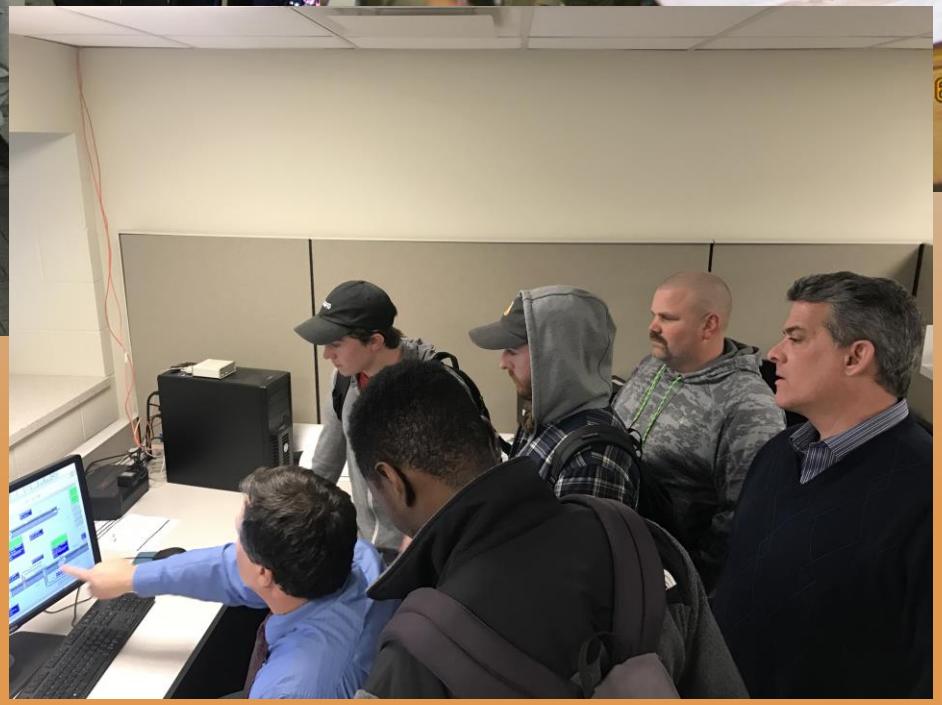
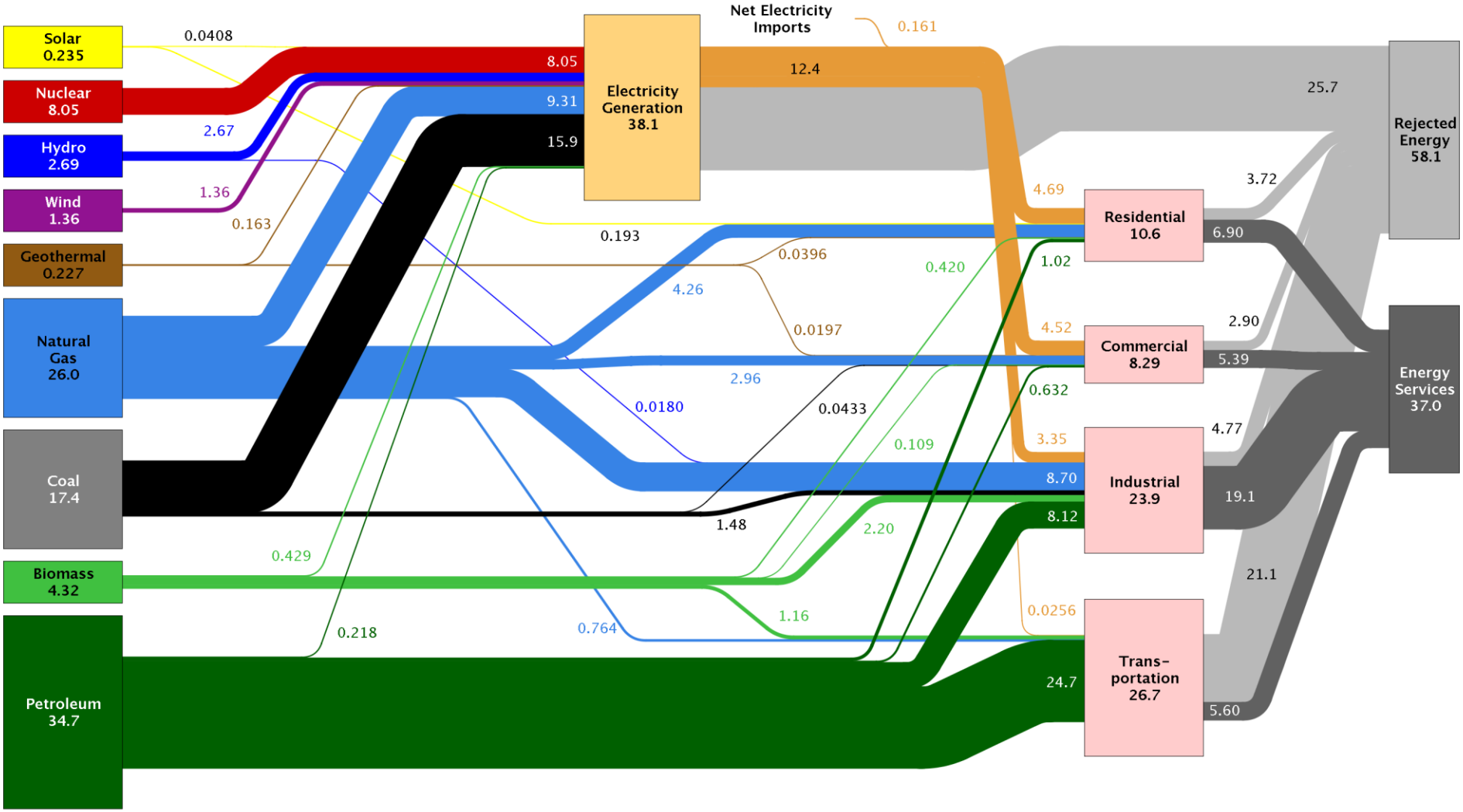

