

September 1, 2005

Pam Groce
Program Manager
State Energy Conservation Office
LBJ State Office Building
111 E. 17th Street
Austin, TX 78701

Dear Ms. Groce:

We have put together a highly qualified team of instructors in order to collaborate with Austin Community College (ACC) for a comprehensive solar electric PV installer and designer training course. As you will see in the attached proposal ACC is offering in-kind services and support for the 1-year training program. We plan to convert the 3-day training course that was implemented in 2004 with SECO support to a full semester course at ACC.

We are highly excited about the prospect of implementing the training program, and we are encouraged that ACC is equally interested in providing an educational opportunity for PV designers and installers. We are requesting matching funds from the State Energy Conservation Office in the amount of \$31,327.50 to launch the training for the first year. It has been suggested that an inter-local agreement between ACC and SECO might be the best mechanism for funding the program.

Once again, we are excited about the enthusiasm generated by ACC and our team toward this training endeavor, and we look forward to discussing this further with you and your staff in the immediate future.

Sincerely

John E. Hoffner, PE

ImagineSolar
2308 Spring Creek Drive
Austin, Texas 78704-2036
512-589-6008
john.hoffner@imaginesolar.com



**PROPOSAL TO IMPLEMENT A SOLAR ELECTRIC PV
TRAINING PROGRAM AT AUSTIN COMMUNITY
COLLEGE**

Submitted by John Hoffner
September 1, 2005

ImagineSolar
2308 Spring Creek Drive
Austin, Texas 78704-2036
512-589-6008
john.hoffner@imagesolar.com

To Implement a Solar Electric PV Training Program at Austin Community College

Objective: Instructors John Hoffner, PE and Michael Kuhn propose to design, plan and implement a comprehensive solar electric PV training program at Austin Community College (ACC). The initial training program would be a full semester course at ACC that would be taught twice in the first year.

Matching Funds Request: State matching funds in the amount of \$31,327.50 are being requested to implement the training program for the first year. The State funds would be used to re-design and convert the three-day training program developed in 2004 (funded through SECO Inter local Agreement CM307) to a full semester course. ACC will provide in-kind services and support in the amount of \$31,327.50.

Description of the Proposed Program: North American Board of Certified Energy Practitioner (NABCEP) Entry Level Certificate Program (<http://www.nabcep.org/news.cfm?pr=39>) offered at Austin Community College (ACC), for Spring and Fall, 2006.

Statement of Need for the Program: From high schools to universities and from community colleges to the building trades, renewable energy courses and trainer/practitioner programs across the country are seeing a surge of interest and participation. The North American Board of Certified Energy Practitioners (NABCEP), a voluntary national certification program for installers of photovoltaic systems launched in 2003, has 177 nationally certified practitioners in 34 states, seven of whom are in Texas. Further, nine people are registered to sit for the fifth administration of the NABCEP-certifying exam, scheduled for September 24, 2005 in Austin.

The confluence of three recently-enacted programs, including the 30 % federal solar tax credit, the new Texas RPS legislation which features a 500 MW target for non-wind renewable resources, and Austin Energy's Solar Rebate Program provides a well-timed opportunity for Texas to scale up its training in renewable energy courses to meet consumer demand for quality installed solar energy systems. As the market grows for photovoltaics, students holding this industry-sponsored Entry Level Certificate will find that their job opportunities are enhanced. This program will create a more knowledgeable workforce for those looking to employ workers in the PV installation industry.

Specific Program Components and Logistics: Austin Community College's (ACC) Workforce Development Center wants to offer the NABCEP Entry Level Certificate Program for one year, beginning in Spring 2006, and again in the Fall 2006. ACC has elected to designate "Renewable Energy" as a new course schedule section. The actual class listing, "HART 1071 Solar Electricity (Photovoltaics) (48 hours/\$250/\$25 lab) is described as a *course in the study of solar photovoltaic (PV) cells, modules, electrical circuits and systems; sizing and designing for usage in homes and commercial businesses; Solar electric products, applications and the market place; and understanding energy conversion from sunlight to electricity, and working with solar conversion equipment. The 48-hour course is designed for students to be eligible to obtain the North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic (PV) Entry Level Certificate of Knowledge.*

The thirteen-week class will run from January 31- May 6, 2006, and again over a thirteen-week period in the fall of 2006. For both the Spring and Fall classes, the last two weeks of the session will include a hands-on installation of a photovoltaic system.

