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Texas Green Jobs Guidebook

TEXAS WORKFORCE COMMISSION

Acknowledgments

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Environmental Defense Fund

Environmental Defense Fund is dedicated to protecting the environmental rights of all people, including the right to clean air, clean water, healthy food and flourishing ecosystems. Guided by science, we work to create practical solutions that win lasting political, economic and social support because they are nonpartisan, cost-effective and fair.

Texas Workforce Commission

The Texas Workforce Commission (TWC) reviewed this guidebook. The TWC is the state government agency charged with overseeing and providing workforce development services to employers and job seekers of Texas. It has established a local/state network dedicated to developing the workforce of Texas. The network comprises the statewide efforts of the Commission coupled with planning and service provision on a regional level by 28 local workforce boards. This network gives customers access to local workforce solutions and statewide services in a single location — Texas Workforce Centers.

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The complete report is available online at www.edf.org/TXgreenjobs.

Texas Green Jobs Guidebook

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An Introduction to the Texas Green Jobs Guidebook

In this challenging economy, Texans are looking for rewarding careers that can put them on the path toward financial stability. However, many are unfamiliar with the opportunities offered by the growing green economy. This Guidebook aims to provide people with a tool for joining or learning more about this burgeoning industry.

Texas is the number one producer of wind energy in the country, and also possesses resources for opportunities in other renewable and energy efficiency sectors. Our state is home to many clean energy and green technology companies. Many of the jobs profiled in this Guidebook are in traditional employment sectors, such as manufacturing, installation, fabrication and operations, but new opportunities for adding a green layer to these types of jobs are emerging. For example, electricians can use their skills to install solar photovoltaic panels and machinists can use their knowledge to manufacture wind turbine components. New opportunities also exist in both urban and rural settings within sectors such as green building, renewable energy, energy efficiency audits, power plant operations, facilities management, and farm and ranch management. These jobs pay workers living wages, grant them access to safe and healthy working conditions, and provide opportunities for advancement. Most of these careers, such as wind turbine installation and maintenance and energy audits, cannot be outsourced overseas. They provide an opportunity to build a strong, long-lasting foundation for Texas workers, now and into the future.

These jobs are available or will become available throughout the state of Texas. Some areas may specialize in a particular industry, such as wind energy in West Texas and solar energy in Austin, but opportunities abound in every region.

This Guidebook is designed to be a resource for job seekers, students, guidance counselors, career advisors, policy makers and anyone else interested in learning about the tremendous potential of the existing and growing green jobs marketplace in Texas. This Guidebook features an expansive listing of green jobs throughout the Texas economy that includes job descriptions, salary information, minimum education requirements, potential certifications, employer types, job market growth potential, and much more. This list is by no means comprehensive. The very nature of the clean energy economy is that it is dynamic, and new opportunities will continue to present themselves.

Information for these job profiles was primarily compiled from job search websites, organizational websites, industry contacts, the "Green Jobs Guidebook," (California) authored by Environmental Defense Fund with the Ella Baker Center for Human Rights and "Careers for Colorado's New Energy Economy," authored by Environmental Defense Fund with the Colorado Governor's Energy Office.

In February 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA), which facilitates the creation of new jobs, economic growth and improved accountability.

The Outlook for Green Jobs Improved in 2009

2009 marked a sea change in funding and attention to the clean energy economy and green jobs. In February 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA), which includes $787 billion in loans, tax cuts, grants, contracts and other funding in order to facilitate:

- Creation of new jobs and preservation of existing ones;
- Economic growth and investment in long-term economic growth; and
- Unprecedented levels of accountability and transparency in government spending.

Included in the $787 billion is a $48 billion investment in job training and education, nearly $100 billion in funding for transportation and infrastructure, $20 billion in tax incentives for renewable energy, and more than $41 billion for energy-related programs. This legislation creates an unprecedented opportunity to lay the foundations for a clean energy economy and the creation of green jobs.

The ARRA funds have been disbursed to states, and Texas received $593,807,800 for energy and weatherization programs and additional funds for workforce training. The state of Texas designated $90 million for the Skills Development Fund, which can be used toward green job skills training. The table below indicates the breakout of ARRA funding for the green economy in Texas.

TABLE 1

Texas ARRA Funds for the Green Economy

STATE AGENCY/APPROPRIATION ITEM	AMOUNT
Comptroller of Public Accounts (State Energy Conservation Office (SECO))	
State Energy Program	$218,782,000
Energy Efficiency and Conservation Block Grant	$45,638,100
Energy Efficient Appliance Rebate Program	$23,341,000
Electricity Delivery and Energy Reliability, Research, Development and Analysis	$2,432,068
Texas Department of Housing and Community Affairs (TDHCA)	
Weatherization Assistance Program	$326,975,732

For more information about ARRA and its appropriations to Texas, see the following websites:

http://www.recovery.gov
http://www.window.state.tx.us/recovery/

In addition to ARRA, several pieces of national legislation are being considered by Congress that could bolster Texas' green jobs sector if passed.

The American Clean Energy and Security Act (H.R. 2454), which passed the U.S. House of Representatives in June 2009, contains four helpful provisions. First, it would allow the Secretary of Education to award "Clean Energy Curriculum Development Grants" to partnerships of high schools, technical schools, colleges, and experts from the community who wish to establish programs of study. These must focus on emerging careers in renewable energy, efficiency, and climate change. This provision would prioritize online learning and programs that focus on poorly performing, disabled, disadvantaged, or minority students. Second, the bill would increase funding for state-level energy efficiency and renewable energy worker training programs that target poor and disadvantaged individuals. Third, it would require the Secretary of Labor to establish an online information and resources clearinghouse to aid career and technical job training programs in the renewable energy sector. It would help address the challenges of changing technology and regional disparity in job training programs by facilitating collaboration to help programs remain effective and up-to-date. The clearinghouse would be publicly available online. Finally, the bill would require the Secretaries of Labor and Energy to create a Green Construction Careers demonstration project. This project would aim to promote green construction careers by identifying projects, such as a residential energy efficiency retrofit, and ensuring that contractors participate in apprenticeship and training programs for lower income people. At the publication of this Guidebook, the Senate companion to H.R. 2454 is awaiting debate in the U.S. Senate.

There are two more green jobs bills awaiting committee review in the Senate. The first (S. 1096) would establish the EnergyGrant Competitive Education Program. It would provide $300 million each year from 2010 through 2014 to be awarded, on a competitive basis, to consortiums of technical schools or colleges to "conduct research, extension, and education programs relating to the energy needs of the region." This would include green jobs promotion and probably training programs. The second (S. 1097) would create a sustainable energy training program that would award money to community colleges for workforce training and education programs. Potential sectors include alternative energy, efficiency, conservation, recycling, and sustainable agriculture. Additional legislation for green jobs continues to be introduced, indicating the high level of importance this sector has to Congress.

A Note on Job Entries in the Guidebook

Job descriptions and salaries in this Guidebook should be viewed as guidelines. A job with the same description may have different titles in two different companies, or two completely different jobs may have similar or identical titles. Salaries also vary widely depending on employer, geographical location, experience, economic conditions, and other factors. Jobs selected for this guidebook aim to represent the breadth and depth of green jobs available now and in the coming years. Therefore, each job entry describes only the opportunities available in that field, not necessarily a specific position. Also, the entries may contain positions that are not currently hiring, but that illustrate the types of jobs available in an industry.

Finally, although each sector is divided into sections, e.g., Installation and Maintenance, that reflect the typical divisions of companies, skill sets and job types in a particular field, some jobs may involve activities that fall into two or more sections. The sections are to facilitate browsing, but should not be taken as a complete characterization of each sector.

The following system is used to determine experience level required:

- 0 years = Entry Level
- 1-3 years = Mid Level
- 4+ years = High Level

Legislation recently passed by Congress requires the Secretaries of Labor and Energy to create a Green Construction Careers demonstration project. This project would aim to promote green construction careers by identifying projects, such as a residential energy efficiency retrofit, and ensuring that contractors participate in apprenticeship and training programs for lower income people.

Index of Texas Green Jobs and Sector Profiles

Clean Energy

Develop, manufacture, install, maintain, manage, and market technologies that harness the energy of natural forces and distribute it to consumers while limiting pollution.

Solar Power
- Installation and maintenance
- Development, manufacturing, sales, and project management

Wind Power
- Installation and maintenance
- Business and project management
- Development and manufacturing

Geothermal Power
- Manufacturing and installation
- Engineering, maintenance, and management

Biogas
- Collection and processing

Biomass
- Collection and power plant operations

Hydrogen Power
- Plant installation, operations, and management

Hydroelectric Power
- Design, development, and manufacturing
- Installation, maintenance, and project management

Power Plant (general facility positions)
- Environmental, health and safety
- Clean Power
- Development, sales, and business operations

Carbon Capture and Storage

Energy Demand Response

Green Building

Improve existing buildings and design and construct new buildings to maximize efficiency and reduce environmental impact.

Green Building Practices and Retrofits
- Project design, development, and engineering
- LEED

Green Building
- Project design and engineering
- Installation and operations
- Energy Efficiency Services

Transportation

Produce efficient vehicles, modify existing vehicles to be more environmentally friendly, design and support efficient systems of transportation, and produce cleaner alternative fuels to power the vehicle fleet.

Automotive
- Operations, vehicle production, manufacturing, and modification

Transportation Systems

- Efficient mass transit vehicle operations
- Transportation systems design
- Biofuel production
- Operation and management

Waste Management

Reduce the amount of waste generated by society, treat potentially harmful waste products, and recycle materials that can be used again.

Waste Treatment, Recycling, and Waste Reduction

Water Resources

Manage and conserve water resources, supply safe water to households and businesses, and ensure that wastewater is properly disposed.

Water Resource Management and Supply
Wastewater Management

Conservation and Planning

Protect natural resources and reduce the negative environmental impacts of human development and business.

Soil Conservation and Forestry
Environmental Planning
Environmental Consulting, Corporate Responsibility, and Compliance

Environmental Research and Monitoring

Conduct research to understand the biological, geological, and climatic systems of the Earth and how they change.

Advocacy

Push for specific policies concerning the environment and natural resources.

Sector Information

Not all sectors in the index are covered here

Solar Power

Texas has considerable solar resource potential. It receives significant direct solar radiation, providing energy that can be harnessed by photovoltaic (PV) cells and turned directly into electricity or that can be used by solar-thermal plants to produce steam and drive electricity-producing turbines. West Texas has more than double the direct solar radiation of East Texas, so it is an excellent location for PV or for utility-scale concentrating solar power (CSP) technologies, which use large mirrors to focus the sun's power.

The solar power industry is growing at a staggering rate, and much of that growth will take place in Texas. The Energy Information Administration projects that solar energy produced in the U.S. will grow significantly over the next 25 years. In 2005, the Texas Legislature set a goal of installing 10,000 megawatts of renewable energy by 2025, 500 of which must come from non-wind sources.

Texas has considerable solar resource potential.

This all bodes well for those hoping to build a solar power career in Texas. For example, CSP plants create five times more long-term jobs and 10 times more construction jobs than a comparable natural gas plant, according to the National Renewable Energy Laboratory. There will be tremendous demand for employees in all areas of Texas' solar industry in the coming decades.

Sources:
http://www.seco.cpa.state.tx.us/re_solar.htm
http://www.txses.org/solar/sites/default/files/TexasSolarRoadmap.pdf
http://www.eia.doe.gov/oiaf/aeo/index.html
http://www.instituteforenergyresearch.org/2009/06/11/facts-on-energy-solar/

Texas currently produces more wind power than any other state.

Wind Power

Texas currently produces more wind power than any other state. As of 2009, it had almost 8000 megawatts of installed capacity, about 2.5 times the capacity of the second-place state, Iowa, according to the American Wind Energy Association.

The wind potential in Texas is so great that the State Legislature included a 500 megawatt non-wind goal within the renewable portfolio standard of 10,000 megawatts of renewable energy by 2025, predicting that otherwise wind would fulfill the entire goal. As the state works toward that goal and national policies shift in favor of renewable energy, the Texas wind industry will continue to grow.

Sources:
http://www.seco.cpa.state.tx.us/re_wind.htm
http://www.awea.org/newsroom/releases/10-20-09_awea_Q3_market_report.html

Geothermal Power

Geothermal power uses steam generated by the heat of the Earth to produce electricity. Significant potential exists for geothermal development in Texas. Parts of both East and West Texas have sufficiently hot underground water resources to allow for direct use geothermal, which uses geothermal reservoirs to heat homes and businesses and facilitate industrial processes. In addition, old oil and gas wells can provide access to high-temperature resources previously thought inaccessible. The Geothermal Laboratory at Southern Methodist University estimates that Texas could have 2,000 to 10,000 megawatts of geothermal generating capacity within 10 years by taking advantage of these wells. Texas will most likely intensify its use of this clean and renewable resource in the coming years.

Sources:
http://www.seco.cpa.state.tx.us/re_geothermal.htm
http://www1.eere.energy.gov/geothermal/pdfs/directuse.pdf
http://www.seco.cpa.state.tx.us/zzz_re/re_geopowering2007.pdf

Biomass/Biogas

Biomass is energy produced from wood, food crops, grasses, agricultural residue, manure and methane from landfills. Texas has significant forest and agriculture sectors, which means an abundance of biomass resources, primarily in East Texas and the Panhandle. Texas is home to several ethanol plants, and is the largest producer of biodiesel in the U.S. Biomass is also different from other renewable energy sources in that in addition to being used as an electricity source, about 10 percent of biomass is used for transportation fuels, although this number is slightly lower in Texas. In the state, the majority of biomass is used by the industries that create it—paper, chemical and food processing—to generate heat, electricity and steam used onsite.

Texas is taking the lead in biogas, having opened the nation's first cellulose biogas plant in the U.S., in Leon County in East Texas in 2009. The plant will generate one megawatt of electricity, enough to power 400 homes year round. Based on expected revenue, this first project estimates it will create 137 jobs and 14 businesses in the surrounding area. Four new plants will begin construction in Central Texas in 2010, and 50 plants are expected to be

Texas is second only to California in total hydrogen production, and it is a major consumer of hydrogen for industrial processes.

running within the next eight years, according to the U.S. Department of Agriculture. Texas' extensive refining capacity and distribution infrastructure also means that as biofuels are developed nationally, the state is likely to become the center for refining and distributing those fuels.

Sources:
http://www.seco.cpa.state.tx.us/re_biomass.htm
http://www.tx.nrcs.usda.gov/news/lonestarlink/spindle_top.html
http://postoakrcd.org/biohybridenergy/documents/TexasMakingHistorywithCelluloseBiogasPlant.doc%20%5BCompatibility%20Mode%5D.pdf

Hydrogen Power

The use of hydrogen to generate energy is still in the developmental stage, limited to research and pilot projects. However, Texas will have several advantages as the hydrogen power industry develops in the next few decades. Texas is second only to California in total hydrogen production, and it is a major consumer of hydrogen for industrial processes. It has a hydrogen pipeline network, and the state's energy sector has experience working with the material. Texas will continue to develop its lead in hydrogen power as the associated technologies move toward commercial viability.

Sources:
http://www.window.state.tx.us/specialrpt/energy/renewable/h2.php

Hydroelectric Power

Hydroelectric power, generated by damming a river and forcing it to flow through a turbine that produces electricity, constitutes less than 1% of Texas' power generation. Existing and potential hydropower projects are mostly confined to Central and Eastern Texas. The state has 23 hydroelectric dams with a total generating capacity of only 673 megawatts, and it is unlikely that it will see a significant expansion of hydropower in the future. However, the industry will maintain a healthy need for employees to maintain and administer existing facilities and to develop more efficient hydroelectric technologies.

Sources:
http://www.window.state.tx.us/specialrpt/energy/renewable/hydro.php

Carbon Capture and Storage

Carbon capture and storage (or sequestration) (CCS) is a process by which carbon dioxide is captured from large point sources, such as fossil fuel power plants, natural gas processing or heavy industry—including cement, paper and pulp processing—and stored rather than emitted into the atmosphere. No large industrial-scale projects are currently located in Texas. However, in 2007, the Bureau of Economic Geology at the University of Texas received a 10-year, $38 million subcontract from the National Energy Technology Lab to conduct the first U.S.-based monitored, long-term project to study the feasibility of CCS. It is a research project of the Southeast Regional Carbon Sequestration Partnership (SECARB). The SECARB partnership will demonstrate CO2 injection rate and storage capacity in the Tuscaloosa-Woodbine geologic system that stretches from Texas to Florida. The region has a potential to store more than 200 billion tons of CO2, equal to about 33 years of U.S. emissions at the current level. Monitored injection began in 2008.

Furthermore, in 2009, Governor Rick Perry signed into law a bill that establishes a regulatory framework for CCS in Texas, a significant step in the advancement of the process and technology in the state.

Sources:
http://www.secarbon.org/

Green Building

Texas is a leader in green building, an industry that strives to reduce the energy use, water consumption, and environmental impact of our structures. Even in a down economy, green building has found a place with energy efficiency retrofits, and the buildings that are being built often utilize green building techniques. Green building in Texas is encouraged by both economic and political circumstances. Texans pay 56 percent more each year for electricity than the average American, so every kilowatt of energy conserved in Texas is 56 percent more valuable.

Austin is a state and national leader in green building, consistently ranking among the top 10 green production cities in the U.S. according to many compiled rankings. Its municipal electric utility, Austin Energy, has a robust and stringent green building program and was awarded the U.S. Environmental Protection Agency's Climate Protection Award in 2008. Furthermore, cities across the state have been establishing and implementing stricter building codes for energy conservation. Major metropolitan areas, such as Dallas, Houston and San Antonio have passed stringent energy conservation building code measures within the past year—with full implementation poised for the coming months and years. Austin, as part of the Pecan Street Project, is considering changing its building codes to accommodate residential plug-in hybrid vehicle charging stations. The State Energy Conservation Office (SECO) has also begun a rulemaking process to increase statewide building codes to the 2009 International Energy Conservation Code.

Sources:
http://www.seco.cpa.state.tx.us/consumers/
http://www.epa.gov/cppd/awards/complistofwinners.html

Transportation

With nearly 80,000 miles of highways and 50,000 bridges, the surface transportation network in Texas is one of the largest in the country. The metropolitan areas of the state continue to grow, putting more pressure on existing transportation infrastructure. Federal directives for states designed to reduce greenhouse gas emissions in the transportation sector present opportunities in the green economy, such as new techniques and materials used in highway maintenance.

Economic forces and increasing congestion have led to a growth in the development of public transportation opportunities around the state. The Dallas Area Rapid Transit (DART) system was the first light rail in the Southwestern U.S., beginning service in 1996. It

plans extensive expansion of service over the next few years, including connections to the Dallas/Fort Worth International Airport. In 2004, Houston's light rail system came online. The city began a 30-mile extension in 2008, which is expected to be completed by 2012. Austin is nearing completion of construction and testing of its commuter rail system, and it is expected to begin service in 2010. San Antonio's VIA metro bus system plans to add bus rapid transit (BRT) to its service area by 2012. The success of both light rail and BRT depends on development around the stations for each mode of transit. These developments, called transit-oriented developments (TODs), present opportunities for green projects such as alternative energy production to power the development.

Federal directives for states designed to reduce greenhouse gas emissions in the transportation sector present opportunities in the green economy, such as new techniques and materials used in highway maintenance.

Also, 2010 will see the first Plug-in Electric Vehicles (PEVs) come to market. Growth in this field is anticipated to be substantial, but may take some time to develop. One of Austin's Pecan Street Project goals in creating the "utility of the future" is the integration of PEVs in the city's utility planning, including residential and municipal charging stations. Dallas and Houston are exploring PEVs for their city fleets and many local utilities have expressed support for wider PEV integration. While the market may take some time to grow, there will be increased demand for automotive maintenance workers who are familiar with the PEV engines as well as electric technicians who could maintain and repair charging stations.

Sources:
http://www.dot.state.tx.us/about_us/strategic_plan.htm
http://www.nctcog.org/trans/outreach/stateofregion/SOR2009.pdf
http://www.ridemetro.org/News/Releases/2009/07132009.aspx
http://capmetroblog.com/2009/12/09/capital-metro-terminates-rail-contract-with-veolia/
http://www.viainfo.net/BusService/BRT.aspx
http://www.pecanstreetproject.org/

Waste Management

Waste management touches virtually every industry—municipal, sewage, organic compost and recyclable materials. More cities, especially those experiencing growth, realize the urgent need to address issues of waste management. In 2008, Austin began a single-stream recycling program, which was contracted to a firm in San Antonio for the near term. Houston has a neighborhood-based recycling program, but some major employers in the area, such as the medical center hospitals and clinics and Reliant Stadium and Minute Maid Park, have begun significant recycling programs. The City of Houston also has plans to extend its recycling program to a city-wide program in the next few years. Increased recycling, both through awareness and city, county or state directives, can lead to more employment opportunities in collecting, sorting and processing waste and recyclable materials.

