South Dakota

Energy

Career Pathways

Great Jobs in ENERGY!

Have you ever considered a job in the Energy Industry?

There are great reasons why you should.

MTI Mitchell Technical Institute

Energy Career Pathways

Energy transmission and distribution are essential to our way of life – from the generation of electricity or gas products to the maintenance of power lines, propane tanks or gas lines near our homes. Every point along this path requires someone to construct or maintain it – this means jobs now AND in the future. In fact, there is an increasing need to fill these positions as large numbers of "baby-boomers" are retiring soon, and, since almost every community in the United States has a similar infrastructure, the need is evident in most parts of the country. Salaries are great and demand is high: take a look!

The pictograph shows where different types of skilled technicians are needed.

- Power Line Technician
- Electrical Substation Technician
- Wind Turbine Technician
- Natural Gas Technician
- Propane Service Technician
- Propane Delivery Representative
- Industrial Maintenance Technician

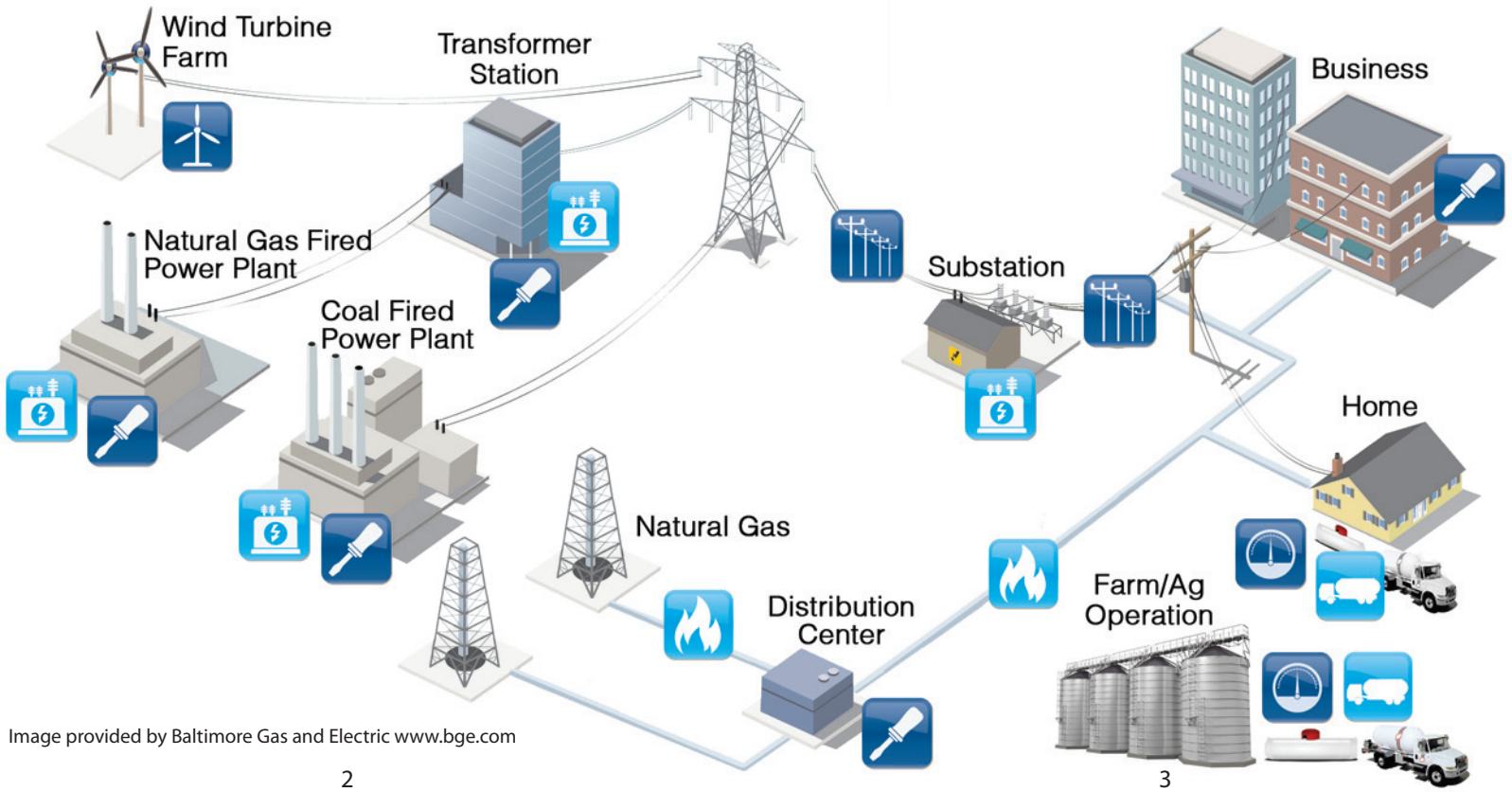

Image provided by Baltimore Gas and Electric www.bge.com

Advantages to Technical Careers in the Energy Fields

- Excellent salaries
- High job placement; huge industry need in most fields
- Find job opportunities in your desired location
- Hands-on outdoor work
- Life-long careers serving your community
- Only 1 or 2 years training required; lower cost and less loan debt than a four-year college experience

Energy Career Programs at Mitchell Technical Institute

- Power Line Construction & Maintenance
- Electrical Utilities & Substation Technology
- Wind Turbine Technology
- Propane & Natural Gas Technology
- Industrial Maintenance Technology

Power Line Technician

Power Line Technicians (also known as lineworkers, line installers, or line technicians) install and repair overhead and underground power cables. They also maintain and install other critical transmission and distribution equipment that help power homes, businesses, hospitals, schools and other structures requiring power.

Required Skills

- Install necessary equipment on poles
- Climb poles or use truck-mounted buckets to reach equipment
- Identify defective devises such as fuses, switches, breakers, and wires
- Practice safety and proper use of safety equipment; poles and towers carry high voltage electricity
- Inspect and test power lines and other equipment using special testing devices
- Install underground cables

Power Line Technicians also need to:

- Show a good-natured, cooperative attitude
- Work well with others
