Communities of tomorrow need innovative thought leaders today.

IREC ANNUAL TRENDS REPORT 2015
Communities of tomorrow need innovative thought leaders today.

IREC’s Unique Work is Needed Now More Than Ever

- Working state by state for fair, affordable access to clean energy & connection to the grid.

- Protecting industry & consumers through national education/training standards & best practices.

- Collaborating with industry to ensure a qualified, job-ready clean energy workforce, including our veterans.

- Producing unique independent reports, insight & thought leadership.
At IREC, we hold a number of guiding principles that we lean on to steer us through our everyday work and future planning.

While we work closely with the clean energy industries, including many companies and organizations, we march independently. We don’t have a financial stake in the market, which allows us the platform to engage in objective, fact-supported analysis. The one group that commands our broadest attention is the consumer. Safe and affordable access to clean energy drives our work. Don’t think we’re naïve. We’re not. Strong and competitive markets make clean energy viable. But, questionable shortcuts, inequitable rules, and unbalanced playing fields are in our crosshairs.

We consistently take the pulse of the clean energy market to ensure our relevancy. From time to time, shifting gears, starting over, or jumping into new arenas are called for. Our goal is not to get mired down in an entrenched agenda, but to be quick enough to react to changing conditions that reflect new market and policy directions. This guiding principle keeps us on our toes – which is good. You’ll see this in our work that moves our shared renewables model beyond roof and ownership limitations to options that benefit all income levels. And you’ll also see it as we push the envelope beyond simply publishing thought leading reports. Take our foundational 2015 publication on distributed energy storage. Just a few months after it hit the streets, we were advancing further discussion on the value that solar + storage provides.

One underlying theme that has rooted our workforce efforts over the years is assuring that training programs are framed around market value. The way we define market value is simple – how training relates to jobs. We see an important shift that pulls learning objectives from actual needed, job-ready knowledge and skills. This sounds straightforward, but it relies on a formal process to ensure that competency-based training and hiring are not disjointed.

We take on new paths – responsibly. In this Annual Report, we call out what’s “on the drawing board.” In some cases, we buck up against established ways and challenge ourselves to think differently. Our work on micro-credentials is one example. A relatively new and undefined term, we see these specialty credentials serving a very distinct purpose, to bring add-on knowledge and skills to those in other industries who touch clean energy practices and installations through their jobs. We are piloting this concept, keeping to prevailing validation processes. The anticipated outcome will be a credible credential that can be developed and put into the market quicker and less expensively than a full-scope certification.

As you will see in the following pages, we work on many pieces of the clean energy puzzle. We do not see these pieces as separate chunks but as a whole. We like to connect the dots. An example of this strategy is understanding how our work on interconnection and permitting interrelate with each other. We have identified and addressed how specific improvements and consistency can be made in both to reduce overall time and cost by increasing standardization across markets and municipalities.

We have new and exciting chapters in front of us. Our deepest thanks to our funders and supporters. They give us the resources to expand access to clean energy for all energy consumers – to move forward – to evolve with the changing challenges of shaping a clean, low-carbon future.

Jane Weissman
President and Chief Executive Officer
Working state by state for fair, affordable access to clean energy & connection to the grid.

Consumers are the Winners

Millions of Americans across the U.S. can more easily and affordably access renewable energy today because of IREC’s unique work – leading the national transition to a clean energy future for more than 30 years. IREC’s national leadership and regulatory policy solutions benefit individuals, families and businesses.

The goal: to make the successes in some key states the reality in all 50.

SUCCESS

- With solar installations exceeding 195,000 in 2014, more than 645,000 U.S. homes and businesses now benefit from solar energy. The U.S. residential solar market grew a record breaking 76 percent from first quarter 2014 to 2015.

- Government policy makers, renewable energy advocates, utilities and other stakeholders rely on IREC for innovative, fact-based solutions on the issues and policies at the heart of the U.S. clean energy market.

- IREC research, published reports and best practice guidelines and recommendations are pillar elements in regional, state and federal energy policies, which now affect consumers in nearly every state.

- Of the top 10 solar states for installed capacity, IREC was involved in multiple regulatory proceedings in all of them.

ON THE DRAWING BOARD

- Continue state by state engagement to remove new and changing barriers to fair, affordable, distributed renewable energy.

- Expand the number of states creating community shared solar opportunities to extend solar’s benefits to millions of U.S. households that can’t produce their own energy.

