



## **Ecotech Institute Aurora, Colorado Energy Efficiency**

### **SCHOOL**

Ecotech Institute, private, 2-year, 500 students, Aurora, Colorado.

### **ABSTRACT**

Ecotech Institute is the first and only college entirely focused on preparing students for careers in renewable energy, energy efficiency, and sustainable design—the environmental jobs of the new green economy. After thorough market research and industry studies, Education Corporation of America (ECA) collaborated closely with industry leaders, other educational institutions, and environmental leaders to first define the skills and programs that would meet the needs of both potential students and employers. Once this information was analyzed, a group of thought leaders and executives of the industry were brought together to serve as an advisory board for the college and assisted in the development of curricula that educated the student for a seamless transition into the workforce. Graduates leave the school with skills that are highly valued by today's renewable energy employers. ECA invested nearly \$10 million to transform an existing large-footprint building in Aurora into a LEED Gold-certified school complete with laboratories and classrooms. Classes began in a temporary facility in July 2010 and moved into the new building in January 2011. Ecotech currently employs more than 50 staff serving approximately 500 students.

### **GOALS AND OUTCOMES**

#### **Goals**

Ecotech Institute's programs are designed for direct entry into the workforce in the fields of renewable energy, sustainable design, and energy efficiency. We provide an unparalleled student experience and the practical skills students need to be successful in these dynamic environmental careers through:

- A mentor program has been established to ease
- students' transition into the school
- Flexible class schedules so many students may
- continue to work while attending school
- Small class sizes with practical, hands-on individualized instruction
- Real-world instructors, many who work in the field in which they teach
- Specific class work that offers those skills most in demand by clean energy employers
- Accredited by ACICS
- Career placement assistance
- Financial aid available for those who qualify

The school began offering classes July 7, 2010 in its first facility and moved to the permanent facility in January 2011. The permanent facility will support between 700 and 1,200 students. Once the flagship

Colorado campus is fully established, Ecotech is expanding across the U.S. to help fuel rapidly growing industries in the clean energy sector.

### **Accomplishments and Outcomes**

At the end of its second year in operation, Ecotech Institute is home to approximately 500 students, with a strong indication of future growth. Due to its ecofriendly location in the Denver Metroplex and the high priority of environmental friendliness of the state government, the area draws attention nationally for those in green industry. This attention has impacted the school by drawing nearly 25% of its students nationally. The web site Mother Nature Network has included Denver, Colorado, among its top ten cities nationally for jobs in renewable energy for new graduates. In an article just released, the site says, “Investments in green jobs have helped Denver maintain an unemployment rate below the national average and generally outperform the U.S. economy. Colorado has been riding the green jobs wave for years, and Denver... is leading the state.” The article notes the number of green economy businesses and initiatives in the area, and also cites Ecotech Institute as a prime reason for including Denver as the number two city in its top ten. “Students who want to continue their education and advance their green expertise can consider Ecotech to study everything from renewable energy technology to sustainable interior design,” the article notes. It also points out the relative low cost of living in the area, a plus for those who want to relocate for environmental careers or to attend a school to prepare for clean energy jobs. A mentor program has been established to ease student’s transition into the school. Ecotech Institute's first group of graduates crossed the stage on June 21, 2012 and dozens of graduates are already working in the cleantech industry. Three companies have hired a combined 20 graduates, five additional companies have hired one or two graduates, and several students have offers pending. The companies range in size and specialty, with renewable energy graduates receiving jobs in six different states—including Hawaii! For a demographic breakdown of this first graduating class, please visit <http://www.ecotechinstitute.com/pdf/ecotech-graduate-information.pdf>.

### **Challenges and Responses**

The single biggest, overarching challenge was, of course, the simple fact that no one else had done this to the degree and with the commitment that we did. There were no patterns, no pioneering efforts that we could look to model after and build. Everything—from which courses to offer through what the building should look like and contain—was ground-breaking. But, in many respects this is not a new place for us to be as we have been rather innovative in what we have brought to the private college space and how we maximize the benefit to our students.

### **Campus Climate Action: Your School’s On-Campus Sustainability Projects**

Our programs are designed for direct entry into the workforce in the fields of renewable energy and sustainable design. We provide an unparalleled student experience and the practical skills students need to be successful in these dynamic environmental careers. Those programs include:

- Electrical Engineering Technology
- Energy Efficiency
- Environmental Technology
- Renewable Energy Technology
- Power Utility Technician
- Solar Energy Technology
- Wind Energy Technology

We “recycled” an existing vacant building and won LEED Gold certification for innovations that include small wind turbines, solar tree electric vehicle charging stations, building-integrated photovoltaic power (BIPV), and many other sustainable design features. (For additional details, see Building Fact Sheet below.)