- Listen to and understand customer needs and how to meet them
- Be able to be on their feet for long periods of time
- Be comfortable at heights or working outdoors in extreme weather

Testing and Certificates/Licenses

MTI offers a 9-month Power Line Construction and Maintenance Certification. As part of that program, the student will also acquire the Qualified Climber Certification, Pole Top Rescue Certification, and Competent Person Certification. Also required for the program are a Commercial Driver's License and OSHA 10 Construction Safety. Pre-employment testing is typically required. Many companies require a passing score on industry exams before being considered for employment. Some companies have an apprenticeship program policy.

SD Job Projections & Wages

SD Depart of Labor & Regulations Job Title	2010 Workers	Average Annual Demand	2020 Projections	% Job Growth 2020	2014 Median Wage
Electrical Power Line Installers and Repairers	825	38	915	10.90	$31.97/hr

From SD DLR Labor Market Information Center

The Future of Power Line Work

The future of linework is in Smart Grid Technology. The "Smart Grid" consists of devices connected to transmission and distribution lines that allow utilities and customers to receive digital information and communicate with the grid. These devices allow a utility to determine where an outage or other problem is on the line and even fix the problem in some circumstances.*

Want to learn more? Check out Mitchell Technical Institute. **www.mitchelltech.edu/programs**

* U.S. Energy Information Administration

Electrical Substation Technician

Technicians do a lot of hands-on work, including installing equipment, monitoring equipment performance, troubleshooting and repairing equipment. Overall, they are in charge of making sure machines, mechanical equipment, and buildings inside a power plant, switch yard or substation are working properly and are in good condition.

Mitchell Technical Institute Substation students install new equipment at the campus training field.

Required Skills

- Inspect things like motors and belts, fluid levels, and filters
- Take apart electrical equipment, then repair and replace parts using hand or power tools including hammers, saws drills, wrenches, and testing equipment, as well as hoists and cranes
- Use repair manuals and schematics to determine and fix problems
- Keep proper logs of work progress and completion
- Perform preventive maintenance on electrical and mechanical equipment, including inspections and testing, installation of new wiring, electrical components, and machinery and equipment
- Practice safety consciousness; mechanical and electrical equipment can be very dangerous.

