



Independent Electrical Contractors CHESAPEAKE

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Renewable Energy Programs Overview

Vision

IEC-Chesapeake is committed to a sustainable future through education and training of the electrical industry. The organization promotes green economic growth for energy conservation and renewable energy solutions.

About IEC

IEC is the Independent Electrical Contractor Association. IEC is a national electrical contractor trade association that provides apprenticeship training and contractor education for the electrical and communication industry. Our membership is comprised of established residential, commercial, industrial electrical contractors, electrical distributors, manufacturers, and educational institutions such as community colleges. IEC-Chesapeake works with local and state authorities for electrical code compliance and workforce development. To assist in the development of the workforce we additionally work with students in grades K-12, community colleges and community and faith-based organizations. IEC-Chesapeake is the Mid-Atlantic chapter of IEC that serves District of Columbia, Delaware, Maryland, North Carolina, Pennsylvania, Virginia, and West Virginia.

Renewable Energy Committee

IEC-Chesapeake's Renewable Energy Committee is charged with research and member education of programs for energy conservation and viable renewable energy solutions. The committee is expeditiously working with contractor members, industry partners, government policy makers, utilities, and electrical inspectors to implement new Solar PV safety and installation programs. To date, the committee's focus has been on energy efficiency and solar solutions.

Since forming in the summer of 2008, our committee has progressed rapidly with accomplishments that include:

- Completed training sessions for over **500** participants. See established course list below.
- Construction of a fully functional PV installation lab at our Odenton facility made possible by the generous product donations of [Atlantic Electric Supply Corp](#), [BP Solar](#), [Eaton Cutler- Hammer](#), [Mobern Lighting Company](#), and [Think Energy](#).
- Approval to design and manage the installation of a pole mounted Solar PV installation at [Job Corps](#).
- Approved [NABCEP](#) Certificate of Knowledge provider.
- Participated on the [Maryland's Governor Workforce Investment Board](#) (GWIB) for energy and construction.
- Industry meetings and continued discussions with local industry leaders such as BP Solar and [MDV-SEIA](#).
- Exhibited at the Green Jobs Conference (Washington, DC) 02/05/2009
- Exhibited at PV America (Philadelphia, PA) 06/08/2009 through 06/10/2009.

Established Renewable Energy Courses

To date, the following courses have been established by IEC-Chesapeake. Due to rapidly growing interest and successful course completions, we are continually evaluating and developing new Renewable Energy Courses. Visit [Continuing Education Classes](#) online for the latest course schedule of **upcoming** Solar PV and other Renewable Energy Courses.



1. An Introduction to the Solar Electric Market

Government incentives have been established to encourage growth and development in the solar electric market. The Solar America Initiative predicts that by 2015 solar electricity will be less expensive than grid electricity in many parts of the country. This presentation will describe the changing industry and what the IEC-Chesapeake is doing to prepare our membership.

Topics discussed:

- How is this region being impacted by high energy prices?
- What role will solar electric play?
- What are the opportunities for Electrical Contractors?
- What training is available for Electrical Contractors?

2. Photovoltaic (NABCEP) Entry Level Certification Prep Course

Intensive three-day course designed to prepare individuals with basic level of electrical knowledge and general understanding of Photovoltaics for the North American Board of Certified Energy Practitioners (NABCEP) *Entry Level Certification*. The class will cover the Task Analysis as provided by NABCEP during the first two days and will conclude with a review session and the Entry Level examination on the third day. The Entry Level Certification will be granted to those who successfully participate in the course and pass the two-hour, 60-question exam. Students are assigned materials from the supplied textbook to review prior to the start of the class. Topics to be reviewed are intended to familiarize participants with fundamental Photovoltaic terminology and concepts. The class time will be used to review the assigned material and introduce additional material.

Prerequisites include: Understanding of general electrical terms and concepts (voltage, amperage, difference between power and energy), describing the use of a digital multi-meter, calculating simple circuits and describing general safety procedures when working with electrical systems.

3. Photovoltaic Systems and NEC

The seven-hour, one-day session will cover the National Electrical Code (NEC) requirements for designing and installing PV systems. A basic knowledge of the NEC is required since Code basics will not be addressed. Conductor selection, ampacity calculations and overcurrent devices and disconnects will be covered. How to do it correctly and what not to do are items on the agenda. The focus will be on utility-interactive systems. Electricians, Electrical Inspectors and PV Installers should attend. PV Installers will receive six hours of NABCEP (North American Board of Certified Energy Practitioners) continuing education credits for the course.



4. Solar Installation Lab

This four-hour lab has been designed to satisfy one of two solar installation prerequisites for the NABCEP PV Installer examination. The lab consists of a one-hour safety review and three hours of hands-on installation of a basic solar PV system. The system includes the installing of solar panels onto a simulated residential roof or pole mounted system. The lab includes electrical wiring, proper grounding and overcurrent protection for the inverter, and converting power from DC to commercial utilized AC current. Students will be required to draw a wiring diagram from materials provided. Students must have comprehensive understanding of the electrical trade and the physics of solar power and how to appropriately install panels and the associated systems.

5. Lighting Energy Audit Seminar

Understand how to sell energy efficiency to your customer. Attendees will learn and be exposed to:

- A lighting plant, manufacturing commercial grade, energy efficient, fluorescent fixtures
- The benefits of a retrofit
- How to calculate current Energy Rate – bring a power bill
- How to calculate annual operating hours
- How to perform basic incandescent energy audit
- How to perform a basic linear fluorescent energy audit
- Lighting products used in retrofits including linear fluorescent, compact fluorescent, cold cathode and LED technologies
- Examples of actual retrofit audits and financial impacts

6. Business of Solar PV*

In order to establish and grow a successful solar sales business, you need to know more than the mechanics of an installation. Crafting a successful sales process, understanding calculations on “Return on Investment”, and navigating the complex world of solar finance will help differentiate you from the competition and give you the competitive edge needed in this growing dynamic industry. The topics of this course include, but are not limited to:

- Strategic lead generation and tracking
- Calculating and explaining ROI in multiple forms
- How to set up and determine pricing
- Navigating different utility rate structures, tariffs incentives and rebates
- Creating clear, accurate and compelling reports
- Financing and leasing options; understanding the opportunities and pitfalls

Students will leave this course with a firm understanding of how to set up and grow their solar PV business in current markets based on fundamentals of the sales process and the world of financing.

**Scheduled for November 2009*



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7. PV Installer Exam Prep*

Prep class for those ready to become certified in PV Installation. Students will receive a review of the skills and abilities that an installer of PV systems should have. This prep course will allow candidates to demonstrate the skills and knowledge that their peers and experts have deemed necessary to do the job well.

**Scheduled for February 2010*