

Clean Energy Industry Report 2020

Findings from First Study of Connecticut Clean Energy Jobs

Webinar

Nov. 18, 2020



EVERSOURCE



CONNECTICUT
GREEN BANK

Agenda

- Welcome and Introductions
- Green Jobs in Connecticut
- Findings from the Clean Energy Industry Report 2020
- COVID-19 Impact on Clean Energy Industry in Connecticut
- Perspectives from the Front Lines
- Questions and Answers

Introduction of Presenters

- **Joint Committee** – Eric Brown (Chair)
- **CT Department of Labor** – Matthew Krzyzek (Associate Economist)
- **BW Research** – Philip Jordan (Vice President)
- **Avangrid** – Liz Murphy (Supervisor – C&I, Conservation and Load Management)
- **Eversource Energy** – Steve Bruno (Manager – Energy Efficiency)
- **Contractors:**
 - Dan Robertson of Artis Energy
 - Paul Russo of Glasco Heating & Air Conditioning
 - Mickey Toro of CTEC Solar
 - Mike Trahan of Solar Conn
 - Lorenzo Wyatt of Home Comfort Practice



Joint Committee

Energy Efficiency Board and Green Bank Board

- **Statutory Creation** – CGS Section 16-245m(d)(2), the Joint Committee shall examine opportunities to **coordinate programs and activities** contained in the **Comprehensive Plan of the Green Bank** with the programs and activities contained in the **Conservation and Load Management Plan**, and to provide financing to increase the benefits of programs funded so as to reduce the long-term cost, environmental impacts, and security risks of energy in the state.
- **Principal Statement** –the Energy Efficiency Board and the Connecticut Green Bank have a shared goal to **implement state energy policy** throughout **all sectors and populations** of Connecticut with **continuous innovation** towards **greater leveraging of ratepayer funds** and a **uniformly positive customer experience**.
- **Meetings** – we meet quarterly (next meeting is Wednesday, December 16 from 1:30-3:30)



Joint Committee (cont'd)

Members

- **Energy Efficiency Board Representatives** – Eric Brown (VP of Manufacturing Policy and Outreach at CBIA – and Chair of Joint Committee) and John Viglione (Economist with the Office of Consumer Counsel)
- **DEEP Representative** – Mike Li (Bureau Chief of BETP at DEEP – and Vice Chair of Joint Committee)
- **Green Bank Board Representatives** – John Harrity (Chair of Connecticut Roundtable on Climate and Jobs) and Brenda Watson (Executive Director of Operation Fuel)
- **Staff Members** – including, but not limited to, Stephen Bruno (Eversource), Linda King (EEB Secretary), Bryan Garcia (Green Bank), and Liz Murphy (Avangrid),



Notes on the Clean Energy Industry Report

- Since 2015, Connecticut has made steady progress building its clean energy industry.
- Connecticut continues to lead on policy innovation.
- Clean energy delivers positive impacts on society, including small businesses & vulnerable communities.
- COVID-19 has impeded progress, but will not weaken our resolve.