Sources:
http://www.ci.austin.tx.us/sws/default.htm
http://www.houstontx.gov/solidwaste/recycling.html

Water Resources

Texas is the fastest growing state in the U.S. and demands on our water system are at an all-time high. Coupled with growth are problems such as severe drought, which affected all or part of the state in 2008 and 2009. San Antonio has been the leader in the state in municipal water conservation—even as the city has increased its citizen base, its water use has remained relatively constant since the 1980s. In 2009, Mayor Phil Hardberger introduced Mission Verde, a "green" economic development plan that includes policies to further enhance water management and arborist conservation efforts and improve municipal wastewater recycling. Other cities are also looking into wastewater recycling as a solution, including dry areas in West Texas. In 2007, the City of Austin set a goal to reduce peak water demand by 10 percent over

10 years. Also, water conservation in the electricity sector is a critical component in Austin's Pecan Street Project, which will begin demonstration projects of potential technologies in 2010.

Although cities use approximately one quarter of the water in Texas, irrigated agriculture consumes 60 percent and manufacturing 10 percent. As supplies become scarcer, increased conservation measures will be necessary. Another issue for water is increased water loss through leakage from old pipes, and many Texas cities have policies to perform water audits and replace old pipes in the coming years, based on the age of pipes.

Sources:
http://www.sanantonio.gov/oep/SustainabilityPlan.asp?res=1280&ver=true
http://www.ci.austin.tx.us/council/watercon.htm
http://www.texaswatermatters.org/conservation.htm

Conservation and Planning

Environmental planning has become more common in city and urban planning projects and offices, in both the public and private sectors. As environmental protection has become both a powerful marketing tool for firms and an element of corporate responsibility, demand has increased for consultants who focus on limiting the greenhouse emissions of their employers. Regulation of carbon dioxide, being debated in the U.S. Senate and discussed at the U.S. Environmental Protection Agency, would set new limits on greenhouse emissions, leading to even more demand for consultants and planners to help companies comply with new regulations. Public and private sector job growth in environmental compliance and planning is expected to be significant.

As water supplies become scarcer, increased conservation measures will be necessary. Another issue for water is increased water loss through leakage from old pipes, and many Texas cities have policies to perform water audits and replace old pipes in the coming years, based on the age of pipes.

Solar power installation and maintenance

SOLAR AND PV INSTALLATION: ROOFER

Description: Install solar systems on roof while making sure that it is air-tight and maintaining the structural integrity of the building.

Salary: $15 - $23/hour

Minimum Education: GED/High School Diploma

Experience Needed: Entry to Mid Level
1-3 years related on-the-job experience

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Electric System Install Technician
2. Solar Installation Electrician

SOLAR ELECTRIC SYSTEM INSTALLATION TECHNICIAN

Description: Install and operate solar electrical systems.

Salary: $15 - $25/hour

Minimum Education: GED/High School Diploma

Experience Needed: Mid Level
1-2 years installing solar electric systems and electrical wiring in residential or commercial applications

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Installation Electrician

SOLAR COMMERCIAL INSTALLATION ENGINEERING TECHNICIAN

Description: Provides technical support and assistance to field technicians and engineers.

Salary: $21 - $31/hour

Minimum Education: Associate Degree or equivalent from Trade School or Apprenticeship

Experience Needed: Mid Level

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Commercial Installation Engineer
2. Solar Commercial Installation Electrician Foreman

SOLAR INSTALLATION ELECTRICIAN

Description: Install solar electric generating systems at commercial and residential customer sites. Hardwire the photovoltaic energy system to the power grid.

Salary: $17 - $31/hour

Minimum Education: GED/High School Diploma

Certification: North American Board of Certified Energy Practitioners (NABCEP) Certified Solar PV Installer

Experience Needed: Entry to Mid Level
Journey level status expected

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Commercial Installation Engineering Technician

SOLAR COMMERCIAL INSTALLATION ENGINEER

Description: Install solar panel systems on commercial structures. Work with blueprints and technical concerns in installation.

Salary: $31 - $50/hour

Certification: North American Board of Certified Energy Practitioners (NABCEP) Certified Solar PV Installer recommended

Experience Needed: High Level
Established engineer with experience in solar installation

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Residential Installation Engineer
2. Electrical Engineer

SOLAR THERMAL SYSTEM INSTALLER

Description: Work in the field installing residential and commercial solar thermal systems.

Salary: $35,000 - $50,000/year

Minimum Education: GED/High School Diploma

Experience Needed: Entry to Mid Level
0-1 year in the solar field

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Electric System Installation Technician

Solar power installation and maintenance, continued

SOLAR INSTALLATION ELECTRICIAN FOREMAN

Description: Coordinates, directs and manages solar electric generating systems installations at commercial or residential customer sites.

Salary: $25 - $38/hour

Minimum Education: Trade School or Apprenticeship preferred

Recommended College Coursework: Solar or Renewable Energy

Certification: North American Board of Certified Energy Practitioners (NABCEP) Certified Solar PV Installer

Experience Needed: Mid to High Level
Journey Level Attained; 3-5 years direct experience in a construction environment in a similar capacity and carpentry and/or roofing experience is required

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Residential Installation Electrician

SOLAR FIELD SERVICE TECHNICIAN

Description: Provide on-site maintenance for solar electric systems.

Salary: $60,000 - $80,000/year

Minimum Education: GED/High School Diploma

Experience Needed: High Level
At least 5 years technical experience performing on-site maintenance

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Electric System Installation Technician

ICE TECHNICIAN (INSTRUMENTATION/ CONTROLS/ELECTRICAL SYSTEMS)

Description: Monitors and repairs the instrumentation, controls, and electrical systems in a utility scale power generating facility.

Salary: $16 - $22/hour

Minimum Education: GED/High School Diploma

Experience Needed: Mid Level
2-3 years experience with increasing responsibilities in troubleshooting and repair of plant instruments

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Installation Engineer

Solar power development, manufacturing, sales, and project management

SOLAR ENERGY SYSTEMS DESIGNER

Description: Design solar domestic hot water and space heating systems for new and existing structures, applying knowledge of energy requirements of structure, local climate conditions, solar technology and thermodynamics.

Salary: $40,000 - $70,000/year

Education Requirements: Technical School

Experience Needed: Mid to High Level

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Electric System Installation Technician

PV SOLAR CELL DESIGNER

Description: Design concentrated photovoltaic solar cells for mass production.

Salary: $77,000 - $91,000/year

Minimum Education: Advanced degree in Electrical Engineering, Materials Science, Chemistry, Physics or related field Recommended College Coursework: Engineering, Sciences, Renewable energies

Experience Needed: High Level
Minimum 5 years of industry experience; solar experience not required.

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Energy Systems Designer
2. Electrical Engineer

Solar power development, manufacturing, sales, and project management, continued

SOLAR FABRICATION TECHNICIAN

Description: Fabricates and assembles metal solar collectors according to job order specifications, using machine shop tools and equipment.

Salary: $20,000 - $40,000/year

Minimum Education: GED/ HS diploma

Experience Needed: Entry Level
A combination of 3-6 months of directly related training and/or experience is typically required

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Energy System Installer
2. Solar and PV installation: Roofer

PV POWER SYSTEMS ENGINEER

Description: Drive the development and implementation of highly efficient grid-connected systems for Concentrated PV technologies.

Salary: $76,000 - $88,000/year

Minimum Education: Master's Degree in Electric Power Engineering or Energy Efficiency; or Bachelor's Degree with strong work experience. Recommended College Coursework: Electrical Engineering, Renewable energy, and Physics

Experience Needed: High Level
3-8 years experience including large-scale grid interconnect systems experience.

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Systems Designer
2. Photovoltaic Engineer
3. Energy Engineer

SOLAR HOT WATER MANUFACTURING TECHNICIAN

Description: Manufacture solar hot water heaters.

Salary: $22 - $27/hour

Minimum Education: Associate Degree in Electronics/ Electrical Engineering, Material Science, Physics, Chemistry or related discipline, or equivalent training and work experience. Recommended College Coursework: Engineering, Sciences, Solar Technology

Experience Needed: Entry Level

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. PV Fabrication and Testing Technician
2. Solar Energy Systems Installer

PV FABRICATION & TESTING TECHNICIAN

Description: Fabricate and test flexible, translucent plastic solar cells.

Salary: $22 - $27/hour

Minimum Education: Associate Degree in Electronics/ Electrical Engineering, Material Science, Physics, Chemistry or related discipline, or equivalent training and work experience

Recommended College Coursework: Electronics, Electrical Engineering, Chemistry, Solar, Physics, Material Science

Experience Needed: Entry Level
2 years work experience in a laboratory environment is highly desirable

Employer Type: Private consulting, Government, Power Plants/Facilities

Related Careers:
1. Solar Lab Technician
2. Solar Energy Systems Designer

SENIOR SOLAR SYSTEM DESIGN ENGINEER

Description: Apply solar expertise to new system designs and collaborate with the design and process engineering teams.

Salary: $80,000 - $100,000/ year

Minimum Education: Bachelor's Degree in Electrical Engineering, Mechanical Engineering, Architectural Design, or Computer Science, or an equivalent level of education and experience

Experience Needed: Mid to High Level
Minimum of 3 years of solar design experience

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar System Design Engineer
2. Solar Electric System Installation Technician

SOLAR LAB TECHNICIAN

Description: Design concentrated photovoltaic solar cells for mass production.

Salary: $77,000 - $91,000/year

Minimum Education: Advanced degree in Electrical Engineering, Materials Science, Chemistry, Physics or related field

Recommended College Coursework:
Engineering, Sciences, Renewable energies

Experience Needed: High Level
Minimum 5 years of industry experience; solar experience not required.

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Energy Systems Designer
2. Electrical Engineer

Solar power development, manufacturing, sales, and project management, continued

RESIDENTIAL/COMMERCIAL SOLAR SALES CONSULTANT

Description: Establish sales plans, prepare proposals and close client deals.

Salary: $45,000 - $85,000/year, depending on commission

Minimum Education: Bachelor's Degree

Experience Needed: Mid to High Level
2-5 years experience in commercial and/or in-home sales

Employer Type: Private firms

Related Careers:
1. Energy Conservation Representative

LEAD PV INSTALLER

Description: Lead installation teams, commissioning, and trouble shooting on residential and commercial install systems, with some indoor office planning.

Salary: $15 - $25/hour

Minimum Education: GED/High School Diploma
Certification: North American Board of Certified Energy Practitioners (NABCEP) Certified Solar PV Installer

Experience Needed: Mid to High Level
Construction experience and electrical knowledge

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Cell Device Technician
2. Electrician

SOLAR THERMOELECTRIC PLANT MANAGER

Description: Manage an entire thermoelectric plant.

Salary: $74,000 - $88,000/year

Minimum Education: Trade School, Apprenticeship or Bachelor's Degree
Recommended College Coursework: Electrical, Electronic, and/or Energy Engineering
Certification: Professional Engineer (P.E.)

Experience Needed: Mid to High Level
Minimum 2 years working experience; familiarity with thermoelectric technology as well as the solar energy market

Employer Type: Power Plants/Facilities

Related Careers:
1. Solar Operations Engineer

SOLAR OPERATIONS ENGINEER

Description: Work with integration partners to design solar facilities and provide expertise on solar technology and innovation.

Salary: $90,000 - $100,000/year

Minimum Education: GED/High School Diploma; Bachelor's Degree in Electrical Engineering preferred
Recommended College Coursework: Electrical Engineering, Solar Operations
Certification: Professional Engineer (P.E.) NABCEP certificate and/or Electrical Contractors licenses preferred

Experience Needed: High Level
Have experience designing and building PV electrical generation systems

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar PV Designer

SOLAR ENERGY ENGINEER

Description: Perform site-specific engineering analysis and evaluation of energy efficiency and solar projects involving residential, commercial and industrial customers by utilizing building simulation software.

Salary: $75,000 - $80,000/year

Minimum Education: Bachelor's Degree in an engineering discipline; Master's Degree preferred
Recommended College Coursework: Engineering, Physics
Certification: Professional Engineer, Engineer-In-Training, and/or Certified Energy Manager (CEM) are desired

Experience Needed: High Level
3-10 years related experience/training
3-5 years of facility-related engineering experience
2-5 years of experience within the green building, energy efficiency, building science or related field.

Employer Type: Private Firms

Related Careers:
1. Electrical Engineer

Wind power installation and maintenance

WIND GENERATING INSTALLER

Description: Assemble, install, and maintain electrical and mechanical parts, such as alternators, generators, and rotors of electric power generating windmills, according to production specifications.

Salary: $14 - $20/hour

Minimum Education: HS Diploma/GED

Experience Needed: Entry to Mid Level
A combination of more than 4 years of directly related training and/or experience is typically required.

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Electro-Mechanical Wind Turbine Technician
2. Wind Field Technician

JUNIOR RENEWABLE ENERGY TECHNICIAN

Description: Perform wind turbine resets and site call outs and act as a central safety call-in for project managers performing high voltage switching, while receiving on-site training.

Salary: $15 - $17/hour

Minimum Education: Trade School or Apprenticeship recommended
Recommended College Coursework: Electro-Mechanical Wind Power Generation

Experience Needed: Entry Level
Previous operations experience of wind plants or currently attending school for this particular field

Employer Type: Power Plants/Facilities

Related Careers:
1. Wind Field Technician
2. Electro-Mechanical Wind Turbine Technician

WELDING ENGINEER

Description: Coordinate crews of welders and welding inspectors working on wind turbines. Develop welding process specifications, troubleshoot welding processes, and communicate with customer.

Salary: $65,000 - $80,000/year

Minimum Education: Bachelor's Degree
Certification: Certified Welding Engineer (CWI)

Experience Needed: Mid Level
1-2 years, with experience in quality management preferred

Employer Type: Private Firms, Power Plants/Facilities

QUALITY ASSURANCE: STEEL WORKS AND WELDING

Description: Coordinate the operations of a welding inspector crew and help develop welding process specifications.

Salary: $35,000 - $65,000/year

Minimum Education: GED/High School Diploma
Certification: Certified Welding Inspector (CWI) preferred

Experience Needed: Mid to High Level
3-5 years, preferably with experience in quality management

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Welder

QUALITY ASSURANCE: SURFACE TREATMENT AND FINAL ASSEMBLY

Description: Develop specifications and procedures for painting wind turbines. Also responsible for quality records, monitoring and measuring devices on wind turbines, and customer relationships.

Salary: $35,000 - $65,000/year

Minimum Education: None
Certification: NACE (National Association of Corrosion Engineers) certification (recommended)

Experience Needed: Mid to High Level
3-5 years, preferably with experience in quality management

Employer Type: Private Firms, Power Plant/Facilities

WIND FARM OPERATIONS MAINTENANCE

Description: Work with power delivery operations and maintenance

Salary: $55,000 - $58,000/year

Minimum Education: Associate Degree

Experience Needed: Mid to High Level. 4 years experience in power generation and electric systems, with at least one year in wind energy

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Wind energy project developer
2. Wind energy project manager

Wind power installation and maintenance, continued

WIND FIELD SERVICE TECHNICIAN

Description: Perform status checks on turbines and repair the problems.

Salary: $22 - $26/hour

Minimum Education: Trade School or Apprenticeship
Recommended College Coursework: Iron and/or Metal Shop, Mechanical/Electrical Engineering, Renewable Energy Studies

Experience Needed: Mid Level

Employer Type: Power Plants/Facilities

Related Careers:
1. Electro-Mechanical Wind Turbine Technician

WIND POWER PLANT PROJECT ENGINEER

Description: Responsible for overseeing all aspects of the technical specialties at plants including electrical engineering, turbine selection & procurement, revenue generation, expense management and budgets, as well as conducting conceptual engineering and design of wind field processes and facilities.

Salary: $60,000 - $90,000/year

Minimum Education: Bachelor's Degree in Mechanical or Electrical Engineering.
Recommended College Coursework: Mechanical and/or Electrical Engineering, Renewable Energies

Experience Needed: High Level
5-10 years of experience with power plant design, maintenance, and operations

Employer Type: Power Plants/Facilities

Related Careers:
1. Director of Wind Development

ELECTRO-MECHANICAL WIND TURBINE TECHNICIAN

Description: Install, maintain and commission wind turbine mechanical, electrical and hydraulic systems.

Salary: $17 - $21/hour

Minimum Education: Associate Degree or equivalent from trade school preferred
Recommended College Coursework: Electrical/ Mechanical Engineering

Experience Needed: Entry to Mid Level
6 months to 1 year related experience without associate's degree or trade school background

Employer Type: Private Firms, Government, Power Plant/ Facilities

Related Careers:
1. Wind Generating Installer
2. Wind Field Technician

Wind power project management and business

WIND PROJECT DEVELOPER

Description: Manage the development of wind energy projects.

Salary: $120,000 - $140,000/year

Minimum Education: Bachelor's Degree in Business, Engineering, Science, or a related field

Experience needed: Mid to High Level
3-15 years in energy industry

Employer Type: Private firms, Power Plants/Facilities

Related Careers:
1. Wind Project Site Manager
2. Wind Energy Supply Chain Management

TRANSMISSION ASSOCIATE

Description: Ensure adequate transmission for the company's development pipeline, including understanding the implications of congestion on potential and existing projects. Track the policies that impact transmission costs and availability in all US markets.

Salary: $60,000 - $80,000/year

Minimum Education: Bachelor's Degree; Degree in Engineering preferred, Economics or Finance considered

Experience Needed: Mid Level
1-3 years in energy industry, preferably transmission

Employer Type: Private Firms, Power Plants/Facilities

Wind power project management and business, continued

DIRECTOR OF WIND DEVELOPMENT

Description: Lead and manage the development and evaluation of potential wind energy business opportunities, identify and analyze wind energy investment opportunities and lead projects through the research, analysis, modeling, recommendation and negotiating phases.

Salary: $130,000 - $170,000/year

Minimum Education: Bachelor's Degree in Accounting, Finance, Economics, or related field; MBA, CPA, CMA recommended

Recommended College Coursework: Finance, Economics, Accounting, and Management

Experience Needed: High Level
4-6 years wind developer experience with large company or consulting firm.

Employer Type: Private Firms, Power Plants/Facilities

WIND FIELD OPERATIONS MANAGER FOR COMMERCIAL

Description: Manage execution of all site activities in region - receiving, installation & commissioning, maintain expertise in field Environmental Health & Safety and quality procedures and drive project requirements in region including cost, schedule and performance.

Salary: $24 - $28/hour

Minimum Education: Bachelor's Degree

Recommended College Coursework: Renewable Energies, Engineering, Industrial Operations

Experience Needed: Mid to High Level
Minimum 3 years in field management of wind farms plus 1-2 years direct technical experience on wind farms

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Plant Operations Manager

WIND FIELD OPERATIONS MANAGER FOR COMMERCIAL

Description: Manage execution of all site activities in region - receiving, installation & commissioning, maintain expertise in field Environmental Health & Safety and quality procedures and drive project requirements in region including cost, schedule and performance.

Salary: $24 - $28/hour

Minimum Education: Bachelor's Degree

Recommended College Coursework: Renewable Energies, Engineering, Industrial Operations

Experience Needed: Mid to High Level
Minimum 3 years in field management of wind farms plus 1-2 years direct technical experience on wind farms

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Plant Operations Manager

WIND PROJECT SITE MANAGER

Description: Provide day to day successful operations management of a single wind farm.

Salary: $70,000 - $110,000/year

Minimum Education: Bachelor's Degree in related field or equivalent combination of education and experience.

Experience Needed: High Level
At least 5 years experience in industrial wind farm site management

Employer Type: Private firms, Government, Power Plants/Facilities

PERFORMANCE ENGINEER

Description: Provide monthly reporting on wind farm relative to climatic indicators. Assist Asset Management in performing gap analyses to identify inefficiencies. Propose and execute R&D activities that will challenge or verify current modeling assumptions.

Salary: $60,000 - $90,000/year

Minimum Education: Master's Degree in applied science, preferably Engineering

Experience Needed: Mid to High Level
1-5 years in wind farm operational analysis

Employer Type: Private firms, Power Plants/Facilities

RENEWABLES ACCOUNT REPRESENTATIVE

Description: Travel frequently to sell wind generator repair, retrofit, testing, and training services.