Our need to reduce energy consumption in buildings, has created career opportunities for energy professionals.
Energy Management Program
Tunxis Community College
Education That Works For a Lifetime



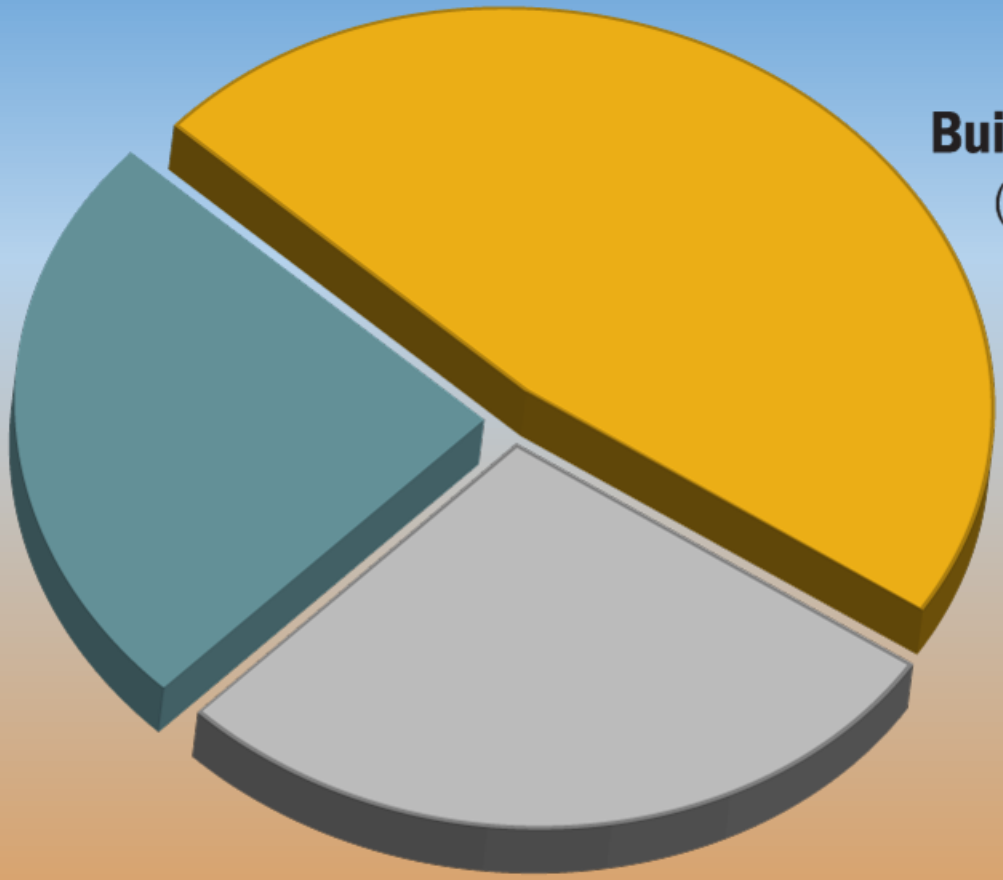
WHY ENERGY MANAGEMENT?

Estimated U.S. Energy Use in 2012: ~95.1 Quads

Lawrence Livermore National Laboratory



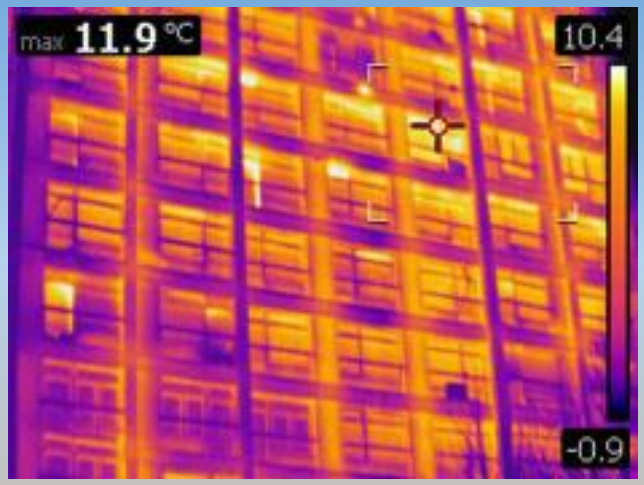
Source: LLNL 2013. Data is based on DOE/EIA-0035(2013-05), May, 2013. If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. EIA reports consumption of renewable resources (i.e., hydro, wind, geothermal and solar) for electricity in BTU-equivalent values by assuming a typical fossil fuel plant "heat rate." The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential and commercial sectors 80% for the industrial sector, and 21% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527



U.S. Energy Consumption by Sector

Data Source: U.S. Energy Information Administration (2012).

Buildings and homes consume almost 75% of all the electricity produced in the US.