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smart energy choices

Green Jobs In Connecticut

Green Economic Trends and Career Resources

■ Matthew Krzyzek

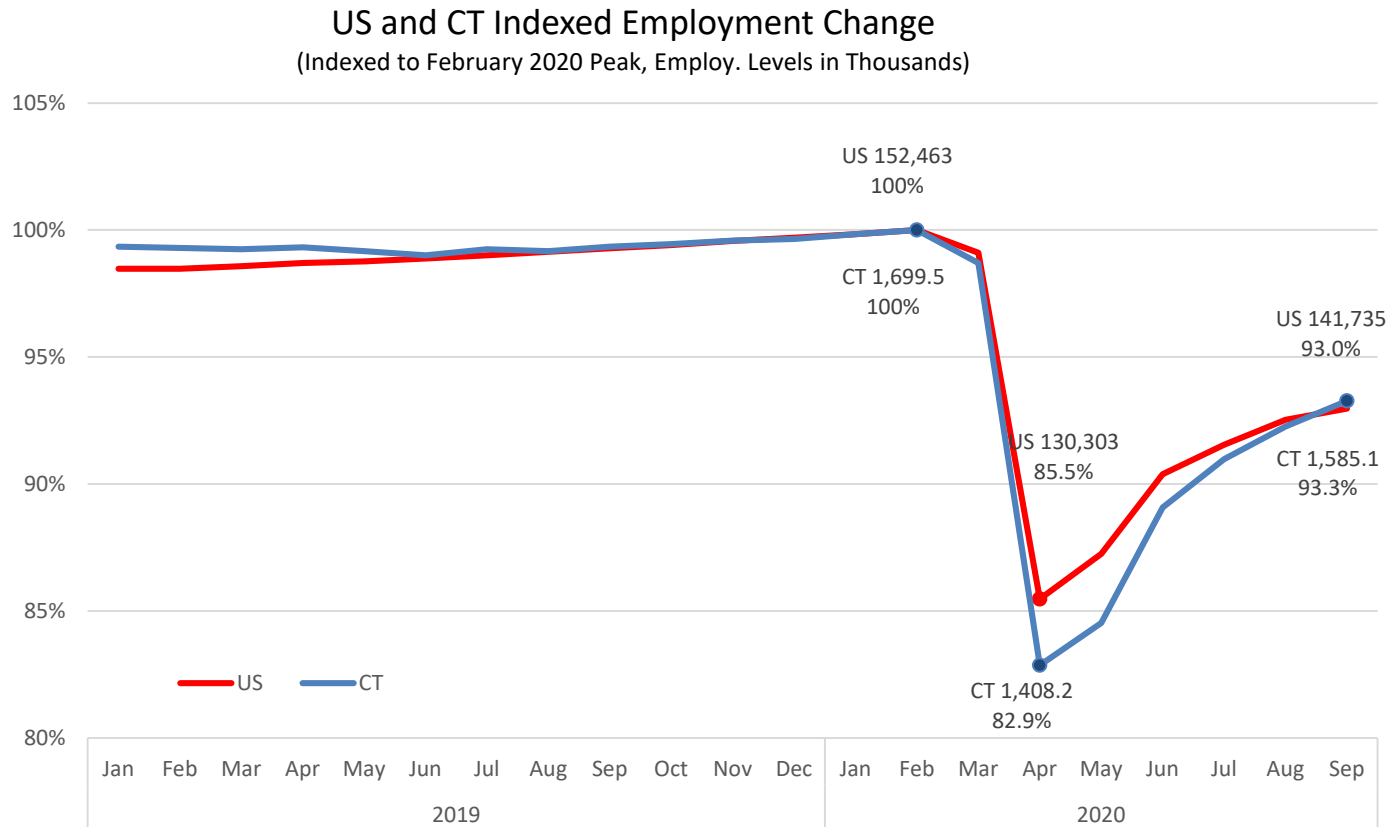
Associate Economist, Research Office

1. Economic Overview
2. Green Jobs and Employment Projections
3. CT DOL Green Job Career Resources



Economic Overview

US and CT Indexed Employment

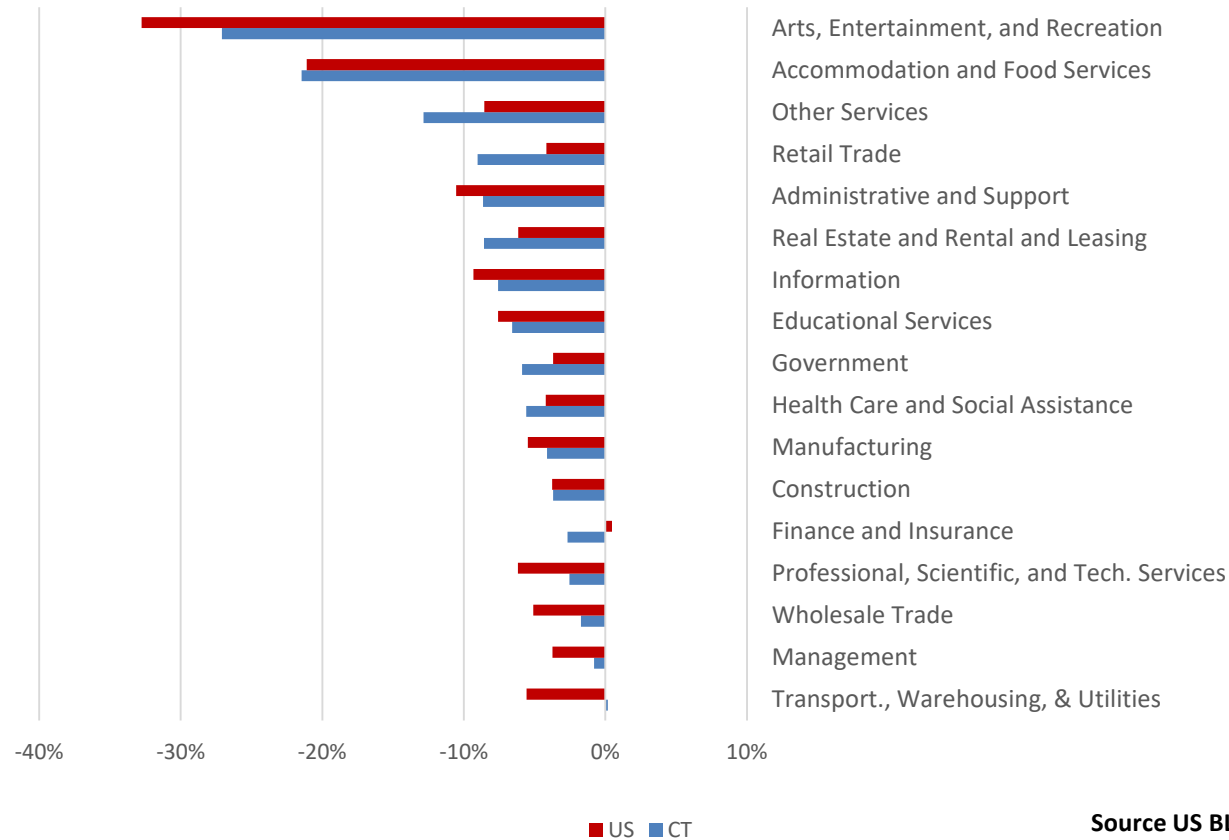


Source: US BLS, CES

Economic Overview

US and CT Industry Change

19Q3-20Q3 US and CT Employment Change

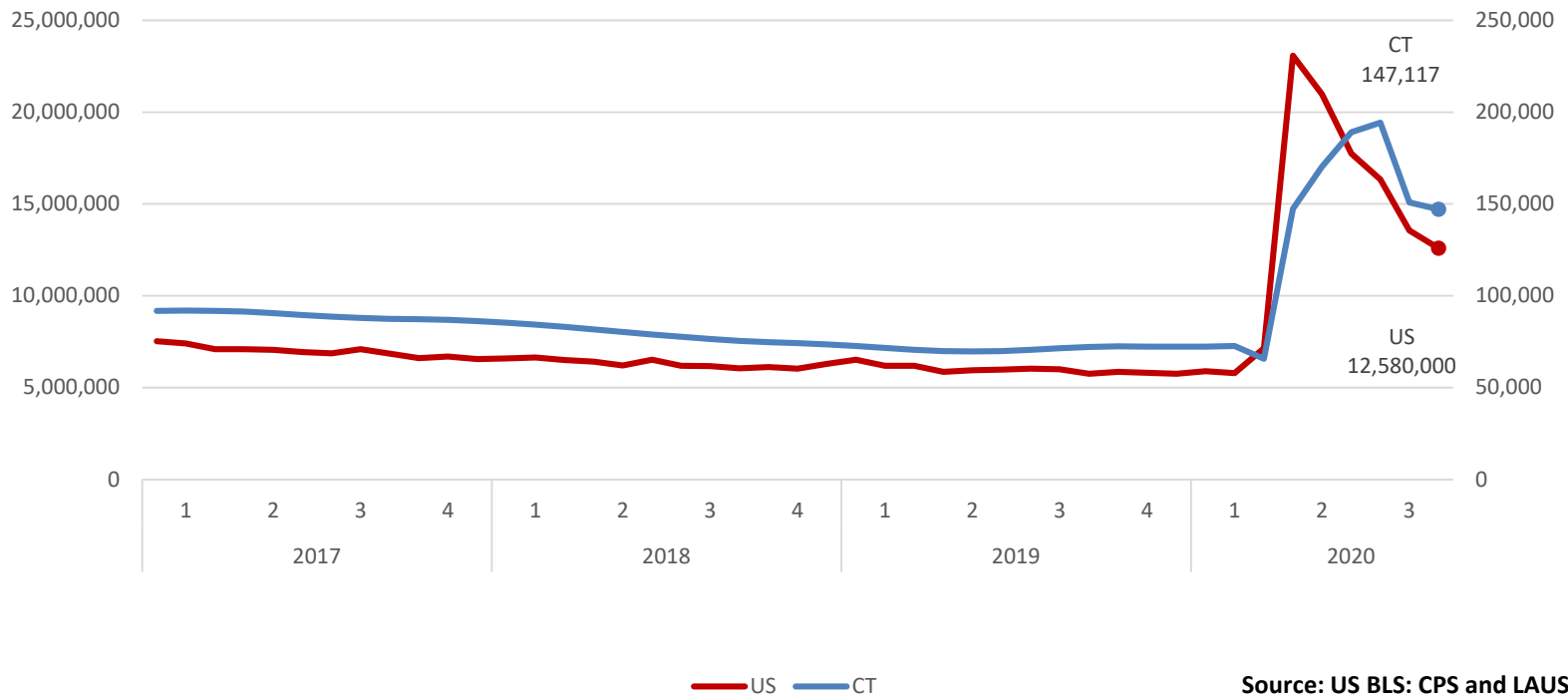


Source US BLS, CES

Economic Overview

US and CT Unemployment

US and CT Total Unemployment Through September 2020



For More information on Connecticut Data, see:

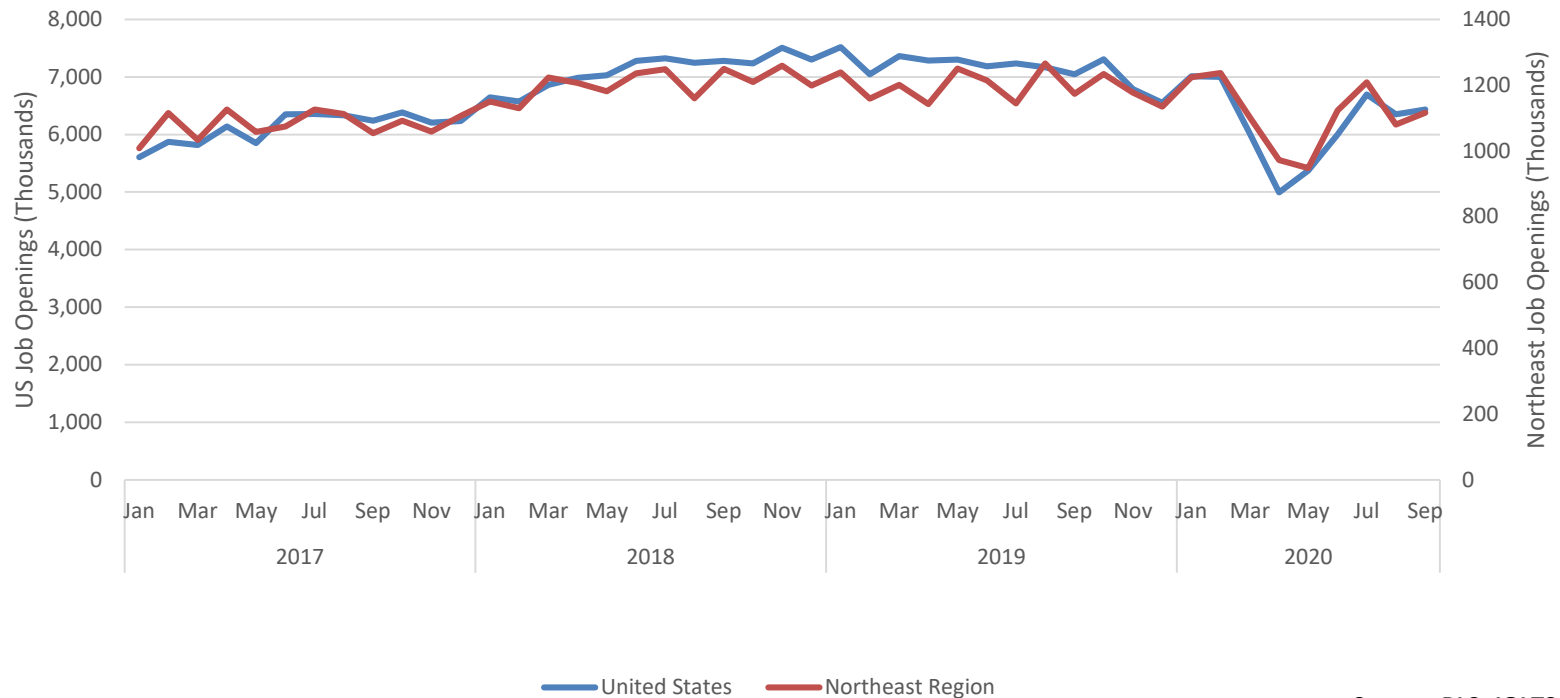
<https://www1.ctdol.state.ct.us/lmi/laborst.asp>



Economic Overview

JOLTS – US and Northeast Job Openings

US and Northeast Job Openings Through September 2020



Source: BLS, JOLTS

2019-29 US Projections And Green Jobs

US BLS Employment Projections (2019-2029) bls.gov/emp/
ONetOnline.org Categorized Green Jobs onetonline.org



The Department of Labor Produces 10 Year Projections on Occupations, Industry Employment, and Demographics to help businesses, governments, organizations, and workers with economic and career planning.

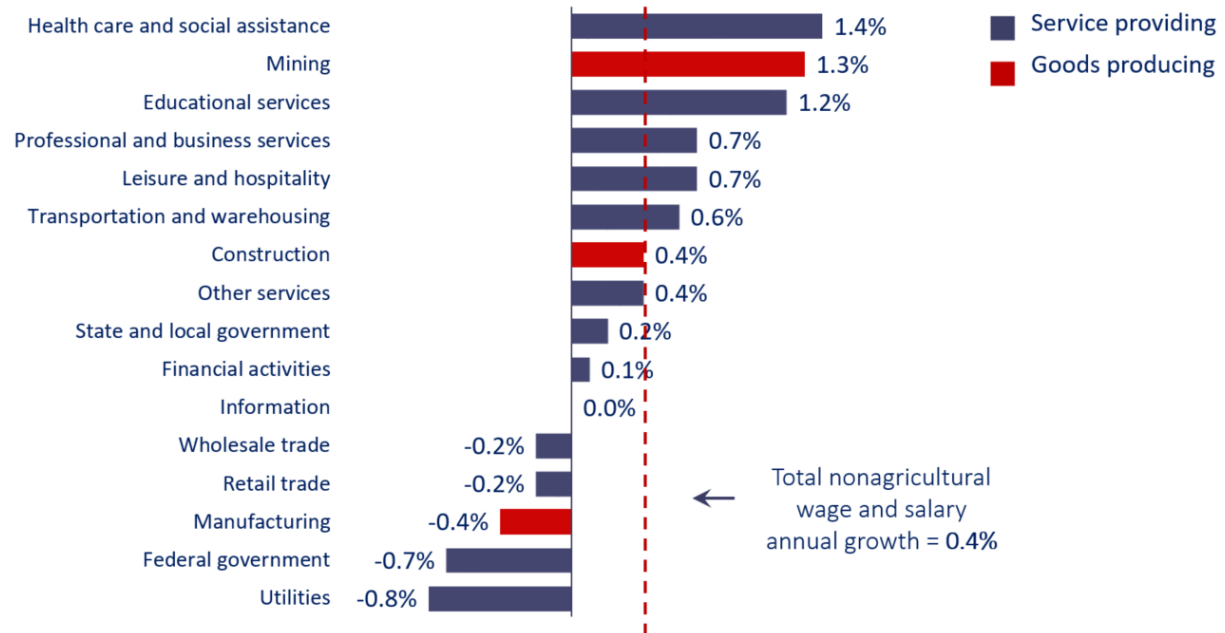
O*Net Online Provides Detailed Information on Occupations Including Skills, Descriptions, Employment, Educational Requirements, Interests, and Clusters such as Green Jobs and STEM.



2019-29 US Projections And Green Jobs











Projected Annual Rate of Change in Industry Employment, 2019-29

Annual rate of change for wage and salary employment, projected 2019-29



2019-29 US Projections And Green Jobs

2 of the 10 Fastest Growing Occupations are Green Jobs

	Percent change, projected 2019-29	Employment change, projected 2019-29 (in thousands)	Median annual wages, May 2019
Wind turbine service technicians	 60.7%	4.3	\$52,910
Nurse practitioners	 52.4%	110.7	\$109,820
Solar photovoltaic installers	 50.5%	6.1	\$44,890
Occupational therapy assistants	 34.6%	16.3	\$61,510
Statisticians	 34.6%	14.8	\$91,160
Home health and personal care aides	 33.7%	1,159.5	\$25,280
Physical therapist assistants	 32.6%	32.2	\$58,790
Medical and health services managers	 31.5%	133.2	\$100,980
Physician assistants	 31.3%	39.3	\$112,260
Information security analysts	 31.2%	40.9	\$99,730



Matched O*Net Green Jobs and US 2019-29 Projection Occupations

O*Net Green Jobs Categories:

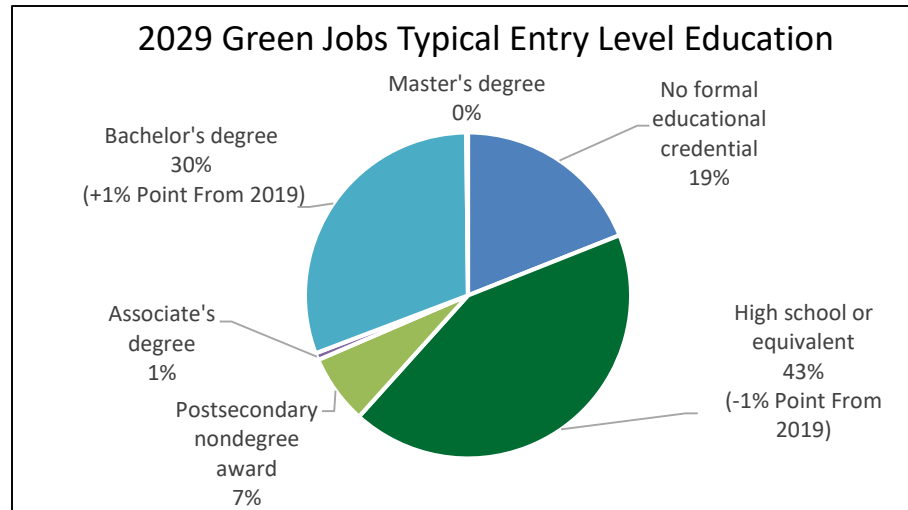
- * **Green New & Emerging** – new work requirements and occupational creation ex: Solar Photovoltaic Installers
- * **Green Enhanced Skills** – green economy alters occupational tasks, not necessarily demand ex: Environmental Engineers
- * **Green Increased Demand** – green economy increases demand, doesn't alter occupational tasks ex: Insulation Workers, Floor, Ceiling, and Wall



Matched O*Net Green Jobs and US 2019-29 Projection Occupations

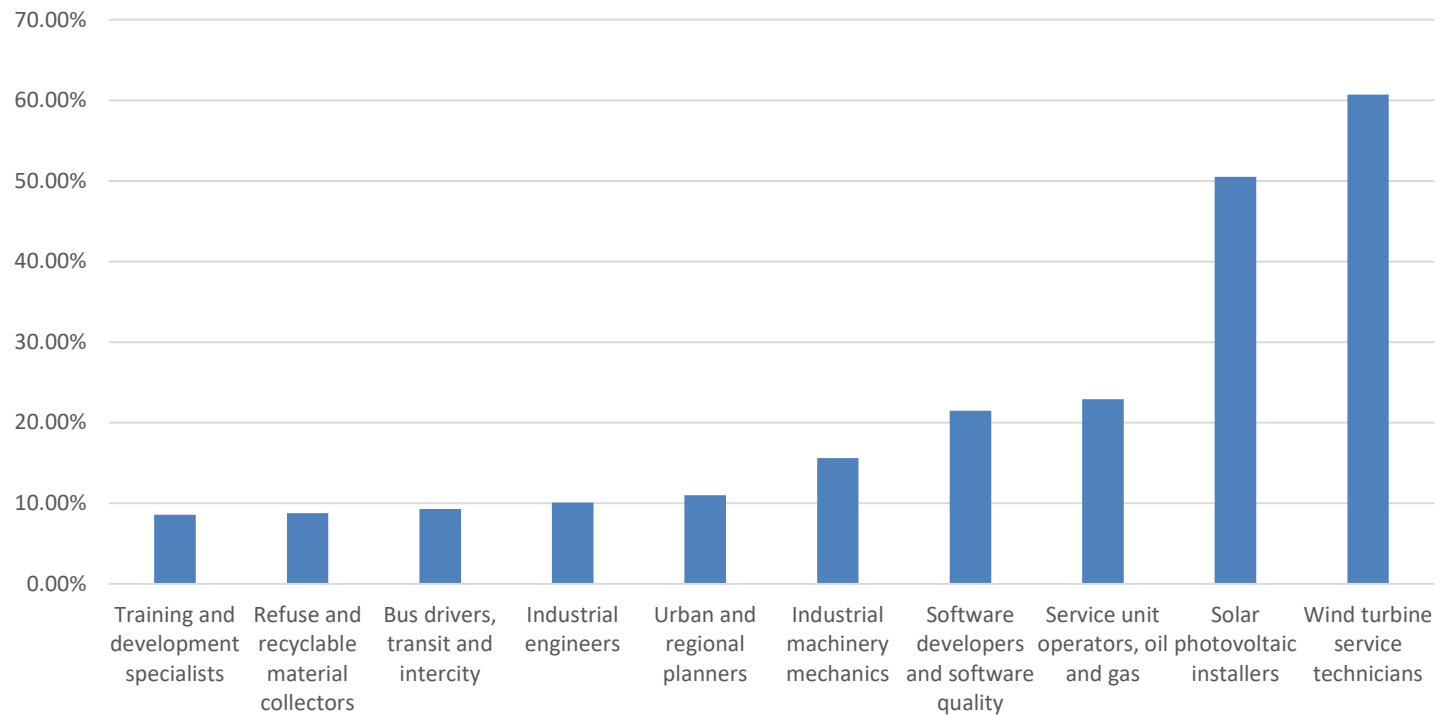
O*Net Green Categories Matched to Projection Occupations:

- * **Green New & Emerging** – 54.7% growth and 3,600 Openings Per Year
- * **Green Enhanced Skills** – 2.4% growth and 1.3 Million Openings Per Year
- * **Green Increased Demand** – 1.7% growth and 1.3 Million Openings Per Year

