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**ENVIRONMENTAL ENTREPRENEURS (E2)** is a national, nonpartisan group of business leaders, investors, and professionals from every sector of the economy who advocate for smart policies that are good for the economy and good for the environment. Our members have founded or funded more than 2,500 companies, created more than 600,000 jobs, and manage more than $100 billion in venture and private equity capital. For more information, see www.e2.org or follow us on Twitter at @e2org.

**THE NATURAL RESOURCES DEFENSE COUNCIL (NRDC)** is an international nonprofit environmental organization with more than 2 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world’s natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. Visit us at nrdc.org.
Welcome Aboard

“Look at major conflicts around the world,” notes solar installer John Amundson, “and you’ll notice many stem from a fight over energy resources. “For John, a career in renewable energy goes beyond helping his neighbors save money. It is part of a larger effort to address energy scarcity and global insecurity. Global issues were on Ritu Gopal’s mind when she charted her professional path as a biofuels engineer. “Climate change made it clear how we urgently need new technology to address our dependence on fossil fuels. I took up a career in sustainable energy because I wanted to join this effort,” she said. But for Solar FlexRack’s Amber Gallagher, working in clean energy comes with pride that hits home. “Right here in Youngstown, Ohio, we manufacture solar components that are shipped across the world,” she said. “We hired 15 workers this year to keep up with demand. Born and raised here, I’m proud of what my community does for clean energy, and what clean energy has done for my community.”

John, Ritu and Amber had different motivations for working in clean energy. But they share a common belief that their job should make a difference to their community. This feeling sets Millennials apart: more so than any generation before us, we seek a sense of purpose in our careers. Whether you have international peace, climate change or economic and environmental justice in mind, clean energy helps meet your goals to affect change while earning a paycheck. From lithium ion battery manufacturing to electric vehicle engineering, from wind turbine installation to renewable finance, clean energy offers an opportunity for anyone with a passion for making a difference.

Fortunately for you, thanks to effective federal and state clean energy policies helping drive deployment, huge growth in clean energy jobs, rapid technology cost declines, and the Clean Power Plan promising a low-carbon future, the timing to enter the industry couldn’t be better.
The Energy Revolution

Millennials are thriving in a new economy that’s increasingly democratized and decentralized. Hotels and taxis are now competing with Airbnb, Uber and Lyft. Entertainment is no longer channeled through video stores, basic cable or CDs, but through suites of services like Netflix, Hulu and Spotify. The energy industry is going in a similar direction. Consumers have an opportunity to break free from fossil fuels and take control of how they use energy. The past decade has welcomed smart grid technology, affordable renewable electricity and increasingly popular electric vehicles — each of which empowers consumers to wield control of how they produce and consume energy every day. This autonomy and independence means young Americans are increasingly eager to advance clean energy.

Just what sectors make up the clean energy economy, and what types of opportunities are out there?

SOLAR: The fastest growing energy sector for 2015, solar is experiencing an unprecedented boom from Arizona to New Jersey. An estimated 209,000 Americans were employed by the solar industry in 2015, up from 119,000 just three years prior. Add part-time solar workers and that number jumps to 299,000, according to E2’s Clean Jobs America. This is driven by technological innovation, innovative financing models, and ever-increasing economies of scale.

While most people think of solar employees as installers — men and women working on roofs or constructing arrays on land — the sector has numerous other opportunities. The solar industry provides thousands of jobs to Americans who manufacture modules, racking systems, and other system components. Given solar’s recent rapid growth in the commercial and residential space, marketing and sales teams are critical to supporting businesses across the country. In fact, the Solar Foundation estimates more than 24,000 solar jobs are in sales and distribution. Finally, as clients need to secure loans in order to pay the upfront cost of a solar array and installation, workers with a background in finance are instrumental to the continued growth of the industry.

WIND: Wind energy is the largest source of renewable energy in the United States, meeting 4.4% of our electricity needs. At 4.9 GW, wind powers the equivalent of 18 million homes. Just one 3 MW turbine can provide electricity for 1,500 households. Unfortunately, the wind industry has seen boom and bust cycles as a result of policy uncertainty surrounding the federal Production Tax Credit (PTC). However, with thanks to the December 2015 five-year extension of the PTC and a key solar tax credit, expect to see steadier growth from the sector.

Most wind development happens at the utility scale, in rural areas with abundant wind resources. Wind turbines may be installed at the commercial or residential scale, though the wind market at this scale remains rather small. Offshore wind development is more common in Europe, yet the American industry is starting to emerge with pilot projects off the coasts of Rhode Island, Oregon and Massachusetts.
You can take special pride when you bring business to your hometown. Amber Gallagher, 28, gets the opportunity each day working for Solar FlexRack, a solar racking manufacturer in Youngstown, Ohio. Born and raised here, Amber earned her BSBA in Marketing at Youngstown State University. She is currently enrolled in the EMBA program at Rochester Institute of Technology and will graduate in 2017. After six years of marketing experience, including starting her own consulting business, she interviewed with Northern States Metals in 2013. Amber recalls: “During the interview, the company informed me the open position was for their renewable energy division, Solar FlexRack. Having little experience in renewable energy, I thought ‘solar is clean, and it is a growing industry, why not take this opportunity to learn all I can as well as make a difference in the world one project at a time?’ And then I fell in love with it.”

Solar FlexRack designs and manufactures custom metal racking solutions for utility-scale solar projects. However they go beyond the traditional manufacturer and offer a wide array of value added services such as push/pull testing, geotech reporting, foundation design, field services and turnkey applications. Large arrays consist of thousands of panels, and produce enough power for entire towns. In contrast to rooftop solar on homes or businesses, utility projects are typically installed on the ground. This requires mounting racks for the panels to be secure, and tilted toward the sun.