### **Commentary and Reflection**

At the launch event at the Denver Museum of Nature and Science, Colorado Governor Bill Ritter welcomed Ecotech Institute. “Colorado is leading America to a clean energy future by strengthening our ability to compete nationally and internationally for service and manufacturing jobs. Ecotech Institute’s Colorado campus will help prepare the workforce for those jobs,” said Gov. Ritter. “Colorado’s New Energy Economy is spurring new innovations and energy technologies. We are moving closer to energy independence by expanding homegrown energy supplies. We are ensuring stable, reliable, sustainable and affordable energy for all Coloradans.” “Ecotech Institute programs connect people’s interest in hands-on work to high-paying environmental jobs,” says Michael Seifert, President of Ecotech Institute. “This is a very exciting time for the technicians and green-collar workers who are moving into renewable energy and sustainable design—two sectors that are poised for explosive growth.”

Additional Commentary on Ecotech Institute:

- “Our board is a national ‘Who’s Who’ of people in this space and we are very fortunate to have them. They’re not just here to approve what we do or to make sure everything looks good. They have painstakingly gone over every part of the curriculum, and they’ve created ideas—and are just a fantastic group.” ~Jason Mann, Vice President of Marketing for Education Corporation of America
- “When I was a professor and dean at one point, people always said, ‘Can you recommend a school that I can go and get a bachelor’s degree in solar energy?’ And I looked at them like somebody hit them on the head or something, and I’d say, ‘Any school that has an engineering program would give you a solar energy degree,’ until Ecotech was established. Before, you took two courses, three courses in a program, and you’d call yourself a ‘solar engineer’. Now you are specialized.” ~Ghazi Darkazalli, Ph.D, PE, President & CEO, Marian Court College
- “I think one thing is clear, there’s going to be a tremendous future here in renewables—wind, solar, across the board—there’s going to be a lot of new jobs, new opportunities coming up, and I think you guys made the right decision coming here to start your careers. And the sky’s the limit. You can go pretty much anywhere you want to once you have an education. I’m a firm believer in that.” ~Alden Zeitz, Director of North American Operations, DeWind Co.
- “There are so many opportunities [in the cleantech space]. And really, the limit is only just how far you can take it. Whether you collaborate on a team to make it happen, whether you’re working on PV, you’re working on thermal or working on wind, there are just so many opportunities—residential, commercial, small scale, large scale, utility scale—it’s out there. And now is absolutely the time.” ~ Janelle Kellman, Attorney, Pacific Gas and Electric Company

## **ENGAGEMENT AND SUPPORT**

### **Leaders and Supporters**

ECA's top corporate executives have recognized that "walking the Ecotech talk" begins at our corporate headquarters and extends out to all our campuses. Chief Executive Officer Tom Moore, Chief Information Officer Ron Maillette, Chief Marketing Officer Charles Trierweiler, and Vice President of Marketing Jason Mann were key not only in bringing the Ecotech idea to life, but also in creating a new corporate Manager – Environmental Operations position charged with managing the company's overall approach to programs in support of environmentally responsible operations. It is the responsibility of the new manager to lead the development and implementation of policies, programs, and procedures that enable the company to operate in a manner consistent with ecological and environmental best practices. Ecotech staff includes:

- Michael Seifert, President
- Glenn Wilson, Academic Dean

### **Funding and Resources**

ECA, a private, for-profit corporation, invested nearly \$10 million to transform an existing large-footprint building in Aurora into a Gold LEED-certified school complete with laboratories and classrooms. No grants or taxpayer funding were utilized to recycle and improve this existing structure, which now will act as an economic anchor for the neighborhood.

### **Employer and Other School Partnerships**

Dr. Abbas Ghassemi, Director of Institute for Energy and Environment (IE&E) at New Mexico State University, is Chair of the Ecotech Advisory Board and was the chief architect of the curriculum. Dr. Ghassemi states: "One of the most interesting elements of developing the Ecotech curriculum was working with industry leaders; to hear directly from them so that we developed a balance between academic drivers and industry drivers. The Ecotech board of advisors is a very good cross-section of industry leaders, plus the academic leaders in this field. So that balance has been really intriguing. Often in academia, course content is driven by academic desires, but not always by practical outcomes. Here, industry and academia played a 'hand-in-a-glove' role in developing core content that provides a real technical depth and trains the individual to hit the ground running in a new job."

### **Education and Community Outreach**

After nearly 2-years of market research involving potential students, potential employers, government leaders and industry leaders, Ecotech opened its doors to fill a real need and opportunity to create a college focused on technical skills training in renewable energy and sustainability. ECA collaborated closely with industry leaders, other educational institutions, and environmental leaders to first define the skills and programs that would meet the needs of both potential students and employers. Then, they worked with the same groups to develop the curricula to meet both academic requirements and the emerging needs of the clean energy industry. (For ECA's current Board of Advisors please see <http://www.ecotechinstitute.com/environmental-advisory-board.cfm>).