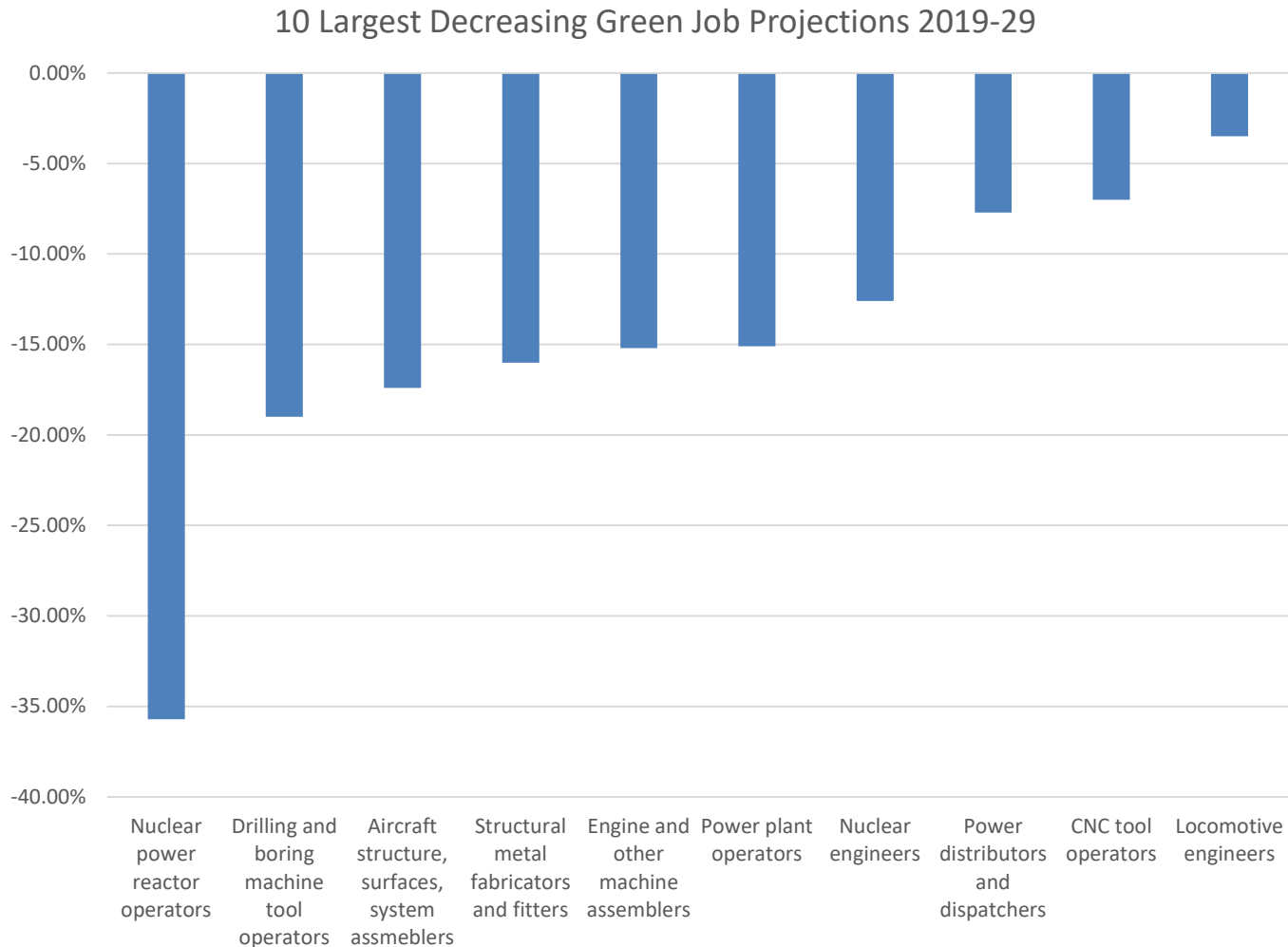


Matched O*Net Green Jobs and US 2019-29 Projection Occupations

10 Largest Increasing Green Job Projections 2019-29



Matched O*Net Green Jobs and US 2019-29 Projection Occupations



Connecticut Green Jobs

<http://www1.ctdol.state.ct.us/lmi/green/default.asp>

Info on Green Jobs Including:

Where to get training,
education, required skills,
and career ladders

Connecticut DEPARTMENT OF LABOR

CONNECTICUT'S OFFICIAL STATE WEBSITE

Search Labor Market Information

Connecticut GREEN OCCUPATIONS

Green Job Careers | Education | Projections | CT Green Bank | Wages

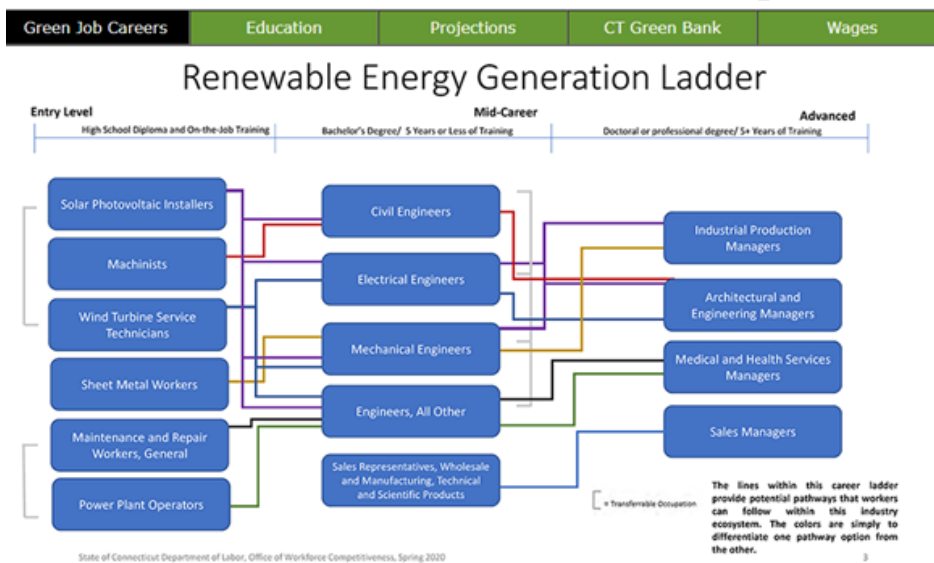
Welcome to Connecticut Green Jobs Career Ladders

What are Green Jobs Career Ladders?

The green jobs ladder includes components such as the scope of the industry and various occupations included, the skills and knowledge needed to succeed in those occupations, and the professional opportunities available at the entry, mid-career and advanced levels, along with the current salary ranges for each. To maintain this ladder as a comprehensive and useful resource for the green technology industry and its educational partners, it will be updated periodically as needed.

Mission Statement

To increase job opportunities in Connecticut's green technology sector, lower energy costs, improve energy efficiency and promote sustainability, the Office of Workforce Competitiveness, in consultation with other agencies, created a green jobs career ladder. This ladder is designed to link green jobs employers with technical education and career schools and institutions of higher education to foster coordination and grow the workforce in the sector.



Download PDFs

- Agricultural and Forestry
- Energy Efficiency and Storage
- Environmental Protection and Waste Reduction
- Government and Regulatory Administration
- Green Construction
- Manufacturing
- Renewable Energy Generation
- Research, Design, Consulting and Support Services
- Transportation

Connecticut Green Jobs

<http://www1.ctdol.state.ct.us/lmi/green/EnvironmentalProtection&WasteReduction.asp>