As business development manager at Solar FlexRack, Amber is responsible for building new business, managing their customer relationship management platform, developing marketing communications, and enhancing their online presence. “The opportunity to develop new business from Arizona to Australia and advance the clean energy movement is exhilarating.” Youngstown has a can-do mentality and the innovative manufacturing expertise to support growth, and I’m proud to be a Youngstown native.” And Youngstown should be proud of her — in this year alone, Solar FlexRack hired 15 new staff.

Many wind industry workers are involved in the manufacturing of blades, nacelles — the “guts” of the turbine — and other components. Other jobs in the industry, such as technicians or project engineers, support construction, installation, operation and maintenance of turbines, or assist with site selection and design. This process also requires staff to help manage the project, secure financing, and work with the landowner and local community. Small wind companies offer opportunities to employees interested in marketing and sales, as clients are at a much more distributed scale.

**EFFICIENCY:** Energy efficiency represents the largest component of the clean energy economy, encompassing 1.9 million workers involved in a variety of careers to reduce energy waste and boost savings for consumers and businesses. Energy efficiency is the cleanest form of energy, and using less energy is cheaper than producing any at all.
Energy efficiency includes a variety of sectors, including sustainable architecture and construction, energy audits and retrofits, industrial upgrades, smart grid implementation, and manufacturing energy smart appliances. As a result of its scope, no matter your education level or location, you can find a job related to energy efficiency. For those with a high school education, you get training to help weatherize homes or retrofit office buildings. Others with more advanced degrees can assist energy service providers with analysis, finance, or sales. Engineers provide invaluable services to commercial, agriculture and industrial customers, applying their technical expertise to identify areas to reduce operating costs.

Anurag's mission is to apply smart technology to industrial applications, using continuous data monitoring to save companies around the world millions.

Take a moment to consider how smart technology revolutionized telecommunication. In just a few years, a telephone transformed into a versatile device capable of navigating directions, surfing the web or tracking your fitness routine and sleep patterns. But this type of smart technology has yet to fulfill its true potential, notes Anurag Garg, 28, CEO and Co-Founder of DATTUS. Anurag's mission is to apply smart technology to industrial applications, using continuous data monitoring to save companies around the world millions.

As an electrical engineering student at Purdue University, Anurag noticed how less than a quarter of industrial machinery was outfitted with technology that continuously monitors equipment health and status. This led to unplanned downtime, operational inefficiency, and risked the safety of workers and other machinery. Along with a team at Purdue, Anurag developed a smart device that can regularly assess equipment with sensors, software, and networks — empowering engineering staff with information necessary for cost-effective operations. This technology became the foundation of DATTUS, now a growing start-up based in Indianapolis and India.

Energy issues had always interested Anurag, but industrial automation was certainly not at the forefront. "In college, I had the misconception that the only way I could make an impact in clean energy was coming up with a new generation technology. But I soon learned clean energy extends far beyond renewables. Clean energy is about using our resources in a more considerate, and more efficient manner." By deploying technology that can cut operational inefficiencies overnight, DATTUS can reduce energy waste from many of the most energy intensive industries. This not only avoids thousands of tons of coal or natural gas from being burned, but saves these companies millions in operational costs.
A recent report prepared by Booz Allen Hamilton for the U.S. Green Building Council found that energy-efficient construction generated $167.4B in value in the last three years. The industry is expected to continue growing 15.1% annually, which is great news for those seeking a job in green building construction.\(^2\)

**OTHER RENEWABLES:** Solar and wind contributed just over half of non-hydro clean energy in 2014; the remainder consisted of a suite of other renewables, including advanced biomass, biofuels, or geothermal power.\(^3\)

Bioenergy refers to using organic matter, such as agricultural byproducts, food wastes, wood waste, or animal fats to generate electricity, heat or fuel. Common feedstocks to generate biomass electricity may include crop and forest residue; crops like sugar beets, willow, miscanthus and switchgrass; and farmed,

After just one meeting with a student group, Ritu found her calling. An aspiring engineer at Northwestern, she joined Engineers for a Sustainable World, where she worked alongside students installing solar panels or biodiesel generators in local communities and abroad. “I started off college aiming to become an environmental lobbyist. But without the right technology, policy can only go so far. I took the next few years to hone my math and science skills, with the resolve to become an engineer for a clean energy company.”

Unfortunately for Ritu, landing her ideal job upon graduation proved difficult. Undaunted, she determined she needed to develop the skills her dream companies were looking for before applying again. To gain experience at a large company, Ritu took a position with Dow Corning. After three years, she relaunched her search in the clean energy field, and noticed an open position with LanzaTech. This time, Ritu received an offer letter to be a process engineer.

An innovative company based outside of Chicago, LanzaTech transforms waste gas from steel mills and other industrial facilities it into advanced biofuels. Using a state-of-the-art gas fermentation process, the company uses microbes to make carbon waste into a useful form of fuel. LanzaTech’s methods are estimated to reduce greenhouse gas emissions more than 60% compared to conventional gasoline, and reduce local air pollutants 85% comparing to power production or flaring. Ritu notes, "An exciting part about working in a start-up is you are not confined to one role. One day I can be doing technical and economic analysis, the next preparing a presentation for customers, and the rest of the week working in the field wearing my hard hat and steel toed boots."
It seems like each year the technology in your cell phone improves while the life of the battery stays the same. When you cannot last a day without your phone dying, it’s about time for better batteries. Nobody understands this opportunity quite like Chicago-based SiNode Systems. SiNode’s unique materials technology increases lithium ion battery capacity and enables faster charging rates. A cell phone using SiNode’s technology could last for days and require only minutes to charge.

From smart watches to fitness trackers, solar storage to electric vehicles, the application of lithium ion batteries is rapidly growing, notes Samir Mayekar, SiNode’s co-founder and CEO. Samir worked in consulting, political campaigns and the public sector before attending business school at Northwestern. After meeting talented engineering students, Samir and his two classmates set out to patent the innovative technology that would eventually become the backbone of SiNode Systems.