Energy management – Continuous improvement of energy efficiency

1

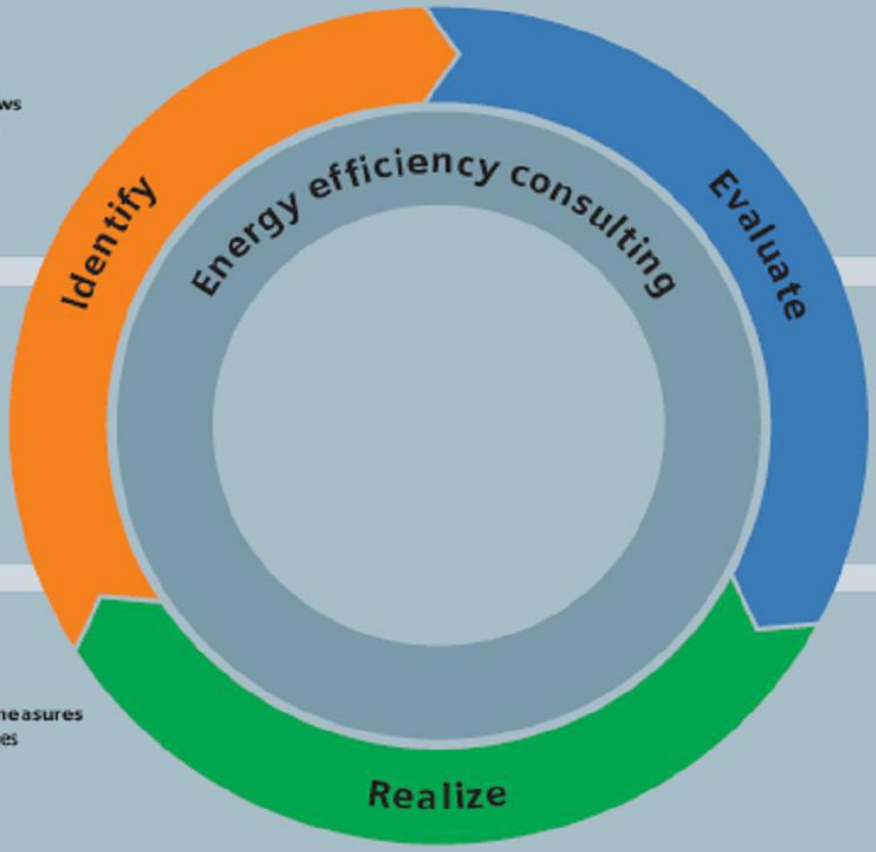
Identify energy flows
Discover your hidden energy potentials

2

Evaluate saving potentials
Consider live cycle costs of your investment

3

Realize efficiency measures
Improve your machines and processes



Energy monitoring systems

Calculation tools

Products and solutions

Reprinted from
HARTFORD BUSINESS JOURNAL
April 24, 2017

PHOTO | STEVE LASHEVER

Tunxis' new energy management program has drawn a mix of traditional college-age students and energy pros who want to further their skills. Shown (from left) are instructor Dave Bebrin, a senior engineer at Eversource, and students Brad Charron, Peter Kenefick and Kyle Kalisz.

Training Ground

Energy industry turns to CT colleges for worker pipeline

By Matt Pilon
mpilon@HartfordBusiness.com

Colleges often talk to local companies to gauge their future workforce needs, searching for opportunities to build new programs to help fill the gaps and attract students amid a competitive higher-ed market.

The latest focus has been on the state's energy industry, as evidenced by new degree programs at Farmington's Tunxis Community College and Southern Connecticut State University in New Haven.

The fledgling programs, which each have their own niche and were designed based on discussions with utilities, energy companies, business associations and others, were created because of a perceived growing demand for energy efficiency and concerns that companies won't be able to find enough qualified replacements for an aging workforce. Besides traditional college-age students, both schools' programs are also targeting continuing education for those already working in the industry.

"We can always use good people who are well trained in this area," said Dave Bebrin, a senior engineer at Eversource who teaches part-time in the Tunxis program. "I don't think there's a lot of training around the energy-efficiency area."

Tunxis' two-year energy management associate's degree program focuses on the skills needed to work in the commercial and industrial efficiency sector, in positions such as energy auditors, who assess energy consumption and prescribe ways to reduce it, and facilities managers.

They're careers that pay somewhere between $40,000 and $60,000 a year, according to the program's marketing materials.

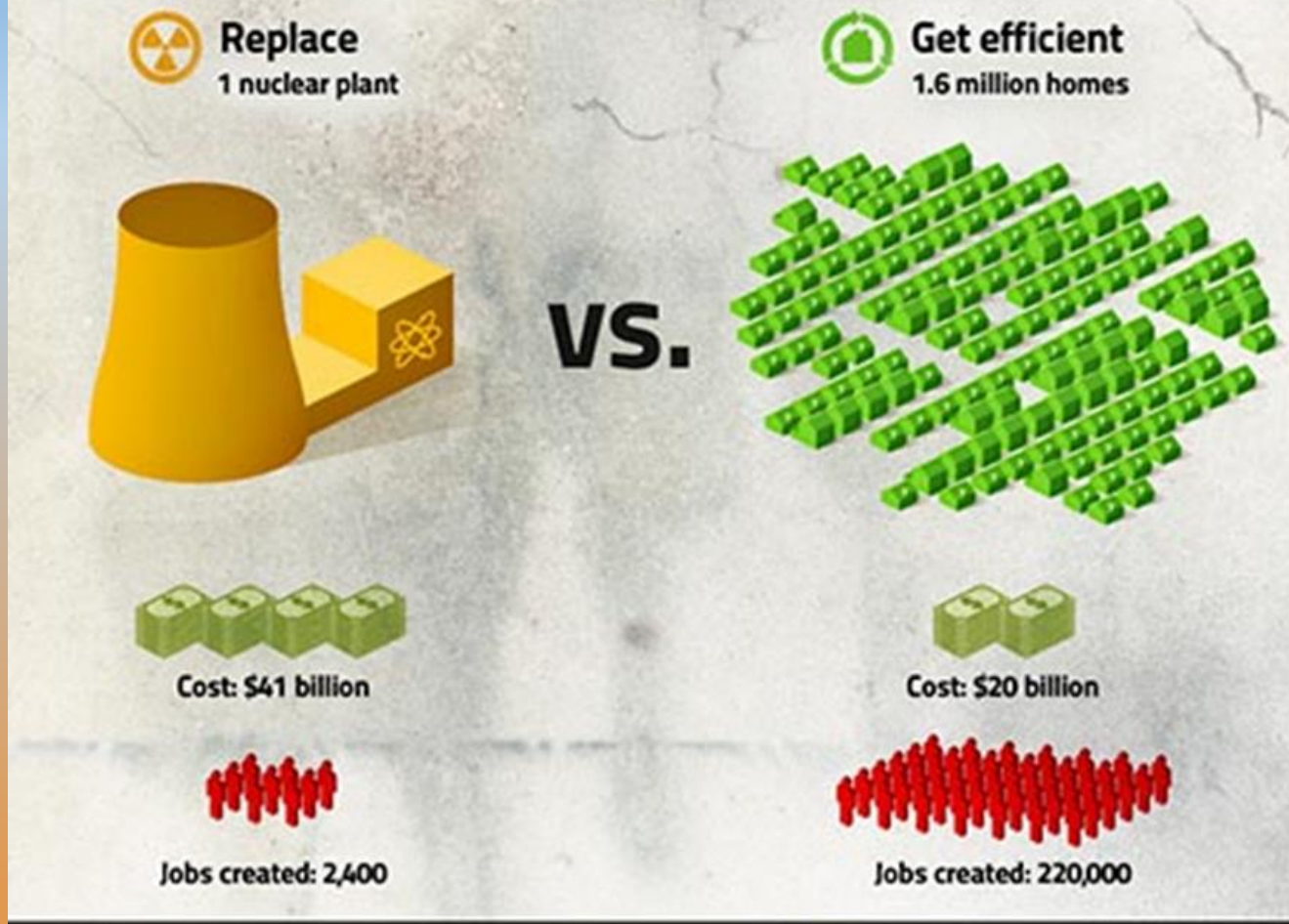
Meanwhile, SCSU's program is a business administration bachelor's degree with a specialization in utility management, meant to prepare students for utility company positions in risk management and accounting, among others.