Green Job Careers

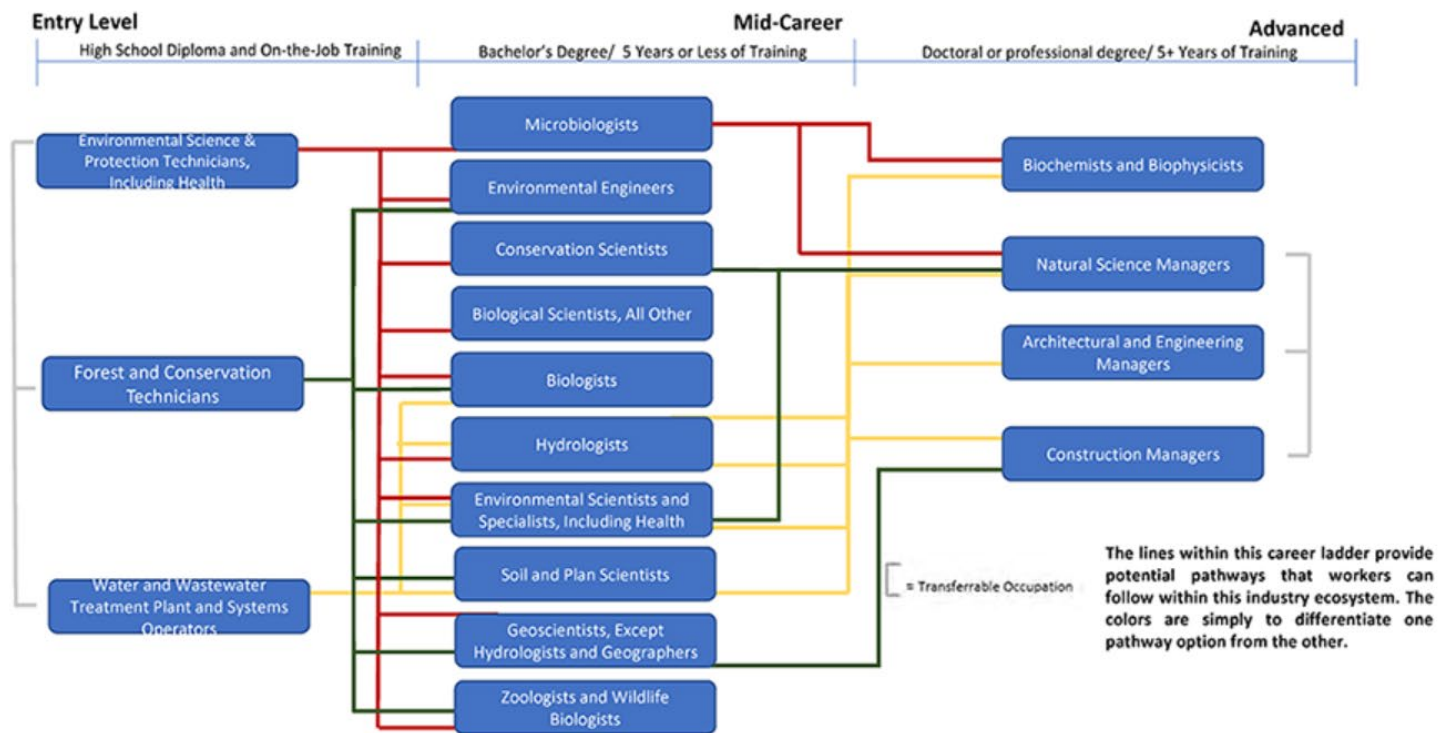
Education

Projections

CT Green Bank

Wages

Environmental Protection & Waste Reduction Career Ladder



State of Connecticut Department of Labor, Office of Workforce Competitiveness, Spring 2020

3

Scroll down for specific occupation profiles

Connecticut Green Jobs

<http://www1.ctdol.state.ct.us/lmi/green/EnvironmentalProtection&WasteReduction.asp>

Not secure | www1.ctdol.state.ct.us/lmi/green/EnvironmentalProtection&WasteReduction.asp

Environmental Engineers Occupational Profile



SIMILAR INDUSTRIES



 Indicates an especially close similarity

Connecticut Green Bank Career Profiles

<http://www1.ctdol.state.ct.us/lmi/green/CTGreenBank.asp>

www1.ctdol.state.ct.us/lmi/green/GB-PROFILES-09-09-2020.pdf



Insulation Workers, Floor, Ceiling and Wall

Insulation Workers line and cover structures with insulating materials.

ENTRY-LEVEL WAGE	MID-LEVEL WAGE	HIGH-LEVEL WAGE
\$17.34	\$25.73	\$33.97
KNOWLEDGE	SKILLS	ABILITIES
Building and Construction	Active Listening	Extent Flexibility
Customer and Personal Service	Critical Thinking	Manual Dexterity
Mechanical	Operation and Control	Multilimb Coordination
	Speaking	Gross Body Equilibrium
		Trunk Strength

HEALTHCARE BENEFITS

19% Full Benefits

63% Partial Benefits

19% No Benefits

RETIREMENT BENEFITS

77% With Benefits

23% No Benefits

TYPICAL EDUCATION

High School Diploma or Equivalent

PROMOTION OPPORTUNITIES



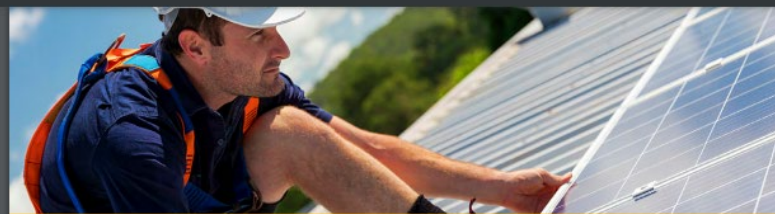
PATHWAY

ENTRY ROLES	
Helper, Apprentice	Insulation Workers, Floor, Ceiling and Wall



www1.ctdol.state.ct.us/lmi/green/GB-PROFILES-09-09-2020.pdf

10 / 10



Solar Photovoltaic Installers

Solar Installers assemble, install, or maintain solar photovoltaic systems on roofs or other structures in compliance with site assessment and schematics.

ENTRY-LEVEL WAGE	MID-LEVEL WAGE	HIGH-LEVEL WAGE
\$15.95	\$18.98	\$24.37
KNOWLEDGE	SKILLS	ABILITIES
Mechanical	Installation	Problem Sensitivity
Building and Construction	Active Listening	Visualization
English Language	Critical Thinking	Near Vision
Design	Monitoring	Information Ordering
Customer and Personal Service	Active Listening	Deductive Reasoning

HEALTHCARE BENEFITS

19% Full Benefits

58% Partial Benefits

23% No Benefits

RETIREMENT BENEFITS

57% With Benefits

43% No Benefits

TYPICAL EDUCATION

High School Diploma or Equivalent

COMMON CERTIFICATION

NABCEP
OSHA General Safety

PROMOTION OPPORTUNITIES



PATHWAY

ENTRY ROLES		SENIOR ROLES
Apprentice, Helper	Solar Photovoltaic Installers	Foreman, Lead Installer, Project Manager



Labor Market Information (LMI) – CT DOL

LMI Homepage

<https://www1.ctdol.state.ct.us/lmi/index2.asp>

Connecticut Green Jobs

<http://www1.ctdol.state.ct.us/lmi/green/default.asp>

CT Green Jobs Methodology

[Link](#)

Matthew Krzyzek

Associate Economist, Research Office



Findings from the Clean Energy Industry Report 2020



2020 Connecticut Clean Energy Industry Report

PRODUCED IN COLLABORATION WITH:

THE CONNECTICUT GREEN BANK; THE DEPARTMENT OF ENERGY AND
ENVIRONMENTAL PROTECTION;