- Shape policies to expand clean energy access to more low-income individuals, families and disadvantaged communities.

- Develop national best practices regarding energy storage and other new technologies to ensure market expansion.

- Ease the transition to a more modern, low-carbon electricity grid by generating and sharing regulatory policy solutions.
ow more than ever, state-level utility regulatory forums sit at the epicenter of the national energy market transformation. The complexities of the issues, the stakeholder dynamics, and the nature of the decision-making processes all require a particular skill set and level of expertise in order to effectively bring about meaningful regulatory reform.

As a long-standing, effective catalyst in the electricity regulatory arena, IREC’s work in more than 40 states continues to expand clean energy opportunities in the nation’s top 20 emerging renewable energy markets and ensure continued growth in the top 10 high penetration markets, with a ripple effect visible in many others.

- Our sustained state regulatory engagement on a host of interrelated distributed energy resource (DER) issues allows us to simultaneously advance regulatory policy innovations, inform the development of national model rules and best practices, and build trusted relationships and rapport with key decision makers.

- A grant from the U.S. Department of Energy (DOE) SunShot Initiative supported IREC’s regulatory leadership for the past three years, resulting in transformational energy policies in multiple states.

- The U.S. solar market continues to benefit from IREC’s replicable best practice rules for net metering, interconnection and shared solar. Frequently referenced in state regulatory policy efforts, these tools inform and often transform regulatory dialogue.

- More than 20 foundational reports – including on solar valuation, distributed energy storage, the regulatory compact and integrated distribution planning – have enlightened clean energy regulatory decision-making across the country.

- Active engagement in 50+ regulatory proceedings led to consensus-based, workable solutions that expanded access to solar.

- IREC’s path-defining work on interconnection on the Federal Energy Regulatory Commission’s Small Generator Interconnection Procedures helped streamline the process of connecting to the grid. In addition, we’ve helped facilitate the adoption of interconnection improvements in Massachusetts, California, Ohio and North Carolina. Our work continues to play out in Illinois, Indiana, Minnesota, New York, South Carolina, Arizona and more.

**INSIGHT & UPDATES**

**Net Metering & Solar Valuation**

More than 20 states have begun discussions and proceedings to calculate the value solar brings to the distribution grid, utilities and their customers. IREC helps states frame these discussions by bringing an objective benefit-cost methodology to the conversation, along with lessons learned by other states. IREC’s *Regulator’s Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation* is a valued tool in these efforts, and along with accompanied discussion and guidance from the IREC regulatory team, is directly responsible for a number of successful outcomes that position distributed energy resources on a path to continued growth.

**Interconnection**

Interconnection reform equally benefits utilities – either overwhelmed by applications or unfamiliar with DER integration best practices – developers who must wade through lengthy application requirements, and ultimately consumers. By addressing interconnection issues before utilities become overburdened, and by increasing standardization across markets, costs for renewable energy will be reduced.

**Why is Interconnection Important?**

Imagine the effect that an overnight, groundbreaking policy might have on a less-developed market. For example, Minnesota recently adopted an ambitious community solar gardens program – a model in which utility customers can share the benefits of solar power electricity without installing it on their own property. The program created a rush of reservations and interconnection applications.

Whether for a residential rooftop solar PV project, a small wind turbine at a school or a community-owned shared solar project, interconnection standards impact all clean energy projects. Strong interconnection standards can provide predictable, expedited, cost-effective processes, while still maintaining grid reliability and safety. Inadequate or poor standards, on the other hand, can lead to costly delays and unnecessary fees and requirements that ultimately impact the economic viability of projects, as well as the consumer experience and investor confidence.

Through IREC’s participation in interconnection efforts in Arizona, California, Massachusetts, Minnesota, New York, Illinois and North Carolina, we are seeing a growing trend: rapid solar market growth is placing considerable pressure on state interconnection standards.
Mt. Garfield Middle School, Colorado

“We’re a school district that has cut energy use by a staggering 35 percent — which amounts to about $1 million a year in avoided energy cost savings. Of our remaining energy need, we have shifted 25 percent of our electricity requirement to solar, or 5 gigawatt-hours annually. Together, our conservation and renewable projects are worth about $1.25 million in savings per year! We have 12 schools with solar systems that provide power directly, plus a 10-acre solar garden that gives bill credits for the solar energy. All of the solar projects have required zero dollars of capital outlay, allowing us to return some much needed dollars back to our schools.”