Looking for traction

Tunxis launched its energy management program, spearheaded by director Eric Gribin, in the fall 2016 semester.

Gribin invited a reporter to meet with students and teachers earlier this month at the campus. There were traditional college-aged students like Kyle Kalisz, 20, of Newington, who started at Tunxis as a business administration major but decided it didn't suit his personality.

In the next 20 years, one-third of America's nuclear power plants will reach the end of their power-producing lives.



You want to save money and create jobs? Get efficient.

For half the cost of replacing one nuclear power plant, we can retrofit 1,600,000 homes for energy efficiency and create 220,000 new jobs – that's 90 times more jobs than you'd get from a power plant replacement.

Source: EnergySavvy.com

New Energy Management Program at Tunxis Community College

http://www.tunxis.edu/program/energy-management/


Tropicana

A.A.S. Degree in Energy Management Courses by Semester:

Total Credits: 61

	Semester 1			Semester 2	
Course #	Title	Credits	Course #	Title	Credits
ENG101	Composition	3	ENG202	Technical Writing	3
CSA135	Spreadsheet Applications	3	PHY110	Introductory Physics	4
MAT137	Intermediate Algebra	3	NRG131	Building Efficiency Auditing	3
CTC106	Blueprint Reading	3	NRG122	Commercial HVAC Systems & Analysis	3
ARC240	Environmental Systems	3	NRG123	Energy Efficiency Methods	3
	Total Credits:	15		Total Credits:	16

	Semester 3			Semester 4	
Course #	Title	Credits	Course #	Title	Credits
NRG130	Renewable Energy for Businesses & Residences	3	NRG132	Industrial Energy Systems	3
NRG124	Energy Control Strategies	3	NRG241	Commercial Energy Use Analysis & Simulations	3
NRG132	Lighting Fundamentals & Applications	3	NRG242	Energy Accounting	3
COM173	Public Speaking	3	NRG290	Energy Co-Op Internship	3
NRG240	Energy Investment Analysis	3	Elective	Social Science Elective	3
	Total Credits:	15		Total Credits:	15

http://www.ct.edu/admission/tuition#ccc

CT Energy Management Program Stackable Certificates:

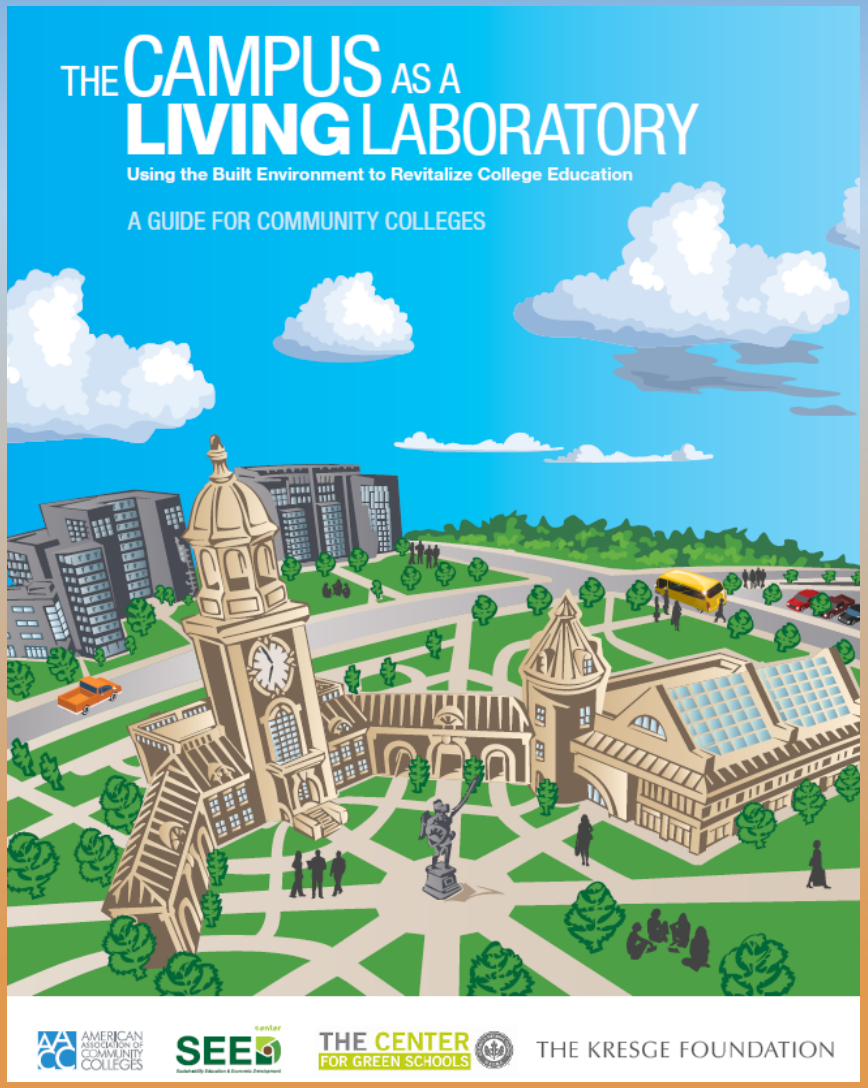
1. Energy Core - 16 credits
2. HVAC Energy Analysis - 22 credits
3. Energy Accounting – 15 credits
4. Energy Efficient Lighting – 22 credits
5. Commercial Energy Auditing & Modeling – 28 credits
6. HVAC Energy Controls – 25 credits