Population/Number expected to benefit from the program: The NABCEP Entry Level Certificate is designed for those wanting to enter the solar electric energy field. It will be a way for certificants to show that they have achieved basic knowledge, comprehension and application of key terms and concepts of photovoltaic (solar electric) system operations. The certificate will demonstrate that the student has passed an industry-designed exam based on learning objectives developed by subject matter experts. While the Certificate of Knowledge by itself will not qualify an individual to install photovoltaic (PV) systems, it does recognize an understanding of the basic terms and operational aspects of a PV system. Students receiving the Entry Level Certificate will then be eligible to enter the workforce to get the required two years of on-the-job training, including installing four PV systems, to eventually be able to sit for the NABCEP certifying exam for installers of PV systems.

While PV installer certification is well underway, NABCEP has scheduled other renewable energy technologies for NABCEP certification. Currently in the queue for the next NABCEP certification is solar thermal (<http://www.nabcep.org/solar.cfm>). The task analysis complete, the first certifying exam for solar thermal is scheduled for late Spring or early Summer 2006. The technical committee for Small Wind is currently working on its task analysis.

The renewable energy technologies ultimately designated for certifying exams portends favorably for both ACC and SECO. Renewable energy training isn't diminishing; rather, it's expanding. Currently, five Entry Level Certificate Programs are in place, with another three in the works.

ACC views the Entry Level Certificate Program as a pilot. If, after one year, demand for this and other programs is robust, ACC is willing to consider offering a more advanced two-year associate degree program in renewable energy, similar to what's currently offered at Lane Community College in Portland, Oregon.

Other Entities asked to give Financial Support to the Proposed Project

Austin Community College has agreed to offer an in-kind contribution valued at \$15,663.75 per semester. Thus, for two semesters, ACC's in-kind contribution would be \$31,327.50. Their estimate is based on a program consisting of one course at 48 hours with 25 hours of class time in lecture, eight hours in a computer lab, and 15 hours in field work. Details of ACC's match follows:

| Item | Unit Cost | Unit | Total Cost |
|--|------------------|-------------|--------------------|
| Lecture Classroom Space per hour (seats 15, RVS) | \$37.50 | 25 | \$937.50 |
| Computer Lab Space per hour (seats 15, HBC) | \$100.00 | 8 | \$800.00 |
| Fieldwork Space per hour (suitable for construction of demonstration installations, RVS) | \$25.00 | 15 | \$375.00 |
| Coordinator Time (10% of existing Coordinator) | \$4,000.00 | 1 | \$4,000.00 |
| Administrative Assistant Time (10% of existing Admin. Assist.) | \$2,500.00 | 1 | \$2,500.00 |
| Program Marketing (for one semester): CE Course Schedule \$125; Target Mailing to area businesses \$100; Statesman Ad \$190; Chronicle Ad \$435; Employment Guide Ad \$480, ad copy design/prep \$500) | \$1,830.00 | 1 | \$1,830.00 |
| Indirect Costs (registration, record keeping) | \$5,221.25 | 1 | \$5,221.25 |
| Total ACC In-kind Support/semester | | | \$15,663.75 |

Specific Dollar Amount Requested from SECO

For this proposal, a one-to-one match of \$31,327.50 grant for one year is being requested to implement the NABCEP Entry Level Certificate Program at ACC. The details of the budget request follows on the next page:

| Solar Course Budget | | |
|----------------------------------|--|---------------|
| Category | Description | Budget |
| Materials and equipment | Course material for experiments and building PV system. Includes inverter, wire, control boxes. | \$2,500 |
| Direct cost printing and binders | Copies of course manuals and supplies | \$1,000 |
| National advertising materials | Placement of adds in national solar publications | \$499.50 |
| Miscellaneous materials | Equipment and supplies | \$1,000 |
| Admin. Labor and Marketing | Jane Pulaski to coordinate with NABCEP, national advertising, local and national outreach | \$5,000 |
| Labor Instructor | Develop and design course material, develop homework and test materials, reformat existing 3 day workshop to semester long course. John Hoffner and Michael Kuhn | \$21,328 |
| | Total Budget request from SECO | \$31,327.50 |
| | ACC Match | \$31,327.50 |
| | Total 1-year course budget | \$62,655 |