Salary: $50,000 - $75,000/year, depending on commission

Minimum Education: Associate's Degree

Experience Needed: Mid Level
2-3 years experience with knowledge of wind collection systems and electrical distribution equipment

Employer Type: Private Firms

Wind power project management and business, continued

WIND POWER FORECASTER/WIND RESOURCE ASSESSOR

Description: Offer wind power forecasting services to energy traders, regulators, wind farm owners and developers, and utilities and electrical grid operators.

Salary: $40,000 - $60,000/year

Minimum Education: Mid Level. Bachelor's Degree in Meteorology or Atmospheric Science

Experience Needed: 3 years related forecasting experience, preferably in wind energy

Employer Type: Private Firms

Wind power technology development and manufacturing

WIND TURBINE MACHINIST

Description: Make precision metal or plastic parts, use computer numerically controlled machine tools, and set up and operate all of the basic machine tools and many specialized variations for wind turbine production.

Salary: $12 - $21/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Metalworking, Drafting, Math, and Computer courses

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Power Plants/Facilities

Related Careers:
1. Welder
2. Sheet Metal Worker

WIND TURBINE SHEET METAL WORKER

Description: Perform all operations necessary to make, install and repair a wide variety of sheet-metal products related to wind turbine production.

Salary: $14 - $22/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Math, Mechanical Drawing, Metal Shop, Welding, Heating and Air-Conditioning

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Machinist
2. Welder

WIND FARM ELECTRICAL SYSTEMS DESIGNER

Description: Design underground and overhead wind farm collector systems and prepare and develop site specifications.

Salary: $50,000 - $80,000/year

Minimum Education: Bachelor's Degree
Recommended College Coursework: Electrical Systems, Wind Turbine Design

Experience Needed: High Level
Minimum 5 years experience including wind farm collector systems and/or electric utility distribution

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Electrical Engineer

CIVIL ENGINEER, WIND ENERGY

Description: Provide civil design, engineering, testing requirements, permitting and construction support for wind projects.

Salary: $45,000 - $70,000/year

Minimum Education: Bachelor's Degree in Civil Engineering

Experience Needed: High Level
At least 7 years experience in design, and engineering

Employer Type: Private firms, Government, Power Plants/ Facilities

Wind power technology development and manufacturing, continued

WIND TURBINE MECHANICAL ENGINEER

Description: Responsible for design, development, testing of all aspects of mechanical components, equipment and machinery.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Mechanical Engineering
Recommended College Coursework: Mechanical Engineering, Metal Shop, Machinery
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Energy Engineer

WIND TURBINE ELECTRICAL ENGINEER

Description: Responsible for design, development and testing of all aspects of electrical components and equipment.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Electrical Engineering
Recommended College Coursework: Electrical Engineering, Renewable Energies
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Energy Engineer
2. Geothermal Electrical Engineer

Geothermal power plant manufacturing and installation

GEOTHERMAL PLANT INSTALLATION TECHNICIAN

Description: Install infrastructure at geothermal power generation plants.

Salary: $35,000 - $45,000/year

Minimum Education: GED/High School Diploma

Experience Needed: Entry Level
Experience in construction, refrigeration, electrical and/or plumbing installations

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Systems Service Technician

GEOTHERMAL SHEET METAL WORKER

Description: Perform all operations necessary to make, install, and repair geothermal power generators.

Salary: $14 - $22/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Math, Mechanical Drawing, Metal shop, Welding, Heating and Air-Conditioning

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Machinist
2. Welder

GEOTHERMAL HEAT PUMP MACHINIST

Description: Make precision metal or plastic parts for geothermal heat pumps, use computer numerically controlled machine tools, and set up and operate all of the basic machine tools and many specialized variations.

Salary: $12 - $21/hour

Recommended College Coursework: Metalworking, Drafting, Math, and Computer courses

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Welder
2. Sheet Metal Worker

GEOTHERMAL POWER PLANT STRUCTURAL ENGINEER

Description: Design the geothermal power generating structure.

Salary: $67,000 - $79,000/year

Minimum Education: Bachelor's Degree in Civil Engineering
Recommended College Coursework: Structural Engineering, Mechanical Systems, Geothermal
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5-15 years of facility and industrial system design with 5 years of power plant design

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Civil Engineer

Geothermal power plant manufacturing and installation, continued

GEOTHERMAL ELECTRICAL ENGINEER

Description: Responsible for design, development and testing of all aspects of electrical components and equipment.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Electrical Engineering
Recommended College Coursework: Electrical Engineering, Renewable Energies, Geology
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Energy Engineer
2. Solar Energy Engineer

Geothermal power plant engineering, maintenance, and management

HYDROGEOLOGIST

Description: Conduct field-related activities connected to the groundwater monitoring duties. Collect water level measurements and water quality samples from production wells and monitoring wells.

Salary: $58,500 - $78,200/year

Minimum Education: Bachelor's Degree in Geology, Hydrogeology, Earth Science, or related field
Recommended College Coursework: Hydrogeology, Earth Sciences

Experience Needed: Entry Level
Some experience in groundwater sampling activities and hydrogeologic data presentation is a plus

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Water Purification Systems Service Technician

GEOTHERMAL ELECTRICAL ENGINEER

Description: Design, develop and test all aspects of electrical components and equipment.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Electrical Engineering
Recommended College Coursework: Electrical Engineering, Geothermal Technology
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Energy Engineer
2. Solar Energy Engineer

GEOTHERMAL OPERATIONS ENGINEER

Description: Collect and process information on well-field and plant performance. Diagnose well problems and designs procedures to fix them.

Salary: $70,000 - $80,000/year

Minimum Education: Bachelor's Degree or higher in Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
15 years experience in geothermal resource engineering as well as petroleum engineering

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Mechanical Engineer

GEOTHERMAL POWER GENERATION (MECHANICAL) ENGINEER

Description: Prepare specifications, performance modeling and analysis, cost estimations, and negotiation of supply and service contracts for a company that generates renewable electric power.

Salary: $90,000 - $140,000/year

Minimum Education: Bachelor's Degree in Mechanical Engineering
Recommended College Coursework: Mechanical Engineering, Renewable Energies
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years experience with boilers and steam turbines, vessels, piping, valves, control systems, equipment and piping supports systems

Employer Type: Power Plants/Facilities

Related Careers:
1. Geothermal Electrical Engineer

Geothermal power plant engineering, maintenance, and management, continued

GEOTHERMAL MECHANICAL ENGINEER

Description: Design, develop and test all aspects of mechanical components, equipment and machinery.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Mechanical Engineering
Recommended College Coursework: Mechanical Engineering, Earth Sciences, Geothermal production
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Electrical Engineer
2. Energy Engineer

GEOTHERMAL PLANT EFFICIENCY OPERATOR

Description: Maintain and monitor plant equipment for efficient and safe plant operations and planning and handling all hazardous materials and wastes in a safe and environmentally sensitive manner.

Salary: $26 - $30/hour

Minimum Education: GED/High School Diploma
Certification: Hazardous Materials (HAZMAT)

Experience Needed: High Level
Minimum 5 years of power plant operating experience

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Weatherization Operations Manager

Biogas collection and processing

LANDFILL GAS TECHNICIAN

Description: Assist head landfill operator in daily operations, maintenance and repair and performing landfill gas leak checks on recurring basis.

Salary: $10 - $15/hour

Minimum Education: GED/High School Diploma

Experience Needed: Entry Level

Employer Type: Landfill Facilities, Consultants

Related Careers:
1. Landfill Gas Collection System Operator

LANDFILL GAS TO ENERGY (LGE) PLANT INSTALLATION, OPERATIONS, ENGINEERING AND MANAGEMENT

Description: Design, construct, operate and/or maintain system that delivers landfill gas to energy facilities to produce useable fuel for vehicles.

Salary: Expected to be similar to operations, engineering and maintenance personnel at other facilities

Minimum Education: Bachelor's degree or higher in Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming
Certification: Dependent on position sought

Experience Needed: High Level

Employer Type: Private Firm, Government, Power Plants/ Facilities

LANDFILL GAS COLLECTION SYSTEM OPERATOR

Description: Responsible for daily operations, maintenance and repair and extracting landfill gas in a proper, safe, reliable and efficient manner.

Salary: $20 - $24/hour

Minimum Education: Trade School, Apprenticeship or Associate's Degree
Recommended College Coursework: Power Generation Operation, Landfill Gas Plant Operations, Chemistry

Experience Needed: Mid Level
Minimum 3 years of equipment operations experience using mechanical, electrical, instrument or control system skills

Employer Type: Landfill Facilities, Consultants

Related Careers:
1. Landfill Gas Technician

Biomass collection and power plant operations

BIOMASS COLLECTION, SEPARATION & SORTING

Description: Collect, haul, sort and process biomass waste for distribution to biomass facilities.

Salary: Approx. $9 -$14/hour (similar to other waste haulers)

Minimum Education: GED/High School Diploma
Recommended College Coursework: Resource/Engineering, Computer Programming

Experience Needed: Entry Level
Certification: Commercial Drivers license

Employer Type: Private Firms, Government, Power Plants/ Facilities

ANIMAL WASTE BIOMETHANE GAS COLLECTION SYSTEM TECHNICIAN

Description: Responsible for daily operations, maintenance and repair of biomethane equipment at animal waste operations.

Salary: $20 - $24/hour

Minimum Education: Trade School, Apprenticeship, or Associate's Degree
Recommended College Coursework: Power Generation Operation, Landfill Gas Plant Operations, Chemistry

Experience Needed: Mid Level
Minimum 3 years of equipment operations experience using mechanical, electrical, instrument or control system skills

Employer Type: Agriculture, Consultants, Utilities

Related Careers:
1. Landfill Gas Technician

BIOMASS PLANT OPERATIONS, ENGINEERING & MAINTENANCE

Description: Design, construct, operate and/or maintain plants that generate electricity from the combustion of biomass.

Salary: Expected to be similar to operations, engineering and maintenance personnel at other facilities

Minimum Education: Bachelor's degree or higher in Engineering
Recommended College Coursework: Resource/Engineering, Computer Programming
Certification: Dependent on position sought

Experience Needed: High Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

Hydrogen energy plant installation, operations & management

HYDROGEN POWER PLANT INSTALLATION, OPERATIONS, ENGINEERING & MANAGEMENT STAFF – GENERAL

Salary: Expected to be similar to operations, engineering and maintenance personnel at other facilities

Salary: Approx. $9 - $14/hour (similar to other waste haulers)

Minimum Education: Bachelor's Degree in Chemical or Industrial Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming
Certification: Dependent on position sought

Experience Needed: High Level
Minimum 3 years with process and/or chemical engineering experience in a power plant

Employer Type: Private Firms, Power Plants/Facilities

HYDROGEN PLANT OPERATOR & OPERATIONS MANAGER

Description: Accountable for overall management of operations of a hydrogen energy generating facility.

Salary: $37 - $65/hour

Minimum Education: Bachelor's Degree in Engineering
Recommended College Coursework: Engineering, Alternative Energies, Chemistry

Experience Needed: High Level
Minimum 3-5 years as a power plant operator

Employer Type: Power Plants/Facilities

Related Careers:
1. Geothermal operations engineer

Hydroelectric development, manufacturing, and engineering

HYDROELECTRIC COMPONENT MACHINIST

Description: Make precision metal or plastic parts, use computer numerically controlled machine tools, and set up and operate all of the basic machine tools and many specialized variations for hydroelectric power generation.

Salary: $12 - $21/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Metalworking, Drafting, Math, and Computer courses

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Power Plants/Facilities

Related Careers:
1. Welder
2. Sheet Metal Worker

HYDROELECTRIC PLANT ELECTRICAL ENGINEER

Description: Design hydroelectric plants, including preparation of drawings, specifications, and supporting calculations. Design electrical controls, SCADA communications and power system relay protection for hydroelectric power generation facilities. Test all aspects of electrical components.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Electrical Engineering
Recommended College Coursework: Power Engineering, Electrical Design, Hydrology
Certification: Professional Engineer (P.E.)

Experience Needed: High Level; 5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Energy Engineer
2. Solar Energy Engineer

HYDROELECTRIC CONSTRUCTION: SHEET METAL WORKER

Description: Perform all operations necessary to make, install, and repair a hydroelectric generator.

Salary: $14 - $22/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Math, Mechanical Drawing, Metal shop, Welding, Heating and Air-Conditioning

Experience Needed: Entry to Mid Level
Journey level status

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Machinist
2. Welder

HYDROELECTRIC STRUCTURAL ENGINEER

Description: Analyze design structures associated with hydroelectric projects, such as concrete dams, intakes, powerhouses, spillways and foundations. Work involves all stages of projects, from feasibility to final detailed design.

Salary: $80,000 - $93,000/year

Minimum Education: Bachelor's degree in Civil/ Structural Engineering; Master's or
Doctorate's Degree preferred
Recommended College Coursework: Civil/ Structural Engineering, Hydraulics, GIS
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
10 years experience with layout and structural design of hydroelectric power generators

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Electrical Engineer
2. Structural Design Engineer

HYDROELECTRIC PLANT MECHANICAL ENGINEER

Description: Design, develop and test all aspects of mechanical components, equipment and machinery associated with hydroelectric plants.

Salary: $90,000/year or more

Minimum Education: Bachelor's Degree in Mechanical Engineering
Recommended College Coursework: Hydroelectric Power, Mechanical Engineering
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years with similar responsibilities

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Electrical Engineer
2. Energy Engineer

Hydroelectric installation, maintenance, and project management

HYDROELECTRIC OPERATIONS MAINTENANCE WORKER

Description: Complete a wide variety of tasks in support of hydroelectric power generation systems.

Salary: $21 - $27/hour

Minimum Education: GED/High School Diploma; Trade School or Apprenticeship preferred
Recommended College Coursework: Plant Operations and Maintenance

Experience Needed: Entry Level
2 years experience in related field if no higher education
6 months required with Trade School or Apprenticeship experience

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Landfill Gas Technician

HYDROELECTRIC PLANT EFFICIENCY OPERATOR

Description: Maintain and monitor plant equipment for efficient and safe plant operations and plan and handle all hazardous materials and wastes in a safe and environmentally sensitive manner.

Salary: $23 - $26/hour

Minimum Education: GED/High School Diploma
Certification: Hazardous Materials (HAZMAT)

Experience Needed: High Level
Minimum 5 years of power plant operating experience

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Weatherization Operations Manager

HYDROELECTRIC PLANT INSTALLATION TECHNICIAN

Description: Perform journey-level mechanical installation and maintenance duties in a hydroelectric power plant and performs preventive maintenance, welding, pipefitting, machining and rigging incidental to journeyman mechanical maintenance work.

Salary: $35/hour

Minimum Education: Trade School or Apprenticeship
Recommended College Coursework: Plumbing, Pipefitting, Operations & Maintenance, Hydrology

Experience Needed: Mid to High Level
Journey level status

Employer Type: Private Firms, Government, Power Plants/Facilities

Related Careers:
1. Solar Electric System Installation Technician
2. Geothermal Plant Installation Technician

HYDROELECTRIC PLANT ELECTRICAL OPERATIONS SUPERVISOR

Description: Establish maintenance priorities and diagnose power plant electrical problems.

Salary: $78,000 - $92,000/year

Minimum Education: Associate's Degree in Business or Technical discipline.
Recommended College Coursework: Business Relations, Electrical Engineering, Power generation systems

Experience Needed: Mid to High Level
Journey level status
Minimum 5 years performing or supervising the functions of electrical systems/equipment maintenance directly associated with a large generating facility

Employer Type: Power Plants/Facilities

Related Careers:
1. Hydroelectric Power Generation Engineer

HYDROGEOLOGIST AND HYDROLOGIST

Description: Conduct field-related activities connected to the groundwater monitoring duties and collect water level measurements and water quality samples from production and monitoring wells.

Salary: $58,500 - $78,200/year

Minimum Education: Bachelor's Degree in the field of Geology, Hydrogeology, Earth Science or related field
Recommended College Coursework: Hydrogeology, Earth Sciences, Geology

Experience Needed: Mid Level
Some experience in groundwater sampling activities and hydrogeologic data presentation is a plus

Employer Type: Private Firms, Government, Power Plants/Facilities

Related Careers:
1. Water Purification Systems Service Technician

BIOLOGIST – MARINE/FISHERIES

Description: Plan and conduct evaluations of factors affecting fish populations and provide oversight of fisheries monitoring programs.

Salary: $25 - $32/hour

Minimum Education: Bachelor's degree in Biology or related field
Recommended College Coursework: Biology, Marine Biology

Experience Needed: Mid to High Level

Employer Type: Private Firms

Related Careers:
1. Environmental Scientist

Hydroelectric installation, maintenance, and project management, continued

HYDROELECTRIC POWER GENERATION ENGINEER

Description: Prepare specifications, performance modeling and analysis, cost estimations and negotiation of supply and service contracts for a hydroelectric power generation facility.

Salary: $90,000 - $140,000/year

Minimum Education: Bachelor's degree in Mechanical Engineering
Recommended College Coursework: Mechanical Engineering, Renewable Energies
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
5 years experience with boilers and steam turbines, vessels, piping, valves, control systems, equipment and piping supports systems

Employer Type: Power Plants/Facilities

Related Careers:
1. PV Power Systems Engineer
2. Director of Wind Development

Plant environmental, health & safety (general facility positions)

SAFETY INVESTIGATOR/CAUSE ANALYST

Description: Receive, investigate, and respond to employees concerns about plant safety.

Salary: $88,000 - $104,000/year

Minimum Education: Bachelor degree in Business or Engineering
Recommended College Coursework: Business, Engineering, Plant Safety

Experience Needed: Mid to High Level
Minimum 3 years performing cause analysis, investigations or consulting. Minimum 2 years of power plant experience

Employer Type: Power Plants/Facilities

Related Careers:
1. Plant Safety Engineer

PLANT TECHNICAL SPECIALIST – SAFETY EQUIPMENT TESTING

Description: Perform seismic testing of safety-related equipment and other technical surveillances.

Salary: $64,000 - $76,000/year

Minimum Education: Bachelor's degree or equivalent combination of education, training and experience
Recommended College Coursework: Plant Safety, Quality Assurance

Experience Needed: High Level
Minimum 5 years technical and/or inspection-related experience.

Employer Type: Power Plants/Facilities

Related Careers:
1. Plant Safety Engineer

PLANT MAINTENANCE SUPERVISING TECHNICAL OPERATOR

Description: Manage and ensure uniform application and technical correctness of the plants maintenance procedures and specifications.

Salary: $27 - $30/hour

Minimum Education: Bachelor's Degree in Engineering or technical related field
Recommended College Coursework: Mechanical/ Electrical Engineering

Experience Needed: High Level
Minimum 5 years experience in a supervisory role

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Plant Safety Engineer

ENVIRONMENTAL, HEALTH & SAFETY ENGINEERING MANAGER

Description: Direct and oversee environmental, health, and safety activities for the operation, and develop, coordinate, and implement programs to maintain safe and healthy working conditions.

Salary: $73,000 - $93,000/year

Minimum Education: Bachelor's degree in Environmental Science, Health & Safety Management, Environmental Engineering or related discipline
Recommended College Coursework: Engineering, Environmental Health & Safety

Experience Needed: Mid to High Level
Minimum 3 years of related Environmental Health and Safety experience with focus in a manufacturing/industrial environment

Employer Type: Private Firms, Government, Power Plants / Facilities

Related Careers:
1. Environmental Engineer

Plant environmental, health & safety (general facility positions), continued

ENVIRONMENTAL HEALTH & SAFETY LEAD

Description: Ensure compliance of plant operations with federal and state requirements relating to air emissions, solid waste, hazardous waste, waste water treatment and chemical management.

Salary: $81,000 - $96,000/year

Minimum Education: Master's degree, or equivalent, in Environmental Science, Environmental Management, Environmental Engineering, Chemistry or Biology
Recommended College Coursework: Environmental Studies, Engineering, Sciences

Experience Needed: Mid Level
1 year plus Master's degree or 3 years plus Bachelor's

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Environmental, Health & Safety Engineering Manager

PLANT SAFETY ENGINEER

Description: Conduct plant safety meetings and inspections and help the plant to improve safety statistics while working to standardize plant safety regulations for all related plants

Salary: $90,000 - $107,000/year

Minimum Education: Bachelor's Degree
Recommended College Coursework: Industrial Safety, Occupational Safety/Health, Industrial Hygiene
Certification: Safety Certification

Experience Needed: High Level
5-10 years of industrial safety experience in a power plant environment

Employer Type: Power Plants/Facilities

Related Careers:
1. Safety Investigator/Cause Analyst

Carbon capture & storage

CARBON SEQUESTRATION PLANT INSTALLATION, OPERATIONS, ENGINEERING & MANAGEMENT

Description: Design, construct, operate and / or maintain carbon sequestration facilities that inject and store carbon dioxide in geologic formations.

