

# SOLAR RESOURCE GUIDE

## GETTING STARTED:

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### ✳ **Charting Your Solar Course (IREC)**

*Info to help you weigh your options and find your path.*

[http://irecusa.org/wp-content/uploads/2010/03/HP136\\_pg36\\_DeIVecchio.pdf](http://irecusa.org/wp-content/uploads/2010/03/HP136_pg36_DeIVecchio.pdf)

### ✳ **O\*NET Career Exploration Resource (Dept. of Labor)**

<http://www.onetonline.org/find/quick?s=solar>

### ✳ **Solar PV Job Task Analysis (JTA)**

*A detailed list of the skills and abilities that an installer of PV systems should have. It is the core document of the NABCEP Solar PV Installer Certification and exam.*

[http://www.nabcep.org/wp-content/uploads/2008/11/2010\\_NABCEP-PV-Installer-Job-Task-Analysis\\_Low\\_Res.pdf](http://www.nabcep.org/wp-content/uploads/2008/11/2010_NABCEP-PV-Installer-Job-Task-Analysis_Low_Res.pdf)

## CERTIFICATION & CREDENTIALING

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### ✳ **Greener Skills: How Credentials Create Value in the Clean Energy Economy**

<http://www.cows.org/pdf/rp-greenerkills.pdf>

*Certification of a profession refers to a generally voluntary process in which the certifying organization formally grants recognition to those who meet certain predetermined standards or qualifications. It usually includes an examination of some kind to assess the candidates' qualifications.*

*Certification programs accomplish three important goals:*

- They provide a measure of protection to the public by giving them a credential for judging the competency of practitioners;
- They provide practitioners with a way to distinguish themselves from their competition; and
- By potentially improving quality, they improve the public perception of the given occupation, helping increase the industry's prominence.

*Benefits of certification*

- Identifies installers as professionals, instilling consumer confidence in their work
- Validates extra resources spent on training and gaining experience
- Allows for installer mobility as the market moves from state to state
- Allows installers to distinguish their skills and experience in the field
- Provides a means to identify qualified installers, promoting confidence in the work performed
- Preserves consumer choice, maintaining access to both certified and uncertified installers



### ✳ **The North American Board of Certified Energy Practitioners (NABCEP)**

*A volunteer board of renewable energy stakeholder representatives working to develop and implement quality credentialing and certification programs for practitioners. Professionals who choose to become certified demonstrate their competence in the field and their commitment to upholding high standards of ethical and professional practice.*

The NABCEP **PV Entry Level Program** is designed for those individuals wanting to get into the solar field and demonstrates that they have achieved a basic knowledge of the fundamentals of grid-tied and stand-alone PV Systems. As the market grows for photovoltaics, students with a credential demonstrating an understanding of the basic terms and operational aspects of a PV system, may find enhanced employment opportunities. Upon completion of coursework by a registered NABCEP PV Entry Level Exam Provider, a student is eligible to sit for the Entry Level Exam. Prior to taking exam, students should have demonstrated a basic understanding of the principles outlined in the Learning Objectives.

NABCEP **PV Installer Certification** can only be achieved by highly experienced individuals who have passed a much more rigorous examination and have demonstrated the capability to supervise complete PV system installations, and who have a detailed working knowledge of the electrical codes, standards and accepted industry practice associated with PV installations. The target candidate for NABCEP Installer certification is the person responsible for the system installation (e.g., contractor, foreman, supervisor, or journeyman).

✳ **PV Entry Level Exam Info Sheet (NABCEP)**

<http://www.nabcep.org/wp-content/uploads/2009/01/Entry-Level-Candidate-Information-Sheet-10061.pdf>

✳ **List of registered providers of Entry Level Photovoltaic Exam (NABCEP)**

[http://www.nabcep.org/wp-content/uploads/2009/01/Registered-Providers-05\\_21\\_2011-Rev8.0.pdf](http://www.nabcep.org/wp-content/uploads/2009/01/Registered-Providers-05_21_2011-Rev8.0.pdf)

✳ **Solar PV Installer Certification Examination Requirements (NABCEP)**

<http://www.nabcep.org/certification/pv-installer-certification/requirements-education>