Plans to support the Project after the Grant Period

It is anticipated that the renewable energy workforce development initiative at ACC will continue on an annual basis where student enrollment and a higher fee structure will support the program. The partnership between the ACC and SECO for this pilot project is essential to 'test the waters' for NABCEP's Entry Level Certificate Program for photovoltaics. Though impossible to predict the number of solar jobs that will be created in coming years, what is certain is that the PV industry is growing at a rapid pace, experiencing growth of 30 to 40 percent per year worldwide during the past five years. This growth is expected to continue at more than 30 percent for the next five years as well, making solar the fastest growing industry of significant size in the world. Having a trained solar workforce will be crucial to meet the growing worldwide sales demand. Closer to home, it is important to remember that Austin Energy will require all solar installers who participate in its Solar Rebate Program to be NABCEP certified by 2006. The federal solar tax credit, which creates a new 30% tax credit for residential solar installations for two years and increases the existing 10% tax credit for commercial solar

installations to 30% for the next two years, will further drive consumer demand for quality installed systems.

Further, NABCEP certification in other renewable energy technologies, like solar thermal and small wind is imminent. Currently in the queue for the next NABCEP certification is solar thermal (<http://www.nabcep.org/solar.cfm>). The task analysis complete, the first certifying exam for solar thermal is scheduled for late Spring or early Summer 2006. The technical committee for Small Wind is currently working on its task analysis.

If demand for renewable energy training is robust, ACC is willing to consider implementing a two-year associate degree program with a Renewable Energy Technician Option, similar to the one offered at Lane Community College in Portland, Oregon.

Plan to evaluate the Project

Curriculum and an application from ACC must be prepared and sent to NABCEP for approval. Monthly progress reports will be prepared and sent to both SECO and ACC with details of the semester. A vigorous marketing and outreach campaign of the ACC/SECO program will proceed, with articles for the Interstate Renewable Energy Council (IREC) (<http://www.irecusa.org>), NABCEP (<http://www.nabcep.org>), the Texas Renewable Energy Industries Association (TREIA) (<http://www.treia.org>), and the Texas Solar Energy Society (TXSES) (<http://www.txses.org>) websites and newsletters. A portion of the ACC in-kind match will support a targeted mailing to area businesses, ads in the Austin American Statesman, the Austin Chronicle, and the Employment Guide.

Names and Qualifications of Staff involved with the Proposed Project:

John Hoffner, PE. has over 20-years of experience designing, installing and operating solar electric systems. He has conducted training and educational workshops around the United States, and is a certified installer by the North American Board of Certified Energy Practitioners (www.nabcep.org). He designed and implemented the NABCEP based 3-day training program in Austin in August 2004. He is a registered professional engineer, has a MS in Engineering Science from Trinity University, San Antonio and a BS in Civil Engineering from Tufts University, Medford MA.

Michael Kuhn is President and CEO of ImagineSolar which offers business development, workforce development, and marketing services for renewable energy companies. Mr. Kuhn teamed with John Hoffner to implement the 3-day training program in Austin in August 2004. His interests include global energy market dynamics; and future industry structure, technology trends, business models, and government policy for renewable energy. He is currently on the consulting team to quantify the value of solar to Austin given the goal of 100MWs by 2020. He has a B.S. in Electrical Engineering, University of Texas at Austin, and a M.S. in Management of Technology, Washington University, St. Louis.

Jane Pulaski is currently in charge of the Department of Energy's Million Solar Roofs communication and coordination tasks including the www.millionsolarroofs.org web site and semi-monthly newsletters. She is also in charge of the Community Outreach web

site for the Interstate Renewable Energy Council (<http://www.irecusa.org>) and is providing content management web support for the New York State Energy Research and Development Authority's (NYSERDA) Power Naturally web site (<http://www.nyserda.org/powernaturally>) . Ms. Pulaski supported IREC in the production of the *Solar Means Safety* educational campaign; the *Neighborhood Power: Building Communities with Solar Energy* Workshop-In-A-Box (2001); the *Going Solar* Model Education Kit; and the *Wind Energy: Powering Our Homes, Businesses and Communities* Workshop-In-A-Box for the Western Area Power Administration (2000 and 2005). From 1992-1999, she was the Program Manager for the Renewable Energy Demonstration Program for the State Energy Conservation Office (SECO) (<http://www.seco.cpa.state.tx.us/>), responsible for planning, implementing and monitoring demonstration projects designed to accelerate renewable energy and sustainability in Texas. Ms. Pulaski has extensive experience in producing and distributing renewable energy educational materials. Ms. Pulaski, a 36-year resident of Austin, has a B.S. in Education (University of Texas at Austin, English Concentration), 1971.