### **National Wildlife Federation's Campus Ecology Program**

In my role as Manager – Environmental Operations I regularly utilize NWF Campus Ecology webinars and reports to assist me in my work. We were thrilled when Ecotech was included in your 2010 database, and our resulting press release was covered widely by various media outlets. Your ongoing listings, in turn, have helped drive the amazing fact that 25% of our current Ecotech students are "national," i.e., originating outside the borders of Colorado!

## **CONTACT INFORMATION**

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## **MORE ABOUT YOUR SCHOOL**

### **Campus Sustainability History**

Education Corporation of America owns and operates private accredited colleges across the United States as well as via the Internet from our corporate headquarters near Birmingham, Alabama. Our schools serve the needs of thousands of students while giving employers an educated and skilled workforce in the markets where we are located.

We provide educational opportunities in business, administrative, management, medical, technical and professional programs that are designed to prepare students for direct entry into the job market in the career areas of their choice. It is our goal to specialize in those areas for which the job growth potential is expected to be the highest. Our hallmark is personalized, practical, real-world instruction that best prepares the student for his or her future while meeting the needs of employers. And we pledge to accomplish that in an encouraging, resourceful and enabling atmosphere.

With the hiring of a new Manager of Environmental Operations, ECA is determined to “walk the Ecotech talk” at its corporate headquarters and campuses nationwide. Ecotech functions as a “sustainability incubator,” and ECA is incorporating its successes into both new and existing campuses.

## APPENDIX



### Facility Fact Sheet

Ecotech Institute transformed an existing large footprint building in Aurora, Colorado into a cutting-edge LEED gold certified facility that incorporates energy and resource savings throughout. Through a thoughtful and exciting renovation, Ecotech turned the vacant commercial building into a community asset. Most importantly, the school helps improve the lives of students through real-world education in the fields of renewable energy, sustainable design and energy efficiency.

The 62,000-square-foot Ecotech campus includes 11 lecture classrooms, seven state-of-the-art computer classrooms, and nine technology labs (e.g. electrical, wiring, solar, wind safety controls, environmental science), student and faculty lounges, a library, and a variety of other amenities. Ecotech offers five highly practical degree programs that provide graduates with skills that are highly valued by today's renewable energy employers. Ecotech Institute launched in a temporary facility in April 2010 and moved to its permanent facility at 1400 South Abilene Street in Aurora, Colorado in January 2011.

#### Renewable Energy

Ecotech has invested heavily in renewable technology. The campus gets eight to ten percent of its electricity from on-site wind and solar sources. Renewable energy components of the school include:

- Twelve polycrystalline rooftop photovoltaic solar panels with a system capacity of 2.8 kilowatts.
- Integral thin solar technologies embedded into the glass of the front building canopy. This system has a capacity of 9.4 kilowatts.
- Eight small wind turbines mounted on the roof to generate up to 4.8 kilowatts of electricity.
- A Vertical Axis wind turbine that can generate a total capacity of 4 kilowatts.
- Two solar trees, each providing 16.9 kilowatts of electricity, which generate more than 50,000-kilowatt hours per year of electricity.
- All together, the renewable energy sources at Ecotech will generate more than 65,000 kilowatt-hours of electricity annually.

#### Energy Savings

A key component of the campus is its rigorous energy savings. Examples include:

- Demand control ventilation to modulate ventilation based on occupancy levels in classrooms. This dramatically reduces the cooling/heating during partially occupied periods.

- All rooftop air conditioning equipment has economizers to provide 100 percent outside air during ideal outdoor conditions for cooling.
- The building has been equipped with a zoned control system that not only provides a high degree of occupant comfort, but also allows modulation of the cooling and heating when spaces are not in use. All classrooms are provided with individual temperature controls and in all administration areas, individual controls are provided for 50% of the occupants.
- All air conditioning equipment is of the highest efficiency currently available in standard type cooling equipment.
- Energy efficient lighting reduces energy consumption by 30 percent below standard lighting energy levels.
- A measurement and verification system provides real-time monitoring of the campus power, natural gas, and water consumption. This information is displayed in the lobby for visitors and is also recorded and used to determine further energy saving possibilities.

### **Water Efficiency**

Plumbing fixtures within the building reduces water use by 41 percent. Ecotech has achieved this reduction by using WaterSense, low-flow fixtures. The types of fixtures installed are:

- Toilet fixtures that use 1.28 gallon per flush versus the standard 1.6-gallon per flush.
- Urinals that use 0.125 gallon per flush versus the standard 1.0 gallon per flush.
- Sensor-operated faucets in restrooms that use 0.25 gallon per cycle versus the standard lavatory faucet that uses 0.5 gallon per minute.