Aiming to revolutionize the energy storage space, Samir and the SiNode team worked tirelessly to secure funding and investment in SiNode’s technology. Rather than exclusively focus on venture capital, they raised investment by engaging potential customers, determining the best way to meet future clients’ needs. Ultimately, patience and persistence proved the biggest key to the SiNode’s success. “Ironically, it was the experience of losing that ultimately brought victory for SiNode. We lost a lot of business plan competitions before we won,” reflects Samir, “so we refined our business plan and improved our pitch. After six months, we were fortunate to see successes.” Success may be an understatement; to date SiNode has won the Rice Business Plan Competition, Chicago Innovation Award, and DOE’s Clean Energy Business Plan Competition.

For Samir, this is just the beginning. “I was inspired to work in energy storage after seeing how improving batteries increase access to mobile technology and help reduce our dependence on oil by making electric cars more appealing and affordable. With these goals in mind, it is full steam ahead.”

Advanced biofuels are a low-carbon replacement to fossil fuels, such as petroleum or natural gas. Cellulosic ethanol may be concocted from agricultural residues, such as corn stover or switchgrass. Biodiesel may originate from waste oils, such as used cooking grease from a restaurant. With a high school education, you may contribute to the industry by working as a farmer, technician, or equipment operator. If you hold an advanced degree in chemical or agricultural engineering, microbiology, chemistry, or mechanics, you might find additional opportunities in the bioenergy field.
Geothermal power refers to thermal energy that is generated or stored beneath the Earth’s surface. Typically found in the western United States, utility scale geothermal systems are built over seismically active regions in order to capture subterranean heat and generate power. Commercial or residential scale geothermal can be more ubiquitous. These systems do not require as precise geology, as they use the stability of underground temperature to moderate building temperatures during winter and summer months. This reduces the need for electricity to operate the HVAC system, saving energy and providing low heating and air conditioning bills in the long run. Geologists, hydrologists, environmental scientists, and engineers play a key role in the geothermal industry, responsible for approximately 5,200 direct jobs in the United States.

**RECYCLING:** Industrial processes, such as extraction and manufacturing, are among the most energy intensive. Thus, recycling, composting and refurbishing companies are instrumental to reducing American’s dependence on fossil fuels. There is an opportunity for everyone in the recycling space. Core opportunities include drivers, assistants, technicians, welders and equipment operators. The waste industry also employs a number of staff with backgrounds in environmental science, biology, geology and engineering to provide expert insight on reducing the environmental impact of municipal and industrial waste.

**ELECTRIC VEHICLES / ENERGY STORAGE:** Cost-effective energy storage unlocks the full power of renewable energy. We need electricity when the sun doesn’t shine or the wind doesn’t blow: that is where batteries come in. Many businesses are seeking to transform our energy landscape by developing ways to economically manufacture and distribute batteries. This industry is particularly technical, and entry level positions may require a degree in materials science, electrical engineering, software development or chemistry. However, as companies are moving from design to implementation, opportunities arise for skilled labor jobs, such as technicians or assembly workers. Automaker Tesla recently announced a “Gigafactory” in Reno, Nevada, that would employ 6,500 workers to help manufacture lithium ion batteries for its electric vehicles and other energy storage applications.

Energy storage underlies the success the electric vehicle industry. Batteries dictate the distance a car can drive without needing to recharge, as well as the overall cost of the vehicle. Thus, opportunities in energy storage will not only overlap with the renewables field, but be instrumental to mainstreaming the electric car. The electric vehicle industry offers a unique set of opportunities to Millennials beyond traditional positions in mechanical engineering or manufacturing. Young people with experience in sales or advocacy can assist with growing both a customer base and greater electric vehicle infrastructure, such as charging stations.

To learn more about the types of jobs found in each sector, be sure to visit the Bureau of Labor Statistics Green Careers page: http://www.bls.gov/green/greencareers.htm.

Automaker Tesla recently announced a “Gigafactory” in Reno, Nevada, that would employ 6,500 workers to help manufacture lithium ion batteries for its electric vehicles and other energy storage applications.
Background Research

**READY TO MOVE FORWARD? HERE’S YOUR HOMEWORK**

The first step to entering the clean energy economy is easy: get insight into the industry you want to join. It is important to stay current on news, understand key terminology and vocabulary, and get a sense of the political and policy landscape shaping the development of the sector. Keeping your finger on the pulse on these issues will be critical during networking, informational interviews and job applications.

**NEWSLETTERS:** Sign up for electronic newsletters from organizations and non-profits that share your interests and values. You’ll get updates at key moments for the industry, and be introduced to new topics simply by logging in to your email. Greentech Media, Pew Charitable Trusts, Blue Green Alliance, Midwest Energy News and a multitude of state advocacy groups all have regular newsletters that closely follow the clean energy sector. If you prefer print, magazines such as Solar Today, Wind Power Monthly or Renewable Energy World offer both hard copies and digital subscription.

**NEWS ALERTS:** Setting up detailed email alerts for your favorite energy topic is a great way to narrow internet noise to the issues that interest you the most.

**PODCASTS:** If you are looking to learn about something new while on the move, podcasts are a great way to stay on top of energy news while on the go. Greentech Media’s *The Energy Gang* or National Public Radio’s energy episodes are good places to start.

**VIDEOS:** E2’s own Clean Energy Works for Us profiles Americans across the country who have made a career out of efficiency, solar, wind, and other forms of clean energy. These personal stories from Georgia to Oregon reveal what it is like to work in clean energy, and the importance of the broader industry to local communities. See E2’s YouTube site.

**BOOKS:** Despite the digital revolution, print remains the best way to get an in-depth and accurate synopsis of a topic. Once you have narrowed your areas of interest, hit the library to find a book that dives deep into the sector. If you find something compelling and helpful, it’s worth buying and keeping on the shelf as reference, or lending out to others in your network.