Eric Anderson
Energy Manager, Mesa County School District 51
Energy Storage
No longer just a vision, some real and innovative action is now on the regulatory front to make the promise of energy storage possible for millions of Americans.

It is widely recognized that distributed energy storage can offer a host of benefits to utilities, storage customers and ratepayers. As it stands today, however, the regulatory and market policies in the electricity sector are not yet positioned to enable energy storage developers and customers to access the full range of benefits it can offer.

To help state regulators sort the complex issues surrounding distributed energy storage, IREC published a landmark report in 2015, Deploying Distributed Energy Storage: Near-Term Regulatory Considerations to Maximize Benefits. The report outlines why regulators should be interested in foundational policies to enable greater deployment of distributed storage, highlighting benefits and related current state policies. It then provides six key regulatory policy considerations.

But is adding batteries worth it?
The concept of adding batteries alongside a utility customer’s solar array intrigues utility customers, solar developers and utility planners on several levels. But what is the value of solar energy coupled with battery storage? IREC engaged Clean Power Research® (CPR) to develop a methodology that could be used to answer this question. Proposed in the report, Valuation of Solar + Storage in Hawaii: A Methodology, is a method to quantify the added economic benefits that could result from adding behind-the-meter storage to supplement solar energy generation. The methodology can be applied in any location. It focuses on Hawaii as an example, as it is likely to be an early adopter of storage regulations.

Grid Modernization
Multiple compounding factors are driving national movement toward a more modern electricity grid, one that enables a cleaner energy future. A milestone report published by IREC in 2015 offers a unique look at easing that transition, and offers five insightful approaches for state utility regulators who, ultimately, will facilitate this transition through the rules and regulations that govern the electricity system and electric utilities.

IREC’s report – Easing the Transition to a More Distributed Electricity System: The Changing Roles of Consumers, Utilities and Regulators within the Regulatory Compact – is already a key element of discussions in several states. IREC regulatory experts are deeply engaged in California, Massachusetts and New York.

Permitting
Solar permitting, as opposed to net metering, interconnection and other state-level policies, happens at the city or county level, which includes 25,000 jurisdictions across the country. With so many jurisdictions involved, consistency and standardization are key to driving down the installed cost of renewable energy.

Keeping the permitting process moving efficiently is important to both permitting authorities, often burdened with high volumes of solar permit applications, and the solar industry. Because IREC believes the responsibility for improving the permitting process needs to be shared, we are working to identify reforms that offer benefits to all.

Shaping the national dialogue around permitting, IREC shares innovative processes some communities have adopted. Outreach, resources and training are provided for communities interested in improving their permitting and inspection procedures. Best practices examples show how forward-thinking jurisdictions provide transparent and efficient permitting and inspection procedures, streamlining procedures, and adjusting fee structures that lower costs for solar developers and ultimately consumers.

Toolkit Helps Local Governments with Solar Financing
In an effort to reduce solar soft costs and assist local governments and other public entities seeking to install and finance rooftop solar systems, IREC developed a comprehensive toolkit on retail solar power purchase agreements (PPAs).

What is a PPA? In this model, a third party owns a solar energy system located on the property of a host customer, such as a local government, and sells the electricity produced by the facility to the customer, under a contract designed to provide long-term electricity cost savings.

The attraction is long-term energy cost savings without requiring large up-front capital expenditures. And PPAs allow public entities to indirectly benefit from tax incentives not accessible to them otherwise. But there are multiple challenges and costs associated with PPAs. The toolkit is designed as a comprehensive suite of resources to help with the process.
SUCCESS

- As national coordinator of the Solar Instructor Training Network (SITN), IREC has built a national network of 420 solar training institutions.

- In five years, 30,000 students have received some form of solar training from SITN instructors in 49 states and two U.S. territories.

- IREC develops consensus-based standards to promote best practices and provide a benchmark for effective, safe clean energy workforce training practices.

- IREC is now accredited by the American National Standards Institute (ANSI) as a standards developing organization, and maintains an ANSI standard for clean energy certificate programs.

- The IREC Credentialing Program accredits clean energy training providers and certifies instructors and master trainers. The rapidly growing number of IREC credential holders now exceeds 160.

- As national administrator of GEARED (Grid Engineering for Accelerated Renewable Energy Deployment), IREC is helping to build the power generation workforce of engineers and planners who will develop and operate the future electricity grid— to accommodate high volumes of solar electricity and other distributed technologies.