Electrical Substation Technicians also need to:

- Be good listeners
- Be curious about how things work
- Solve problems and not be afraid to ask questions
- Concentrate for a long period of time without being distracted
- Know how to manage their time
- Be able to stand and kneel in small and/or high places

Testing and Certificates/Licenses

MTI's Electrical Utilities & Substation AAS degree is offered as the second year of several other programs, including Power Line and Electrical Construction & Maintenance (MTI or non-MTI certifications). Pre-employment testing is typically required. Many companies require a passing score on the industry exams before the technician is considered for employment. A Commercial Driver's License (CDL) may also be needed, and some companies have an apprenticeship program policy.

Average Annual Salary and Outlook

SD Department of Labor and Regulations Job Title	2014 workers	2014 Median wage
49-2095 Electrical & Electronics Repairers, Power, Substation, and Relay	60	$38.25/hr

From SD DLR Labor Market Information Center

The Future of Electrical Substation Work

The future of technician work is summed up in one word: technology. The technology used in power stations, substation, the smart grid, and other energy infrastructure is constantly advancing within a technician's scope of work. It is essential for technicians to keep their skills sharp in the field to be an integral part of all that is happening in the energy industry!

Want to learn more? Check out Mitchell Technical Institute. **www.mitchelltech.edu/programs**

Wind Turbine Technician

Wind turbine service technicians, also known as wind techs, install, maintain, and repair wind turbines. Wind turbine service technicians generally work outdoors, often at great heights. When doing maintenance, working in confined spaces is common. Although most work full time during regular business hours, some may be on call to handle emergencies during evenings and weekends.

Required Skills

- Inspect things like motors, fluid levels, and filters
- Take apart machines, then repair and replace parts using hand or power tools including hammers, saws drills, wrenches, and measuring instruments, as well as hoists and cranes
- Use repair manuals and schematics to determine and fix problems
- Keep proper logs of work progress and completion
- Do preventive maintenance on machines, mechanical equipment, and buildings, including inspections and testing, installation of new wiring, electrical components, piping and plumbing and machinery and equipment
- Practice safety consciousness: tremendous heights, and mechanical and electrical equipment can be very dangerous.

Wind Turbine Technicians also need to:

- Be good listeners
- Be curious about how things work
- Solve problems and not be afraid to ask questions
- Concentrate for a long period of time without being distracted
- Know how to manage their time
- Be able to stand and kneel in small and/or high places

Testing and Certificates/Licenses

MTI offers a two year AAS Degree in Wind Turbine Technology. As part of the program, students will acquire tower climbing, OSHA Safety and First Aid/ CPR certifications. Pre-employment testing is typically required. Many companies require a passing score on the industry exams before the technician is considered for employment. A Commercial Driver's License (CDL) may also be needed, and some companies have an apprenticeship program policy.

Average Annual Salary and Outlook

The median annual wage for wind turbine service technicians was $45,970 with a projected 24% growth rate in employment opportunities.

From May 2012 Bureau of Labor Statistics Occupational Outlook Handbook (http://www.bls.gov/ooh/installation-maintenance-and-repair/wind-turbine-technicians.htm)

The Future of Wind Turbine Work

The American Wind Energy Association (AWEA) states that installed wind energy capacity in the United States was under 3,000 megawatts in 2000. In 2010, it was over 35,000 megawatts, enough electricity to power approximately 9.7 million homes. A typical 250 MW wind farm (around 100 turbines) will create 1,073 jobs over the lifetime of the project. The Department of Energy predicts a potential of 200-265,000 new jobs by 2030.

http://www.bls.gov/green/wind_energy/
http://www.nrdc.org/energy/renewables/wind.asp
http://www.energy.gov/windvision

Want to learn more? Check out Mitchell Technical Institute.
www.mitchelltech.edu/programs

Natural Gas Technician

Natural Gas Technicians lay and maintain pipe for gas distribution, and are essential for the smooth operation of both electric and gas utilities.