✳ **Study Guide for PV Installers (NABCEP)**

*Useful resource for those planning to take the NABCEP Solar PV Installer Certification Exam, but not a definitive guide. The Solar PV Installer Job Task Analysis (JTA), revised in July 2010, does not reflect this new JTA.*

<http://www.nabcep.org/wp-content/uploads/2008/11/nabcepstudyguidev4-2april20091.pdf>

✳ **Institute for Sustainable Power (ISP)**

*Organization, incorporated in 1996, to coordinate, develop, and maintain international standards for the education and qualification of renewable energy (RE), energy efficiency (EE), and distributed generation (DG) providers. Organizations accredited by the ISPQ Regional Licensees, and individuals certified, attest that they have the skills and resources to deliver high-quality training covering the skills and competency requirements of specific renewable energy, energy efficiency and distributed generation trades.*



✳ **IREC**

*A leader in developing quality and competency standards for solar and renewable energy professionals and training programs. Website offers the latest information about building a strong and qualified renewable energy workforce and a database of renewable energy training providers.*

<http://irecusa.org/about-irec/>



✳ **IREC Accredited Training Search:**

<http://irecusa.org/irec-programs/workforce-development/education-information/training-providers/>

## TRAINING

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✳ **“Selecting a Renewable Energy Training Program” Brochure**

*NABCEP, IREC & SEIA publication*

[/wp-content/uploads/2009/01/NABCEP\\_ISPQ\\_SEIA-Training-brochure-11-6-09.pdf](/wp-content/uploads/2009/01/NABCEP_ISPQ_SEIA-Training-brochure-11-6-09.pdf)

✳ **Local company lists of trainings, webinars & events:**

<http://www.sunnysidesolar.com/educate.html>

<http://www.grosolar.com/training#>

✳ **Vermont Tech:**

- **Sustainable Design (SDT) Program**

*Courses in Renewable Energy Systems and more.*

<http://www.vtc.edu/right.php/pid/30/sid/314/tid/989>

- **Center for Sustainable Practices (CSP)**

*Campus Sustainability Office working to increase the sustainability of VTC campus and its community.*

<http://csp.vtc.edu/energy.html>



✱ **The SolarFest, Inc.**

*Pre-Festival PV Installation Training & Festival Workshops*  
<http://www.solarfest.org/>

✱ **Ulster BOCES Career & Technical Center**

(Port Ewen, NY).  
845-331-5050

*Classes include: Electrical Theory for Renewable Energy Practitioners, Intro to PV Technology, PV Installer's Course, Photovoltaic & the National Electric Code, The Business of PV, PV System Design & Sizing, NABCEP Entry Level Certificate of Knowledge Exam Prep Course and the NABCEP Entry Level Certificate of Knowledge Exam offered two to three times per year, Small Wind Energy Workshop*  
[www.ulsterboces.org](http://www.ulsterboces.org)



✱ **Greenfield Community College**

(Greenfield, MA)  
413-775-1000

*RE/EE program offers a wide range of courses to build knowledge and skills in the growing RE/EE field. Students need not be enrolled in a degree or certificate program to take RE/EE classes, although registration opens first to enrolled students. For students already employed in the trades, classes in the RE/EE program offer professional development and skill enhancement in specific technologies. They provide all students with knowledge and skills needed for continued learning and education as well as for entry level employment in the renewable energy/energy efficiency field. Several course sequences earn students eligibility to sit for industry-based exams, such as (NABCEP) Entry Level exam. GCC's SCI 121 and SCI 221- Photovoltaic Design and Install are offer thorough preparation for the technical questions.*  
[renewable@gcc.mass.edu](mailto:renewable@gcc.mass.edu)  
<http://web.gcc.mass.edu/renewable-energy/credentials/>



✱ **Solar Energy International (SEI)**

*A non-profit educational organization offering Renewable Energy Education Program (REEP) hands-on workshops and online courses in solar PV, wind, micro-hydro, solar hot water and natural home building. SEI has Institute for Sustainable Power Quality (ISPQ) and Interstate Renewable Energy Council (IREC) accreditation.*  
<http://www.solarenergy.org/>