**INDUSTRY WEBSITES:** Trade associations are often considered the public face of the industry, as they are funded by member companies to represent them at a federal or state level. As advocates, they are charged with keeping tabs on current policy issues and economic trends. The Solar Energy Industries Associations (SEIA), American Wind Energy Association (AWEA), Advanced Biofuels Association (ABFA), National Association of Energy Service...
The role of architects in addressing climate change is nothing short of critical. Buildings account for a whopping 68% of electricity consumption in the United States. The way we design new buildings demonstrates how we chose to impact our environment each day.

Emily Tjeersdma understood this well at her first architectural job, so she took initiative to teach herself the core concepts of LEED, Leadership in Energy and Environmental Design. Standing out for her aptitude for sustainability, Emily gained the attention of architects Lisa and Ron Elkins of 2 Point Perspective. Lisa and Ron founded 2 Point Perspective and later became a certified b-corporation in 2013, incorporating social and environmental concerns into each of their designs. Now a partner and project architect at the firm, Emily, 33, takes the lead on projects that require a full understanding of energy efficiency, water conservation, and even renewables, such as rooftop solar and small wind turbines.

For Emily, sustainable design is more than a niche; it is a means to bring enduring value to homes and office buildings. Implementing a suite of efficiency measures could provide a return on investment in three to five years. Improving indoor air quality, maximizing natural lighting, and providing individual lighting and thermal controls not only saves energy, but also keeps employees happy. Making a healthier work environment minimizes sick days and boosts staff productivity. “That’s one of the most interesting aspects of my job. These are not just cost savings from energy and water conservation, but the indirect savings derived from having happy and healthy staff.”

With these principles in mind, Emily doesn’t just talk the talk. She teaches evening classes on LEED certification, actively participates in Women in Green events, and bikes to work every day — even through Chicago winters. Perhaps it is her nature as an architect, but it is clear Emily always considers the big picture.

Companies (NAESCO), National Association of State Energy Officials (NASEO) and Electric Drive Transport Association (EDTA) are among associations aimed at representing business interests of renewable and energy efficiency companies.

THOUGHT LEADERS: If you find a particular article or blog post interesting, take note of the journalist or contributor. They may have their finger on the pulse of the industry or policy space that you find fascinating, and would be worth following to introduce you to new aspects of clean energy. Similarly, jot down business leaders or advocates whose work aligns closely with your ideal career, and keep news alerts on them to track the development and politics of the sector.
Once you have a basic understanding of the clean energy sector, the next step is building out a diverse and measurable set of skills. Each of the elements below are building blocks that will show a potential employer you are not only passionate, but have the experience to be an outstanding employee.

**ACADEMICS:** Depending on the sector, coursework can be critical to landing your ideal job. In general, good marks in math and science are required for many roles in renewable energy, but every employer looks for additional areas you’ve excelled in to determine if you’re the right hire.

Many community colleges and technical schools offer specific courses in renewable energy, sustainability, and energy services. It is worth noting that technical certifications are a great way to get a base understanding of a job, but do not capture the every element of it. Most education and training programs focus on fine tuning mechanical skills; many clean energy companies have found their staff also needing to be able to think outside of the box, determine alternative solutions to problems, and possess strong interpersonal skills. Thus, while a certification or degree from a technical school is an excellent start, remember that employers will be examining other kinds of skills before making a hire.

If you’re pursuing a four-year degree, the engineering field opens many doors in the clean energy sector.

If you’re pursuing a four-year degree, the engineering field opens many doors in the clean energy sector. Engineers are integral to the design, implementation and development of renewable technology. As the technology is rapidly changing, engineers are expected to use both their expertise and a keen sense of creativity to facilitate the integration of new clean technology. For those with a background in liberal arts, it is important to show strong writing and interpersonal skills. No courses or majors are ‘silver bullets’ to landing a job in the industry, but it is nonetheless helpful to have demonstrated academic interest in clean energy prior to applying for a job in the field. Finally, keep in mind that the clean energy sector is dynamic and rapidly growing; many employers will want well-rounded candidates of any academic background.

**CERTIFICATIONS:** The industry offers a suite of certifications to young professionals eager to demonstrate their depth of knowledge and skill. In the efficiency and sustainability sectors, you can be certified by the US Green Building Council through their Leadership in Energy and Environmental Design (LEED) program, or the Building Performance Institute (BPI). Young professionals interested in a career in solar can start by preparing for the entry-level installer exam by the North American Board of Certified Energy Practitioners (NABCEP). Keep in the mind these certifications may not be a requirement to your employer, but nonetheless will help you demonstrate your commitment to understanding the basics of the sector.

**CIVIC ENGAGEMENT:** Whether you are installing wind turbines, designing fuel cells or retrofitting office buildings, smart state and federal...
Whether you are installing wind turbines, designing fuel cells or retrofitting office buildings, smart state and federal policies are helping create jobs like yours.
Consider the cliché “look before you leap.” It is definitely tempting to dive headfirst into career fairs, job applications, and networking events. But if you take some time to reflect upon your professional background, personal strengths and career aspirations, you’ll be much more prepared for the next steps, and have an edge on many of your peers. These exercises may be challenging at first, but will help you immensely as you enter the next stage of landing a job.

1. IDENTIFY PATTERNS
   Take a moment to reflect upon your past positions and volunteer roles. What are the common skills that you needed in these roles? What outstanding qualities might your supervisors agree you brought to the job every day? A proven skill set, whether it is technical communication, data capturing or building customer relationships, is important to demonstrating consistency and competence as a professional.

2. GO BEYOND YOUR RESUME
   Reflect upon your experiences outside of your professional development. What kind of person are you to your peers, friends and family, and how does this shape you as a candidate for a certain position?

3. DEVELOP YOUR NARRATIVE
   Everyone has a different reason for entering the clean energy industry. Whether it was witnessing firsthand the health impact of fossil fuels, taking a class that opened your eyes to climate change, or watching the growth of renewable energy in your community — everyone has a different reason for being inspired to work in clean energy. Start to develop a narrative for what clean energy means to you, and why you chose to make it a career.

