

# Education Centered Border Wind Energy

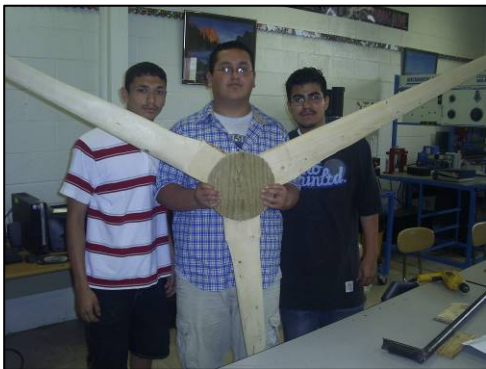
Disadvantaged communities along the Texas/Mexico border have a great need for infrastructure improvements that will help not only improve the quality of life but also increase security and increase residents' education levels. The Texas A&M University System is involved in these improvements through projects with the Texas Center of



Applied Technology (TCAT), Texas A&M University College of Architecture's Center for Housing and Urban Development (CHUD), the Alternative Energy Institute (AEI) at West Texas A&M University, and other organizations throughout the area.

To help address the looming shortage of scientists and engineers, TCAT and AEI works with high school students to introduce them to engineering and program management concepts while producing small wind turbines that can be used by colonia residents to provide small but useful amounts of energy for their homes.

Sponsored by the Texas State Energy Conservation Office, the project provides a format where students learn and apply principles of engineering program management to build and demonstrate small wind turbines capable of producing 500 – 900 Watts. The students identify materials, specify design parameters, and create assembly instructions for the wind turbines. The students work with their schools' vocational welding shop to



fabricate the metal components and wood shop to produce wood blades. The students also work with colonia residents to identify needs and locations for installation of the turbines.



Over the past four years, TCAT has worked with students in Laredo and the Rio Grande Valley to produce and install eight turbines situated in various areas along the Texas/Mexico border. Over 100 students have been involved in the project to date and a large majority of the graduates have chosen to pursue a science or engineering degree program in college.

## TEXAS CENTER FOR APPLIED TECHNOLOGY

There are many problems that require the careful and proper integration of applied technologies to find solutions. The Texas Center for Applied Technology (TCAT) was created to focus on these specific problems and to develop effective and efficient solutions. TCAT's core competency is the innovative application of existing technologies and advanced research to solve complex real-world problems.

TCAT's primary objective is to apply and test technologies to address targeted problems and engage basic research as required. TCAT has employees in a variety of locations with the ability to perform research that cuts across multiple technologies, disciplines, and cultures. The Center's employees are knowledgeable regarding customers' requirements and are ready to respond effectively to provide the best value for the customers' needs including expertise in technology insertion, technology assessments, and test and evaluation.

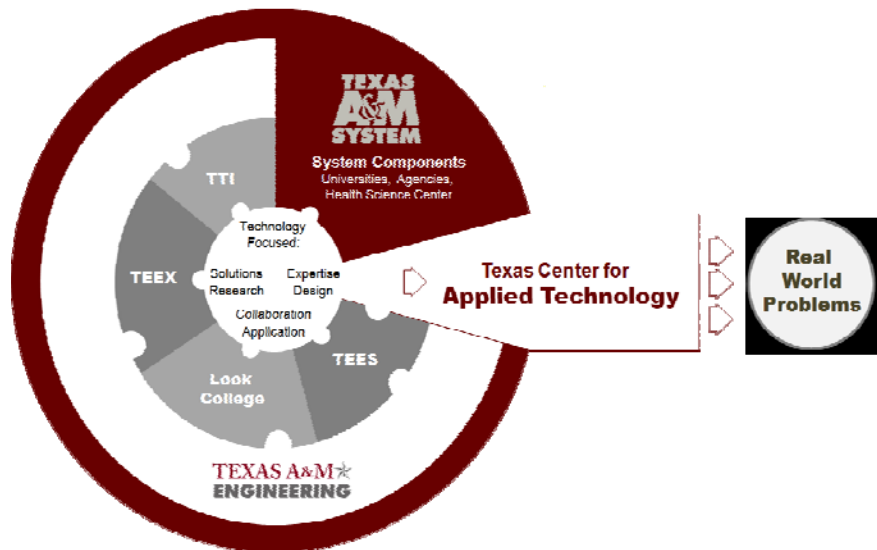
TCAT is part of the Texas A&M Engineering Experiment Station (TEES), a member of The Texas A&M University System. The A&M System is one of the largest and most comprehensive systems of higher education in the United States. Through a statewide network of eleven university campuses, seven state agencies, and a comprehensive health science center, the A&M System educates more than 120,000 students on its university campuses, conducts more than \$780 million in research, and reaches another 22 million people through service each year. TEES is an engineering research agency for the state of Texas and conducts over \$147 million in research annually. Because of the Center's position within the Texas A&M Engineering program, TCAT's expertise can easily be extended by rounding out its team with world class faculty researchers, as appropriate. TCAT is in an excellent position for collaboration not only with The Texas A&M University System components and their customers but with other universities, institutions, centers, and industry.

## TCAT'S CORE COMPETENCIES

Energy Sustainability ★ Environmental Sustainability  
Manufacturing & Systems Engineering ★ Information Technology ★ Modeling & Simulation  
Technology Insertion ★ Test & Evaluation

## TEXAS A&M ENGINEERING

Texas A&M Engineering consists of the Dwight Look College of Engineering, and three engineering agencies, including TEES: Texas A&M Transportation Institute (TTI) conducts research and professional education in all modes of transportation. The Texas A&M Engineering Extension Service (TEEX) works to develop a highly skilled and educated workforce and enhances public safety through training, continuing education, and technical assistance.



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