EVERSOURCE; AND, UNITED ILLUMINATING

[bw] RESEARCH
PARTNERSHIP

Methodology Overview



Data from
United States
Energy and
Employment
(USEER) 2019



Survey
administered by
phone and web



25,000
businesses
participated in
total

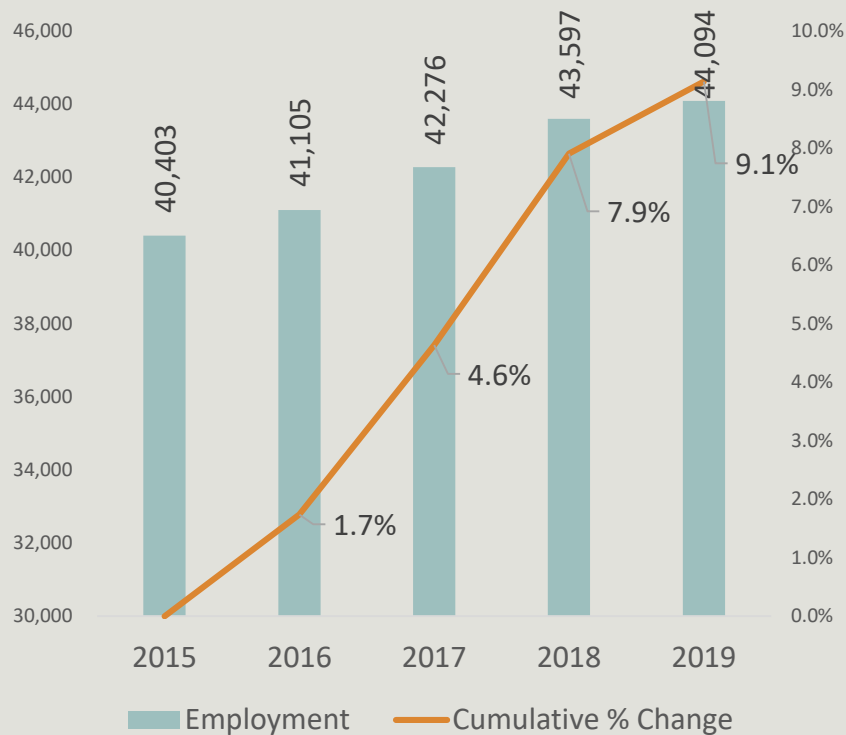


Margin of error
is +/- 0.62
percent

Technology Definition

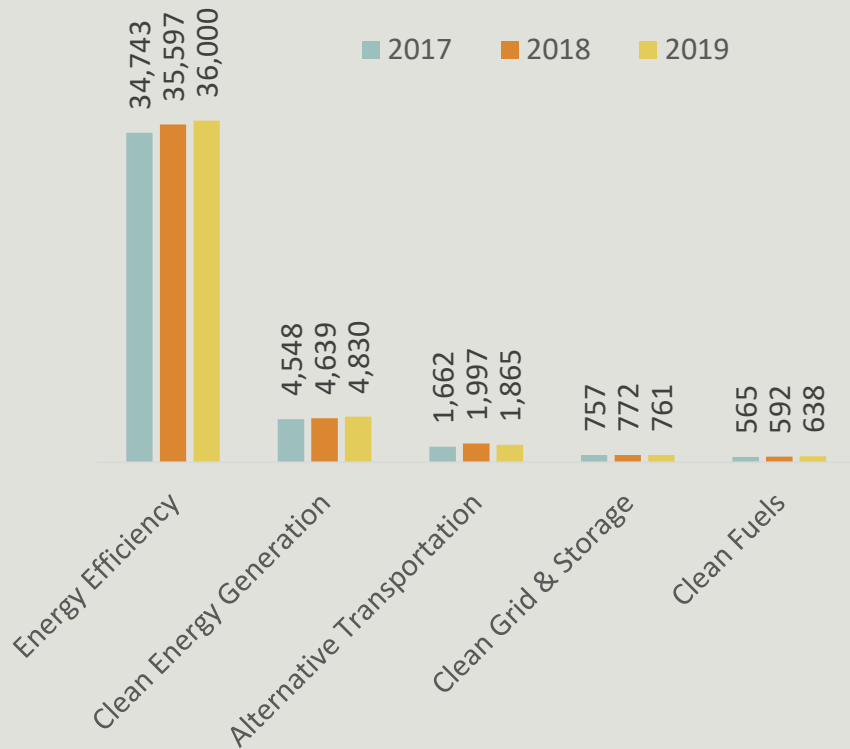
- 5 Major Clean Energy Sectors:
 1. Energy Efficiency
 2. Clean Energy Generation
 3. Alternative Transportation
 4. Clean Grid & Storage
 5. Clean Fuels
- Specific sub-technologies within each sector

Clean Energy Employment, 2015-2019



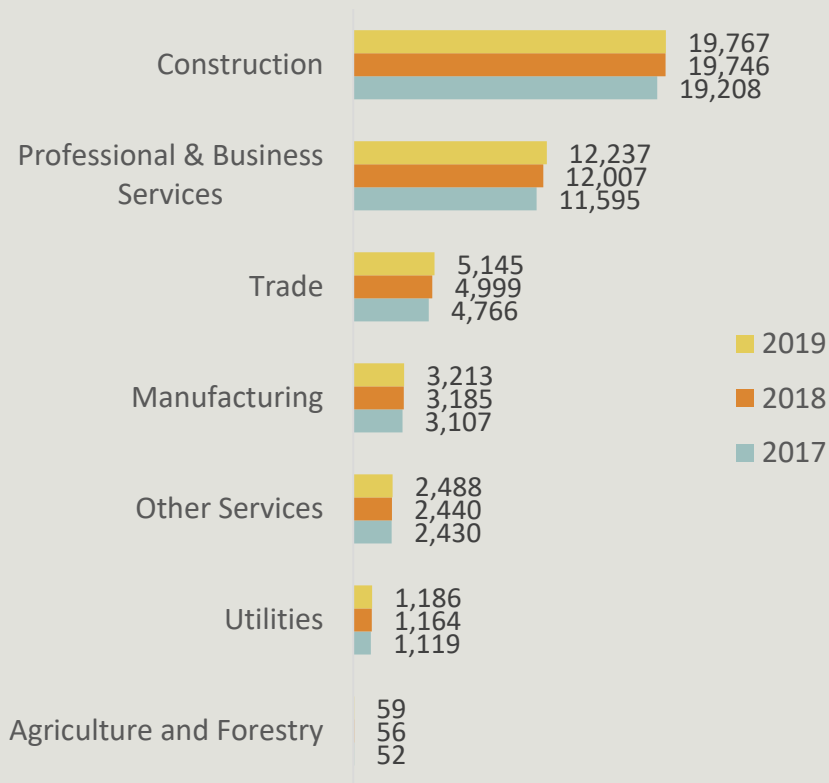
- 44,000 Clean energy jobs end of 2019
- 9.1% growth 2017-19
- +3,700 jobs in four years
- Clean energy jobs accounted for 2.6% of total jobs in CT end of 2019
- Clean energy job growth accounted for 3% of all job growth between 2018-19

Employment by Tech Sector, 2017-2019



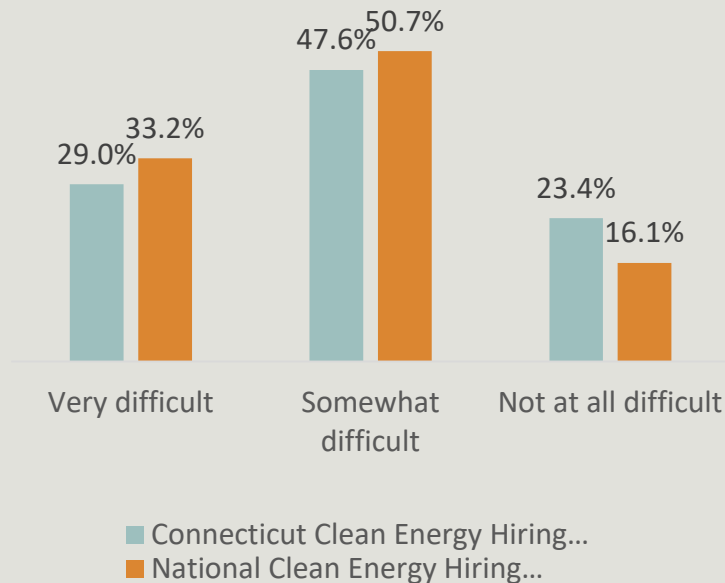
- EE accounted for eight in ten jobs
- EE: +3.6% (1,260 jobs) since 2017
- CEG: +6.2% (282 jobs)
- AT: +12.2% (203 jobs)
- Clean Fuels: +13% (73 jobs)
- Clean Grid: +0.5% (+4 jobs)

Value Chain Jobs, 2017-2019



- 45% of employment was in construction
- 28% in professional & business services (consulting, finance, legal, etc.)
- All industries grew from 2017-19

Hiring Difficulty, Q4 2019, pre-COVID-19



- 77% reported hiring difficulty
 - Lower compared to national average of 84%
- Lack of experience/industry knowledge, competition, small applicant pool
- Assessment based on pre-pandemic baseline, realities have likely changed