✱ **SEI Free Online Course in Renewable Energy**

*For those who wish to learn the basics of renewable energy - including where it is found, how we can harvest it for use in our homes and how it can help ease pressures on the environment.*  
<http://www.solarenergy.org/workshop/introduction-renewable-energy-free-online-course>

✱ **HeatSpring**

*Headquarters in Cambridge, MA provides clean energy training for contractors, builders, electricians, plumbers, engineers, and entrepreneurs. Course offerings range from solar, solar thermal, and geothermal basics to advanced technical courses for building designers and system installers. Local & Online Solar Training Courses are available. The Solar Installer & Solar Thermal Boot Camps are ISPQ accredited by IREC and approved by NABCEP. All of HeatSpring solar courses are designed for those interested in NABCEP certification and becoming qualified to access state and federal incentive programs.*  
<http://www.heatspring.com/>



✱ **SunWize**

*Webinar Series focuses primarily on products and technologies. These concise one-hour webinars are intended to keep installers current on installation practices and products.*  
<http://sunwize.com/webinars/index.php>

## \* AItE U

"300 level" ISP accredited courses count toward NABCEP educational requirements.  
<http://www.altestore.com/classes/>



## TRADE ASSOCIATIONS

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### \* Renewable Energy Vermont (REV)

REV is a nonprofit, trade association committed to reducing our reliance on fossil fuels and expanding the availability of renewable sources of power in Vermont. REV supports renewable energy businesses by building business networks and providing professional development, training and support, pushes for energy policies that promote renewable energy, and represent renewable energy and engages in outreach and education, including conferences and tradeshow, newsletters, and online, and on-call, resources for Vermont-specific information on renewable energy. REV Newsletter, Technology Pages, Incentives Information, Member Directory, Events Listing, Jobs/Classifieds, Success Stories  
<http://www.revermont.org/main/technology/solar/>

### \* VPIRG

VPIRG's Solar Communities project is making solar easier and more affordable for Vermonters with discounts 25% below standard rates with experienced solar installers, bundled government incentives and arranged attractive private financing.  
<http://www.vpirg.org/node/337>  
<http://www.vpirg.org/issues/clean-energy>

### \* SEBANE

A business association of solar energy companies based, or doing business, in New England. Members include companies from all sectors of the PV industry, including photovoltaic ("PV") cell and module manufacturers, component part manufacturers, project developers, system designers, and installers. SEBANE works to promote the use of solar energy and the development of the solar industry in New England.

### \* Northeast Sustainable Energy Association (NESEA)

Leading regional membership organization promoting sustainable energy solutions, operates primarily in the 10 Northeastern states, from Maine to Washington DC.  
<http://www.nesea.org/about/>



### \* American Solar Energy Society (ASES)

Nonprofit established in 1954, is the nation's leading association of solar professionals & advocates with a mission to inspire an era of energy innovation and speed the transition to a sustainable energy economy, advancing education, research and policy. Publishes SOLAR TODAY magazine, leads National Solar Tour — the largest grassroots solar event in the world.



### \* Solar Energy Industries Association (SEIA)

National trade association of the solar energy industry, established in 1974, works to make solar a mainstream and significant energy source by expanding markets, removing market barriers, strengthening the industry and educating the public on the benefits of solar energy.



### \* International Solar Energy Society (ISES)

A global membership organization, serving the needs of the renewable energy community since 1954 in the advancement of renewable energy technology, implementation and education all over the world.

<http://www.ises.org/ises.nsf>



### \* The Solar Electric Power Association (SEPA)

Educational non-profit organization dedicated to helping utilities integrate solar energy into their portfolio, resource for utility solar information.  
Utility Solar Knowledge Center

<http://www.solarelectricpower.org/utility-solar-knowledge-center/utility-solar-knowledge-center.aspx>



## RELATED RESOURCES:

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### LOCAL:

✱ **Vermont Renewable Energy for the Home or Business (NVDA)**

*RE How to Guides*

<http://www.nvda.net/TopNavBars/documents/SolarThermalandPVGuide.pdf>

✱ **Sustainable Energy Resource Group (SERG)**

*Organization that promotes energy conservation, efficiency and renewables through the formation of town energy committees to help residents, businesses and the municipalities reduce energy consumption, save money, increase the sustainable use of renewables, strengthen the local economy and improve the environment. We have helped form and are consulting with Town Energy Committees in numerous Vermont and New Hampshire communities. We are supporting the efforts of these groups and working to form additional committees in other Vermont and New Hampshire towns.*