Salary: Expected to be similar to operations, engineering and maintenance personnel at other facilities

Minimum Education: Bachelor's Degree or higher in Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming
Certification: Dependent on position sought

Experience Needed: High Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

GEOLOGIST & HYDROGEOLOGIST

Description: Perform site characterization and analysis on potential and ongoing CCS sites and field-related activities connected to CCS monitoring.

Salary: $58,500 - $85,000/year

Minimum Education: B.S. Degree in the field of Geology, Hydrogeology, Earth Science or related field, with Master's or Ph.D. likely required for most positions
Recommended College Coursework: Geology, Earth Science, Biology, Chemistry, Physics, Math

Experience Needed: Mid to High Level
Experience in geology, geologic sequestration, groundwater sampling activities and hydrogeologic data presentation

Employer Type: Private Firms, Government, Power Plants/ Facilities

CARBON CAPTURE POWER PLANT INSTALLATION, OPERATIONS, ENGINEERING & MANAGEMENT

Description: Design, construct, operate and / or maintain power plant facilities that capture carbon during the power generating process.

Salary: Expected to be similar to operations, engineering and maintenance personnel at other facilities

Minimum Education: Bachelor's Degree or higher in Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming
Certification: Dependent on position sought

Experience Needed: High Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

GIS SPECIALIST

Description: Develop and use advanced Geographic Information Systems programs and methods to create site analysis and carbon migration and monitoring plans.

Salary: $35,000 - $85,000/year

Minimum Education: Associate Degree; Bachelor's Degree in Geography
Recommended College Coursework: GIS courses, Engineering, Math

Experience Needed: High Level
5-7 years in related field

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers
1. Restoration Planner

Energy demand response

POWER SYSTEM OPERATOR

Description: Monitor and operate equipment on transmission lines and in transformer and power generation stations, and control the distribution and regulate the flow of electrical power in the transmission network grid.

Salary: $25 - $30/hour

Minimum Education: GED/High School Diploma
Recommended Coursework: Computer Programming, Electronics

Experience Needed: Mid to High Level
3-4 years of a training program, typically in-house

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Hydroelectric Plant Operator

SMART GRID ENGINEER

Description: Design, construct, operate and / or maintain power plant facilities that capture carbon during the power generating process.

Salary: $91,000 - $107,000/year

Minimum Education: Advanced level of capability either through Bachelor's Degree, PhD/Master's Degree, or equivalent experience
Recommended College Coursework: Electrical Engineering, Systems Control, Computer Science and Information Technology

Experience Needed: High Level
Journey level status
2 – 5 years of related experience dealing with the technical aspects of power grids

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Electrical Engineer

POWER SYSTEM OPERATOR & INSTRUCTOR

Description: Operate power distribution systems, and design, review, evaluate and conduct North American Electric Reliability Corporation (NERC) Continuous Education training to Power Systems Operations control room personnel.

Salary: $25 - $30/hour

Minimum Education: GED/High School Diploma
Certification: NERC Reliability Authority or System Operator Certification

Experience Needed: High Level
10 years of progressively responsible work experience
5 years in control room operations
3 years as a Senior Shift Power System Operator

Employer Type: Government, Power Plants/Facilities

ENERGY COMMISSION SPECIALIST

Description: Coordinate and develop policy programs.

Salary: $70,000 - $83,000/year

Minimum Education: Bachelor's Degree
Recommended College Coursework: Public Policy, Policy Implementation, Energy Generation and Conservation, Environmental Impact Assessment

Experience Needed: High Level

Employer Type: Government

Related Careers:
1. Air Quality Specialist
2. Air Resources Engineer

Green building practices and retrofits — project design, development, and engineering

SUSTAINABILITY CONSULTANT

Description: Develop specific solutions to create high performance buildings.

Salary: $35,000 - $75,000/year

Minimum Education: Bachelor's Degree in Architecture
Certification: LEED Accredited Professional

Experience Needed: High Level
5+ years as project architect in base building, and interior project
1+ years experience as LEED consultant

Employer Type: Government, Private Firms

Related Careers:
1. Electrical Engineer

COMPLIANCE MANAGER

Description: Evaluate and report on compliance with policies, procedures, contracts, and good business practices

Salary: $50,000 - $75,000/year

Minimum Education: Bachelor's Degree in related field

Experience Needed: High Level
8 years progressive leadership experience
4 years of internal or public audit or compliance.

Employer Type: Private Firms, Government

Related Careers:
1. Environmental Compliance Specialist

Green building practices and retrofits — project design, development, and engineering, continued

FIELD ENERGY CONSULTANT

Description: Serve as field-based energy efficiency consultant. Encourage equipment and energy system retrofits at business sites.

Salary: $30 - $35/hour (some commission)

Minimum Education: GED/High School Diploma
Recommended College Coursework: Marketing & Sales, HVAC, Mechanical Engineering

Experience Needed: Entry to Mid Level
1-2 years with consultant sales background and experience building a portfolio of businesses; familiarity with HVAC, lighting and/or refrigeration preferred

Employer Type: Private Firms

Related Careers:
1. Residential/Commercial Solar Sales Consultant
2. Renewable Energy Consultant

ENERGY EFFICIENCY FINANCE MANAGER

Description: Manage energy efficiency projects and policies and conduct relevant market analysis and research.

Salary: $90,000/year

Minimum Education: Bachelor's Degree in Accounting, Finance, Business Administration; MBA preferred
Recommended College Coursework: Economics, Environmental Studies, Public Policy, Finance, Accounting

Experience Needed: High Level
8 or more years in related field with supervisory responsibilities

Employer Type: Private Firms

Related Careers:
1. Financial Officer

WATER SYSTEMS DESIGNERS & ENGINEERS

Description: Design and install energy efficient water systems in residential and commercial settings.

Salary: Commensurate with other engineering fields

Minimum Education: Trade School or Apprenticeship
Recommended College Coursework: Plumbing, Pipefitting, Energy Efficiency, Mechanical Engineering
Certification: Professional Engineer (P.E.)

Experience Needed: Mid Level

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Plumber

ENERGY PROCUREMENT MANAGER & ANALYST

Description: Analyze energy efficient measures and conduct audits in industrial and large commercial facilities.

Salary: $80,000 - $100,000/year

Minimum Education: Bachelor's Degree in Energy Analysis, Sciences or Business Administration
Recommended College Coursework: Business Administration, Sciences, Energy Analysis, Energy Efficiency methods

Experience Needed: Mid to High Level
3-5 years as an energy analyst in an energy efficiency technical discipline

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Field Energy Consultant

LEED TECHNICAL REVIEWER

Description: Serve as technical building subject matter expert and internal consultant to Green Building Certification Institute and certification bodies that review projects under the LEED Green Building Rating System.

Salary: $45,000 - $75,000/year

Minimum Education: Bachelor's Degree

Experience Needed: High Level
10 years experience in the commercial building industry specializing in architecture, engineering, construction, or facility management

Employer Type: Private firms

LEED FOR HOMES TECHNICAL DEVELOPMENT DIRECTOR

Description: Manage the technical evaluation of LEED for homes rating system, and manage LEED for homes contractors and vendors.

Salary: $35,000 - $65,000/year

Minimum Education: Bachelor's Degree in Architecture, Engineering, Construction, or Management

Experience Needed: High Level
5-10 years in program development and management

Employer Type: Private firms

Green building practices and retrofits — project design, development, and engineering, continued

LEED MANAGER

Description: Serve as the principle program lead and comprehensive management for a LEED market sector.

Salary: $50,000 - $70,000/year

Minimum Education: Master's Degree in related building industry, policy, or environmental discipline

Experience Needed: High Level
5-7 years of relevant experience

Employer Type: Private firms

GREEN BUILDING CONSULTANT

Description: Advise and plan green building projects in commercial and residential sectors.

Salary: $53,000 - $91,000/year

Minimum Education: Bachelor's Degree
Certification: LEED Accredited Professional

Experience Needed: High Level
7+ years in related field

Employer Type: Private Firm, Governmen

Related Careers:
1. Sustainability Consultant

CONSTRUCTION PROJECT MANAGER: EFFICIENCY AND RENEWABLE

Description: Lead the final design, construction and successful implementation of energy efficient and renewable energy projects.

Salary: $45,000 - $80,000/year

Minimum Education: Bachelor's Degree

Experience Needed: High Level
Minimum 4-10 years mechanical, engineering, or federal construction project management work experience focusing on facility and infrastructure construction, renovations, retrofits, upgrades, building controls and automation, energy services

Employer Types: Private firms, Government

Green building project design & engineering

REFRIGERATION ENGINEER

Description: Design and install refrigeration units and maintain and repair controls.

Salary: $30 - $50/hour

Minimum Education: Bachelor's Degree in Engineering or equivalent Trade School/Apprenticeship
Recommended College Coursework: Mechanical Engineering, Refrigeration controls

Experience Needed: Mid to High Level

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. HVAC Engineer

ELECTRICAL ENGINEER

Description: Work within LEED-certified, sustainable, Green-building Mechanical, Electrical and Plumbing (MEP) or Architectural industry.

Salary: $71,000 - $85,000/year

Minimum Education: Bachelor's degree in Electrical Engineering
Recommended College Coursework: Electrical Engineering
Certification: Professional Engineer (P.E.)

Experience Needed: High level
4-7 years Electrical Engineering experience in an MEP or construction firm

Employer Type: Private Firms

Related Careers:
1. Civil Engineer

CIVIL ENGINEER

Description: Deal with the overall design, construction and maintenance of green buildings, and work with project managers on building projects within design specifications.

Salary: $73,000 - $84,000/year

Minimum Education: Bachelor's degree in Civil Engineering; Master's Degree preferred
Recommended College Coursework: Engineering, Land Use, Green Building
Certification: Professional Engineer (PE) or Engineer in Training (E.I.T.)

Experience Needed: High Level
Most projects require experience of 2 – 5 years

Employer Type: Private Firms, Government

Related Careers:
1. Energy Engineer
2. Commercial Green Building and Retrofit Architect

Green building project design & engineering, continued

INDUSTRIAL GREEN SYSTEMS & RETROFIT DESIGNER

Description: Design energy efficient and retrofit structures on industrial buildings.

Salary: $90,000 - $107,000/year

Minimum Education: Bachelor's Degree in Architecture
Recommended College Coursework: Architecture, Industrial Building
Certification: LEED-Certified Builder

Experience Needed: High Level
5-8 years experience

Employer Type: Private Firms

Related Careers:
1. Structural Engineer
2. Commercial/Residential Green Building & Retrofit Architect

COMMERCIAL GREEN BUILDING & RETROFIT ARCHITECT

Description: Participate in all phases of design for commercial and educational buildings.

Salary: $90,000 – $107,000/year

Minimum Education: Bachelor's Degree in Architecture
Recommended College Coursework: Architecture, Drafting, Energy Efficiency
Certification: LEED-Certified Builder

Experience Needed: High Level
Minimum 5 years experience

Employer Type: Private Firms

Related Careers:
1. Civil Engineer
2. Industrial Green Systems & Retrofit Designer
3. Residential Green Building & Retrofit Architect

RESIDENTIAL GREEN BUILDING & RETROFIT ARCHITECT

Description: Design residential buildings that meet LEED qualifications as well as develop retrofits for current structures.

Salary: $90,000 - $107,000/year

Minimum Education: Bachelor's Degree in Architecture
Recommended College Coursework: Architecture, Civil Engineering, Drafting, Retrofitting
Certification: LEED-Accredited Professional

Experience Needed: High Level

Employer Type: Private Firms

Related Careers:
1. Civil Engineer
2. Industrial Green Systems & Retrofit Designer
3. Residential Green Building & Retrofit Architect

LIGHTING & HVAC ENERGY ENGINEER

Description: Provide a full range of technical services related to energy efficiency, renewable energy, carbon emissions reductions and cogeneration projects.

Salary: $77,000 - $91,000/year

Minimum Education: Bachelor's Degree in Engineering or related field
Recommended College Coursework: Engineering, Energy Efficient Building, HVAC and Lighting systems, Green Building Design

Experience Needed: Mid to High Level
Minimum 3 years of energy engineering experience in the identification and evaluation of energy efficient measures

Employer Type: Private Firms

Related Careers:
1. Energy Engineer

HVAC ENGINEER

Description: Design and install of all types of air conditioning, heating and ventilation systems, building automation systems and hot water heating for building heat.

Salary: $34 - $50/hour

Minimum Education: Trade School, Apprenticeship or Associate's Degree
Recommended College Coursework: Mechanical Engineering, HVAC controls

Experience Needed: High Level
Journey Level plus 5 years related experience.

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Refrigeration Engineer
2. Energy Engineer
3. HVAC Technician

SENIOR HVAC ENGINEER

Description: Coordinate HVAC equipment, ductwork and piping layouts with architectural/structural designs to prevent conflict during construction, and work on Title 24 compliance.

Salary: $75,000 - $120,000/year

Minimum Education: Bachelor of Science in Mechanical Engineering
Recommended College Coursework: Mechanical Engineering, HVAC, Building Design
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
10 years working with a consulting engineering firm as an HVAC engineer, or with a design-build mechanical contractor

Employer Type: Private Firms

Related Careers:
1. Civil Engineer
2. Environmental Construction Engineer

Green building project design & engineering, continued

ENVIRONMENTAL CONSTRUCTION ENGINEER

Description: Project manager for an environmental construction or landfill project.

Salary: $100,000 - $150,000/year

Minimum Education: Bachelor's Degree in Civil Engineering
Recommended College Coursework: Environmental Construction, Civil Engineering
Certification Requirements: Engineer in Training (EIT) or Professional Engineer (PE)

Experience Needed: High Level
12+ years experience in civil engineering with at least 5 years experience in a management role

Employer Type: Private Firms, Government

Related Careers:
1. Civil Engineer
2. Construction Foreman

SITE SUPERVISING TECHNICAL OPERATOR

Description: Manage and ensure uniform application and technical correctness during construction.

Salary: $23 - $26/hour

Minimum Education: Bachelor's Degree in Engineering or related field
Recommended College Coursework: Mechanical/ Electrical Engineering

Experience Needed: Mid to High Level
Minimum 5 years experience in a supervisory role

Employer Type: Private Firms

Related Careers:
1. Construction Project Manager

STRUCTURAL DESIGN ENGINEER

Description: Analyze and design structural elements and systems for steel, concrete, timber and masonry buildings in accordance with building code and design standards and prepare construction documents and specifications for structural systems.

Salary: $75,000 - $88,000/year

Minimum Education: Master's Degree in Structural Engineering
Recommended College Coursework: Structural and Seismic Engineering
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
3-6 years experience and competence in structural analysis programs

Employer Type: Private Firms, Government

Related Careers:
1. Civil Engineer
2. Hydroelectric Structural Engineer

INDOOR & OUTDOOR LANDSCAPE ARCHITECT

Description: Incorporate green building practices into the indoor and outdoor landscape.

Salary: $65,000 - $83,000/year depending on experience

Minimum Education: Bachelor's Degree in Landscape Architecture; Master's Degree preferred
Recommended College Coursework: Landscape Architecture, Urban planning, Green Building

Experience Needed: High Level
3-10 years of design and construction experience, depending on position sought

Employer Type: Private Firms

ENERGY ENGINEER

Description: Perform site-specific engineering analysis and evaluation of energy efficiency and solar projects involving residential, commercial and industrial end-use customers by utilizing building simulation software.

Salary: $75,000 - $80,000/year

Minimum Education: Bachelor's Degree in engineering discipline; Master's Degree preferred
Recommended College Coursework: Engineering, Physics
Certification Requirements: Engineer in Training (EIT), Professional Engineer (PE) and/or Certified Energy Manager (CEM) desired.

Experience Needed: High Level
3-10 years related experience or training or equivalent combination of education and experience or
2-5 years of experience within the green building, energy efficiency, building science or related field

Employer Type: Private Firms

Related Careers:
1. Civil Engineer
2. Electrical Engineer
3. Mechanical Engineer

Green building project design & engineering, continued

ENVIRONMENTAL COMPLIANCE SPECIALIST

Description: Perform environmental compliance assessments, document compliance status, and make recommendations on corrective action required to achieve compliance. Develop plans and procedures necessary to achieve and maintain compliance. Develop audit plans and audit surveillance checklists.

Salary: $20 - $30/hour

Minimum Education: Bachelor's Degree in Science or Engineering preferred
Recommended College Coursework: Science, Engineering, Green Building

Experience Needed: Mid to High Level
1-3 years related experience with degree.
5-10 years related experience non-degreed

Employer Type: Private Firms, Government

Related Careers:
1. Compliance Manager
2. Energy Field Auditor

Green building project installation and operations

HVAC MAINTENANCE/REPAIR TRAINEE

Description: Install and maintain heating, ventilation, and air conditioning equipment, tests and repair environmental systems and repair or replace sealants, parts, and components.

Salary: $15 - $20/hour

Minimum Education: GED/High School Diploma

Experience Needed: Entry level

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. HVAC Technician
2. HVAC Engineer

RESIDENTIAL AIR SEALING TECHNICIAN

Description: Develop and implement effective air sealing techniques and applications while receiving on-the-job training working and explaining to customers the applications and benefits of air sealing.

Salary: $14 - 23/hour

Minimum Education: GED/High School Diploma; Trade School or Apprenticeship recommended

Experience Needed: Entry Level
Residential construction or work on an insulation crew is a plus

Employer Type: Private Firms

Related Careers:
1. HVAC Trainee

INSULATION INSTALLER

Description: Responsible for pasting, wiring, taping or spraying insulation onto a variety of structures and surfaces to exclude or retain heat.

Salary: $10 - $12/hour

Minimum Education: GED/High School Diploma

Experience Needed: Entry Level
1-3 months related experience

Employer Type: Private Firms

Related Careers:
1. Carpenter

HVAC TECHNICIAN

Description: Install, maintain, and repair heating, solar panels and air conditioning systems in schools, businesses, hospitals, businesses and other buildings.

Salary: $24,000 - $60,000/year

Minimum Education: Associate Degree or Trade School
Certification: HVAC license

Experience Needed: Entry Level

Employer Type: Private firm

Green building project installation and operations, continued

COMMERCIAL ELECTRICIAN

Description: Install, maintain, and repair building electrical systems.

Salary: $13 - $14/hour (depends on experience)

Minimum Education: GED/High School Diploma
Certification: Apprentice-level certification

Experience Needed: Entry to Mid level

Employer Type: Private Firms

Related Careers:
1. Electrical System Installer

CARPENTER

Description: Work in almost every type of construction, with jobs including reading plans, identifying and locating materials, measuring and marking, assembly and installation, and operating hand tools and power equipment.

Salary: $17 - $21/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Math, Drafting, and Shop courses

Experience Needed: Entry to Mid-Level
Journey Level status

Employer Type: Private Firms

Related Careers:
1. Roofer

WELDER

Description: Operate manual, semiautomatic, and automatic arc and gas equipment, and fabricate and repair machine parts, motors, trailers and manufacturing equipment.

Salary: $12 - $20/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Welding, Machine Shop, Math, Drafting, Physics, Chemistry, and Engineering
Certification: Various certifications dealing with different materials and uses

Experience Needed: Entry to Mid Level

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Machinist
2. Sheet Metal Worker

GREEN PLUMBER & PIPEFITTER

Description: Installation of sinks, tubs, and other fixtures and their connection to water and sewage systems, and maintenance of existing plumbing systems.

Salary: $20 - $37/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Plumbing, Pipefitting, Energy Efficiency

Experience Needed: Mid Level
Journey Level status

Employer Type: Private Firms, Government

Related Careers:
1. Water Purification

MACHINIST

Description: Make precision metal or plastic parts, operate computer numerically controlled machine tools, and set up and operate all of the basic machine tools and many specialized variations.

Salary: $12 - $21/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Metalworking, Drafting, Math and Computer courses

Experience Needed: Mid Level
Journey level status

Employer Type: Power Plants/Facilities

Related Careers:
1. Welder
2. Sheet Metal Worker

WATER PURIFICATION SYSTEMS SERVICE TECHNICIAN

Description: Install and service water purification systems at customer sites, including but not limited to reverse osmosis and deionization applications.

Salary: $20 - $23/hour

Minimum Education: GED/High School Diploma; Associate Degree in Electrical/Mechanical Engineering or Water Treatment preferred
Recommended College Coursework: Chemistry, Hydrology

Experience Needed: Mid Level
2 years water industry experience; experience with reverse osmosis, ion exchange and related equipment highly desirable (College, Military, Technical/vocational School)

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Hydrogeologist

Green building project installation and operations, continued

ELECTRICAL SYSTEM INSTALLER

Description: Plan, lay out, install, repair, and maintain electrical equipment that provides light, heat, communications and power, and install electrical wires, cables and conduit systems.