CEM®

CERTIFIED ENERGY MANAGER CERTIFICATION

aee®
The Association of Energy Engineers

APPROVED EDUCATION PROVIDER


THE CAMPUS AS A
LIVING LABORATORY
Using the Built Environment to Revitalize College Education
A GUIDE FOR COMMUNITY COLLEGES
AACC AMERICAN ASSOCIATION OF COMMUNITY COLLEGES
SEED center
THE CENTER FOR GREEN SCHOOLS
THE KRESGE FOUNDATION


11/30/2016

GRADUATES WILL BE EMPLOYABLE AS:

- Energy Analysts and Auditors
- Energy Managers
- Project Managers
- Commissioning Agent Assistants
- Facilities Managers
- Control System Specialists
- Energy Engineering Assistants

FOR THE FOLLOWING BUSINESSES:

- UTILITY COMPANIES
- ENERGY SERVICE COMPANIES
- ENGINEERING FIRMS
- ENERGY CONSULTING FIRMS
- RENEWABLE ENERGY COMPANIES

EVERSOURCE ENERGY

EMCOR Services Mesa Energy Systems

AMERESCO Green • Clean • Sustainable

SIEMENS

NORESCO United Technologies

AVANGRID

ENERGY MANAGEMENT PROGRAM ADVISORY BOARD

First	Last	Title	Company
Ed	Baker	Institutional	Eversource
Dave	Bebrin	Lead Technical Expert	Eversource
Andy	Brydges	Sales Executive, Gov. Sector	Eversource
Matt	Cohen	Energy Manager	Consultant
James	Daylor	Account Executive	Amersco
John	DiModica	Sr. Account Executive, Sustainability Services	NORESCO
Diane	Duva	Office Director, Office of Energy Demand	CT DEEP
Tim	Forrest	Sales Engineer	Siemens
Matt	Gibbs	Director, EE Implementation	Evergreen Efficiency
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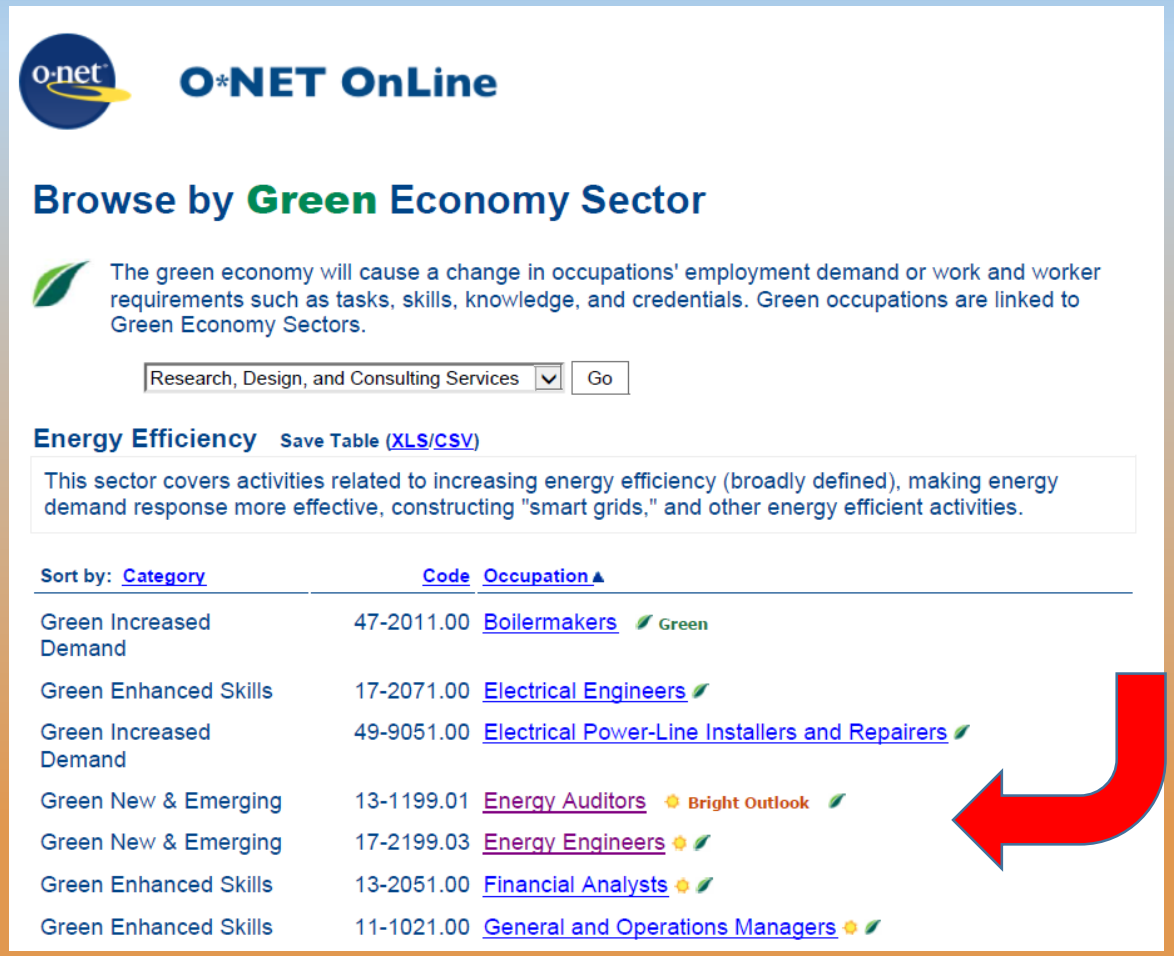
John	Matchett	Commercial & Industrial	Eversource
Tim	Maurer	Bus. Development, NxGen	NxGen
Patrick	McDonnell	Director, Conservation & Load Management	United Illuminating
David	McIntosh	Facilities	University of Connecticut Facilities
Ron	McLellan	Union Rep. SEIU Maintenance Workers	Maintenance Workers, SEIU
Matthew	Mullen	Account Executive	Emcor/CT Chapter AEE
Tom	Nichols	Owner	Four Elements Group
Will	Riddle	Engineer	United Illuminating
Michael	Sahm	Owner/Consultant	Energy Analytics, LLC
Lisa	Schoonerman	Account Executive	Siemens
Vijay	Srinivasachari	Account Executive	Siemens
David	Vallerie	Strategic Building Solutions	Strategic Building Solutions
Sean	West	EH&S Project Manager	United Technologies
Steven	Winter	President	Steven Winter Associates
Kevin	Wyman	P.E.	ANJENAIRE, LLC