✱ **VT Department of Public Service**

*Renewable Energy Info & Guide*

[http://publicservice.vermont.gov/energy/ee\\_renewables.html](http://publicservice.vermont.gov/energy/ee_renewables.html)

✱ **Building for Social Responsibility (BSR)**

*The VT Chapter of the Northeast Sustainable Energy Association (NESEA). A group of Vermont development professionals and others who promote sustainable building and energy strategies, believe that the construction of environmentally sound, healthy, durable green buildings offers one of the most significant solutions to the threats of global warming and resource depletion.*

<http://www.bsr-vt.org/>

<http://www.serg-info.org/>

✱ **All Earth Renewables**

*Renewable energy events calendar and news.*

<http://www.allearthrenewables.com/news-and-resources/events-and-seminars/>

✱ **Vermont Renewable Energy Atlas**

<http://www.vsjf.org/resources/renewable-energy-atlas>

### NATIONAL:

✱ **IREC US Solar Market Trend Report (2009)**

[http://irecusa.org/wp-content/uploads/2010/07/IREC-Solar-Market-Trends-Report-2010\\_7-27-10\\_web1.pdf](http://irecusa.org/wp-content/uploads/2010/07/IREC-Solar-Market-Trends-Report-2010_7-27-10_web1.pdf)

✱ **Clean Energy Economy Report (PEW Center)**

[http://www.pewcenteronthestates.org/uploadedFiles/Clean\\_Economy\\_Report\\_Web.pdf](http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf)

✱ **SEIA US Solar Industry Report (2009)**

<http://seia.org/galleries/default-file/2009%20Solar%20Industry%20Year%20in%20Review.pdf>

✱ **USDA Energy Programs**

<http://www.rurdev.usda.gov/rbs/busp/bprogs.htm>

✱ **US Dept. Of Energy**

*Energy info and data including Solar Electric*

<http://www.eia.doe.gov/>

[http://www.eia.doe.gov/energyexplained/index.cfm?page=solar\\_home](http://www.eia.doe.gov/energyexplained/index.cfm?page=solar_home)

[http://www.eere.energy.gov/basics/renewable\\_energy/solar.html](http://www.eere.energy.gov/basics/renewable_energy/solar.html)



### ✱ **The Green Power Network (GPN)**

*Operated and maintained by the National Renewable Energy Laboratory for the U.S. Department of Energy, provides news and information, a reference library, links to related web sites, tables, maps and other data on green power..*

<http://apps3.eere.energy.gov/greenpower/>

### ✱ **SunShot Initiative (DOE)**

*A national initiative to make solar energy technologies cost-competitive with other forms of energy by reducing the cost of solar energy systems by about 75% before 2020.*

<http://www1.eere.energy.gov/solar/sunshot/index.html>

### ✱ **Open PV Project**

*Compiling a comprehensive database of photovoltaic (PV) installation data for the United States. The project are voluntarily contributed from a variety of sources including utilities, installers, and the general public. The data collected is actively maintained by the contributors and are always changing to provide an evolving, up-to-date snapshot of the US solar power market.*

<http://openpv.nrel.gov/>

### ✱ **Book Suggestions (NABCEP):**

- Photovoltaics Design and Installation Manual by Solar Energy International. [www.newsociety.com](http://www.newsociety.com)
- Photovoltaic Systems – An American Technical Publishers, Inc. publication in partnership with NJATC. [www.jimdunlopsolar.com](http://www.jimdunlopsolar.com) (geared more toward the electrical journeyman apprentice)

### ✱ **Misc**

<http://www.cleanenergyauthority.com/solar-energy-news/>

<http://www.renewableenergyworld.com/rea/home> (industry news and info)

<http://www.acore.org/>

<http://www.nrel.gov/ncpv/>

<http://www.dsireusa.org/> (State rebate and job growth info)

<http://www.ispq.org/enter.htm>

<http://www.re-focus.net/>

<http://www.solarelectricpower.org/>

<http://www.sandia.gov/pv/docs/DOC/Order%20Form.doc>