemption from the Texas franchise tax for solar energy businesses.

QUALITY OF LIFE

Many "Best of" lists attest to the incomparable quality of life found in Austin. The Best Place for Business and Careers. The Best City for Singles. The Best City for Relocating Families. The Live Music Capital of the World. Ask anyone who lives here and they'll tell you it's as good as advertised. We have it all – highly rated public school districts, entertainment venues for the outdoor type and the art lover, home to rock climbers, Tour de France champions, rock and rollers, movie stars, theater lovers, and the cream of the creative class.

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