MARKET ANALYSIS – BRIGHT OUTLOOK

The Dept. of Labor O*NET® System:

The Occupational Information Network (O*NET) is a database of occupational requirements and worker attributes. It describes occupations in terms of the skills and knowledge required, how the work is performed, and typical work settings.

O*NET can be used by businesses, educators, job seekers, human resources profesionals, and the publicly funded Workforce Investment System to help meet the talent needs of our competitive global economy.



National spending on utility led energy efficiency programs is projected to double from 2010 levels of about $4 billion to approximately $9.5 billion by 2025, according to a 2013 study conducted by Lawrence Berkeley National Laboratory.[1]

energize CONNECTICUT℠

Empowering you to make smart energy choices

1 The Future of Utility Customer-Funded Energy Efficiency Programs in the United States: Projected Spending and Savings to 2025, Galen L. Barbose, Charles A. Goldman, Ian M. Hoffman, Megan Billingsley, Environmental Energy

CLEAN ENERGY
FINANCE AND INVESTMENT AUTHORITY

cpace

Contact:
Deborah Burns, 203.257.3163
deborah@burnscommunications.net

C-PACE MARKS SUCCESSFUL FIRST TWO YEARS AS CONNECTICUT PROPERTY OWNERS TAKE ADVANTAGE OF PROGRAM TO FINANCE MONEY-SAVING ENERGY IMPROVEMENTS

Over $65 Million Allocated for Over 90 Projects; Buildings Receiving New Financing Tripled from 2013 to 2014

ROCKY HILL, Connecticut, Feb. 3, 2015 -- Two years after it was launched, the Commercial Property Assessed Clean Energy (C-PACE) program is rapidly gaining traction with commercial property owners in Connecticut, who are utilizing its long-term financing to fund valuable energy improvements with no upfront costs and immediate energy savings.

The Connecticut Green Bank (formerly the Clean Energy Finance and Investment Authority, or CEFIA), which administers C-PACE, today reported major program success.

To date, the Connecticut Green Bank has allocated more than $65 million for over 90 projects, ranging from boiler replacements to comprehensive solar and other energy-efficiency retrofits, for businesses and non-profit organizations across the state. Enhanced properties have included office towers, a shopping center, a performing arts center, industrial facilities, a recreation center, and nonprofit buildings. The Connecticut Green Bank has developed case studies (http://c-pace.com/pacesetters/) on several property owners, called PACEsetters, who are taking the lead in improving their buildings across the state.

"We are thrilled by the success of the C-PACE program," said Connecticut Green Bank President and CEO, Bryan Garcia, "In just two years, we've seen the first securitization of C-PACE transactions in the country and allocated more than $65 million of capital, enabling property owners to make deep energy upgrades and control their energy costs. Clean energy is now more accessible and affordable to the commercial and industrial sector, we are supporting economic development and creating jobs, and the Connecticut Green Bank is leveraging limited public dollars to attract private investment. It's a sustainable model for financing energy upgrades in the commercial and industrial sector."

What is Lead by Example?

The Department of Energy and Environmental Protection's *Lead By Example (LBE)* program will reduce energy use in Connecticut's State and Local Government buildings and operations through the completion of comprehensive energy improvement projects.

There are more than 3,000 State and Municipal buildings in CT!