### **Materials and Resources**

#### Recycled Content

To help reduce the environmental impact of the materials used in the facility, Ecotech selected products that have recycled content within their composition.

- The plastic laminate veneer found in Ecotech is comprised of 17 percent pre-consumer materials, and the particleboard panels are comprised of 88 percent pre-consumer recycled materials.
- The lockers are comprised of 25 percent post-consumer and 25 percent pre-consumer recycled materials.
- The fire extinguisher cabinets are comprised of 23.5 percent post-consumer and 6.5 percent pre-consumer recycled materials.
- Throughout Ecotech, all insulation, steel door frames, wood doors, door hardware, metal wall framing, gypsum board sheathing, acoustical ceiling tile and grid, toilet partitions and toilet accessories use recycled content.

#### Storage & Collection of Recyclables

Ecotech Institute has a recycling program that includes a 256 sq. ft. recycle center serving as the internal collection point for all single-stream recyclable materials.

- The recycle center includes two 50-gallon containers for single-stream recyclable materials.
- The recycle center is easily accessible to all occupants of the building and is located near the rear exit for convenient access to the exterior dumpster for recyclables.
- 23-gallon containers are located throughout the facility and 50-gallon containers are located at the student lounge, break area and employee lounge for single-stream recyclable materials.
- Calculations show estimated recyclable volume to be six to eight yards per week, which amounts to approximately 150 pounds per day.

### Rapidly Renewable Materials

To reduce the use of finite raw materials from the environment, Ecotech opted to use rapidly renewable materials. Two materials that meet this criteria at Ecotech are the bamboo flooring in the lobby and the agrifiber cores of the wood doors used throughout the facility.

### Certified Wood

To promote using environmentally responsible forest management practices, the wood doors used throughout Ecotech use materials certified by the Forest Stewardship Council.

## **Indoor Environmental Quality**

### Low-Emitting Materials

One strategy in providing a healthy environment at Ecotech Institute is the use of low volatile organic compound (VOC) materials. Reducing the amount of indoor air contaminants that are odorous, irritating or harmful contributes to the comfort and wellbeing of occupants. The majority of the office, lab and classroom furniture used throughout the facility is GREENGUARD Indoor Air Quality Certified.

- The paint used on all interior walls contains low VOCs.
- The Non-PVC tile flooring used throughout the corridor contains 0 percent VOC materials. The floor tile meets the requirements of FloorScore.
- The modular carpet used through Ecotech meets the requirements of CRI Green Label Plus.

### Indoor Chemical and Pollutant Source Control

Another strategy that contributes to a healthy environment at Ecotech is the entryway systems. At each primary entrance of the facility, there are recessed entrance grills and floor mats. These entryway systems capture particulates that could potentially become airborne within the facility, thereby improving the indoor air quality.

### Lighting

Electricity required for lighting is one of the primary reasons for energy consumption in buildings. Providing a high level of lighting control reduces energy consumption and promotes the productivity and comfort of the facility's occupants. Methods for limiting the amount of energy used by lighting include:

- A programmable lighting system combined with motion sensors, which limits the use of electricity when areas of the building are unoccupied.



- Classroom and office lighting incorporate step-dimming options so that fixtures have multiple light levels available to occupants – further increasing energy savings when lights are operating while dimmed.
- Task lighting is at all administrative work areas to give the occupants the flexibility of controlling individual lighting levels.
- Energy efficient lighting reduces energy consumption by 30 percent below standard lighting energy levels.

## **Computers and Technology**

### Zero Client System

- Typical personal computers (PCs) and Thin Clients have a central processing unit (CPU), operating system and device drivers. Zero Clients, like Ecotech, have no CPU, operating system or device drivers, essentially eliminating the need for desktop maintenance.
- Zero Clients use a maximum of 50 watts, as opposed to a traditional desktop's 550 watts.
- Because there are no “working” components to a Zero Client, they produce virtually no heat, reducing the additional air conditioning typically needed in a room full of PCs.
- PCs have to be replaced every couple of years to keep up with modern technology. There is no need to replace Zero Clients, keeping waste from landfills, as well as reducing the carbon footprint required to build new PCs.

## **Sustainable Sites**

### Alternative Transportation, Bicycle Storage and Changing Rooms

- To help eliminate vehicle emissions, bicycle racks are provided to promote an alternative form of transportation. A separate restroom and shower facility, with a changing room, is available for cyclists to use when they arrive.
- The Ecotech campus includes four electric car-charging stations, capable of delivering a full charge to a vehicle in two to four hours.

For additional information, please contact Alicia Hassinger or Jenny Foust at 303-433-7020 or [ahassinger@csg-pr.com](mailto:ahassinger@csg-pr.com) and [jfoust@csg-pr.com](mailto:jfoust@csg-pr.com).