Required Skills

- Follow the directions of others or written instructions to lay out pipe routes
- Cut pipes to required size, position them, and use fusion or mechanical technologies for coupling
- Cover pipes with earth or other materials
- Find and repair or replace pipes using special magnetic or radio indicators
- Use GIS/GPS technologies to locate and/or designate a project or repair (operational surveys)
- Test, service and install meters and regulators, odorization, meter and regulation, tapping, fitting and equipment operation
- Respond to, locate, and repair gas leaks, including emergencies, and cathodic protections
- Work professionally and courteously with customers
- Be safe and use safety equipment

Natural Gas Technicians also need to:

- Work with little or no supervision
- Be patient and willing to stick it out when things go wrong
- Solve problems
- Enjoy working outdoors in all weather conditions
- Know how to manage their time
- Listen and understand customer needs and how to meet them

Testing and Certificates/Licenses

MTI offers a one year diploma in Propane and Natural Gas Technologies. As part of the program, six industry certifications are required, as well as OSHA Safety and Commercial Driver's License (CDL) certifications. Pre-employment testing is typically required. Many companies require a passing score on the industry exams before the technician is considered for employment. Some companies have an apprenticeship program policy.

Average Annual Salary and Outlook

Surveys by the Center for Energy Workforce Development (CEWD) of the natural gas industry shows that average salaries for Natural Gas Service Technicians with several years' experience is $51,000.

http://www.cewd.org/roadmap/natural_gas_service_technicians-student.html

The Future of Natural Gas Tech Work

As new power plants and energy technologies are developed, skilled Natural Gas Technicians will be critical to integrate, install, and maintain these technologies to help generate and transmit tomorrow's power supply. Due to its efficiency, cleanliness, and reliability, natural gas is growing in popularity. The American Gas Association (AGA) states most of the growth in natural gas demand comes from electricity generators, who have turned to natural gas because it is the cleanest burning fossil fuel and highly efficient. More natural gas means more jobs.

Want to learn more? Check out Mitchell Technical Institute. **www.mitchelltech.edu/programs**

Propane Service Technician

Propane Service Technicians are responsible for delivering, installing and removing large propane tanks at permanent or temporary locations. A service tech drives a flatbed truck with a crane and boom to deliver tanks.

Required Skills

- Follow the directions of others or written instructions to lay out pipe routes
- Drive a flatbed delivery truck with crane and boom into a large variety of locations
- Use a crane and boom safely
- Respond to, locate, and repair gas leaks, including emergencies
- Operate a trencher to run gas lines
- Assist with sanding, painting, and upkeep of tanks
- Work professionally and courteously with customers
- Be safe and use safety equipment.

Propane Service Techs also need to:

- Work with little or no supervision
- Be patient and willing to stick it out when things go wrong
- Solve problems and not be afraid to ask questions
- Enjoy working outdoors in all weather conditions
- Know how to manage their time
- Listen and understand customer needs and how to meet them.

Testing and Certificates/Licenses

MTI offers a one year diploma in Propane and Natural Gas Technologies. As part of the program, six industry certifications are required, as well as OSHA Safety and Commercial Driver's License (CDL) certifications. Pre-employment testing is typically required. Many companies require a passing score on the industry exams before the technician is considered for employment. Some companies have an apprenticeship program policy.

Average Annual Salary and Outlook

Field Service Technicians in general have an average wage of $18.94. The skills that increase pay for this job the most are Programmable Logic Controllers (PLC)/Automation and Industrial Hydraulics.

From: http://www.payscale.com/research/US/Job=Field_Service_Technician/Hourly_Rate

The Future of Propane Service Tech Work

The annual Hays Oil and Gas Salary Guide conducted for 2013 reported that skill shortages are at the top of the list of concerns for employers in the oil and gas industry. 37% of employers reported skills shortages as their top concern. That is good news for job seekers.

http://www.hays.com/cs/groups/hays_common/@og/@content/documents/promotionalcontent/hays_1204734.pdf

Want to learn more? Check out Mitchell Technical Institute. **www.mitchelltech.edu/programs**

Propane Delivery Representative

A Delivery Representative is a key point of contact for customers. They are dedicated and responsible people who can excel in a fast paced work environment and possesses exceptional people skills.

Required Skills

- Follow the directions of others or written instructions to lay out pipe routes
- Possess good vision and driving record
- Drive a bobtail delivery truck into a large variety of locations
- Work professionally and courteously with customers
- Lift, push, pull, bend, and climb in and out of truck frequently throughout the day
- Be safe and use safety equipment.