ON THE DRAWING BOARD

- “Micro credentials” – a new concept IREC is defining as a national leader in workforce development solutions. Initial goals are to identify and define the skills and training needed for allied industries that need some clean energy competencies for existing occupations, and to create a credentialing mechanism to respond quickly to changing workforce needs in the evolving clean energy market.

- Creation of a dynamic digital credentialing system to represent workforce credentials. Embedded in a digital “mark” will be the criteria upon which a credential is awarded, date of issue and expiration, and an accurate description of its scope and use in the market. The goal is to leverage technology to make the value and meaning of workforce credentials more clear to stakeholders.

- Training firefighters and other first responders more frequently encountering solar PV systems. With course content and technical experts, and endorsement from the International Association of Firefighters, IREC is developing an online course to help first responders understand the components and operation of PV systems and the proper procedures for disconnection to ensure emergency worker safety.

- Facilitating regional GEARED student conferences and events that allow students to engage in discussions on power system engineering technologies, share results from research projects, and interact with industry stakeholders and students studying similar topics at other universities.
Building a national, highly qualified, well-trained clean energy workforce takes time. And work. And vision.

After five years as national administrator of the Solar Instructor Training Network (SITN), we’re seeing stunning results from the confluence of the work of innovative instructors, supportive administrators at educational institutions, and long-term vision from DOE’s SunShot Initiative. Together, we’re working toward the same end: building a highly qualified, well-trained, local solar workforce of PV installers and related occupations, ready to support the booming solar industry with safe, durable and trusted residential and commercial PV installations.

What makes the Solar Instructor Training Network work?
For starters, it’s the deep bench of talent in nationwide regional training providers with engaged instructors and supportive administrators.

Collectively, we developed unique resources, like the just updated interactive Solar Career Map that explores the many and varied job opportunities available in the solar industry.

We listened to those in the field, and created an online curriculum for reliable field inspection practices and efficient permit processes for residential PV installations for thousands of code officials and authorities having jurisdiction (AHJs) across the U.S.

We collaborated with innovative solar instructors to produce a seven-part national best practices series for training, education and workforce development, ensuring that educators have the right tools to prepare students with indispensable skills for the solar workforce.

We remained nimble so we could respond to a quickly evolving solar industry, while maintaining an unwavering commitment to quality.

And now? We’re hearing from industry and companies who are looking for those quality-trained workers. “Where are the SITN institutions, and how can we get access to those students?”

New Resources

Best Practices in Online Solar Course Development
A set of three self-directed online modules is aimed at supporting instructors interested in teaching solar content online. The modules teach users effective instructional strategies and implementation for online or hybrid instruction.

Updated PV Online Training Course for Code Officials (PVOT)
This very popular course now reflects the National Electrical Codes through 2014 and includes a new lesson on the International Fire Code, with building and fire safety information related to residential PV systems. The International Association of Electrical Inspectors continues to offer expertise and continuing education units for the course.
GEARED: Power System Training to Secure Tomorrow’s Solar Electricity

Ensuring quality training of the next generation of energy engineers, system operators and utility professionals is key to lowering the cost of solar electricity, advancing seamless grid integration, and supporting a growing U.S. solar workforce.

The GEARED project helps combat a number of challenges:

- An aging utility workforce.
- The large number of imminent faculty retirements in U.S. universities.
- Upgrading the curriculum of power systems engineering programs to incorporate high volumes of solar electricity and other distributed technologies.
- An urgent need for increased power system research, development and analytical capacity, and integration of these findings into education and training.

Among GEARED’s successes, a national network has been built of educational centers and industry partners that support power systems training and curriculum development based on research, development, data generation, collection, analysis and simulation. Working with the U.S. Department of Energy, IREC has served as national administrator of GEARED since its creation late in 2013.

Collaborators include members of the Distributed Technology Training Consortia (DTTC), composed of three regional consortiums, each with multiple university, utility and industry partners:

- University of Central Florida: Foundations for Engineering Education for Distributed Energy Resources
- Missouri University of Science and Technology: Mid-America Regional Microgrid Education and Training Consortium
- The Electric Power Research Institute: The Center for Grid Engineering Education

Reaching for the Sun
IREC is proud of its role in helping the U.S. Department of Energy pilot its Reach for the Sun solar PV veteran training program. Through the SITN, and with IREC’s expert guidance, the program provides 4–6 weeks of intensive classroom and hands-on solar training for military personnel who are transitioning from active duty to civilian life.

