**What is the Energy Industry?**
- Fossil Fuels and Renewable Energy
- Oil, Coal, Natural gas, Nuclear
- Wind, Solar, Water, Biomass, Geothermal
- Fuel cells, Energy Storage and Transmission

**Job Functions**
*Engineers, scientists, architects, farmers, technicians, operators, mechanics, lawyers, businesspeople, sales workers, human resource and public affairs specialists*, as well as a host of administrative support workers make their living by researching, developing, installing, and promoting renewable energy.

**Typical Job Titles**

**Skills Sought**
- Students who are interested in becoming renewable energy engineers should enjoy solving problems, developing logical plans, and designing things.
- They should have a strong interest and ability in science and mathematics, as well as knowledge of renewable energy technologies.
- Engineers often work on projects in teams, so prospective engineers should be able to work well both alone and with others.
- Other important traits include strong communication skills and an interest in continuing to learn throughout their careers.
- Can problem solve and think outside the box; can demonstrate these skills during interview and on resume

**Successful Interviews**
- Need to have a passion for your accomplishments and the industry
- Demonstrate a desire to not accept status-quo; that you went above and beyond the requirements
- CMU students have an extra strength...the interdisciplinary nature of many activities, organizations and projects. Communicate how you worked with many different majors during Booth or Student Government
- Know what the company/agency (for which you are interviewing) does and a base line knowledge of the industry

**Selected Employers**
* Solar Energy International (SEI)  *Solar Nexus  *Green Mountain Energy  *Consolidated Edison
*Westinghouse Energy  *Chevron  *Schlumberger  *Shell  *Occidental Petroleum
*Nevada Geothermal  *Affordable Solar  *Blue Sky Energy  *DNV KEMA Energy & Sustainability
Trends and Labor Market

- **Technology:** One of the biggest technology trends is Smart Grid Technology. Electric utility companies across the country are incorporating Smart Grid technologies to their transmission and distribution systems. Smart Grid is technology that connects the generation, transmission, and distribution of electric power all the way through to each customer’s meter. This system will allow the utility company to monitor, analyze, control, and communicate capabilities to the national electrical delivery system to maximize the throughput of the system while reducing energy consumption. This will allow utility companies to move power where it is needed throughout their delivery base in a more efficient and economical way. Smart Grid proponents say it will also allow end-users to use electricity more economically.

- The world population is expected to reach more than 10 billion people before the end of the 21st century, according to United Nations projections. With the current world population around 7 billion, this is significant growth that will create huge demand for resources, including energy. Our current and anticipated future energy needs are driving growth in the number of jobs in the industry. Opportunities in alternative energy sectors are especially likely to grow as demand among an expanding population and rising number of developing nations exceeds the supply of traditional energy resources.

- The outlook for jobs in alternative energy sectors depends on the sector. Some sectors, such as solar, are expected to experience much higher growth than others. According to the Solar Foundation’s National Solar Job Census 2013, the solar energy industry employs 142,000 workers (defined as workers who spent more than half of their work hours on solar energy projects), a 20 percent increase from the previous year. Of the nearly 24,000 new jobs created, about 77 percent are newly created positions. Nearly half of solar firms expect to add workers in the next year, signaling continuing growth in this sector.

- Wind energy has had the most success, when it comes to connecting to the national grid and supplying the nation with electricity. During the summer of 2010, for example, according to the EIA, wind energy provided a total energy capacity of nearly 40 gigawatts, solar energy provided close to 10 gigawatts, and geothermal energy contributed close to 2 gigawatts. The EIA predicts that while wind energy will continue to produce a larger percentage of energy than the other renewable energy sources, solar energy will exhibit the highest growth rate in the decades to come.

### Resources & Associations

Association of Energy Engineers
http://www.aeecenter.org

Energy Information Administration (EIA)
http://www.eia.doe.gov

The Institute for Energy Research ((IER))
http://www.instituteforenergyresearch.org

Geothermal Energy Association (GEA)
http://www.geo-energy.org

Geothermal Resources Council (GRC)
http://www.geothermal.org

American Public Power Association
http://www.appanet.org

American Solar Energy Society
http://www.ases.org

American Wind Energy Association
http://www.awea.org
Gas Processors Association
http://www.gpaglobal.org/

Geological Society of America
http://www.geosociety.org/

Independent Petroleum Association of America
http://www.ipaa.org

National Association of Energy Service Companies
http://www.naesco.org/

National Council of Examiners for Engineering and Surveying
http://www.ncees.org

National Energy Marketers Association
http://www.energymarketers.com

National Hydropower Association
http://www.hydro.org

National Renewable Energy Laboratory
http://www.nrel.gov

National Society of Professional Engineers
http://www.nspe.org/

Nuclear Energy Institute
http://www.nei.org

Society of Exploration Geophysicists
http://www.seg.org

Solar Energy Industry Association
http://www.seia.org/

U.S. Department of Energy
http://www.energy.gov

World Nuclear Association (WNA)
http://www.world-nuclear.org
Tips for Entry into the Industry
To learn more about the field, read publications such as:

- *Solar Industry* (http://www.solarindustrymag.com)
- *Solar Today* (http://ases.org)
- *Geothermal Education Weekly* (http://www.geo-energy.org/updates.aspx)
- *Geothermal Resources Council Bulletin* (http://www.geothermal.org)
- *Biofuels Digest* (http://biofuelsdigest.com)

Visit the following Web sites for job listings:

- http://www.nspe.org/resources/career-center
- http://www.awea.org
- http://www.ases.org
- http://www.seia.org/solar-jobs
- http://solarliving.jobamatic.com/a/jbb/find-jobs
- http://www.homepower.com/jobs
- http://www.geothermal.org/employment.html
- http://www.fuelcellmarkets.com


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