Salary: $21 - $27/hour

Minimum Education: Apprenticeship or Trade Schools
Recommended College Coursework: Electric Installation courses

Experience Needed: Mid Level
Journey Level status

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Electrical Engineer
2. Commercial Electrician

FIELD TECHNICIAN

Description: Install, perform maintenance and repair of facilities, field installations, commissioning of advanced energy management and control systems, controls programming and controls sales.

Salary: $22 - $40/hour and higher depending on experience level

Minimum Education: Trade School or Apprenticeship

Experience Needed: Entry to Mid Level
Master or Journey level. Should have HVAC, electrical and or automation and controls installation and service experience. 1-3 years of related experience and/or training; or equivalent combination of education and experience

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Solar Field Service Technician
2. Energy Engineer

BUILDING MAINTENANCE ENGINEER

Description: Effectively and efficiently operate and maintain all HVAC and MEP equipment, and serve as a systems operator and perform and supervise maintenance work.

Salary: $30 - $40/hour

Minimum Education: GED/High School Diploma, Trade School or Apprenticeship
Recommended College Coursework: HVAC Maintenance, Energy Auditing

Experience Needed: Entry to Mid Level
2-3 years experience in commercial HVAC and in operating large tonnage chill plant

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. HVAC Engineer

ROOFING & SKYLIGHT INSTALLER

Description: Install skylights and other energy efficient roof ventilation systems.

Salary: $15 - $20/hour

Minimum Education: Apprenticeship or Trade School
Recommended College Coursework: Carpentry, Roofing, Energy Efficiency

Experience Needed: High Level
5-7 years related roofing and framing experience

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Carpenter

WEATHERIZATION OPERATIONS MANAGER

Description: Manage day-to-day weatherization activities to ensure that production goals are met, provide weatherization services, coordinate weatherization staff, and implement contractor training.

Salary: $30,000 - $60,000/year

Minimum Education: Bachelor's Degree

Experience: High Level
2 years experience in construction supervision and/or management. Technical and functional skills in building trades

Employer Type: Private Firms

Related Careers:
1. Construction Foreman

Energy efficiency services

RESIDENTIAL ENERGY FIELD AUDITOR

Description: Conduct home energy audits in residential homes that consist of visually checking HVAC equipment, lighting, ducts, windows and weather-stripping, and identify areas of improvement and makes recommendations to homeowner.

Salary: $12 - $14/hour

Minimum Education: Associate's Degree in Building Materials, Environmental Science, Environmental Studies, Energy Management; Bachelor's Degree preferred
Recommended College Coursework: Environmental Studies, Energy Management, Auditing
Certification: HERS

Experience Needed: Entry to Mid Level

Employer Type: Private Firms, Public Utilities

Related Careers:
1. Commercial Energy Field Auditor
2. Industrial Energy Field Auditor

INDUSTRIAL ENERGY FIELD AUDITOR

Description: Conduct energy audits of industrial areas that consist of visually checking HVAC equipment, ducts, windows and weather-stripping to capture data for future use.

Salary: $28 - $40/hour

Minimum Education: Bachelor's Degree in Building Materials, Environmental Science, Environmental Studies, Energy Management
Recommended College Coursework: Environmental Studies, Industrial Operations

Experience Needed: Mid Level
2-3 years in related field of auditing and/or energy efficiency sector

Employer Type: Private Firms

Related Careers:
1. Energy Engineer

COMMERCIAL ENERGY FIELD AUDITOR

Description: Conduct energy audits in commercial businesses that consist of visually checking HVAC equipment, lighting, ducts, windows and weather-stripping to capture data for future use and identify areas of improvement and make recommendations to business.

Salary: $12 - $14/hour

Minimum Education: Associate's Degree in Building Materials, Environmental Science, Environmental Studies, Energy Management; Bachelor's Degree preferred
Recommended College Coursework: Energy Management, Building Materials
Certification: HERS

Experience Needed: Entry to Mid Level

Employer Type: Private Firms, Public Utilities

Related Careers:
1. HVAC Technician
2. Residential Energy Field Auditor
3. Industrial Energy Field Auditor

RENEWABLE ENERGY CONSULTANT

Description: Assess industry trends and related implications, monitor product developments and preferences, explore competitive landscapes and examine emerging technologies

Salary: Hourly rate is commensurate with experience level

Minimum Education: Bachelor's Degree; Master's Degree preferred
Recommended College Coursework: Specialize in Renewable Energy, with focus on any or all technologies

Experience Needed: High Level

Employer Type: Private Firms, Government, Education

Related Careers:
1. Environmental Scientist

AIR POLLUTION SPECIALIST

Description: Investigate local government and land use activities, develop protocols for estimating greenhouse gas emissions, and develop community GHG inventories and evaluates GHG reduction benefits from green buildings.

Salary: $64,000 - $74,000/year

Minimum Education: Bachelor's degree in Chemistry, Chemical Engineering, or a Physical Science
Recommended College Coursework: Climate Change, Emissions accounting methods, Green Building, Chemistry

Experience Needed: Mid to High Level

Employer Type: Private Firms, Government

Related Careers:
1. Air Resources Engineer

Automotive operations, vehicle production, manufacturing & modification

DIESEL RETROFIT INSTALLER

Description: Install various filters on diesel-powered vehicles.

Salary: Varies with experience

Minimum Education: GED/High School Diploma; Trade School or Apprenticeship preferred
Recommended College Coursework: Diesel Retrofit, Engine Design

Experience Needed: Entry Level

Employer Type: Private Firms

Related Careers:
1. Diesel Retrofit Manufacturer

DIESEL RETROFIT MANUFACTURER PLANT LABOR

Description: Manufacture diesel particulate filters as well as other retrofitting technology.

Salary: Commensurate with other manufacturing sector positions

Minimum Education: Trade School or Apprenticeship
Recommended College Coursework: Diesel Engines, Air Quality, Auto Manufacturing

Experience Needed: Entry to Mid Level

Employer Type: Private Firms

Related Careers:
1. Diesel Retrofit Installer

ELECTRIC VEHICLE ELECTRICIAN

Description: Support project planning and design implementation for electrical vehicle projects, and install dedicated circuits needed to support high current charging systems.

Salary: $22 - $26/hour

Minimum Education: Associate Degree

Experience Needed: High Level
5-10 years experience including old and new aspects of electrical installations

Employer Type: Power Plants/Facilities

Related Careers:
1. Hybrid Powertrain Development Engineer

HYBRID POWERTRAIN DEVELOPMENT ENGINEER

Description: Develop powertrain designs including components and sub-systems, perform complex design analysis, create specifications and conduct calibration for alternative fuel and hybrid powertrains.

Salary: Comparable to other engineering classes, though variable with experience level

Minimum Education: Bachelor's Degree in Electrical or Mechanical Engineering or related field
Recommended College Coursework: Must have knowledge of powertrain technology, vehicle engineering, development, certification, OEM calibration, alternative fuels calibration and hybrid powertrain development

Experience Needed: Entry to Mid Level
Up to 5 years experience in auto engineering and powertrain controls

Employer Type: Power Plants/Facilities

Related Careers:
1. Automotive Power Electronics Engineer
2. Powertrain Control Systems & Software Engineer

POWERTRAIN CONTROL SYSTEMS & SOFTWARE ENGINEER

Description: Design and release powertrain control systems software into embedded automotive powertrain controllers, including hydrogen internal combustion, hybrid electric and fuel cell applications.

Salary: Comparable to other engineering classes, though variable with experience level

Minimum Education: Bachelor's Degree in Electrical or Mechanical Engineering
Recommended College Coursework: Engineering, Computer Software, Automotive, Alternative Fuels

Experience Needed: Mid to High Level
2-5 years embedded control software development and assembly experience. Also automotive or hybrid experience

Employer Type: Power Plants/Facilities

Related Careers:
1. Hybrid Powertrain Development Engineer
2. Automotive Power Electronics Engineer

DIESEL RETROFIT DESIGNER

Description: Design and develop diesel retrofitting technology to produce cleaner burning engines.

Salary: Comparable to engineering jobs

Minimum Education: Master's Degree in Engineering; PhD preferred
Recommended College Coursework: Engine Design, Catalytic Converters, Diesel Retrofit

Experience Needed: High Level

Employer Type: Private Firms

Related Careers:
1. Automotive Power Electronics Engineer

SENIOR AUTOMOTIVE POWER ELECTRONICS ENGINEER

Description: Develop controls for electric traction motors and power electronics for hybrid and electric vehicle applications.

Salary: Comparable to other senior level engineering jobs

Minimum Education: Bachelor's Degree in Engineering
Recommended College Coursework: Engineering, Alternative Fuels, Electronic controls

Experience Needed: High Level
10 years experience of both automotive engineering and motor/power electronics controls

Employer Type: Plants/Facilities

Related Careers:
1. Diesel Retrofit Designer

Efficient mass transit vehicle operations

BUS SYSTEM OPERATOR

Description: Transport passengers around scheduled routes, usually within urban areas.

Salary: $11 - $17/hour

Minimum Education: None
Desired Education: GED/High School Diploma
Certification: Appropriate driver's license

Experience Needed: Entry Level

Employer Type: Private Firms, Government

Related Careers:
1. Train Operator

ELECTRIC SHIPYARD OPERATOR

Description: Manage operations on an electrified port.

Salary: $44,000 - $58,000/year

Minimum Education: Bachelor's Degree in Engineering or related field

Experience Needed: Entry Level
Naval ship experience preferred

Employer Type: Private Firms, Government

Related Careers:
1. Rail Systems Operator,
2. Crane Operator

TRAIN SYSTEM OPERATOR

Description: Work as a train conductor or train system engineer.

Salary: $20 - $24/hour

Minimum Education: GED/High School Diploma

Experience Needed: Entry Level

Employer Type: Private Firm, Government

Related Careers:
1. Shipyard Operator

Transportation systems design

ENVIRONMENTAL ENGINEERING MANAGER

Description: Develop and coordinate environmental control activities including air and water quality and land conservation policies, and evaluate hazards within the facility for environmental risks.

Salary: $62,400 - $82,900/year

Minimum Education: Bachelor's Degree in related field
Recommended College Coursework: Environmental Engineering

Experience Needed: Mid to High Level
A combination of over 4 years of directly related training and/or experience is required

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Environmental Engineer
2. Energy Engineer

ENERGY INFRASTRUCTURE ENGINEER

Description: Specialize in Transit/Rail, Highways and Bridges, Mine, Airports, and Energy Infrastructure Engineering.

Salary: $77,000 - $91,000/year

Minimum Education: Bachelor's degree in Mechanical Engineering
Recommended College Coursework: Mechanical and Electrical Engineering, Infrastructure Development
Certification: Certified Energy Manager (CEM), Professional Engineer (PE)

Experience Needed: High Level
4-10 years of experience in energy management/engineering and a strong HVAC background.

Employer Type: Private Firms, Government

Related Careers:
1. Mechanical Engineer

CIVIL ENGINEER

Description: Design, construct and maintain the physical and naturally built environment, including works such as bridges and roads.

Salary: $73,000 - $84,000/year

Minimum Education: Bachelor's degree in Civil Engineering; Master's Degree preferred
Recommended College Coursework: Engineering, Land Use, Green Building
Certification: Engineer in Training (EIT) or Professional Engineer (PE)

Experience Needed: High Level
Most projects expect 2 – 5 years of experience

Employer Type: Private Firms, Government

Related Careers:
1. Energy Efficient Engineer
2. Construction

ENVIRONMENTAL ENGINEER

Description: Plan, design, and oversee construction and maintenance of structures and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, water and sewage systems, and waste disposal units to solve environmental problems. Determine sources and methods of controlling pollutants in air, water, and soil.

Salary: $21 - $31/hour

Minimum Education: Bachelor's Degree in Environmental Engineering
Recommended College Coursework: Science, Chemistry, Engineering
Certification: Engineer in Training (EIT) or Professional Engineer (PE)

Experience Needed: Mid to High Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Environmental Scientist
2. Energy Engineer

Biofuel production facilities — operations & management

BIOFUEL PLANT OPERATIONS ENGINEER

Description: Collect and process information on well-field and plant performance, diagnose well problems and design procedures to fix them.

Salary: $70,000 - $80,000/year

Minimum Education: Bachelor's degree or higher in Engineering
Recommended College Coursework: Resource/ Petroleum Engineering, Computer Programming,
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
15 years experience in geothermal resource engineering as well as petroleum engineering

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Mechanical Engineer
2. Power Generation Development

ALTERNATIVE FUELS POLICY ANALYST & BUSINESS SALES

Description: Track alternative fuel legislation and the renewable energy credits market, coordinate with partners in sales and project implementation and help market alternative fuels to consumers.

Salary: $60,000/year

Minimum Education: Bachelor's Degree
Recommended College Coursework: Marketing & Sales, Economics, Environmental Studies, Alternative Fuels

Experience Needed: Mid Level
3-5 years experience in business-to-business sales

Employer Type: Private Firms, Plants/Facilities

Related Careers:
1. Solar Sales
2. Policy Analyst

BIODIESEL/BIOFUEL TECHNOLOGY & PRODUCT DEVELOPMENT MANAGER

Description: Define, plan and execute research programs that evaluate alternative feedstock and process technologies for biodiesel/biofuel and have near-term commercial potential.

Salary: Varies highly based on experience

Minimum Education: Bachelor's Degree in Chemistry, Engineering, or Biology
Recommended College Coursework: Chemistry, Alternative Fuels, Engineering, Fuel Production

Experience Needed: Mid to High Level
2-5 years of development and commercialization experience

Employer Type: Power Plants/Facilities

Related Careers:
1. Biodiesel/Biofuel Plant Operator

BIODIESEL PRODUCT MANAGER

Description: Responsible for gathering market data, and identifying possible consumers of Biodiesel.

Salary: $60,000 - $80,000/year

Minimum Education: Master's Degree

Experience Needed: High Level
5+ years of industrial experience
At least 2 years in biodiesel

Employer Type: Private Firms

BIODIESEL/BIOFUEL PLANT FIELD TECHNICIAN

Description: Maintain plant including pump maintenance, safety inspections, record keeping and any other required repairs or maintenance, and perform basic titration, measurements using scales and liquid measuring devices and other lab tests

Salary: Expected to be similar to operations and maintenance personnel at other facilities

Minimum Education: GED/High School Diploma with experience; Trade School or 30 semester hours without experience
Recommended College Coursework: Chemistry, Plant Operations, Metal Fabrication, Industrial Safety and Health
Certification: Welding Certification desired

Experience Needed: Entry to Mid Level
Up to 2 years at production facility

Employer Type: Power Plants/Facilities

Related Careers:
1. Biofuel Technology & Product Development Manager

Waste treatment, recycling, and waste reduction

RECYCLING COLLECTIONS DRIVER

Description: Operate truck to collect recycling from designated locations.

Salary: $9 - $12/hour

Minimum Education: None
Certification: Must have a driver's license

Experience Needed: Entry Level

Employer Type: Private firms, Government

Related Careers:
1. Recycling Center Operator

RECYCLING CENTER OPERATOR

Description: Perform daily operations at a recycling center, including materials processing and customer service, and hand sort and separate recyclable from non-recyclable materials according to established procedures.

Salary: $11 - $18/hour

Minimum Education: None

Experience Needed: Entry Level
1 year as general laborer

Employer Type: Private Firms, Government

Related Careers:
1. Recycling Collections Driver

HAZARDOUS MATERIALS REMOVAL WORKER

Description: Identify, remove, transport and dispose of various hazardous materials, including asbestos, lead and radioactive and nuclear materials.

Salary: $20 - $25/hour

Minimum Education: GED/High School Diploma
Certification: 1 – 3 months of training and licensure is required for each material to be handled

Experience Needed: Entry Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Hazardous Waste Management Specialist
2. Nuclear Waste Management Engineer

HAZARDOUS WASTE MANAGEMENT SPECIALIST

Description: Conduct studies on hazardous waste management projects and provide information on treatment and containment of hazardous waste. Provide technical assistance in event of hazardous chemical spill and identify pollutant, determine hazardous impact and recommend corrective action

Salary: $25 - $35/hour

Minimum Education: Bachelor's Degree in Chemistry or other Science
Recommended College Coursework: Analytical Chemistry, Organic Chemistry, and Physical Chemistry

Experience Needed: Mid Level
2 years in a comprehensive environmental, health and safety program

Employer Type: Private Firms, Government, Plants/Facilities

Related Careers:
1. Hazardous Materials Removal Worker
2. Nuclear Waste Management Engineer

ENVIRONMENTAL TECHNICIAN

Description: Identify, develop, and implement best practices in the waste management field. Analyze existing and new business opportunities for cost reductions, new treatment technologies, recycling, alternative use, and waste minimization.

Salary: $25,000 - $30,000/year

Minimum Education: GED/High School Diploma; Associate's Degree in business, environmental science, or chemistry preferred
Certification: HAZWOPER certification preferred

Experience Needed: Entry to Mid Level
0-3 years industrial waste-related experience, including experience with RCA, DOT, and OSHA requirements for waste management

Employer Type: Private Firms

HOUSEHOLD HAZARDOUS WASTE TECHNICIAN

Description: Participate in receiving, identifying, segregating, bulking, and storing hazardous waste from households, and assist in preparing them for shipment in accordance with state and federal regulations.

Salary: $15 - $17/hour

Minimum Education: GED/High School Diploma
Recommended College Coursework: 30 credit-hour in a job related field can be substituted for experience
Certification: HAZPOWER certification and Class A Commercial driver's license with Hazardous Materials Endorsement (both can be acquired during employment)

Experience Needed: Entry to Mid Level
One year in hazardous waste management or related field

Employer Type: Private Firms

Waste treatment, recycling, and waste reduction, continued

SOLID WASTE (ENERGY) ENGINEER/MANAGER

Description: Work on solid waste projects, including planning, operations and technology development.

Salary: $76,000 - $84,000/year

Minimum Education: Bachelor's degree in Engineering or Environmental Studies

Recommended College Coursework: Engineering, Green building, Cogeneration, Auditing, Water efficiency

Certification: Engineer in Training (EIT)

Experience Needed: Mid to High Level
2-5 years experience in performing engineering and economic analyses for energy efficiency or solid waste management projects and/or programs

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Wastewater Engineer

WASTE REDUCTION CONSULTANT

Description: Help design, implement and monitor a variety of commercial and municipal programs that include waste prevention, recycling, construction & demolition, household hazardous waste, illegal hauling and used oil programs.

Salary: $65,000/year

Minimum Education: Bachelor's Degree in Waste Management and/or Energy Efficiency; Master's Degree or PhD preferred

Recommended College Coursework: Waste Reduction, Environmental Studies, Recycling

Experience Needed: High Level
5-7 years in related experience

Employer Type: Private Firms

Related Careers:
1. Environmental Consultant

HEALTH PHYSICIST

Description: Conduct radiological inspections, investigations, surveys, and data reviews for low-level radioactive waste disposal, by-product waste disposal, and radioactive material management, including storage and processing.

Salary: $45,000 - $91,000/year

Minimum Education: Bachelor's Degree

Recommended College Coursework: Health Physics, Radiological Science, Nuclear Engineering, Physics, Biological Science, Advanced Chemistry, Genetics or Advanced Mathematics; Master's or Doctoral degree in Health Physics, Radiological Science, Nuclear Medicine, Nuclear Engineering

Certification: Certified Health Physicist (CHP) preferred

Experience Needed: High Level
5 years experience performing health physics or radiological control and safety functions; less experience required with Master's Degree or Doctorate

Employer Type: Government

NUCLEAR WASTE MANAGEMENT ENGINEER

Description: Design, implement, and test systems and procedures to reduce volume and dispose of hazardous waste materials and contaminated objects. Oversee construction, testing and implementation of waste disposal systems and resolve operational problems.

Salary: $89,000 - $106,000/year

Minimum Education: Bachelor's degree in Nuclear Engineering or a related field

Recommended College Coursework: Engineering, Waste Management

Experience: High Level

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Hazardous Materials Removal Worker

SOLID WASTE ENGINEER / MANAGER

Description: Manage solid waste projects, including planning, operations and technology development.

Salary: $74,000/year

Minimum Education: Bachelor's Degree in Engineering or Environmental Studies

Recommended College Coursework: Engineering, Green building, Cogeneration, Auditing, Water efficiency

Certification: Engineer in Training (E.I.T.)