   This is also known as a ‘story of self.’ It is particularly important for Millennials: growing up in the internet age, bombarded with information, it can be difficult to set oneself apart. By sharing your personal narrative with others, you share your unique passion for clean energy.

4. SET CLEAR GOALS
   What changes do you envision for the industry, and how do you plan to help it get there? Remember to be specific. This will help you think about the sector you want to enter, the skills you can offer it, and how you want to see it grow. This exercise will not only help you identify mentors, but would enable them to point you in the right direction.

   One exercise is called the XYZ method, where X

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Reflection
BEFORE YOU GET OUT THERE, MAKE A GAME PLAN

A proven skill set, whether it is technical communication, data capturing, or building customer relationships, is important to demonstrating consistency and competence as a professional.
Talking solar is second nature to Kacie Peters, 28. “What is not to love?” she asks, “Solar saves money. It frees us from utilities. Solar is a form of independence, and a way to effectively tap natural resources. Not to mention it creates thousands of jobs here in the U.S.” Kacie’s first job out of college was with a local Republican Party in Pennsylvania, coordinating political activities throughout the region. Given her experience in fundraising and campaigns, Kacie was approached by a local solar company to work in sales. “If you can pitch renewable energy to conservative Republicans in Pennsylvania, you can pitch it to everyone,” her future employer told her.

Kacie ran with his advice. Now Microgrid Energy’s Director of Marketing and Sales in the Midwest, Kacie works with businesses and utilities to install large photovoltaic projects in the region. Working in finance, grant writing, project development, and managing a sales team, there is never a dull day on the job. As the Vice President of Women in Solar Energy, she aims to empower women in the industry to gain leadership roles, and encourage more female professionals to pursue a career in the sector. Her ultimate goal is to enable others to love solar as much as she.

“As the Vice President of Women in Solar Energy, she aims to empower women in the industry to gain leadership roles, and encourage more female professionals to pursue a career in the sector.”

“There’s a special kind of passion in what we do,” observes Kacie. “Unlike any other job where I could have been selling anything else, I don’t know if I could have felt the same calling. With each installation, I know the air is a little cleaner thanks to me. Twenty-five years from now, those modules will still producing that clean energy, and I’ll know I made that impact.”

is your audience, Y is the problem and Z is the solution. Think: How can I help X address Y so that Z? You might come up with, “How can I help homeowners understand their energy usage so that they want to do a home retrofit?” or “How can I help solar companies increase customer engagement in order to increase installations?”
Developing a Community
CLEAN ENERGY NETWORKING 101

It all comes down to networking. It is an important skill for any professional, but it is essential to the clean energy industry. In fact, each of the 2015 Clean Power Players credited networking for landing them a job, or finding a new employee for their company.

Now that you have identified a sector you wish to pursue, it is tempting to jump on Monster.com or Indeed, search a couple of keywords related to clean energy, and send out a resume to whatever organization pops up. But remember, if the search was easy for you, it will be easy for everyone else too. Clean energy is a popular, emerging career choice for Millennials, so you may compete with hundreds of resumes and cover letters. Furthermore, job websites are the tip of the iceberg of available opportunities. According to a recent survey, just 15% of jobs were filled through online job boards. How will you get beyond the internet to identify the right opportunities and make lasting connections in the sector?

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What makes networking unique for clean energy professionals? For many, the clean energy industry feels like a small community: it is shaped by common advocacy goals, partnerships, and values. It is important to consider each of these factors as you build out your own network:

**POLICY & ADVOCACY:** Unlike fossil fuels, clean energy has not had decades (or centuries) of consistent government support. Major policies to advance clean energy were implemented largely in the 21st century; they have been subject to frequent changes, often at the expense of progress. As a result, business leaders of wind, solar, efficiency and other sectors may collaborate to ensure clean energy policy remains consistent and constructive. These public advocacy networks can foster a sense of community among local and state clean energy businesses.

**PARTNERSHIPS:** Property owners who wish to achieve maximum energy savings, or recognition by LEED or Green Globes, may require the services of multiple energy experts, such as architects, renewable energy installers and building performance specialists. Throughout the design and construction process, these professionals work as a team, collaborating to meet their client’s sustainability goals. Sharing clientele increases interactions between clean energy businesses, ultimately strengthening relationships across sectors.

**COMMON VALUES:** Clean energy professionals come from diverse backgrounds, but what ties
Cory Connolly did not have a typical experience after graduating from Michigan State in 2010. Captivated by the impacts of climate change, Cory performed environmental policy research in Argentina, Mexico, Japan and Washington, DC. Working over three years in the nation’s capital, Cory became familiar with the importance of energy policies in determining our climate future. Opting to think locally and act globally, Cory, 27, returned to his home state of Michigan to advance state clean energy initiatives. Why did Cory focus his attention on energy issues? For him, it was both a question of environmental and social justice.

“Clean energy is the centerpiece of any effort to address climate change.” Having observed that historically the energy sector has concentrated wealth and power, “renewables have the potential to empower people and promote entrepreneurship in a way that fossil fuels have never been able to do.”

As a project manager at Levin Energy Partners, Cory helps businesses, schools, and non-profits secure financing for renewable and energy efficiency initiatives. The state policy mechanism that supports this work is called Property Assessed Clean Energy (PACE). Using Michigan’s PACE financing laws, buildings can pay off loans for renewable and efficiency initiatives incrementally on their property tax, broadening opportunities for clean energy investments across the state.

Cory notes Michigan has a special role in transforming our energy economy. “How did Michigan and Henry Ford revolutionize the automobile industry? They did not invent the car in Detroit. But it was democratized here. Given Michigan’s existing leadership as a clean energy manufacturer, the state has the opportunity to make renewables accessible and affordable across the globe. I moved back to Michigan because I wanted to help make that happen.”
As a marketing analyst for Angie’s List, Ty Benefiel noticed an interesting trend. There was a strong correlation between how engaged customers were, and how long they remained customers. At business school, he started to wonder if the same correlation applied to energy companies. If so, it would unlock an untapped market, enabling energy savings that could benefit both customers and utilities. Ty teamed up with his classmates at business school, and MeterGenius was born.

