

Energy Career Cluster

The Energy career cluster prepares individuals for careers in the designing, processing, planning, maintaining, generating, transmission, and distribution of traditional and alternative energy. This career cluster includes occupations ranging from petroleum engineers, rotary drill operators, chemical technicians, and power plant operators to solar photovoltaic installers and wind turbine service technicians.

Statewide Program of Study: Renewable Energy

The Renewable Energy program of study focuses on occupational and educational opportunities associated with assembling, inspecting, maintaining, and repairing different equipment required for renewable energy. This program of study includes exploration of solar photovoltaic equipment and wind turbines and the systems and processes used to maintain and manage these types of equipment.



Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> Principles of Applied Engineering
Level 2	<ul style="list-style-type: none"> AC/DC Electronics
Level 3	<ul style="list-style-type: none"> Digital Electronics
Level 4	<ul style="list-style-type: none"> Applied Mathematics for Technical Professionals Practicum in Science, Technology, Engineering, and Mathematics

**Renewable Energy Program of Study available only at South Garland HS*

Aligned Advanced Academic Courses

AP or IB	<ul style="list-style-type: none"> AP Physics 1 IB Physics SL IB Physics HL
Dual Credit	Dual credit offerings will vary by local education agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Shadow a wind turbine service technician at a wind farm to learn about maintaining wind turbine equipment Intern at a solar power company and engage in planning for a solar roof installation in your community
Expanded Learning Opportunities	<ul style="list-style-type: none"> Tour a wind turbine or solar farm Participate in SkillsUSA

Aligned Industry-Based Certifications

- NCCER Electronic System Technician Level I
- NCCER Electronic System Technician Level II



Example Postsecondary Opportunities

Associate Degrees

- Electrical, Electronic, and Communications Engineering Technology/Technician
- Instrumentation Technology/Technician
- Energy Systems Technology/Technician
- Solar Energy Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Energy Systems Technology/Technician
- Mechanical/Mechanical Engineering Technology/Technician
- Electromechanical/Electromechanical Engineering Technology/Technician

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Construction Engineering
- Construction Management, General

Example Aligned Occupations

Electric and Electronic Engineering Technologists and Technicians

Median Wage: \$62,968
Annual Openings: 1,156
10-Year Growth: 14%

Wind Turbine Service Technicians

Median Wage: \$56,641
Annual Openings: 397
10-Year Growth: 102%

Electrical Engineers

Median Wage: \$102,534
Annual Openings: 1,271
10-Year Growth: 21%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>