Experience Needed: Mid to High Level
2-5 years experience in performing engineering and economic analyses for energy efficiency or solid waste management projects and/or programs

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Wastewater Engineer

Water resource management and water supply

OPERATIONS MAINTENANCE WORKER FOR WATER SERVICES

Description: Responsible for repairing water mains, services, general maintenance and other duties.

Salary: $17 - $22/hour

Minimum Education: GED/High School Diploma
Certification: Grade II Distribution certification desired or must have or obtain Grade II Distribution certification within 10 months

Experience Needed: Entry Level

Employer Type: Government, Power Plants/Facilities

Related Careers:
1. Wastewater Engineer

WATER/WASTEWATER OPERATOR

Description: Perform maintenance work and operate equipment in the operation, repair, maintenance, and replacement of water, wastewater, distribution, collections, and composting facilities and systems.

Salary: $14 - 21/hour

Minimum Education: GED/High School Diploma
Certification: Class C water license in main area of work; Class D license in secondary area of work; one license must be in wastewater management

Experience Needed: Mid Level
One year in water and wastewater operations maintenance or construction; at least two years related experience in plant operations and maintenance preferred

Employer Type: Utility, Government

AQUATIC SCIENTIST

Description: Develop and coordinate water quality standards, coordinate and conduct water-quality research projects, and determine and implement regulatory requirements to protect specific water bodies.

Salary: $40,000 - $50,000/year

Minimum Education: Bachelor's Degree in a natural science; Master's Degree in aquatic science or PhD preferred
Recommended College Coursework: Statistics, Limnology, Ecology, Hydrology, Aquatic Ecology, Ichthyology, Benthic Ecology, Wildlife Biology, Invertebrate Biology, Entomology, Toxicology, Phycology, Marine Science, Aquatic Chemistry, Aquatic Pollution, Aquatic Microbiology

Experience Needed: Mid to High Level
Four years experience preferred

Employer Type: Government, Non-Profit

WATER RESOURCE ENGINEER

Description: Prepare of environmental documentation for water resources, regulatory program compliance, data management and analysis and field work (e.g., compliance monitoring and site reviews).

Salary: $65,000 - $74,000/year

Minimum Education: Bachelor's Degree in Environmental Science/Studies, Engineering, Chemistry, Hydrology, or related field
Certification: D.WRE
Recommended College Coursework: Hydrology, Stormwater, Wastewater, Environmental Studies/ Sciences

Experience Needed: High Level
Experience in water quality compliance, permitting, and associated technical document preparation

Employer Type: Private Firms, Government

Related Careers:
1. Policy Analyst & Advocate

CIVIL ENGINEER AGRICULTURE/IRRIGATION/ WATER SUPPLY

Description: Engineer commercial agricultural operations, and work with irrigation, water supply and other farm systems.

Salary: $80,000 - $120,000/year

Minimum Education: Bachelor's Degree in Agricultural or Civil Engineering; graduate degree preferred
Recommended College Coursework: Civil Engineering, Biofuels, Chemical Engineering, Agriculture

Experience Needed: High Level
Minimum 5 years work experience in design, construction and operations of large agricultural systems

Employer Type: Power Plants/Facilities

Related Careers:
1. Wastewater Engineer

WATER PRODUCTION AND WATER QUALITY MANAGER

Description: Direct operations concerning water supply, water and wastewater treatment, water quality, and laboratory quality control. Ensure portable water and wastewater effluent meets or exceeds state and federal standards.

Salary: $55,000 - $76,000/year

Minimum Education: Bachelor's Degree in Biology, Chemistry, Environmental or Sanitary Engineering, or a related field.
Certification: Water and wastewater operator certification issued preferred

Experience Needed: High Level
Five years managerial experience with two years in water and wastewater operations

Employer Type: Government, Utility

Water resource management and water supply, continued

HYDROLOGIST

Description: Perform hydrologic data collection, analysis and reporting, construction, operation and maintenance of field instruments and equipment, support of reservoir operations for water supply and flood control.

Salary: $40,000 - $58,000/year

Minimum Education: Bachelor's Degree in Hydrology, Water Resources or other science-related field

Experience Needed: Mid Level
1-2 years experience with collection, analysis and reporting of hydrologic data; construction, operation and maintenance of field instruments and equipment for hydrologic monitoring; reservoir operations for water supply and flood control.

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Hydrogeologist

WATER CONSERVATION COORDINATOR

Description: Assist with coordination of water conservation incentive programs. Administer raw water customer water conservation and drought contingency plans, including tracking of plan updates and implementation. Coordinate new water-saver awards program. Maintain and track inventory of public outreach materials and other conservation supplies.

Salary: $32,000 - $66,000/year

Minimum Education: Bachelor's Degree in Business, Environmental Science, Planning or relevant field

Experience Needed: Mid Level
1-2 years experience in conservation, program planning, customer service, managing data, using electronic databases, and/or developing reports.

Employer Type: Private Firms, Government, Power Plants/ Facilities

SENIOR HYDROLOGIST

Description: Direct all field data collection, analysis, reservoir operations and maintenance of field instruments and equipment. Perform hydrologic data analysis and computer modeling for flood control, water supply and river management.

Salary: $55,000 - $75,000/year

Minimum Education: Bachelor's Degree in Hydrology, Water Resources or other science-related field

Certification: Texas State Board of Professional Geoscientists license preferred

Experience Needed: High Level
5-7 years performing hydrologic and hydraulic data collection and analysis

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Hydrogeologist

WATER QUALITY COORDINATOR

Description: Review on-site sewage facilities (OSSF) plans and site conditions. Review plans and issue permits to ensure compliance with rules, standards, and policies. Inspect OSSF projects for rule and permit compliance. Assist customers in understanding technical requirements of rules, standards, and policies.

Salary: $35,000 - $50,000/year

Minimum Education: Bachelor's Degree in basic or applied science or Engineering.

Certification: Professional Engineer or Registered Sanitarian.

Experience Needed: Mid Level
1-2 years in field inspection and site evaluation on OSSF systems. Experience in design plan review and permitting.

Employer Type: Private Firms, Government, Power Plants/ Facilities

IRRIGATION WATER CONSERVATION COORDINATOR

Description: Provide expert counsel and information regarding outdoor water conservation with emphasis in the areas of landscape irrigation, plants, soil, and landscape design. Develop and implements water conservation programs. Foster water conservation awareness to developers, builders, and the general public. Act as water conservation advocate at regulatory meetings and functions. Collaborate with other organizations and entities on water conservation programs. Provide input on policies, rules, and strategic planning related to conservation.

Salary: $32,000 - $50,000/year

Minimum Education: Bachelor's Degree in Horticulture, Landscape Agriculture, Environmental Management and/ or Science or other relevant field; Master's Degree in related field preferred

Certification: Texas Irrigator's License preferred

Experience Needed: High Level
5-7 years in water conservation, design and/or installation of resource efficient landscapes and irrigation planning.

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Landscape Architect

Wastewater management

WASTEWATER PLANT CIVIL ENGINEER

Description: Project manager for wastewater design and implementation, responsible for all facets of hydraulic modeling and pipeline design.

Salary: $74,000 - $82,000/year

Minimum Education: Bachelor's Degree in Civil Engineering
Recommended College Coursework: Civil Engineering, Mechanical Engineering, Wastewater management
Certification: Professional Engineer (P.E.)

Experience Needed: High Level
10 years experience in Civil Design

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Civil Engineer
2. Wastewater Plant Operator

WASTEWATER ENGINEER IN INDUSTRIAL FACILITIES

Description: Administer the stormwater/wastewater program for major industrial facilities. Manage the implementation of the Spill Prevention Control and Countermeasure Plan (SPCC) and the Stormwater Pollution Prevention Plan (SWPPP), and complete the Air Emissions Report and lead the new Greenhouse Gas Program

Salary: $75,000 - $100,000/year

Minimum Education: Bachelor's Degree in Chemical, Petroleum, Mechanical or Environmental Engineering
Recommended College Coursework: Chemistry, Mechanical Engineering, Water/Waste Water treatment

Experience Needed: High Level
Minimum 5 years related experience

Employer Type: Plants/Facilities

Related Careers:
1. Environmental Engineer
2. Waste water treatment operator

Soil conservation and forestry

FORESTRY CONSERVATION WORKER

Description: Develop, maintain and protect forest, forested areas, and woodlands, and build erosion and water control structures and leaching for forest soil.

Salary: $15 - $22/hour

Minimum Education: HS Diploma/GED; Associate's Degree preferred
Recommended College Coursework: Forestry, Ecology, Natural Resources

Experience Needed: Entry Level

Employer Type: Private Firms, Government

Related Careers:
1. Environmental Scientist

SOIL CONSERVATIONIST

Description: Deal with soil erosion control, moisture conservation and sound land use, and plan soil management practices such as reforestation, terracing and crop rotation.

Salary: $23 - $32/hour

Minimum Education: Bachelor's Degree in field of specialty
Recommended College Coursework: Agronomy, Soil Science, Forestry, Agriculture, Environmental Studies

Experience Needed: Mid Level
Applies principles of 2 or more specialized fields, therefore more qualified than technician

Employer Type: Private Firms

Related Careers:
1. Hydrogeologist
2. Environmental Scientist

SOIL CONSERVATION TECHNICIAN

Description: Provide technical assistance to land users in planning and applying soil and water conservation practices, utilizing basic engineering and surveying knowledge of agricultural and related sciences.

Salary: $16 - $24/hour

Minimum Education: Bachelor's Degree in field of specialty or equivalent education and experience
Recommended College Coursework: Agriculture, Agronomy, Soil Conservation, Hydrology

Experience Needed: Mid Level

Employer Type: Private firms

Related Careers:
1. Soil Conservationist
2. Forest Conservation Worker

FORESTRY CONSERVATION CONSULTANT

Description: Advise on forest and woodland ecosystem management activities, including matters relating to the development prescriptions to support threatened, endangered and special status plants and animals, development of special inventory protocols.

Salary: $20,000 - $42,000/year

Minimum Education: Associate's Degree in Forestry; Bachelor's Degree preferred
Recommended College Coursework: Forest Biology, Management of Renewable Resources, Forests Resource Measurements and Inventory

Experience Needed: Mid to High Level

Employer Type: Private Firms, Government

Related Careers:
1. Forestry Supervisor
2. Forestry Conservation Worker

FORESTRY SUPERVISOR

Description: Deal with forest management, urban forests, wildlife management, conservation and reclamation of land for forestry use.

Salary: $45,000 - $57,000/year

Minimum Education: Bachelor's Degree in Forestry Management

Recommended College Coursework: Forestry, Math, Science, Forest Resource Management

Experience Needed: Mid Level
2-3 years related experience as licensed forester

Employer Type: Private Firms, Government

Environmental planning

ENVIRONMENTAL PLANNER

Description: Assist in a wide range of projects including environmental impact reports, environmental impact statements, land use planning and environmental permit process.

Salary: $40,000 - $65,000/year

Minimum Education: Bachelor's Degree in Environmental Studies or Environmental Science; Master's Degree preferred

Recommended College Coursework: Social Science, Urban and Rural Land Use, Socioeconomics, Environmental Studies

Experience Needed: Mid to High Level
3-4 years experience in related science or planning field

Employer Type: Private Firms, Government

Related Careers:
1. Urban Planner
2. Restoration Planner

RESTORATION PLANNER

Description: Collaborate with field and biology staff to oversee the implementation of restoration projects and to develop new projects. Accurately process and synthesize complex scientific data into practical, on-the round strategies for restoration, monitoring, and management.

Salary: $73,000 - $84,000/year

Minimum Education: Master's Degree in related discipline

Recommended College Coursework: Ecology, Biology, Environmental Science, Landscape Architecture, and Planning

Experience Needed: Mid to High level
2-4 years relevant work experience including environmental compliance and permitting

Employer Type: Private Firms, Government

Related Careers:
1. NEPA Analyst/Natural Resource Planner
2. Forestry Supervisor

URBAN PLANNER

Description: Develop short and long term comprehensive plans and programs for development, growth, revitalization and utilization of land and physical facilities of cities, counties and metropolitan areas to maximize quality of life for the community and its residents.

Salary: $40,000 - $65,000/year

Minimum Education: Bachelor's Degree in Urban Planning, Civil Engineering or related field

Recommended College Coursework: Civil Engineering, Urban Planning, Land Use.

Experience Needed: Mid to High Level
Experience in planning and development

Employer Type: Private Firms, Government

Related Careers:
1. Urban Renewal Manager
2. Civil Engineer

URBAN RENEWAL MANAGER

Description: Recommend governmental measures affecting land use, public utilities, community facilities and housing and transportation to control and guide community development and urban renewal.

Salary: $73,200 - $89,200/year

Minimum Education: Master's Degree in Urban Planning, Civil Engineering, Environmental Studies or related field

Recommended College Coursework: Civil Engineering, Urban Planning, Land Use

Experience Needed: High Level
Experience in Urban Planning

Employer Type: Private Firms, Government

Related Careers:
1. Civil Engineer
2. Urban Planner

Environmental planning, continued

PROGRAM MANAGER ENVIRONMENTAL CONSTRUCTION

Description: Planning, staffing, schedule, budget, quality control, safety and coordination of subcontractors and internal support staff for environmental construction projects, with the direction and supervision of more senior staff as required.

Salary: $72,000 - $85,000/year

Minimum Education: Bachelor's Degree in Engineering
Recommended College Coursework: Civil Engineering, Environmental Construction

Experience Needed: High Level
15 years related experience

Employer Type: Private Firms, Government

Related Careers:
1. Civil Engineer

Environmental consulting, corporate responsibility, and compliance

SENIOR ENVIRONMENTAL CONSULTANT

Description: Manage all compliance requirements during pre-construction, construction and commercial operation phases of project, including environmental and building requirements.

Salary: $71,000 - $90,000/year

Minimum Education: Bachelor's Degree in Environmental Science, Engineering, Chemistry, Biology or related field
Recommended College Coursework: Environmental Sciences, Natural Science, Engineering

Experience Needed: Mid to High Level
Minimum 3 years regulatory compliance experience at power plants, industrial or construction sites

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Renewable Energy Consultant

ENVIRONMENTAL TECHNICIAN

Description: Develop methods and devices used in the prevention, control and correction of environmental hazards. Work is highly specialized (e.g., collect water samples from streams and lakes, raw, semi-processed or processed water, industrial waste water, or water from other sources to assess pollution problems).

Salary: $40,000 - $53,000/year

Minimum Education: Associate's Degree in an Engineering technology
Recommended College Coursework: Environmental science, Engineering, Mathematics or Chemistry

Experience Needed: Mid Level

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Environmental Scientist
2. Environmental Engineer

AIR QUALITY SPECIALIST & ENFORCEMENT OFFICER

Description: Provide expertise on subject matter to help identify and resolve air quality issues, and assess pollution control technologies for achieving air emissions compliance.

Salary: $30 - $37/hour

Minimum Education: Bachelor's Degree in Engineering, Science, or related field
Recommended College Coursework: Engineering, Chemistry, Climate & Air, Pollution Control, State and Federal Air Quality Standards, Environmental Science
Certifications: Desired: CHMM, REA, AHERA, CPEA, REHS, HZWOPR

Experience Needed: Mid Level
Minimum 1-2 years of experience in air quality/ environmental issues

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Renewable Energy Consultant
2. Environmental Scientist

ENVIRONMENTAL INVESTIGATOR

Description: Conduct advanced and highly complex criminal investigations involving environmental programs such as hazardous waste, water pollution, petroleum storage tanks, and municipal solid. Evaluate, analyze, and summarize evidence and investigative findings, and recommend actions.

Salary: $34,000 - $60,000/year

Minimum Education: Bachelor's Degree in a natural or physical science, Engineering, Environmental Studies, or related field; Master's Degree or Doctorate in a related field preferred.

Experience Needed: High Level
6 years experience in environmental activities; experience conducting criminal investigations preferred

Employer Type: Government, Private Firms, Non-Profit

Environmental consulting, corporate responsibility, and compliance, continued

AIR RESOURCES ENGINEER

Description: Develop control measures and other strategies to reduce emissions of greenhouse gases from stationary and mobile sources.

Salary: $55,000 - $85,000/year

Minimum Education: Bachelor's Degree in Environmental Science, Engineering, Chemistry, Biology or related field
Recommended College Coursework: Environmental Sciences, Natural Science, Engineering

Experience Needed: Mid to High Level
Minimum 3 years regulatory compliance experience at power plants, industrial or construction sites

Employer Type: Private Firms, Power Plants/Facilities

Related Careers:
1. Renewable Energy Consultant

AIR QUALITY CONTROL ENGINEER

Description: Conduct air quality analyses and permitting efforts and implement environmental compliance management systems and processes.

Salary: $35,000 - $90,000/year

Minimum Education: Bachelor's Degree in Chemical Engineering or a technical discipline
Recommended College Coursework: Chemistry, Chemical Engineering, Engineering, Air Quality/Pollution

Experience Needed: High Level
Minimum 5 years experience in air permitting plus knowledge of federal/state environmental programs

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Air Quality Specialist

AIR POLLUTION SPECIALIST

Description: Investigate local government and land use activities, develop protocols for estimating greenhouse gas emissions, develop community greenhouse gas inventories and evaluate greenhouse gas reduction benefits from green buildings.

Salary: $55,000 - $74,000/year

Minimum Education: Bachelor's Degree in Chemistry, Chemical Engineering, or a Physical Science.
Recommended College Coursework: Climate Change, Emissions Accounting, Green Building, Chemistry

Experience Needed: Mid to High Level

Employer Type: Private Firm, Government

Related Careers:
1. Air Resources Engineer

WATER RESOURCE CONSULTANT

Description: Deals with broader issues of water management and discharge, including flooding, ecosystem needs, distributions and marketing.

Salary: $72,000 - $92,000/year

Minimum Education: Bachelor of Science in related field; Master's Degree preferred
Recommended College Coursework: Environmental Science, Hydrology, Wastewater, Engineering, Permitting, Land Use

Experience Needed: Mid to High Level
3-5 years experience with water quality issues

Employer Type: Private Firms, Government

Related Careers:
1. Water Resource Engineer

WATER QUALITY CONSULTANT - WATER/WASTEWATER ENGINEER

Description: Deal with issues surrounding water quality discharge permitting.

Salary: $72,000 - $92,000/year

Minimum Education: Bachelor of Science in related field; Master's Degree preferred
Recommended College Coursework: Hydrology, Wastewater, Engineering, Permitting, Land Use
Certification: Professional Engineer (P.E.) preferred

Experience Needed: High Level
3-5 years experience with water quality issues.

Employer Type: Private Firms, Government

Related Careers:
1. Wastewater Treatment

WASTE REDUCTION CONSULTANT/ ENERGY EFFICIENCY EXPERT

Description: Design, implement and monitor a variety of commercial and municipal programs that include energy efficiency, waste prevention, recycling, construction & demolition, household hazardous waste, illegal hauling and used oil programs

Salary: $60,000 - $80,000/year

Minimum Education: Bachelor's Degree in Waste Management and/or Energy Efficiency; Master's Degree or Doctorate preferred
Recommended College Coursework: Waste Reduction, Environmental Studies, Recycling

Experience Needed: High Level
5-7 years in related experience

Employer Type: Private Firms

Related Careers:
1. Environmental Consultant

Environmental consulting, corporate responsibility, and compliance, continued

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) ANALYST/NATURAL RESOURCE PLANNER

Description: Assist business development efforts, identify potential opportunities, and identify resource sections for NEPA.

Salary: $38,000 - $60,000/year

Minimum Education: Bachelor's Degree in Natural Resource Management, Environmental or Land Use Planning, Biology, Environmental Science, Cultural Resources, GIS, or related field.

Experience Needed: Mid to High level
Minimum of 3-5 years as NEPA resource author and analyst in one or more disciples such as wildlife biology, vegetation, wetlands, land use, recreation, special designations, cultural resources, water resources, air noise, and/or socio-economics

Employer Type: Private firms, Government, Power Plants/ Facilities

Related Careers:
1. Restoration Planner

Environmental Research and Monitoring

ENVIRONMENTAL SAMPLING TECHNICIAN

Description: Receive, check, log, bottle and ship samples, and analyze the samples for trace level organic, inorganic, radiological contaminants and air emissions.

Salary: $16 - $22/hour

Minimum Education: HS Diploma/GED; Bachelor's of Science preferred
Recommended College Coursework: Sciences, Environmental Studies
Certification: HAZWOPER , often provided by employer

Experience Needed: Entry Level
Non-degreed must demonstrate basic lab operational proficiency; environmental lab experience preferred

Employer Type: Private Firms, Government, Power Plants/ Facilities

Related Careers:
1. Environmental Scientist

GIS SPECIALIST

Description: Develop and use advanced Geographic Information Systems methodologies and customized software applications in the fields of floodplain analysis, storm water management, surface water quality and wetland migration banking and restoration.