It is no coincidence Ty and the MeterGenius team are Millennials. Fueled by a passion for making a difference, the company combines smart technology, social media, and gamification to achieve innovative goals.

Based in St. Louis, MeterGenius provides utilities an online platform to engage customers on energy use. The application empowers families to monitor their electricity use in 15 minute intervals, as well as control smart devices — like thermostats or water heaters — directly from their mobile device. To keep residents engaged, MeterGenius shares user-specific tips on saving electricity, awarding points to customers who implement changes. Receiving rewards and encouragement, customers who use MeterGenius’s platform report an 8% reduction on electricity bills. As they feel more engaged, they are less likely to switch providers, adding long term value for the utility.

It is no coincidence Ty and the MeterGenius team are Millennials. Fueled by a passion for making a difference, the company combines smart technology, social media, and gamification to achieve innovative goals. Already showing successes across the country, MeterGenius not only inspires tremendous electricity savings, but works to transform public conceptions of what it means to be an energy consumer.

What happens when you make an electricity bill interesting?

Ty Benefiel / CEO and Co-Founder, MeterGenius / St. Louis, Missouri

Can be more valuable to landing a job than close friends. This is in part because weak ties are more likely to bridge social groups, enabling you to cast a wider net and develop broader connections.

Engage on Social Media: If you’re not already active on social media, creating a LinkedIn or Twitter profile for yourself is a great way to start. LinkedIn — which is specific to professionals — enables you to create an online resume, connect with contacts, and visualize your network. This can be helpful to understanding who in your network might be able to introduce you to someone in the clean energy industry, or even provide insight on the field themselves. LinkedIn is also a great tool to follow companies, non-profits, industry associations, and thought leaders focused on the issues that interest you the most. If you’re looking to interact with new users, you can also access discussion boards to join conversations around energy.

While LinkedIn is particularly helpful to young professionals, do not overlook the professional value of Twitter and Facebook. Most energy companies, even smaller, local businesses, have a Facebook profile or Twitter handle. They might use these channels to provide company announcements, share interesting articles about sector trends, or comment on recent policy developments. Social media also
functions to spread the word about new positions or internships. Following a company on LinkedIn, Twitter or Facebook not only helps you broaden your understanding of the clean energy space, but may give special insight on the company you can use in an interview or cover letter.

**EXPLORE EXPOS:** In the midst of rapid technological development and unprecedented growth, the clean energy industry has no shortage of industry expos. These are fantastic ways to chat to professionals and get a sense of the companies and opportunities out there. Remember, many of the attendees’ may be in marketing and sales; if you are interested in other aspects of clean energy, such as installation, O&M, design or finance, you might politely ask to be connected with their colleagues for an informational interview. Remember to bring business cards to exchange with other attendees for reference.

- Most professionals attend expos to further the goals of their business. Do not approach them as career fairs, but rather as opportunities to learn about the industry and make initial contact with professionals. If you are fortunate, a few of the attendees might invite you to send them a cover letter or resume, or give you the contact information of their human resources director and suggest you reach out to them directly.

**ATTEND CONFERENCES:** Conferences provide another excellent introduction to clean energy professionals. Each can bring a new set of allies or fresh perspectives on the industry: whether it is the Blue Green Alliance’s Good Jobs Green Jobs that brings together environmentalists and unions; Net Impact, which focuses on the incorporating sustainability into the private sector; or South by Southwest (SXSW) Eco, a forum for business leaders and activists to identify ideas and technology to affect positive environmental and social change. Conferences are structured to maximize networking between participants; it’s typically custom to introduce yourself to the person sitting next you and chat about the sessions or what motivated you to attend. In the meantime, you have the opportunity to listen to thought leaders discuss key industry trends, exciting innovations in the sector, and advice for fellow professionals.

**Note:** Conferences can be expensive, especially if you are just starting out your career or managing student loan debt. Some may offer student discounts; even if it is not listed it could be worth calling the organizer and asking if there is a way to not pay the full price. Even if you can’t attend the conference, it’s helpful to parse through the speaker list and sponsors, and get a sense of the big names in the industry, and identify possible contacts and companies to follow.

**THE FINAL WORD ON NETWORKING:** For most of us, networking does not come naturally. At first it can feel uncomfortable or disingenuous, as you try to use your social skills to further your professional goals. But remember that networking is central to the clean energy industry, and, like anything, practice will make perfect. Once you get out there and begin introducing yourself to people, you’ll get the hang of it. Unless you’re trying to be a professional entertainer or comedian, networking demeanor is fairly similar across industries. The following are helpful pieces of advice from a diversity of professionals in clean energy:
Informational interviews are central to learning the day-to-day of a clean energy professional, personalized advice about the job search, and other helpful hints.

“MAKE THE FIRST MOVE.” You are your best advocate. Be proactive about reaching out to your contacts and possible connections. If you don’t receive a response in a while, politely follow up.

“KEEP CONFIDENT.” It doesn’t hurt to ask. Often Millennials hesitate to request an informational interview, or follow up on a question, because they don’t want to see pushy or out of place. Demonstrate that you have self-confidence and respect by advocating for yourself.

“DON’T GET A RESPONSE? FOLLOW UP.” Clean energy professionals are busy, and unless they receive a reminder from you, your email will get lost in their inbox. If you do not get a response from a new contact, politely follow up in a week or two. It is not out of place to do so, and many will appreciate the nudge. Follow up with a request.

“NEVER UNDERESTIMATE THE INFORMATIONAL INTERVIEW.” Informational interviews are central to learning the day-to-day of a clean energy professional, personalized advice about the job search, and other helpful hints. Many professionals are happy to speak about their work, and pass on knowledge and insights to others interested in the sector. It is common to meet face to face, though many professionals might not have time to commit to an in-person meeting, thus a phone call works fine. If you do meet in person, offer to pay for lunch or coffee, and try to pick a location that’s convenient to your contact’s workplace or home.

