



Energy and Utilities Industry Sector

Because the Energy and Utilities industry sector consists of many different companies and products, skills developed in one segment may be transferable to other segments. The career pathways in this sector emphasize real-world, occupationally relevant experiences of significant scope and depth. Students with skills in specific segments will be prepared to enter local, state, and national employment markets. This sector's career pathways provide career opportunities for persons with varying levels of experience and education, and the sector is forecast to experience significant growth in employment over the next decade, particularly in jobs related to water and sewage systems. In addition, production workers' earnings are significantly higher than those in most other industries.

The Electromechanical Installation and Maintenance pathway provides learning opportunities for students interested in working in production, installation, maintenance, and repair. In this pathway, students learn how to maintain and repair pipelines and power lines, operate and repair plant machinery, and monitor treatment processes. The Energy and Environmental Technology pathway provides learning experiences for students interested in energy production and environmental concerns including how to install, repair, and maintain power-generating stations, gas plants, water treatment plants, and wet-sewage treatment plants. The Public Utilities pathway provides opportunities for students interested in a variety of public utility industries, including but not limited to power plant operation, power distribution and dispatching, and operation of water treatment plants or wastewater plants. The Residential and Commercial Energy and Utilities pathway provides learning opportunities for obtaining, verifying, and maintaining primary financial data and records, including recording the usage of electricity, gas, water, and sewer utilities.

Entry Level Careers

(with high school diploma)

Cable Splicer
Meter Reader
Tower Technician
Solar Installer
Sewer Worker
Public Works Maintenance Worker
Waste Management Worker
Residential Energy Auditor

Technical Level Careers

(with AA or AS degree or certificate)

Heating & Air Conditioning Installer
Solar Technician
Industry Facilities Technician
Power Plant Technician
Utilities Operator
Wind Technician
Journeyman Lineman
Underground Inspector
Generation Dispatcher
Load Forecaster
Instrumentation Control Technician

Professional Level Careers

(with BS or BA degree)

HVAC Technician Engineer
Energy Analyst
Public Works Director
Environmental Engineer
Sustainability Engineer
Cell Scientist
Renewable Program Coordinator

Energy and Utilities Industry Sector Pathways:

- *Electromechanical Installation and Maintenance*
- *Energy and Environmental Technology*
- *Public Utilities*
- *Residential and Commercial Energy and Utilities*



Residential and Commercial Energy and Utilities Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Exploring Technology ▪ Technology Core 	<ul style="list-style-type: none"> ▪ Drafting ▪ Machining Facility ▪ Woods 	<ul style="list-style-type: none"> ▪ CAD/COM ▪ Construction ▪ HVAC Technician 	<ul style="list-style-type: none"> ▪ Electrical Helper ▪ Entertainment System Helper ▪ HVAC Worker ▪ Industrial Maintenance Worker ▪ Solar Helper 	<ul style="list-style-type: none"> ▪ Electrician/Technician ▪ Entertainment System Technician/Installer ▪ Facilities Technician ▪ Industrial Maintenance Technician /Worker ▪ Solar Technician 	<ul style="list-style-type: none"> ▪ Electrical Engineer ▪ Entertainment System Engineer ▪ Facilities/Maintenance Engineer ▪ Industrial Maintenance Engineer ▪ Solar Engineer

*Sample CTE Courses are from the Career Technical Education Framework for California Public Schools (California Department of Education: 2007, <http://www.cde.ca.gov/re/pn/fd/>)

**Visit ASSIST (www2.assist.org/browseAreas.do) for community college and UC/CSU information and California Career Zone (www.cacareerzone.org) for occupation information.

Related Career Technical Student Organization: SkillsUSA (<http://www.skillsusa.com>)

Additional Industry Sector information available through the California Industrial and Technology Education Consortium (<http://www.citeonline.org>).



Electromechanical Installation and Maintenance Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Exploring Technology ▪ Technology Core 	<ul style="list-style-type: none"> ▪ Drafting ▪ Computer Applications ▪ Consumer Electronics 	<ul style="list-style-type: none"> ▪ A Plus Certification ▪ CAD/CAM ▪ Technical Writing 	<ul style="list-style-type: none"> ▪ Appliance Worker ▪ Electrical Worker ▪ Electronic Equipment Worker ▪ Electronic Utility Worker ▪ Power Meter Reader 	<ul style="list-style-type: none"> ▪ Appliance Repair Technicians ▪ Electrical Technician ▪ Instrument Calibration Repairers ▪ Meter Installers/Repairers ▪ Utility Technicians 	<ul style="list-style-type: none"> ▪ Cabinetmaking Instructor+ ▪ Designer ▪ Meter Service Engineer+

Energy and Environmental Technology Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Exploring Technology ▪ Technology Core 	<ul style="list-style-type: none"> ▪ Consumer Electronics ▪ Machining ▪ Engine Repair and Maintenance 	<ul style="list-style-type: none"> ▪ Electronic Repair and Maintenance ▪ Electronics ▪ Metal Manufacturing 	<ul style="list-style-type: none"> ▪ Energy Management Worker ▪ Environmental Pollution Worker ▪ Industrial Facilities Worker ▪ Utilities Worker ▪ Waste Management Worker 	<ul style="list-style-type: none"> ▪ Energy Management Technician ▪ Environmental Pollution Technician ▪ Industrial Facilities Technician ▪ Utilities Technician ▪ Waste Management Technician 	<ul style="list-style-type: none"> ▪ Energy Management Engineer+ ▪ Environmental Pollution Engineer+ ▪ Industrial Facilities Engineer+ ▪ Utilities Engineer+ ▪ Waste Management Engineer+

Public Utilities Pathway

Sample CTE Courses*

Education Level and Related Occupations**

Introductory	Concentration	Capstone	High School Diploma	Certification and/or AA Degree	Bachelor's Degree or Higher
<ul style="list-style-type: none"> ▪ Exploring Technology ▪ Technology Core 	<ul style="list-style-type: none"> ▪ Consumer Electronics ▪ Machining ▪ Environmental Science 	<ul style="list-style-type: none"> ▪ Electronic Repair and Maintenance ▪ Hazardous Materials Management ▪ Metal Manufacturing 	<ul style="list-style-type: none"> ▪ Meter Reader ▪ Power Line Worker ▪ Facility Worker ▪ Waste Management Worker 	<ul style="list-style-type: none"> ▪ Meter Installer ▪ Power Line Technician ▪ Facility Technician ▪ Waste/Sewer Technician 	<ul style="list-style-type: none"> ▪ Meter Design Engineer+ ▪ Power Grid Engineer+ ▪ Facilities Design Engineer+ ▪ Sanitation Engineer+

*Sample CTE Courses are from the Career Technical Education Framework for California Public Schools (California Department of Education: 2007, <http://www.cde.ca.gov/re/pn/fd/>)

**Visit ASSIST (www2.assist.org/browseAreas.do) for community college and UC/CSU information and California Career Zone (www.cacareerzone.org) for occupation information.

+This occupation requires certification or licensure.

Related Career Technical Student Organization: SkillsUSA (<http://www.skillsusaca.com>)

Additional Industry Sector information available through the California Industrial and Technology Education Consortium (<http://www.citeonline.org>).