The onsite training offered at Camp Pendleton and Fort Carson is led by Solar Energy International. Penn State University is leading the onsite training at the Naval Station Norfolk. Industry leaders have jumped at the chance to hire these highly skilled veterans.

IREC’s role as a senior advisor is to ensure the veterans have a training opportunity that meets the highest quality standards, leading to valuable knowledge and skill development. The goal is to have about 40 percent of the training be hands-on.

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Student Innovation Board

A select group of students representing engineering colleges and universities across the U.S., the GEARED Student Innovation Board is empowering students to become competent and well informed engineers, and to influence major technical, social and policy decisions that address critical global energy challenges.

“The connection made between industry and students is a pipeline for jobs and the future power engineering workforce.”

Dr. Zhihua Qu, University of Central Florida SAIC Endowed Professor & Chair; Team Lead, Foundations for Engineering Education Distributed Energy Resources (FEEDER).
SUCCESS

- To keep PV training relevant, the Solar Instructor Training Network PV Instructor Summits gathered community college educators, training managers and representatives from the solar industry to share insight on the types of skills in demand by PV installation companies and innovative approaches for community colleges.

- IREC’s reach is broader than ever about the importance of credible clean energy credentials and job-relevant education and training. Through webinars, presentations and exhibits, we are reaching utilities, industry, educational institutions, training instructors, students and government entities.

- More state and federal energy programs and Workforce Investment Boards recognize IREC’s clean energy credentials as an important indicator of a quality training program – and they’re beginning to encourage employers to do the same when hiring.

- Increasing numbers of colleges and clean energy training programs are committing to IREC’s credentials, demonstrating they meet the highest standards, developed with ongoing industry input.

ON THE DRAWING BOARD

- Working with allied industries who ‘touch’ clean energy, initially including fire inspectors, first responders, code officials and others, to incorporate education and training for safety.

- Expanding the number of states that recognize the importance of credible clean energy credentials – to help them fund the best clean energy training programs through their Eligible Training Provider Lists and to incorporate requirements for workers trained in accordance with national standards on government-funded projects.

- Broadening the message to consumers that quality workmanship is as critical to a solar installation or energy efficiency retrofit as the quality of the technology. Look for credible credentials!

*The solar industry created jobs at a rate nearly 20 times faster than the economy overall in 2014, accounting for 1.3 percent of all jobs created in the U.S.*
American interest in clean energy is at an all time high. That makes consumer confidence more critical than ever. Effective workforce training – aligned with industry needs – ensures clean energy professionals have the right skills to provide safe, reliable clean energy products and services.

Clean energy industries are a strong, growing part of the U.S. economy, responsible for thousands of jobs across nearly every state. The challenge is to link training with skills and competencies industry needs.

IREC is building the foundation for strong clean energy markets by driving quality, market-valued education and training standards for a job-ready workforce.

Closing the Gaps Between Workforce Training and Real Jobs

The IREC Credential

IREC evaluates clean energy training providers and instructors against rigorous industry-developed standards. Only those who demonstrate their commitment to preparing students for real jobs receive the IREC Credential.

By looking for the trusted IREC Credential, students, employers, consumers, funders and state workforce programs can make informed decisions about programs and instructors. They know these are the educators and trainers teaching for the workplace – covering the right knowledge and skills for today’s and tomorrow’s jobs.

That’s the power of a reliable, credible credential.

All Clean Energy Training is NOT the Same

We’re proud to be tangibly different. IREC accredited training providers deliver clean energy training and education aligned with employer needs, so graduates are assured they are gaining knowledge and skills that are valued in the marketplace.

IREC’s standards ensure this a number of ways:

- **Alignment with real jobs** – including curricula correlated with industry-vetted job task analyses, assuring that program content is consistent with the knowledge and skills industry says are needed.

- **Linkage with industry** – from curriculum development through job placement, significant, long-term industry relationships ensure continued relevance.

- **Stakeholder engagement** – input to improve and refine program content in every phase of program development, from what clean energy content to offer, through program evaluation and delivery.