“SHOW YOU DID YOUR HOMEWORK.” Without overdoing it, show you clearly researched your contact’s sector and company. Don’t waste his or her time with simple questions, you want to stay focused on learning what you couldn’t find answers to on the internet.

“KEEP IT SUCCINCT.” Master the elevator pitch such that you can state your career goals clearly and concisely. You shouldn’t feel like networking is a sales pitch, but rather an opportunity to demonstrate your genuine passion for clean energy.

“BE SPECIFIC WITH YOUR GOALS.” If you are passionate about many aspects of clean energy, it is tempting to tell your contact you are ‘up for anything’ when it comes to a career. But without clear guidance or direction, it is harder for your contact to think of people to put you in touch with. Even if you’re unsure, name a couple sectors of particular interest to you, as well as specific skills sets you hope to apply in your ideal job.

“ALWAYS SEND A THANK YOU.” Be personal and don’t be too brief. Demonstrate the value you received from the meeting by mentioning what you learned, and the specific insights you found interesting.

“STAY IN TOUCH.” Good relationships are worth maintaining — pass along articles that hit on points you all talked about or be of interest to them, offer congrats if you notice their company hit a particular milestone, and if you’ve landed a new job or promotion — don’t hesitate to attribute their advice.
Once you have identified an open clean energy position that fits your career goals, the next step is the application process. Below are basic tips that are particularly important for clean energy professionals.

1. **RESUME**
   - **Know Your Audience:** It might be tempting to create a ‘one-size-fits-all’ resume you can blitz out to every company which an open position. This is a common pitfall, notes Shanon Houde, founder of Walk of Life Consulting, a professional development firm with a focus on sustainability. Shanon suggests applicants create a new resume for each desired position, taking into account the company culture and desired skills of the position. Carefully highlight related experiences and certifications that demonstrate why you’re suited for the job. How do your skills relate to the goals of the employer and role of the position?
   - **Stay Concise:** Many clean energy employers are combing through hundreds of resumes; you do not need more than a page. Use action words to describe your current and previous titles in detail.
   - **Show Leadership:** Were you assigned to take the lead on major projects, manage a team, or gain more responsibilities as a result of showing skill or competence? As clean energy companies grow rapidly, many require dynamic staff to be able to take on new challenges with both competence and readiness. If you have demonstrated these skills, be sure your resume reflects this.

2. **COVER LETTER**
   Your cover letter should relate to the personal narrative you have developed over the course of networking and meeting with other professionals. How did you become involved or interested in clean energy, and how did this lead you to apply to this position? Demonstrate that you have taken the time to learn about the company, its values and current goals, and proceed to show how your experience can contribute to these goals. A cover letter is a must; some employers will disregard an application if the applicant did not bother to submit at least a paragraph walking the reader through their resume.

    “It comes down to attitude. That’s it.” Michael Allen, CEO of All Energy Solar, said when asked what he looks in for job candidates.

3. **THE INTERVIEW**
   “It comes down to attitude. That’s it,” Michael Allen, CEO of All Energy Solar, said when asked what he looks in for job candidates. Most clean energy jobs will require you to regularly interact with clients and
Don’t be too specific that you deny yourself the opportunity to gain relevant industry experience. Sometimes, especially early on in your career, you may need to compromise getting your dream job immediately, instead deferring for a few years to gain related experience at another company.

fellow employees; the interview is your opportunity to demonstrate you will have a positive attitude and eagerness for both the sector and the job. Show your interviewer, rather than telling, that you have a passion for clean energy. Your enthusiasm will come across from familiarity with the sector (relevant policy, recent growth, challenges) and your vision for where you see the future of energy in the coming decade.

4. KEEP AT IT

Career consultant Shanon Houde names resilience a vital characteristic of successful clean energy professionals. The industry is particularly dynamic: rapidly growing yet often stymied by policy uncertainty, resulting in boom-and-bust cycles. Thus, knowing the importance of flexibility is key to matching the nature of the industry. Furthermore, less developed markets, such as small wind or battery storage, contain a number of start-ups. These companies offer exciting opportunities for career growth, but can also come with risk in terms of job security.

Don’t be too specific that you deny yourself the opportunity to gain relevant industry experience. Sometimes, especially early on in your career, you may need to compromise getting your dream job immediately, instead deferring for a few years to gain related experience at another company.

Take Clean Power Player Ritu Gopal. Ritu had a lifelong interest in biofuels and sustainability, so she applied to work at Illinois-based LanzaTech after graduation. Undaunted after not receiving an acceptance, she opted to work for a larger chemical engineering company for two years. Once she had gained valuable experience, she applied to LanzaTech a second time — and this time received an offer. Ritu’s advice: landing your dream job may require patience, so do not limit your options by writing off other roles that will advance your career.
The instant you meet Stanley Minnick, 35, you pick up on his passion for clean energy. Step into his backyard and you’ll find chickens and an organic garden, a solar array on his roof, and his sons each with unique solar themed t-shirts. On the coffee table sits Clean Energy Empire, a card game he created to educate kids (and adults) about clean energy and fossil fuels.

Stanley’s first job was not in clean energy, he was inspired to enter the industry shortly after his first son was born. “I wanted to commit to a career that would not only provide for my kids, but also leave them with a better world,” Stanley recalls. He began taking classes in renewable energy at Milwaukee Technical College and through the Midwest Renewable Energy Association. After an internship with a solar hot water company Stanley was hired by a H&H in the energy management division. About a year later he transitioned to the solar division to work in sales and project management, starting what will be a long career in solar.