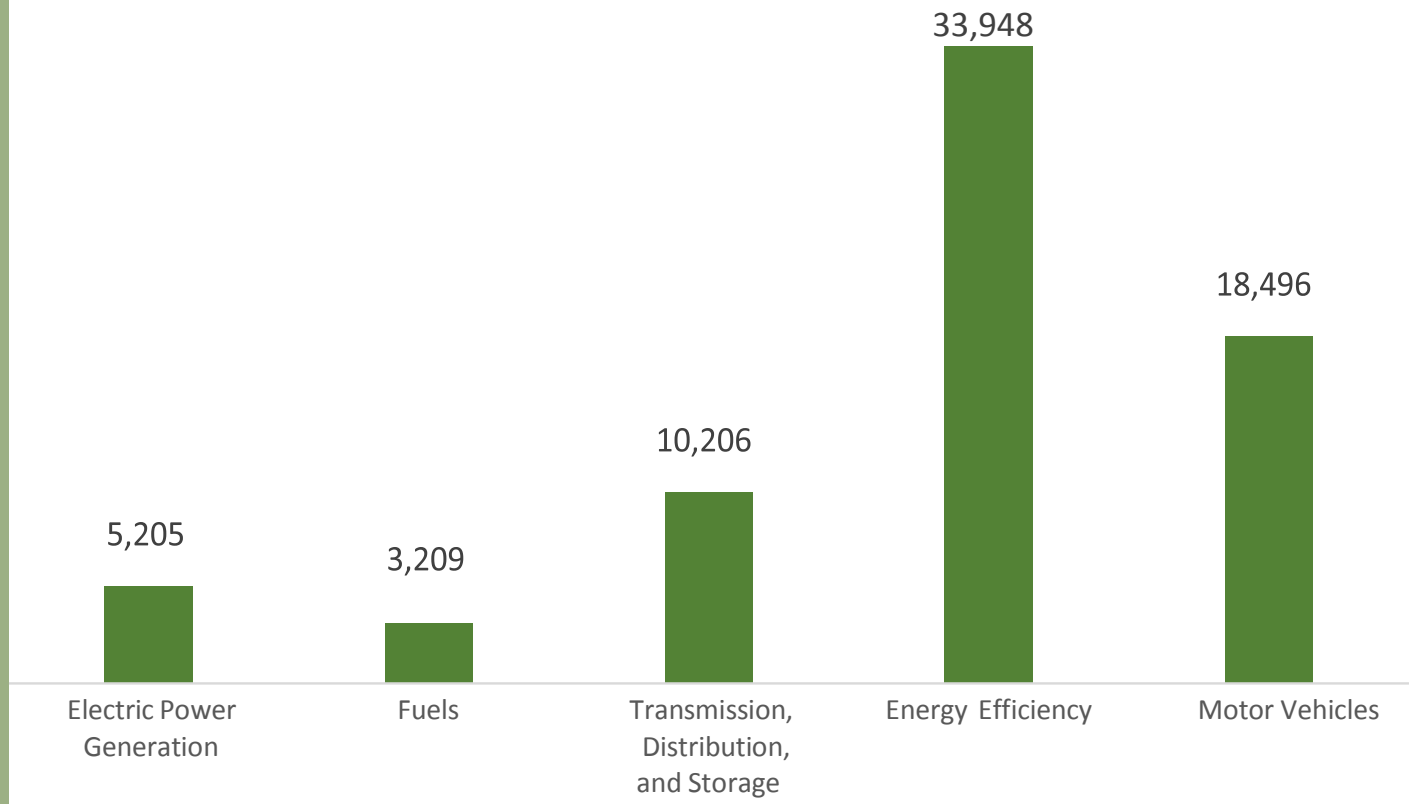
New York City:
Local Law 84 – Benchmarking (2009)
Requires owners of large buildings to annually measure their energy and water consumption.

Local Law 87 - Energy Audits & Retro Commissioning
Local Law 87 mandates that buildings over 50,000 gross square feet undergo periodic energy audit and retro-commissioning measures.

Boston and Cambridge:
Building Energy Reporting and Disclosure Ordinance (BERDO).
This Ordinance requires Boston's large- and medium-sized buildings to report their annual energy and water use to the City of Boston, after which the City makes the information publicly available. Additionally, every five years, buildings need to complete an energy assessment or energy action;

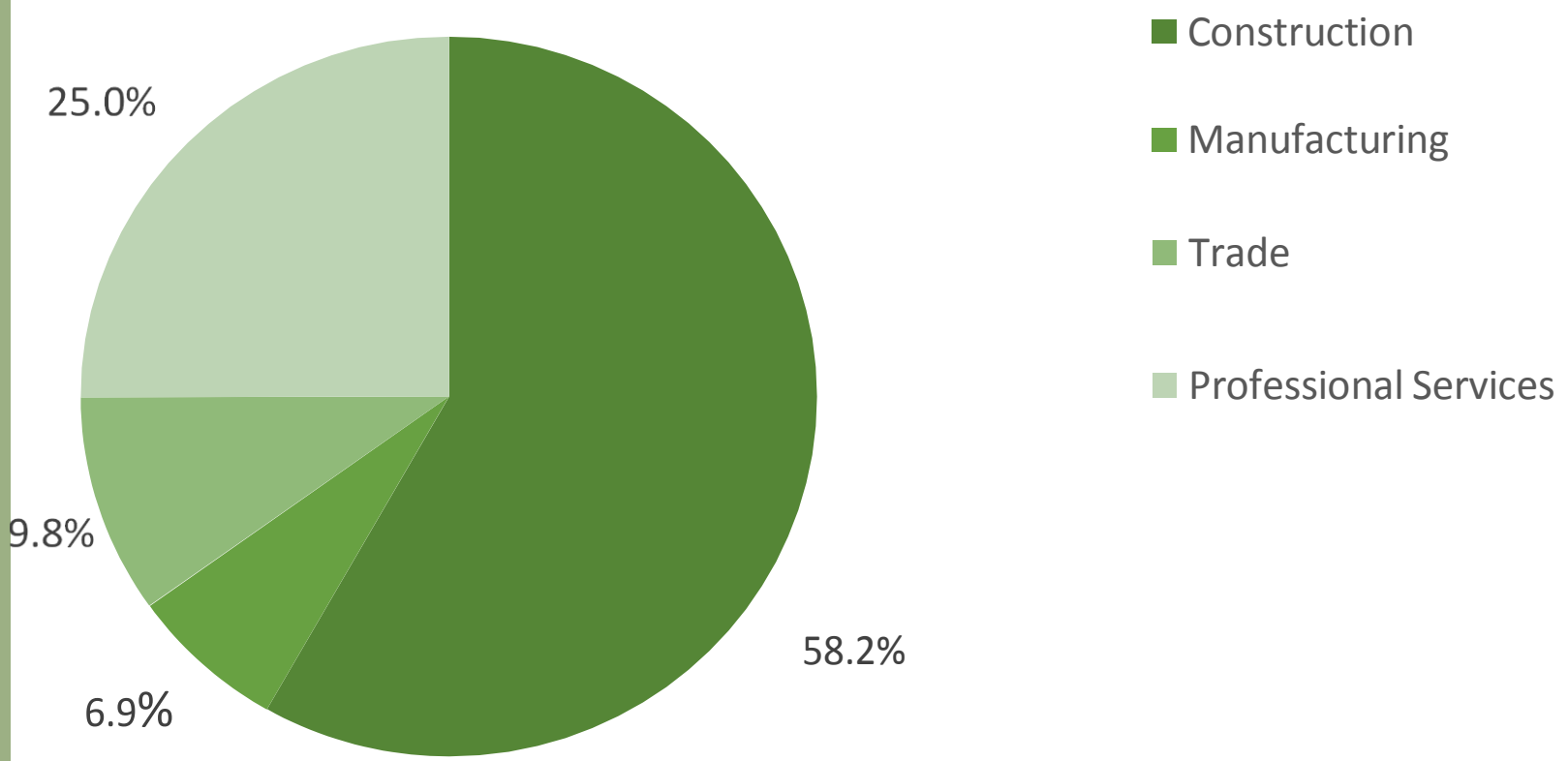
US DOE REPORT
Connecticut Energy and Employment

