ENERGY

Virginia’s 17th Career Cluster
WHY IS THE CREATION OF AN ENERGY CAREER CLUSTER IN VIRGINIA IMPORTANT?

- The Energy industry is a vital part of Virginia’s economy

- A 17th cluster introduces students to the industry, provides information on job opportunities needed to meet growing workforce demands and develops a talent pipeline for the Energy industry

- Adopting an energy career cluster will allow students to become interested in and aware of careers opportunities in the industry

- Courses and pathways in an Energy cluster will provide core skills which easily translate to industries such as architecture, construction, and manufacturing, increasing a student’s options for post-secondary education and career pathways
### Energy Career Cluster

**Energy & Power: Engineering & Design**
- Chemical Engineer
- Civil Engineer
- Electrical Engineer
- Electronics Engineer
- Environmental Engineer
- Industrial Engineer
- Materials Engineer
- Mechanical Engineer
- Nuclear Engineer
- Power Systems Engineer
- Designer
- Engineering Technician

**Energy & Power: Construction & Technology**
- Electrician
- Electrical Equipment Installer / Repairer
- Engineering Technician
- Instrumentation & Controls Technician
- Lineworker
- Maintenance Repairer / Technician
- Mechanic
- Millwright
- Pipefitter
- Pipeline Installer
- Pipelayer
- Power Plant & Nuclear Technician
- Solar & Renewable Energy Technician
- Substation & Relay Repairer / Technician
- Welder

**Energy & Power: Plant & Systems Operations**
- Electric Transmission & Distribution, Substation & Relay Operator
- Gas Compressor & Gas Pumping Station Operator
- Gas Plant Operator
- Nuclear Power Reactor Operator
- Power Plant Operator
ENERGY COURSES & PROGRAMS

Secondary Courses/ Programs

• Energy & Power (8448)
• Renewable Energy (8408)
• Sustainable & Renewable Technologies (8414)

Post Secondary Certificate & Degree Programs

Community College
• Energy Technology CSC, Central Virginia CC
• Energy Technology CSC, John Tyler CC
• Energy Technology CSC, Paul D. Camp CC
• Renewable Energy Technologies CSC, Tidewater CC
• Electrical Technology A.A.S degree, Tidewater CC
• Power Line Worker Training Program, Southside Virginia CC
• Power Line Worker Training, Wytheville CC

Undergraduate
• B.S. in Electrical and Computer Engineering, Center for Power and Energy, Virginia Tech
• Energy Engineering Interdisciplinary Minor, ODU
• B.S. in Mechanical Engineering Technology – Nuclear Systems, ODU (Only to graduates of the United States Navy Nuclear Power School or Nuclear Reactor Operator training at Dominion Energy)
• B.S. in Mechanical Engineering with a concentration in Nuclear Engineering, VCU
• B.S. in Mechanical Engineering with a Nuclear Engineering minor, Virginia Tech

Graduate
• Advanced Engineering Certificate in Energy Systems, ODU
• M.S. / Ph.D. in Electrical and Computer Engineering, Center for Power and Energy, Virginia Tech
• M.S. in Mechanical and Nuclear Engineering (online), VCU
• Ph.D. in Mechanical and Nuclear Engineering, VCU
• M.S. / M. Eng. Ph.D. Nuclear Engineering Program, Virginia Tech
Next Steps for Implementing an Energy Career Cluster in Virginia

- Understand state and regional workforce demand
  - Refer to NAICS / SOC codes in CEWD’s Workforce Demand Reports
  - Consider contractor demand (InfraSource, Pike, Team Fishel, etc.)

- Determine grade level Energy courses begin and necessary course sequencing
  - Example:
    - 11th grade - Energy & Power (8448)
    - 12th grade - Renewable Energy (8408) or Sustainable & Renewable Technologies (8414) … based on regional workforce demand (?)

- Recommend cluster and course alignment with state’s Energy plan and objectives

- May only need a Gas course and review / update of existing courses
  - Gas courses references may include CEWD, InfraSource, NCCER or other training courses
REFERENCES & RESOURCES

Virginia 17th Energy Career Cluster Site:  http://vaenergy17thcluster.org/
- Cluster FAQs
- Supporters of an Energy Cluster

- Energy industry demand and recommendations for Virginia align with the need for an Energy Cluster

- Clearly defined Energy Cluster and Pathways support the Virginia Energy workforce demand

Virginia Energy Workforce Consortium:  www.vewc.org


Georgia’s Cluster:  https://www.gafutures.org/career-exploration/georgias-career-clusters-and-pathways/georgias-career-clusters/energy/