Salary: $35,000 - $85,000/year

Minimum Education: Associate Degree; Bachelor's Degree in Geography
Recommended College Coursework: GIS courses, Water/ Wastewater Treatment

Experience Needed: High Level
5-7 years in related field

Employer Type: Private Firms, Government, Power Plant/ Facilities

Related Careers
1. Environmental Engineer
2. Restoration Planner

ENGINEERING GEOLOGIST

Description: Conduct geologic field investigations on a wide range of public and private projects involving seismic evaluations, landslides, and subsurface soil, rock and water conditions for dams, buildings, water and waste water treatment facilities, transportation projects and remedial actions.

Salary: $36,000 - $93,000/year

Minimum Education: Bachelor's Degree in Engineering Geology; Master's Degree in Engineering Geology preferred
Recommended College Coursework: Soil, Soil Gas, Groundwater, Environmental Studies, Engineering, and Waste Management
Certification: Engineering Geologist (EG) Cert., OSHA 40-hour HAZWOPER training desirable

Experience Needed: High Level
Minimum 5 years experience as an engineering geologist

Employer Type: Private Firms, Government

Related Careers:
1. Soil Conservationist

BIOLOGIST – MARINE/FISHERIES

Description: Plan and conduct evaluations of factors affecting fish populations and provide oversight of fisheries monitoring programs.

Salary: $38,000 - $60,000/year

Minimum Education: Bachelor's Degree in Biology or related field
Recommended College Coursework: Biology, Marine Biology

Experience Needed: Mid to High Level

Employer Type: Private Firms

Related Careers:
1. Environmental Scientist

Environmental Research and Monitoring

CLIMATOLOGIST

Description: Conduct climate change research and data analysis. Collect and synthesize data derived from pollution emission measurements, atmospheric monitoring, meteorological and mineralogical information, and soil or water samples.

Salary: $38,000 - $85,000/year

Minimum Education: Bachelor's Degree in scientific or engineering discipline; Master's Degree or PhD preferred
Recommended College Coursework: Advanced study in Environmental Sciences

Experience Needed: High Level

Employer Type: Private Firms, Government, Treatment Plants/Facilities

Related Careers:
1. Environmental Engineer

ECONOMIST

Description: Conduct primary and secondary research to support the formulation of analytical solutions, the development of economic models and the interpretation of results in the areas of transportation, the environment, energy, economic development and finance.

Salary: $38,000 - $85,000/year

Minimum Education: Bachelor's Degree in Economics; Master's Degree preferred
Recommended College Coursework: Economics, Environmental Studies, Energy Efficiency

Experience Needed: High Level
Experience in conceptualizing and developing economic or business models using analytical methods

Employer Type: Private Firms

ENVIRONMENTAL SCIENTIST

Description: Conduct research to identify and abate/eliminate sources of pollutants that affect people, wildlife and their environments. Collect and synthesize data derived from pollution emission measurements, atmospheric monitoring, meteorological and mineralogical information and soil or water samples. Analyze data to assess pollution problems, establish standards and develop pollution control programs.

Salary: $33,000 - $85,000/year

Minimum Education: Bachelor's Degree in scientific or engineering disciplines; Master's Degree or PhD preferred
Recommended College Coursework: Advanced study in Environmental Sciences

Experience Needed: High Level

Employer Type: Private Firms, Government, Treatment Plants/Facilities

Related Careers:
1. Hydrogeologist
2. Biologist

CHEMIST

Description: Perform various testing and analysis on chemical compounds, from air toxics to biofuels.

Salary: $37,000 - $70,000/year

Minimum Education: Bachelor's Degree in Chemistry; Master's Degree or PhD preferred
Recommended College Coursework: Chemistry, Organic Chemistry, Chemical Engineering

Experience Needed: High Level
2-5 years lab experience

Employer Type: Private Firms, Governments, Power Plants/Facilities

Related Careers:
1. Biologist
2. Environmental Scientist

ENVIRONMENTAL RESEARCH MANAGER

Description: Analyze data to interpret correlation between property development and physical or health hazards, and prepare reports for city, state and federal authorities for permits.

Salary: $35,000 - $80,000/year

Minimum Education: Master's Degree in Chemical Engineering or Chemistry, Environmental Science, Atmospheric Science
Recommended College Coursework: Chemical Engineering, Chemistry, Policy, Public Health

Experience Needed: Mid Level

Employer Type: Private Firms, Government

Related Careers:
1. Environmental Scientist

Advocacy

CONSERVATION POLICY ANALYST & ADVOCATE

Description: Plan and manage conservation programs, including program development, project implementation, budget management, fundraising and community relations, and provide high-level oversight for restoration programs.

Salary: $28,000 - $53,000/year

Minimum Education: Bachelor's Degree in Environmental Studies or Science, Environmental Policy, Conservation Biology or another field related to natural resources conservation

Recommended College Coursework: Environmental studies, Ecology, Natural Resources, Conservation

Experience Needed: Entry to Mid Level
3 years experience in wildlife conservation policy and advocacy

Employer Type: Private Firms

Related Careers:
1. Environmental Scientist
2. Government Analyst

CLIMATE CHANGE POLICY SPECIALIST & ADVOCATE

Description: Develop and advance a policy strategy to promote the creation of a long-term price signal for the reduction of global emissions of greenhouse gases, including financial incentives to prevent deforestation and restore valuable forest habitats.

Salary: $40,000 - $60,000/year

Minimum Education: Master's Degree in International Relations, Public Policy, Forestry, Energy Resource Management, Environmental Economics or related field

Recommended College Coursework: Forestry, Public Policy, Resource Management, Air Quality, Economics

Experience Needed: High Level
6 years related experience

Employer Type: Private Firms

Related Careers:
1. Policy Analyst
2. Government Analyst

WATER RESOURCE POLICY SPECIALIST & ADVOCATE

Description: Conduct hydrogeologic and hydrologic analysis for environmental and water resources projects, including computer simulations of water resources, evaluations of how to best plan for the future availability of water resources, surface and subsurface water quality modeling, development of input values that go into water supply and water quality models, developing environmental management and decision support systems and technical report writing.

Salary: $30,000 - $50,000/year

Minimum Education: Master's Degree in Environmental Studies, Science or Environmental Engineering

Recommended College Coursework: Environmental Studies, hydrology, Engineering

Experience Needed: High Level

Employer Type: Private Firms

Related Careers:
1. Hydrogeologist
2. Government Scientist

Apprenticeship Information

An apprenticeship is an entry-level job that pays the employee while they learn a skilled craft or trade. Most of the job training occurs during the working hours, though classroom training may also be required. The apprentice typically works alongside a highly experienced teacher to perform jobs and installations. The duration of the apprenticeship is typically between three and five years based on the skills and trade being learned. At the start of the apprenticeship, the worker may earn $10 to $20 per hour. Once completed, the apprentice-turned-craftsman can earn more than $30 an hour.

Most apprenticeship programs are either run through a labor union, large company like an electric utility, or a local college. Typically, applicants to apprenticeship programs must be 18 years of age, in good physical health, possess a high school diploma or a GED, and able to read, write, and speak English.

Apprenticeships recognized and registered by the U.S. Department of Labor Office of Apprenticeship can be found at: http://oa.doleta.gov. Data on the site is updated monthly and can be searched by state and county. The Texas Workforce Commission apprenticeship information can be found at: http://www.twc.state.tx.us/svcs/apprentice.html.

Green Jobs Placement Assistance

The Texas Workforce Commission (TWC) is a state agency that maintains a network of more than 240 Workforce Centers and satellite offices. TWC is represented on a regional level by 28 local workforce boards, which administer employment services, including trade-affected workers and training programs. Workforce Center locations can be found at: http://www.twc.state.tx.us/dirs/wdas/wfc_list.pdf

TWC also maintains an online job search tool, Work in Texas, which can be found at: http://www.workintexas.com .

Additional information for Austin, Dallas/Fort Worth, Houston and San Antonio can be found in the regional sections of this Guidebook.

Texas Green Job Programs at Academic Institutions

Texas is home to world-class educational institutions where students can learn valuable skills that prepare them to enter the workforce. Community colleges, trade schools, four-year universities and graduate schools all offer excellent programs to individuals looking to learn about and advance in the green economy.

A sound education that gives an individual a specialized skill set can make it easier to be hired and promoted at the company or in the field of choice. Surveys have shown that employers in the green economy will look for educational preparation in math, science and technology, in addition to good problem solving skills and hands-on training. Also, just as in any other field, there will always be a need for individuals with advanced training, including the Master's level or higher.

Four-year colleges, universities and graduate schools

Most four-year colleges and universities offer a wide range of basic and advanced courses within bachelor's level and higher degree programs to prepare students to work in the green economy. Environmental studies and science programs have been training workers in environmental resource management fields, including energy, waste and water, for decades. Coursework in chemistry, biology, engineering, math, geology and environmental science has continued to be a main emphasis of the required curriculum. For more information on these schools and the programs they offer, many resources are available on the Internet, through career services offices at high schools and colleges, or by contacting the schools directly. Due to the breadth of such coursework offerings and the limited scope of this Guidebook, academic programs at four-year institutions are not included.

Trade schools and programs

Texas is home to many specialty schools and institutions that offer coursework tailored to meet the requirements of a specific job class or field. These programs allow students the flexibility to complete a certificate or degree program in the field of their choosing. However, students may first want to identify the type of green job they desire and specifically tailor their concentration to meet the demands of that job.

Community colleges

The network of over 50 Texas community colleges offers a diverse array of low-cost two-year degree and certificate programs to prepare students for green jobs. In addition to the traditional sciences, many two-year schools offer specialty degree and apprenticeship programs designed to fill specific green jobs niches. Community colleges are also a good source for continuing education to meet specific green economic sector demands. A list of all the Texas community colleges with identified specialty programs beyond the traditional sciences of chemistry, biology, math, physics, geography and geology is included on the following pages. Greater detail of certain major metropolitan area colleges is included in the regional section of this Guidebook.

Green Job Educational Programs at Texas Community Colleges

COMMUNITY COLLEGE	GREEN JOB PROGRAM CONCENTRATION
Alamo	See San Antonio section (page 68)
Alvin	Conservation, Forestry
Amarillo	Automotive Technology, Environmental Science, Electronics Technology, Fire and Environmental Technology, Manufacturing Technology
Angelina	Automotive Technology, Diesel Technology, Electrical Maintenance, Electromechanical Technology, Electronics Technology, Welding
Austin	See Austin section (page 60)
Blinn	Brenham/Bryan: Agriculture; Brenham: Engineering Graphics, Engineering Mechanics
Brazosport	Engineering, Engineering Technology, Automotive Technology, Carpentry, Industrial and Commercial Construction, Heating/Air Conditioning and Refrigeration Technology, Industrial and Commercial Electricity, Pipefitting, Safety, Health and Environmental Management, Welding
Central Texas	Automotive Mechanic/Technician, Diesel Engine Mechanic and Repairer, Engineering, Environmental Science, Heating and Air Conditioning, Maintenance Technology, Welding
Cisco	Agriculture, Automotive Technology, Industrial Technology, Welding
Clarendon	Agriculture, Diesel Technology, Heating, Ventilation and Air Conditioning, Ranch and Feedlot Operations, Welding, Wind Energy
Coastal Bend	Automotive Technology, Engineering, Oil and Gas Technology, Welding
College of the Mainland	Geographic Information Systems, Petrochemical Process Technology, Welding Technology
Collin	See Dallas/Fort Worth section (page 64)
Dallas County	See Dallas/Fort Worth section (page 63)
Del Mar	Air Conditioning Applied Technology, Automotive Applied Technology, Building Maintenance, Diesel Applied Technology, Architectural/Drafting Technology, Welding Applied Technology
El Paso	Advanced Technology Industrial Maintenance, Advanced Technology Industrial Manufacturing, Architecture, Automotive Technology, Electrical, Heating, Ventilation and Air Conditioning Technology
Frank Phillips	Air Conditioning/Heating, Farm and Ranch Management, Industrial Electrical Technology, Industrial Manufacturing Technology, Welding Technology
Galveston	None
Grayson County	Engineering, Heating, Air Conditioning and Refrigeration Technology, Welding
Houston	See Houston section (page 66)
Howard	Building Construction Technology, Drafting Technology, Engineering, Farm and Ranch Management, Industrial Production, Welding
Kilgore	Agricultural Farm and Ranch Management, Air Conditioning and Refrigeration Technology, Architecture, Automotive Technology, Diesel Technology, Drafting/Design Technology, Electric Power Technology, Forestry, Industrial Electrical Technology, Industrial Management Technology, Petroleum Technology, Process Technology, Welding Technology, Zoology

Green Job Educational Programs at Texas Community Colleges

Laredo	Building Trades (Carpentry Technology, Electrical Technology, Heating, Air Conditioning and Refrigeration), Plumbing Technology, Welding
Lee	Architecture, Automotive Technology, Construction Engineering Technology, Drafting Technology, Electrical Technology, Geographic Information Systems, Manufacturing Engineering Technology, Pipefitting, Process Technology, Welding
Lone Star	See Houston section (page 67)
Midland	Air Conditioning, Heating and Refrigeration Technology, Automotive Technology, Building Trades Technology, Welding Technology
Navarro	Corsicana: Pre-Engineering, Oil and Gas Technology; Mexia: Power Plant Operations and Maintenance; Waxahachie: Welding
North Central	Bowie: Oil and Gas Production Technology; Corinth: Drafting Technology; Gainesville: Drafting Technology, Farm and Ranch Management, Horticulture Management
Northeast Texas	Automotive Technician, Diesel Mechanic, Electrical Occupations, Farm and Ranch Management, Engineering, Sustainable Agriculture and Biofuels Technology (in development), Welding
Odessa	Air Conditioning and Maintenance Technology, Automotive Technology, Building Construction Technology, Diesel Technology, Drafting Technology, Electrical/Electronics Technology, Engineering, Heating, Ventilation and Air Conditioning, Industrial Engines and Transportation, Maintenance Technology, Refrigeration, Welding
Panola	Environmental Technology, Industrial Technology, Petroleum Technology, Welding
Paris	Agriculture, Air Conditioning and Refrigeration, Drafting and Computer-Aided Design, Electromechanical Technology, Engineering, Welding
Ranger	Welding
San Jacinto	Air Conditioning Technology, Automotive Technology, Diesel Technology, Engineering, Engineering Design Graphics, Process Technology, Welding Technology
South Plains	Automotive Service Technology, Automotive Technology, Diesel Service Technology, Electrical and Power Transmission Technology, Engineering Graphics and Design Technology, Heating, Air Conditioning and Refrigeration Technology, Industrial Manufacturing/Emerging Technologies, Pre-Engineering, Welding Technology
South Texas	Automotive Technology, Computer-Aided Drafting and Design Technology, Diesel Technology, Electrician Assistant, Engineering, Geographic Information Systems, Heating, Ventilation, Air Conditioning and Refrigeration Technology, Industrial Systems Maintenance Technology, Plumber Assistant, Precision Manufacturing Technology, Welding
Southwest Texas	Eagle Pass: Diesel Technology; Uvalde: Air Conditioning and Refrigeration, Automotive Technology, Welding, Wildlife Management
Tarrant County	See Dallas/Fort Worth section (page 64)
Texarkana	Agriculture, Automotive Technology, Diesel Technology, Horticulture

Green Job Educational Programs at Texas Community Colleges

Texas Southmost (UT-Brownsville)	Air Conditioning and Refrigeration Technology, Applied Engineering Technology and Training (Bachelor of Applied Technology), Architecture, Automotive Mechanic Technology, Computer-Aided Drafting Technology, Construction Technology, Electronic Engineering Technology, Environmental Sciences, Manufacturing Engineering Technology
Texas State Technical College	See below (page 57)
Trinity Valley	Athens: Agriculture, Automotive Technology, Biology (Native Habitat Zone), Drafting and Design, Ranch Management, Welding; Palestine: Horticulture
Tyler	Agriculture, Air Conditioning, Automotive Technology, Engineering, Engineering Design Technology, Environmental Science, Forestry, Horticulture, Meteorology, Surveying and Mapping Technology, Welding Technology
Vernon	Agricultural Farm and Ranch Management, Automotive Technology, Heating, Ventilation and Air Conditioning, Industrial Automation, Welding
(The) Victoria	Electrical, Engineering, Heating, Ventilation and Air Conditioning, Industrial , Process Technology, Welding
Weatherford	Computer-Aided Drafting, Electrical, Geographic Information Systems, Heating, Ventilation and Air Conditioning, Welding
Western Texas	Agriculture, Electrical Lineman Technology, Geology/Meteorology/ Oceanography, Nursery-Landscape Management, Welding
Wharton County	Agriculture, Automotive Technology, Engineering, Engineering Design, Heating, Ventilation and Air Conditioning, Process Technology, Structural Welding

Most community colleges also offer continuing education programs that allow students to receive certification in a specialty or learn a new skill. The following table includes continuing education courses at certain community colleges that were offered at publishing time of this Guidebook. This list is not comprehensive, as the nature of continuing education means that new courses can be introduced and made available in a relatively short time frame.

Students interested in continuing education courses along the lines of those presented here should contact their local community college for the latest course offerings. Also, continuing education at community colleges in Austin, Dallas/Fort Worth, Houston and San Antonio are listed in the regional sections beginning on page 56.

Continuing Education Opportunities at Community Colleges

COMMUNITY COLLEGE	CONTINUING EDUCATION COURSE OFFERINGS
Alamo	See San Antonio section (page 69)
Austin	See Austin section (page 60)
Blinn	Heating, Ventilation and Air Conditioning, Electrician, Construction Technology, Welding
Brazosport	Safety, Health and Environmental Management Certification
College of the Mainland	Geographic Information Systems, Welding
Collin	See Dallas/Fort Worth section (page 64)
Dallas County	See Dallas/Fort Worth section (page 63)
Del Mar	National Electric Code
Frank Phillips	Electrical Update, Welding
Galveston	Welding
Grayson County	Commercial Refrigeration, Drafting, Electricity, Gas and Electric Heating, International Code Council Testing, Welding
Houston	See Houston section (page 66)
Kilgore	Electric Power Technology Certification, Electrical, Industrial Electrical Technology Certification, Petroleum Technology, Welding
Lee	Electrical Technology, Pipefitting Technology, Welding Technology
Lone Star	See Houston section (page 67)
Midland	Air Conditioning, Heating and Refrigeration Technology, Electrical Apprentice Training
North Central Texas	Bowie: Drafting; Corinth: Drafting; Gainesville: Drafting, Electrical, Heating, Ventilation and Air Conditioning, Horticulture, Plumbing, Refrigeration, Welding
Northeast Texas	Building Analyst Certificate
Odessa	Air Conditioning and Maintenance Technology, Building Construction Technology, Drafting Technology, Electrician, Refrigeration, Welding
Panola	Commercial Refrigeration, Petroleum Industry, Welding
San Jacinto	Automotive Technology, Diesel Technology, Electrical Technology, Heating, Ventilation and Air Conditioning, Welding
South Texas	Automotive Technology, Electricity, International Building Codes, Refrigeration, Welding
Tarrant County	See Dallas/Fort Worth section (page 64)
Texas State Technical College	See below (page 57)
Trinity Valley	Drafting, Electrical, Horticulture (Greenhouse Management, Master Gardener), Welding
Tyler	Air Conditioning, Building Trades, Drafting, Landscaping, Welding
(The) Victoria	Construction, Electrical, Heating, Ventilation and Air Conditioning/ Refrigeration
Wharton County	Auto Computer-Aided Design

Texas State Technical College

Texas State Technical College (TSTC) is an independent, state-supported technical college system that offers certificates and Associate of Applied Science degrees in technical-vocational subjects. TSTC also provides technical education and training to business and industry and community and state economic development initiatives and continuing education. TSTC includes four colleges (TSTC Harlingen, TSTC Marshall, TSTC Waco and TSTC West Texas, which has campuses in Abilene, Breckenridge, Brownwood and Sweetwater). The table below includes course and continuing education offerings in green economy fields.