- **Valid assessments** – assessment of student learning is a key training program success indicator. It is only valid, criterion-referenced written and hands-on testing that can measure learning and competency, both of which are key in IREC training provider standards. Together, they help demonstrate that knowledge has been transferred to students; that they can safely and competently perform the job.
Solar Summits Address Hard Questions
Solar companies across the country have been in search of well-trained workers to support the rapid industry growth. The Solar Instructor Training Network was created to help support industry’s need for a qualified workforce, and over a five-year span, move forward the solar programs at the SITN’s institutions.

So when students of these programs were struggling to find jobs within the solar industry, and solar programs started seeing a precipitous drop in enrollment, IREC recognized that industry engagement with the education and training institutions was missing. To accelerate a solution, IREC convened east coast and west coast solar summits to bring educators and industry representatives together.

“We’re so hungry for qualified students that we would work with colleges to do all kinds of things: open houses, barbeques, shadowing programs, whatever it takes to make relationships and hires.”

Christian Mack, Operations Recruiting Manager, SunRun

These highly successful summits gave educators and company representatives a chance to learn from each other. What are the workforce needs from those hiring solar professionals? What types of skills are in demand by PV installation companies? What are the right approaches to keep community college PV training relevant?

The outcome was a tremendous flow of good information and the building of new relationships that are expected to have lasting benefits – for training programs, industry, students and consumers.

Value for All
IREC Training Provider Accreditation + IREC Instructor Certification

“Having and maintaining credible credentials is smart business. Having IREC credentials enables us to stand out from our competitors. It keeps us focused, dotting the i’s and crossing the t’s. Your business benefits. The students benefit. The consumer benefits. It’s a big win-win-win all around.”

Richard Stovall, CEO, SolPowerPeople
IREC Certified Master Trainer/PV Installation Professional

“Solar professionals are responsible for people’s investments and safety. As instructors, we have a huge impact on the quality of installations . . . that pushes me to do my best.”

David DeVecchio, President, Solar Seed
IREC Certified Master Trainer/PV Installation Professional
North Carolina Solar Center and Solar Energy International
Where are the Jobs? Solar Career Map II

A new, more interactive online tool helps answer questions asked by educators, students and professionals about what skills are needed and where the on-ramps are to solar employment. IREC created the first Solar Career Map, which explores 36 occupations and accompanying career pathways available in the solar industry. Now, the more interactive, real-world feel uses photographs and short video clips to build on its value. Through brief interviews with students, instructors and industry representatives, the user is guided through career pathways and the skills and training needed for specific occupations.

Stackable Skills

“The classroom training we had gave me a good understanding of how the solar panels and entire electrical systems work even before seeing one and building it. I got into the five-year IBEW Apprenticeship Program in 2008 while in the National Guard. I was deployed to Afghanistan then finished the program when I returned. The solar skills built upon my inside electrical work and my OSHA safety training. I work as a journeyman/inside wireman with Centerplan Construction (Middletown, CT), who hired me after my apprenticeship was done.”

Chris Fiasconaro
Army National Guard, Veteran Afghanistan War

“I tell students to put it on their resume. ‘I was trained in an IREC-accredited program by an IREC-certified instructor.’ IREC sets the gold standard, so it adds another degree of credibility for employers and students. It also tells new students our teaching methods and curriculum are measured against the highest national standards, matched to current employer needs.”

Tim Wilhelm, P.E., IREC Certified Master Trainer
Kankakee Community College

“Several years ago NSSC decided to go for IREC accreditation for the entire suite of our Home Energy Professional training programs. We wanted to hit a homerun in credentialing and distinguish our training center as one of the top in the nation to provide residential energy efficiency and building science training.”

Alison Dillon, Assistant Director
National Sustainable Structures Center
Pennsylvania College of Technology
Each month IREC reaches:

- Up to 1.2 Million blog readers
- Thousands of industry and government decision makers
- Educators and trainers in nearly every state

RESOURCES

**Solar Instructor Training Network**

**Best Practices Series**
A compendium of national best practices for instructors in solar training, education and workforce development.
http://bit.ly/1tJsBvI

**Solar Career Map II**
An updated, interactive guide through career pathways and the skills and training needed for specific occupations.

**Seminar Series**
Subject matter experts present timely relevant information to solar instructors and others in the solar community.
http://bit.ly/1qbaMD5

**PV Online Training**
A unique, updated course on residential PV systems now for code officials and firefighters.

**Solar Content Integration**
Three self-directed online modules support instructors interested in teaching solar content online or for hybrid instruction.