“The most rewarding part of my job is working with our customers. In general, solar customers are really cool, and you meet people from all backgrounds. From the environmentalist aiming to cut their carbon footprint, to the libertarian seeking independence from the grid, to the local business hoping to save money over the long term, you never know what to expect.” But Stanley’s top reason for working in solar has remained the same since he started; he wants to make a living while working for a better future. “...knowing that working in solar makes my sons proud every day — well, that’s priceless.”
Once you have landed a job, be sure to keep active in the clean energy community and consider mechanisms to develop your role in the industry outside the responsibilities of your current job. This not only makes you a great resource to the sector as a whole, but offers opportunities for professional and personal development.

1. IDENTIFY A MENTOR
   A strong mentor is invaluable, especially at the start of your career. Look for someone who you want to emulate, and sets a great example for you to follow. A mentor can provide you with insight and advice on working in the industry, while helping you grow as a professional. Given they have significant experience in the industry, mentors can steer you toward opportunities they believe will best advance your career: whether it is taking a lead on a project, seeking additional training or certifications, pursuing higher education, or even transitioning to another role.

2. STAY CURRENT ON POLICY TRENDS
   Remember, public policy plays a central role in many dimensions of the energy economy. Whether it is utility policy, municipal financing decisions, or federal and state policy, keeping abreast of how the public sector impacts your business is invaluable. Remember, energy policy can be quite dynamic, thus it’s important to keep your finger on the pulse by subscribing to newsletters and listservs, and attending conferences that might focus on these issues.

3. INTRAPRENEURSHIP
   Unlike an entrepreneur, an ‘intrapreneur’ is one who proactively develops change from within an existing company. The term recognizes that one does not need to start their own business to affect significant change within the private sector; rather, a proactive employee can leverage their capacity within an existing company to significantly change the way business is done. Once you have gotten the hang of your expected duties, regularly take time to consider ways your office could improve operations, increase sales or customer satisfaction, or better achieve its values. If your company or supervisor invites employees to suggest ideas to improve operations, be sure to speak up, and offer to assist with implementing changes.

Once you have landed a job, be sure to keep active in the clean energy community and consider mechanisms to develop your role in the industry outside the responsibilities of your current job.
“There are so many different facets of solar that I love. You’re producing electricity every time the sun is shining. It’s environmentally friendly. And you’re sticking it to the man, taking a step toward energy independence by freeing yourself from the grid,” explains Brian Allen, 30, co-founder of All Energy Solar. A love of the environment and desire to transform the energy economy inspired Brian and his older brother, Michael, to leave Minnesota and head to California to work in solar. In 2009, after they gained valuable skills from large solar companies, Michael and Brian decided to start their own. Michael, 33, recalls, “We thought, ‘Let’s bring our experience in solar to Minnesota. Wouldn’t it be cool if we could build our own business back home?’”

It was an exciting project, but didn’t seem easy. Electricity prices are much lower in Midwest, thus the payback period on solar would take longer than on the coasts. “Perhaps it’s the Midwestern mindset, with agriculture in our backgrounds,” observed Michael, “We know that when we invest in something, we do not expect change overnight. We value knowing in the long term it’s the right choice.”

Already, the hard work has paid off. All Energy Solar has grown to 55 employees, and installs solar panels on residential and commercial buildings in Minnesota, Iowa, Wisconsin, as well as Massachusetts. The most rewarding aspect of the job, Brian finds, is working with residents. “Investing in solar is a decades’ long commitment. Thus, we develop strong, long standing relationships with our customers. I look forward to a day fifteen years from now, when I can take my son to some of the first projects we ever installed, and show him they are still producing energy, saving the homeowner money, and protecting the environment.”
Now that you have successfully landed a clean energy career, lend a helping hand to others interested in joining the industry.

4. NETWORKING AS A YOUNG PROFESSIONAL

Networking will be noticeably easier now that you have a job, and can communicate with experience under your belt. There are a number of reasons to stay active in the clean energy community:

- **Keep Informed:** Keeping engaged in the broader clean energy sector will help you gain insights into market trends and the policy landscape, and shed light on emerging technologies or financing techniques that are impacting the broader sector.

- **Better Serve Your Company:** Networking opens doors to business partnerships, enabling you and your colleagues to identify possible clients or consultants that help you build sales, improve operations, or collaborate on a project. By attending networking events, conferences or volunteer opportunities, you build your company’s brand by showing its engagement with the larger community.

- **Identifying Linkages Among Sectors:** Do not narrow your focus by solely engaging with your sector. Engage with professionals in other clean energy fields, or even like-minded businesses that do not have a direct focus on energy issues, but share an interest in sustainability.

- **Furthering Your Career:** You do not want an entry level job forever. By networking now, you are planting the seeds for finding a new job when you are ready for the next step. Regardless of how long you plan to stay at your current company, it is important to have a sense of other opportunities out there.

5. BECOME AN ADVOCATE

- Remember, energy policy — from net metering, to PACE financing, to the Clean Power Plan — shapes the future of the clean energy industry. Be sure to let your lawmakers know the economic value your company brings to your community, and the role that public policies play in shaping your business. To see how clean energy business leaders can become public advocates, visit Environmental Entrepreneurs at www.e2.org.

- Op-Eds or letters to the editor are excellent ways to get the word out on important public policy. Be sure to touch on the economic impact your sector or company has on the community, and how these policies help your business grow.

- Vote, and encourage your colleagues to do the same.

6. PAY IT FORWARD

Now that you have successfully landed a clean energy career, lend a helping hand to others interested in joining the industry. Remain a resource to your friends, family and broader network for informational interviews, career advice, or general insights on working in clean energy. Local schools and colleges — especially your alma mater — might ask you to speak to a class about renewable energy. You will quickly find that clean energy — whether it’s solar, wind, battery storage or biofuels — is exciting to a broad spectrum of people.
We hope you have appreciated this career roadmap, and found the tips and insights informative and practical. If you have any comments or additional advice you’d like to share, please send an email to gail@e2.org.

REFERENCES
3 http://www.ela.gov/energyexplained/index.cfm?page=electricity_in_the_united_states