Degree Programs	**Harlingen**	Agricultural Technology
		Automotive Technology
		Chemical/ Environmental Technology
		Drafting and Design
		Mechatronics
	Marshall	Combination Welding
		Computer-Aided Drafting
		Diesel Equipment Technology
		Diesel Engine Repair
		Electric Utility Construction and Maintenance
		Environmental Health and Safety
		Industrial Electrical Technician
		Industrial Maintenance Mechanic
		Industrial Mechatronics Technician
		Introduction to Industrial Technology
		Introduction to Industrial Maintenance
		Mechatronics
	Waco	Automotive Technology
		Building Construction Technology

	Waco	Chemical/ Environmental Laboratory Technology	
		Diesel Equipment Technology	
		Drafting and Design	
		Electrical Power and Control	Solar Energy Technology
		Geospatial Technology	
		Golf Course and Landscape Management	
		Industrial Systems and Engineering Technology	
		Mechanical Engineering Technology	
		Welding Technology	
	West Texas	Abilene	Computer-Aided Drafting and Design
		Breckenridge	Construction Management Technology
			Environmental Science Technology
			Environmental Technology
		Brownwood	Computer-Aided Drafting and Design
			Mechatronics
			Welding Technology
		Sweetwater	Agricultural Technology
			Applied Engineering Technology
			Automotive Technology
			Diesel Technology
			Wind Energy Technology
Continuing Education	**Harlingen**	Building Trades	
	Marshall	Air Conditioning	
		Computer-Aided Design	
		Diesel	

	Waco	Electrical
		Environmental Health, Safety and Quality
		Welding
		National Electric Code
		Oil and Gas

Austin

The Austin-Round Rock metro area consists of five counties, and is the 38th largest metro area in the U.S. In 2007, the Austin Chamber of Commerce released its five-year economic development plan, Opportunity Austin 2.0, for the Austin metro area. The plan specifically noted the priority of attracting green businesses to the area, such as manufacturers of solar panels, fuel cells, wind turbines and electric cars. To further this, in 2009, the Austin Chamber began to coordinate with local communities to improve green job education and training. Also in 2009, Austin required point-of-sale and point-of-lease home and commercial energy audits, which created an immediate need for trained professional home auditors. Austin Energy, the city's municipally-owned utility, has been named the top "green" utility in the U.S. by the National Renewable Energy Lab for six straight years, and Austin ranked 13th on the U.S. Environmental Protection Agency's list of the top 25 cities with Energy Star-qualified buildings. The Austin area has several initiatives underway to improve the green economy in the region, including:

- Austin Climate Protection Program
- Pecan Street Project—to design the energy system of the future, including a smart grid system and water conservation measures, using Austin as a clean energy laboratory
- University of Texas at Austin projects: The Center for Commercialization of Electric Technologies and the Clean Energy Incubator
- Texas Foundation for Innovative Communities—founded in conjunction with the Texas Clean Energy Park to attract green jobs to the region

Austin is the home to many high-tech companies as well as the University of Texas and the headquarters for state government.

Workforce information, assistance and training are available at the following:

City employment websites	City of Austin jobs http://www.ci.austin.tx.us/hr/default.htm
	City of Round Rock jobs http://www.roundrocktexas.gov/jobs/
County employment websites	Travis County jobs http://www.co.travis.tx.us/human_resources/jobs/
	Williamson County jobs http://www.wilco.org/CountyDepartments/HumanResources/tabid/456/Default.aspx
	Bastrop County jobs http://www.co.bastrop.tx.us/ips/cms/jobs.html
	Caldwell County jobs http://www.co.caldwell.tx.us/ips/cms/jobs.html
	Hays County Jobs http://www.co.hays.tx.us/Departments/HumanResources/CareerOpportunities/tabid/65/Default.aspx
State employment websites	Texas Workforce Commission http://www.twc.state.tx.us
	http://www.WorkinTexas.com
	Workforce Solutions – Capital Area Workforce Board http://www.wfscapitalarea.com/
Union websites	Austin Electrical JATC (International Brotherhood of Electric Workers) http://www.ibew520.org
	Sheet Metal Workers Local 67 http://smw67.org
Other employment resources	American YouthWorks http://www.americanyouthworks.org
	Austin Area Urban League http://www.aaul.org
	Skillpoint Alliance http://www.skillpointalliance.org/
	Digital Workplace Academy http://www.dwacademy.org/
	Cool Austin Jobs http://www.coolaustinjobs.com

Austin Community College (ACC) consists of seven campuses, with an eighth opening in 2010. It has over 40,000 credit students. ACC has taken a leadership role in training students for the green economy, especially for the solar energy industry. In 2009, ACC joined with other regional higher education institutions to share green sector curricula and faculty development resources. The table below shows the relevant green job course offerings at ACC. For the most recent course information, contact ACC directly.

AUSTIN COMMUNITY COLLEGE

Degree Programs	Electronics & Advanced Technologies – Renewable Energy Specialization
	Building Construction Technology
	Management (sustainable/green business)
	Automotive Technology (hybrid auto technology) – in development
	Heating, Air Conditioning and Refrigeration Technology
	Geographic Information Systems (GIS)
	Environmental Technology
	Welding Technology
	Land Surveying and Geomatics
Continuing Education	Solar Electric Systems
	Advanced Solar Photovoltaic Installer
	Solar Thermal Systems
	Energy Conservation – Energy Efficiency Inspector
	Problem Solving for PV System Design and Installation
	Working Safely with Photovoltaic and Solar Hot Water Systems
	Incentives for Solar Energy Systems
	Mounting Practices for Solar Energy Systems
	Distributed Energy Systems
	Wind Power Delivery System
	Weatherization – in development

Dallas/Fort Worth

The Dallas/Fort Worth Metroplex consists of 12 counties and is the ninth largest metropolitan area in the U.S. The City of Dallas has recently begun to increase its efforts to encourage the purchase of hybrid vehicles and renewable energy resources. Currently, the City is already 12th among U.S. renewable energy purchasers. In October 2009, the new Dallas green building code went into effect (full implementation in 2011). The Metroplex already ranks high in energy efficient buildings, placing 5th on the U.S. Environmental Protection Agency's list of the top 25 cities with Energy Star-qualified buildings. The Dallas Area Rapid Transit (DART) rail line is expected to undergo expansion, and a voluntary public-private partnership has further initiatives to limit sprawl and increase green space across 16 North Texas communities. Other area cities are undertaking initiatives that could lead to more green jobs, such as the City of Fort Worth's Sustainability Action Plan, which is in process. Furthermore, Oncor, the major transmission and distribution utility for the region, has several energy efficiency programs, which will likely expand in the future. The Dallas/Fort Worth area is classified as a moderate nonattainment area, for failing to meet the federal ambient air quality standard for ground-level ozone, which could lead to innovation in new technologies for monitoring and reducing air quality.

The Dallas/Fort Worth Metroplex is a center of business and commerce, and several companies have an interest in the green economy, such as Westinghouse Solar Light Company, Honeywell and Nexant, among others.

Workforce information, assistance and training are available at the following:

City employment websites	City of Dallas jobs http://agency.governmentjobs.com/dallas/default.cfm
	City of Fort Worth jobs https://www.fortworthgov.org/hrappl/Job_Listing.asp
	City of Arlington jobs http://www.ci.arlington.tx.us/employment/erecruiting.html
County employment websites	Collin County jobs http://www.co.collin.tx.us/human_resources/careers.jsp
	Dallas County jobs http://www.dallascounty.org/department/HR/employment.html
	Delta County jobs http://www.co.delta.tx.us/ips/cms/jobs.html
	Denton County jobs http://dentoncounty.com/dept/main.asp?Dept=44&Link=131
	Ellis County jobs http://www.co.ellis.tx.us/Jobs.aspx
	Johnson County jobs http://www.johnsoncountytx.org/departments/personnel/careers/
	Parker County jobs http://www.co.parker.tx.us/ips/cms/jobs.html
	Rockwall County Jobs http://www.rockwallcountytexas.com/jobs.aspx
	Tarrant County Jobs http://www.tarrantcounty.com/ehr/cwp/browse.asp?a=742
State employment websites	Texas Workforce Commission http://www.twc.state.tx.us
	http://www.WorkinTexas.com
	Workforce Solutions – Greater Dallas Workforce Board http://www.wfsdallas.com/WSMain.shtml
	Workforce Solutions – North Central Texas Workforce Board http://www.dfwjobs.com/index.asp
Union websites	International Brotherhood of Electrical Workers Local 69 (Dallas – utility and broadcasting) http://www.ibewlocal69.com/
	International Brotherhood of Electrical Workers Local 20 (Dallas/Fort Worth) http://www.ibew20.org/
	International Brotherhood of Electrical Workers Local 220 (Arlington) http://www.ibewlu220.com/
Other employment resources	Urban League Greater Dallas and North Central Texas http://www.ulgdnctx.com/
	Dallas Jobing http://dallas.jobing.com/

The Dallas County Community College District (DCCCD) consists of seven colleges with over 69,000 credit students and 25,000 continuing education students. DCCCD has taken a leadership role in the state for technical education and training in energy efficiency fields. In 2009, DCCCD joined with other regional higher education institutions to share green sector curricula and faculty development resources. The following table shows the relevant green jobs course offerings at DCCCD. For the most recent course information, contact DCCCD or the individual college directly.

DALLAS COUNTY COMMUNITY COLLEGE DISTRICT

Degree Programs	**All colleges**	Wind Technician/TSTC partnership
	Brookhaven	Automotive Technology
		Geographic Information Systems (GIS)
	Cedar Valley	Residential Building Rater
		Heating, Ventilation and Air Conditioning
		Automotive
		Commercial Building Energy Performance
	Eastfield	Solar Technician
		PV Wind Technician
		Heating, Ventilation and Air Conditioning
		Automotive
	El Centro	Welding
		Water Conservation – in development
	Mountain View	Welding
	Northlake	Construction Management
	Richland	Environmental System Technology
		Energy Management
		Engineering
Continuing Education	**All Colleges**	Lean Manufacturing for Sustainability Processing
	Cedar Valley	Energy Efficiency
		Heating, Ventilation and Air Conditioning
		LEED Certification
		Weatherization
		Retrofitting
	Eastfield	Heating, Ventilation and Air Conditioning
	Northlake	LEED Certification
		Plumbing/Pipefitting

In addition to DCCCD, the Dallas/Fort Worth Metroplex is also home to Collin County Community College District (CCCCD) and Tarrant County College District (TCCD). CCCCD serves about 45,000 credit and continuing education students and TCCD has over 44,000 students. The tables below include relevant green jobs course offerings at these two institutions.

COLLIN COUNTY COMMUNITY COLLEGE DISTRICT

Degree Programs	**Preston Ridge**	Engineering
		Biotechnology
		Computer-Aided Drafting & Design
		Environmental Science
		Interior and Architectural Design – Green Interior and Architectural Design Specialization
	Spring Creek	Biotechnology
	Central Park	Environmental Science
Continuing Education	Green Home Renovation	
	Retrofitting: Introduction to Home Energy Systems	
	Using Green Textiles in Interior Design	
	Green Cleaning Practices	
	Renewable Water Design	
	Environmentally Safe Waste Management	
	Green Marketing	
	Sustainable Landscape Practices	
	Landscaping with Native Plants	
	Basic Electrical Technology for Renewable Energy	

TARRANT COUNTY COLLEGE DISTRICT

Degree Programs	**Northwest**	Environmental Lab Technician	
		Horticulture	
	South	Automotive	
		Computer-Aided Drafting	
		Engineering (Transfer)	
		Heating, Air Conditioning & Refrigeration	
		Welding Technology	
	Southeast	Architecture	Advanced Architectural Skills Enhancement – Green Building Performance
			Construction Management
			Engineering (Transfer)
			Geographic Information Systems (GIS)
Continuing Education	Automotive Technology		
	Carpentry		
	Drafting		
	Welding Technician		

Houston

The Houston metro area consists of 10 counties and is the 10th largest metropolitan area in the U.S. The City of Houston has instituted a comprehensive set of initiatives aimed at making it more sustainable. The U.S. Environmental Protection Agency ranks the City as the number one municipality purchasing renewable energy. In October 2009, the new Houston residential energy efficient building code went into effect, and it requires a 15 percent increase in energy efficiency over the most recent building code. The City already ranks high in energy efficient buildings, placing 3rd on the EPA's list of the top 25 cities with Energy Star-qualified buildings. Houston is also a U.S. Department of Energy Solar City, which has led to initiatives such as establishing solar neighborhood programs, workforce development at Houston Community College, and solar demonstration sites throughout the City. Other City initiatives include green building for City and commercial buildings, efficient street lighting, hybrid vehicles for the City fleet, and waste and water management. Furthermore, CenterPoint Energy, the major transmission and distribution utility for the region, has several energy efficiency programs, which will likely increase in the future. The Houston area is classified as a severe nonattainment area, for failing to meet the federal ambient air quality standard for ground-level ozone, which could lead to innovation in new technologies for monitoring and reducing air quality.

The Houston metro area is a major U.S. energy center, producing large amounts of petrochemicals and refined products, as well as the location of a major international port. In addition to these sectors, Houston is home to a large number of hospitals and medical research facilities, many of which have joined together to form a sustainability coalition.

Workforce information, assistance and training are available at the following:

City employment websites	City of Houston jobs http://www.houstontx.gov/jobs/
	City of Galveston jobs http://www.cityofgalveston.org/administration/job_openings.cfm
	City of Sugar Land jobs http://www.sugarlandtx.gov/careers/index.asp
	City of Baytown jobs http://www.baytown.org/careers/jobs/default.htm
County employment websites	Harris County jobs http://www.co.harris.tx.us/HRRM/employment.aspx
	Austin County jobs http://www.austincounty.com/ips/cms/jobs.html
	Brazoria County jobs http://www.brazoria-county.com/hr/jobs/index.htm
	Chambers County jobs http://www.co.chambers.tx.us/employment.html
	Fort Bend County jobs http://www.co.fort-bend.tx.us/getSitePage.asp?sitePage=5796
	Galveston County jobs http://www.co.galveston.tx.us/HR/Positions.htm
	Liberty County jobs http://www.co.liberty.tx.us/ips/cms/jobs.html
	Montgomery County jobs http://www.co.montgomery.tx.us/jobs/index.asp
	San Jacinto County jobs http://www.co.san-jacinto.tx.us/ips/cms/jobs.html
	Waller County jobs http://www.co.waller.tx.us/ips/cms/jobs.html

Houston Workforce information, continued

State employment websites	Texas Workforce Commission http://www.twc.state.tx.us
	http://www.WorkinTexas.com
	Workforce Solutions – Houston-Galveston Workforce Board http://www.wrksolutions.com/
Union websites	International Brotherhood of Electrical Workers Local 66 (Pasadena) http://www.ibew66.org/
	International Brotherhood of Electrical Workers Local 20 (Dallas/Fort Worth) http://www.ibew20.org/
	International Brotherhood of Electrical Workers Local 716 (Houston) http://ibew716.net/
Other employment resources	Houston Area Urban League http://www.haul.org/
	HoustonWorks USA http://www.houstonworks.org/
	Houston Jobing http://houston.jobing.com/
	Houston Jobs http://www.houstonjobs.com/

Houston Community College System (HCCS) consists of five colleges and has over 57,000 credit and continuing education students. The table below shows relevant green jobs course offerings at HCCS. For the most recent course information, contact HCCS or the individual college directly.

HOUSTON COMMUNITY COLLEGE SYSTEM

Degree Programs	**Central College**	Geology/Environmental Science
		Engineering
		Construction Technology
		Industrial Electricity
		Heating, Air Conditioning and Refrigeration
		Welding Technology
	Northeast College	Automotive Technology
		Diesel Engine Mechanic and Repairer
		Drafting and Design Engineering Technology
		Geology/Environmental Science
		Instrumentation and Controls Engineering Technology
		Petroleum Engineering
	Northwest College	Drafting and Design Engineering Technology
		Drafting and Design Engineering Technology
	Southwest College	Drafting and Design Engineering Technology
		Geographic Information Systems (GIS)
Continuing Education	Air Conditioning, Bilingual	
	Heating, Ventilation and Air Conditioning Technician	
	Residential Wiring, Bilingual	
	Water Quality and Wastewater Treatment Certification	

Houston information, continued

The Lone Star College System (LSCS) also serves the Houston area. It consists of five campuses and has almost 60,000 students enrolled in their programs. The table below includes the relevant green jobs course offerings at LSCS.

LONE STAR COLLEGE SYSTEM

Degree Programs	All Colleges	Engineering
	CyFair	Architecture
		Engineering Design Graphics Technology
		Geographic Information Systems (GIS)
		Industrial Technology
		Welding Technology
	Kingwood	Architecture
		Facilities Management
		Interior Design
	Montgomery	Architecture
		Automotive Technology
		Land Surveyor
	North Harris	Architecture
		Automotive Technology
		Engineering Design Graphics Technology
		Heating, Ventilation, Air Conditioning and Refrigeration Technology
		Welding Technology
	Tomball	Electrician
		Engineering Design Graphics Technology
Continuing Education	All Colleges	Welding Technology
	CyFair	Construction Management
	Montgomery	Automotive Technology
		Diesel Technology
		Heating, Ventilation, Air Conditioning and Refrigeration
		Land Surveyor
		Real Estate Inspection
	North Harris	Architectural Drafting
		Automotive Technology
		Construction Management
		Diesel Technology
	Tomball	Alternative Energy
		Electrician
		Real Estate Inspection

San Antonio

The San Antonio-New Braunfels metro area consists of eight counties and is the 30th largest metropolitan area in the U.S. In 2009, San Antonio's mayor announced Mission Verde, a plan to create a 21st century economy with an emphasis on green jobs, centered on energy efficiency and renewable energy investments. Mission Verde includes large-scale weatherization and retrofit programs for residences and city buildings, renewable energy generation and storage, high-performance building codes, a multi-tech venture capital fund to attract and support new technology industries to the city, increased utility energy efficiency programs, and a green jobs program. San Antonio is also a U.S. Department of Energy Solar America City, which has led to a plan to reduce barriers to the commercialization of solar and other renewable energy technologies and to make the city a leader in distributed energy. Water management and conservation are critical components of San Antonio's environmental policies, as much of the region relies solely on the Edwards Aquifer for drinking water. Mission Verde has placed an emphasis on creating green jobs relating to water conservation, including water auditors, landscape, arborist and irrigation workers, and wastewater recycling and treatment operators.

The San Antonio metro area is the tourism capital of the state and a major center of military and related industries.

Workforce information, assistance and training are available at the following:

City employment websites	City of San Antonio jobs http://www.sanantonio.gov/hr/
	City of New Braunfels jobs http://www.nbtexas.org/jobs.aspx
County employment websites	Bexar County jobs http://www.co.bexar.tx.us/PRM/Apply.html
	Comal County jobs http://www.co.comal.tx.us/HR.htm
	Guadalupe County jobs http://www.co.guadalupe.tx.us/countyjobs.htm
	Kendall County jobs http://www.co.kendall.tx.us/county-info/careers
	Wilson County jobs http://www.co.wilson.tx.us/ips/cms/jobs.html
State employment websites	Texas Workforce Commission http://www.twc.state.tx.us
	http://www.WorkinTexas.com
	Workforce Solutions – Alamo Workforce Board http://www.alamoworksource.org/
Union websites	International Brotherhood of Electrical Workers Local 60 http://www.ibewlu60.org/
Other employment resources	JobsinSanAntonio http://jobsinsanantonio.org/
	LatPro Network San Antonio http://network.latpro.com/group/sanantonio
	San Antonio Jobing http://sanantonio.jobing.com/
	Houston Jobs http://www.houstonjobs.com/

San Antonio information, continued

The Alamo Community College District (ACCD) consists of five colleges and has approximately 100,000 credit and continuing education students. ACCD has taken a leadership role among community colleges in the state for technical education and training in water and landscape management. In 2009, ACCD joined with other regional higher education institutions to share green sector curricula and faculty development resources. The table below shows the relevant green jobs course offerings at ACCD. For the most recent course information, contact ACCD or the individual college directly.

ALAMO COLLEGES

Degree Programs	**Northwest Vista**	Engineering	
	Palo Alto	Agriculture	
		Engineering	
		Environmental Studies	
		Landscape and Horticultural Science	Small/Organic Farming certificate
	San Antonio	Architecture	
		Engineering	
		Geographic Information Systems (GIS)	
		Computer-Aided Drafting	
		Occupational Safety and Health Technology	
	St Philip's	Air Conditioning and Heating	
		Automotive Technology	
		Building Trades	
		Computer-Aided Drafting (Architectural)	
		Diesel/Light to Heavy Truck Technology	
		Earth Sciences and Natural Energy Resources	
		Electrical Trades	
		Environmental Science	
		Home Building Technology	
		Plumbing Trades	
		Power Generation and Alternative Energy	
		Pre-Engineering	
		Refrigeration Technology	
		Welder/Welding Technologist	
Continuing Education	**Northwest Vista**	Advanced Water Treatment	

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