**Workforce Education**

**Clean Energy Training Directory**
A searchable online directory of workshops, hands-on training, undergraduate and graduate level courses and programs in renewable energy and energy efficiency.
http://bit.ly/1tJsBvI

**Solar Licensing Database**
State-by-state solar licensing information for policy makers, stakeholders, practitioners, students and consumers.
http://bit.ly/1yhz6qi

**Regulatory**

**Shared Solar Program Catalog**
Programs and projects that meet IREC’s definition of shared renewable energy and incorporate IREC’s model rules.
http://bit.ly/1HMsOzh

**Small Wind**

**2015 Ratings of Certified Small Wind Turbines**
Listed are small wind turbine models fully certified to the American Wind Energy Association (AWEA) Small Wind Turbine Performance and Safety Standard.
http://bit.ly/1HMsT66
IREC Model Rules
- Shared Renewable Energy Programs
  http://bit.ly/1PThQh9
- Interconnection Procedures
  http://bit.ly/ZLXuS4
- Net Metering Rules
- Virtual Net Metering Policy Background and Tariff Summary
  http://bit.ly/1OzJWx1

Storage
- Valuation of Solar+Storage in Hawaii: Methodology
  http://bit.ly/1O1HA9f
- Deploying Distributed Energy Storage: Near-Term Regulatory Considerations to Maximize Benefits
  http://bit.ly/1HYkWA6

Permitting/Inspection
- A Guide to Preparing Solar Permitting Checklists
  http://bit.ly/1gtsAN
- Minimizing Overlap in PV System Approval Processes: Case Studies & Analysis
  http://bit.ly/1mSRtA
- Model Inspection Checklist for Rooftop PV Systems
  http://bit.ly/1CAhbrV
- Residential Solar Permitting Best Practices Explained
  http://bit.ly/1i2xqQ
- Sharing Success: Emerging Approaches to Efficient Rooftop Solar Permitting
  http://bit.ly/1T饮酒
- Simplifying the Solar Permitting Process: the Importance of Consistency
  http://bit.ly/1hJCy
- Solar Permitting Best Practices (IREC / Vote Solar)
  http://bit.ly/1IRic3S

Other Regulatory Publications
- Solar Power Purchase Agreements: a Toolkit for Local Governments
  http://bit.ly/1O7zdGG
- Easing the Transition to a More Distributed Electricity System
  http://bit.ly/1SjE0k
- Unlocking DG Value: A PURPA-Based Approach to Promoting DG Growth
  http://bit.ly/1pdxbua

Other Regulatory Publications continued
- Integrated Distributed Planning Concept Paper
  http://bit.ly/1mT6pfe
- 12,000 MW of Renewable Distributed Generation by 2020
  http://bit.ly/1u2PmNY
- The Intersection of Net Metering & Retail Choice: an Overview of Policy, Practice & Issues
  http://bit.ly/1Zm0L5
- Blueprint for the Development of Distributed Generation in California
  http://bit.ly/1fkUJuc

Credentialing
- IREC Candidate Handbook
  http://bit.ly/1CCbUGC
- IREC Basic Guidelines for Training Curriculum
  http://bit.ly/1HqEzg
- Job Task Analysis Guidance Document
- All About Assessments: Guidance for Applicants for the IREC Credential
  http://bit.ly/1CABNh

IREC Standards
- http://www.irecusa.org/standards-development
- IREC Standard 01023:2013 General Requirements for the Accreditation of Clean Energy Technology Training
  http://bit.ly/1fhFHk9
- IREC Standard 01024: 2013 General Requirements for the Certification of Clean Energy Technology Instructors and Master Trainers
  http://bit.ly/1fFJBK
  http://bit.ly/1f4Vxaw
- Job Task Analysis Guidance Document
  http://bit.ly/1fhG0ED
- Application for IREC Training Provider Accreditation
  http://bit.ly/1fhG0ED
- Application for IREC Instructor and Master Trainer Certification
  http://bit.ly/1fhFXZq
- Application for IREC Certificate Program Accreditation
  http://bit.ly/1fhFZAE

ALL RESOURCES & PUBLICATIONS AVAILABLE AT NO CHARGE AT WWW.IRECUSA.ORG
In the Mix with Colleges
IREC’s Credentialing Program was in the mix with 600 community college presidents, administrators, instructors and partners at the American Association of Community Colleges Workforce Development Institute early in 2015. One timely topic was the impending Workforce Innovation and Opportunity Act. WIOA addresses closing the skills gap with an emphasis on stakeholder engagement and industry partnerships, as do IREC’s national efforts in clean energy quality workforce development.