Figure 1. Employment by Major Technology



Source: US Dept. of Energy, Energy and Employment Report, January 2017

Figure 9. Energy Efficiency Employment by Industry Sectors



Source: US Dept. of Energy, Energy and Employment Report, January 2017

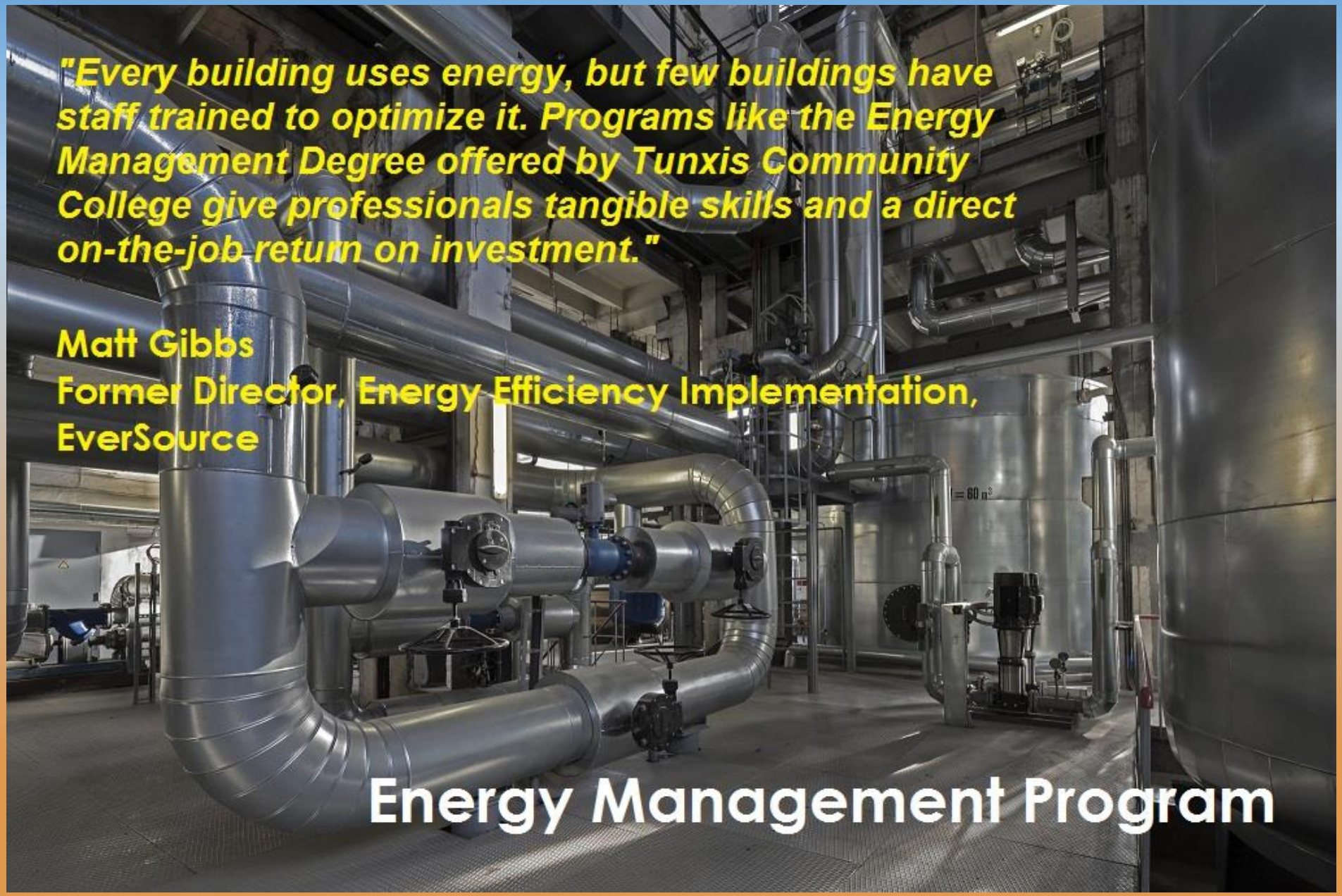
Workforce Characteristics

Hiring Difficulty

Figure 13. Hiring Difficulty by Major Technology

Technology	Very difficult	Somewhat difficult	Not at all difficult	DK/NA
Electric Power Generation	16.7%	54.2%	16.7%	12.5%
Electric Power Transmission, Distribution, and Storage	NA	NA	NA	NA
Energy Efficiency	40.0%	46.7%	6.7%	6.7%
Fuels	40.0%	40.0%	20.0%	0.0%
Transportation, including Motor Vehicles	NA	NA	NA	NA
Component Parts for Transportation Vehicles	NA	NA	NA	NA

Source: US Dept. of Energy, Energy and Employment Report, January 2017


"Every building uses energy, but few buildings have staff trained to optimize it. Programs like the Energy Management Degree offered by Tunxis Community College give professionals tangible skills and a direct on-the-job return on investment."
Matt Gibbs
Former Director, Energy Efficiency Implementation, EverSource
Energy Management Program

Eric Gribin, Director
Energy Management Program
Tunxis Community College
egribin@tunxis.edu
Tunxis.edu/energy
860-773-1318

Tunxis Community College

Education That Works For a Lifetime

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Empowering you to make smart energy choices

Funding provided by the U.S. Department of Energy, State Energy Program administered by the Connecticut Department of Energy and Environmental Protection (DEEP).