Propane Delivery Reps also need to:

- Work with little or no supervision
- Be patient and willing to stick it out when things go wrong
- Solve problems and not be afraid to ask questions
- Enjoy working outdoors in all weather conditions
- Know how to manage time
- Listen and understand customer needs and how to meet them

Testing and Certificates/Licenses

MTI offers a one year diploma in Propane and Natural Gas Technologies. As part of the program, six industry certifications are required, as well as OSHA Safety and Commercial Driver's License (CDL) certifications. Pre-employment testing is typically required. Many companies require a passing score on the industry exams before the technician is considered for employment.

Average Annual Salary and Outlook

South Dakota average salary for a Propane Delivery Representative is around $32,000, with a national average of $40,000.*

The Future of Propane Delivery Work

The U.S. Bureau of Labor Statistics reports that driver jobs for tractor trailers and light trucks are expected to increase 21% and 15%, respectively, through the decade versus 14% for all occupations. The field for tractor trailer or long-haul drivers is wide open, as employers often have trouble filling these positions because of extensive travel and time spent away from families. Drivers who transport light trucks for route sales might face stiffer competition because these drivers cover mostly local territories.*

Want to learn more? Check out Mitchell Technical Institute. **www.mitchelltech.edu/programs**

*http://work.chron.com/much-propane-truck-driver-make-19300.html

Industrial Maintenance Technician

Today's complex and sophisticated buildings, power plants and factories require a highly-trained technical workforce to service and maintain facilities and equipment, control energy costs, and ensure facility quality for owners and clients. Industrial Maintenance Technicians ensure the operation of machinery and mechanical equipment by completing preventive maintenance requirements on engines, motors, pneumatic tools, conveyor systems, and production machines.

Required Skills

- Locate sources of problems by observing mechanical devices in operation and using precision measuring and testing instruments.
- Use technical maintenance skills in multiple areas (mechanical, robotics, electrical)
- Fabricate repair parts by using machine shop instrumentation and equipment
- Be proficient with a wide variety of equipment and tools
- Be safe and use safety equipment
- Ensure a clean, safe environment and follow all safety protocols such as Lock Out/Tag Out
- Demonstrate the ability to communicate industrial maintenance concepts effectively
- Prepare mechanical maintenance reports by collecting, analyzing, and summarizing information and trends
- Use computer technology within field of study
- Master competencies that lead to AWS Welding Certification.

Industrial Maintenance Technicians also need to:

- Work with little or no supervision
- Be patient and willing to stick it out when things go wrong
- Solve problems and not be afraid to ask questions
- Know how to manage time
- Listen and understand customer or employer needs and how to meet them

Testing and Certificates/Licenses

Mitchell Technical Institute offers a unique Industrial Maintenance Technology program (both one-year diploma and two-year AAS degree) that trains students in high-tech industrial skills areas: electrical fundamentals, industrial controls and troubleshooting; hydraulics, welding, mechanical drives, and heating and cooling technology. The second year of the program will expand on basic skills and will allow students to choose an emphasis in either Electrical or Heating and Cooling.

Average Annual Salary and Outlook

SD Department of Labor and Regulations Job Title	2014 Workers	2014 Median Wage
Installation Maintenance and Repair Workers All Other	140	$45,797
Maintenance and Repair Workers General	2,650	$34,547
Industrial Machinery Mechanics	870	$43,465
Maintenance Workers Machinery	60	$29,757

From SD DLR Labor Market Information Center

http://apps.sd.gov/ld54lmicinfo/wages/owlistpuba.asp

The Future of Industrial Maintenance Work

Graduates of this program will find opportunities in many areas like power plants, hospitals, schools, manufacturing, and distribution centers. Organizations which have relatively large facilities using complex HVAC, control or electrical systems either as a part of the facilities or as production equipment will benefit from the addition of an Industrial Maintenance technician to their staff.

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www.mitchelltech.edu/programs

Energy Programs at Mitchell Technical Institute

- Electrical Utilities & Substation Technology AAS Degree
- Power Line Construction & Maintenance Diploma
- Propane & Natural Gas Technologies Diploma
- Utilities Technology – Power Line
  (Combine Power Line Construction & Maintenance with Propane & Natural Gas Technologies for an AAS degree)
- Wind Turbine Technology AAS Degree
- Industrial Maintenance Technology Diploma & AAS Degree

The Stamp of Endorsement from the Center for Energy Workforce Development (CEWD) validates that these programs meet certain national standards in print reading, mathematics, basic electricity, safety, and hand and power tools.

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