IREC Behind the Headlines
Our regulatory team participated in more than 30 regulatory proceedings in nearly 20 states; delivered more than 30 presentations at conferences and meetings; and was regularly quoted in major trade and consumer media on the year’s hottest topics: energy storage, grid modernization, community shared solar, and valuation of solar + storage.

White House Announcement Builds on SITN
President Obama announced a new goal in April 2015 to train 75,000 people to enter the solar workforce by 2020, some of whom will be veterans. This new goal builds on the tremendous progress of the Solar Instructor Training Network, for which IREC has been national administrator since its creation five years ago.

Solar Training our Veterans
The first class of graduates from the U.S. Energy Department’s solar job training pilot program was at Camp Pendleton February 13, 2015. Aimed at preparing service members for careers in the solar industry, IREC was there to congratulate them as proudly as we served as senior advisors for the national program.

3iForum at SPI
IREC experts presented on regulatory and workforce trends and updates at Solar Power International, right on the exhibit floor, with more than 15,000 SPI attendees.

IREC 3iAwards Ceremony
A highlight at Solar Power International 2014, the national IREC awards were presented in front of a standing room only crowd from across the U.S. and the globe.
Jane Weissman, President and Chief Executive Officer
Larry Sherwood, Vice President and Chief Operating Officer

Regulatory Program
Sara Baldwin Auck, Regulatory Program Director
KEYES, FOX & WIEDMAN, LLP
Attorneys and Analysts Representing IREC
  Jason Keyes, Partner
  Sky Stanfield, Of Counsel
  Erica Schroeder McConnell, Associate
  Laurel Passera, Senior Renewables Analyst
  Michael Sheehan, PE

Workforce Development
Laure-Jeanne Davignon, Director of Credentialing
Michelle Barrett, Project Manager
Kristen Ferguson, Senior Program Manager
Anna Sullivan, Credentialing Services Manager
Joe Sarubbi, Consultant, Solar Instructor Training Network and GEARED
Mary Lawrence, Consultant, Solar Instructor Training Network and GEARED

Communications
Ruth Fein
Jane Pulaski

Administration
Louise Urgo, Business Manager
Maryteresa Colello, Administrative Coordinator

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National Renewable Energy Laboratory

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Karl Rabago, Pace Energy and Climate Center
Marc Roper, Sovereign Modular
Carl Siegrist, Carl Siegrist Consulting, LLC
Jennifer Somers, formerly with U.S. Department of Energy
Jane Weissman, IREC

Lifetime Achievement Award
Jerry Ventre is our mentor, our sage and our hero. Jerry’s kindness and caring has touched so many of us around the country. He generously shares his wisdom and guidance. His fan club is standing room only.

We’ve worked with Jerry for 30 years and at every point along the way, we learn. He is the ultimate teacher and we consider ourselves lucky students. But, as Jerry starts his new journey giving himself time to devote to long-awaited projects, we will so deeply miss his quiet and unshakable voice and the large role he has played in moving solar and clean energy from the margins into the mainstream.

Jerry’s legacy is embedded in the underpinning of today’s strong national clean energy workforce. Quite simply, our gains would not be as advanced without Jerry’s leading hand.

IREC Action Heroes

Benjamin Goldstein is a trailblazer.
Kathy Swartz is a quiet giant of a leader.
Marcy Drummond is a visionary.
Anya Schoolman makes things happen.

Want to know more about our award winners and their stories?
VISIT: www.irecusa.org/aboutIREC

2015 Honorees

Finalists selected by a national awards committee. Winners chosen through open voting by more than 1500 online voters.

Closing the Divide – Integrating Energy Efficiency & Renewables
- Community Housing Partners/Town of Blacksburg, VA

Community Renewable Energy Project of the Year
- Greater Bergen Community Action

State & Local Government Achievement of the Year
- Energy Trust of Oregon Solar Program

IREC Certified Clean Energy Trainer of the Year
- Kelly Larson

IREC Accredited Training Provider of the Year
- Solar Energy International
“The problem is we basically live in a forest. I heard about community solar and it was a no-brainer. We’re saving money on our electric bill and we know our investment is making a difference. We’re helping to push the solar industry forward, so when my son grows up the world is looking a lot different. It makes me feel good that we’re part of that transition.”

Jenny Heeter
Homeowner, Rocky Mountain Region