Clean Energy Worker Demographics

	Connecticut Clean Energy	Connecticut Overall
Male	72.0%	51.7%
Female	28.0%	48.3%
Hispanic or Latino	10.1%	16.8%
Not Hispanic or Latino	89.9%	83.1%
American Indian or Alaska Native	0.8%	0.6%
Asian	6.0%	5.0%
Black or African American	5.8%	12.1%
Native Hawaiian or other Pacific Islander	0.7%	0.1%
White	82.0%	79.7%
Two or more races	4.8%	2.5%
Veterans	10.6%	4.1%
55 and over	14.8%	27.4%
Union	6.8%	14.5%

Clean Energy Wages

	Entry	Median	Senior
Connecticut Average	\$ 11.55	\$23.33	\$ 55.04
Wind turbine service technicians	\$ 30.51	\$ 40.52	\$ 59.71
Solar photovoltaic installers	\$ 15.95	\$ 18.98	\$ 24.37
Electrician (energy efficiency)	\$ 22.40	\$ 35.80	\$ 47.63
HVAC mechanic	\$ 22.41	\$ 32.82	\$ 45.50
Insulation workers	\$ 17.34	\$ 25.73	\$ 33.97

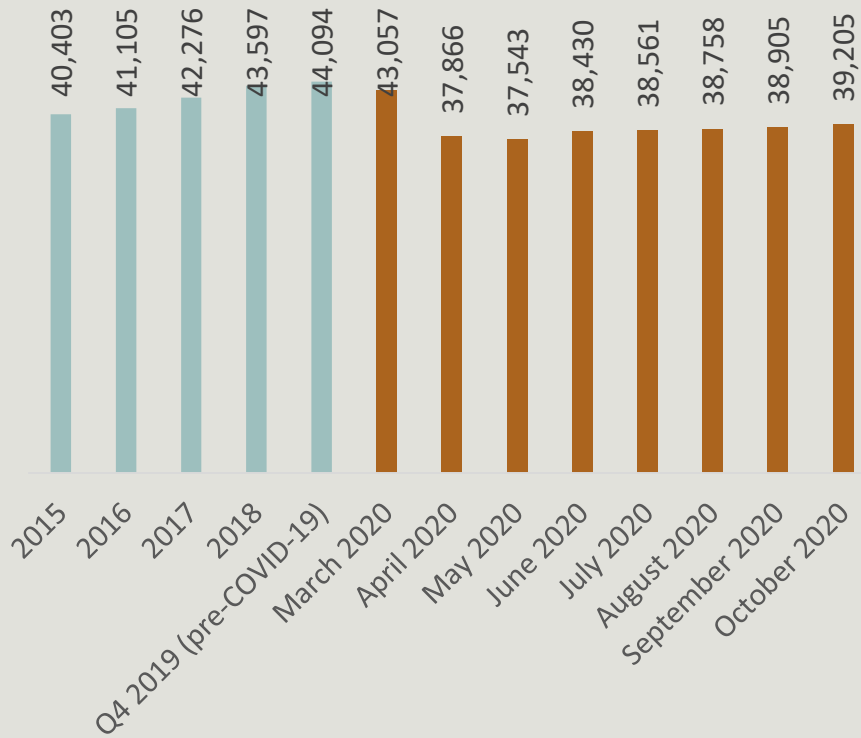
- 77% of surveyed clean energy occupations pay a premium
- 92% of surveyed entry-level clean energy occupations earn a premium



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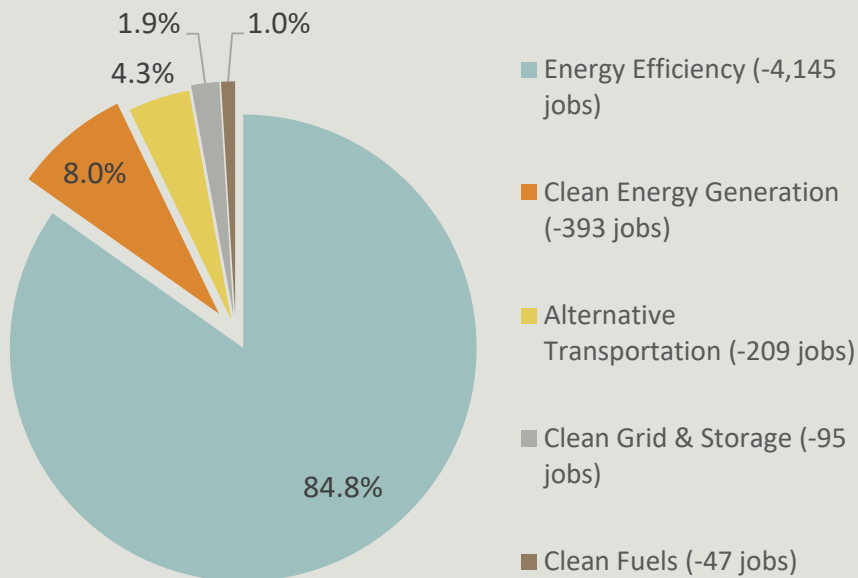
COVID-19 Impact on the Industry in Connecticut

COVID-19 Impacts, March-Oct 2020



- 11 percent decline from Q4 2019
- +1,662 jobs from June-Oct
- To date, there are 39,200 clean energy workers
 - 1,200 less than 2015 baseline
 - 4,900 less than 2019 baseline

COVID-19 Impacts by Technology

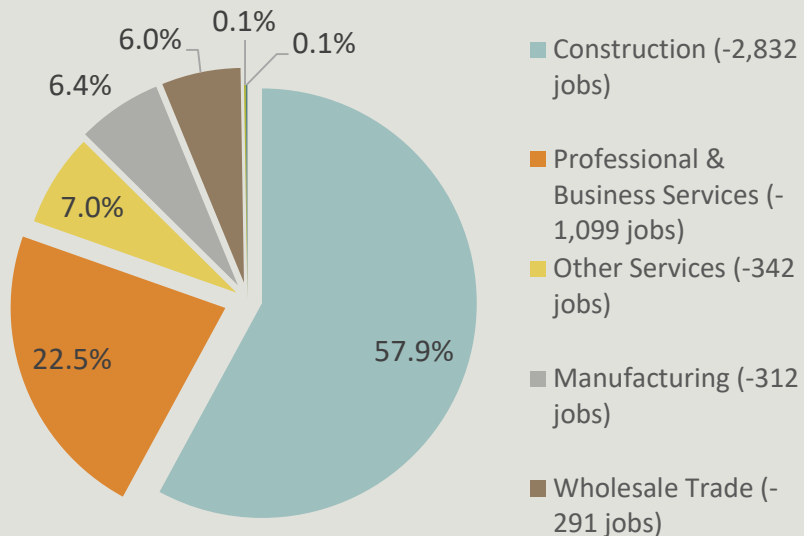


- EE sector accounted for 85% of job losses
 - -4,145 jobs from March-Oct
- Clean grid and storage had highest proportion of job losses
 - 12.4% decline from 2019 baseline

COVID-19 Impacts by Technology

	2019 Jobs	Cumulative Losses March - October	% of Jobs Lost
Energy Efficiency	36,000	(4,145)	-11.5%
Clean Energy Generation	4,830	(393)	-8.1%
Alternative Transportation	1,865	(209)	-11.2%
Clean Grid & Storage	761	(95)	-12.4%
Clean Fuels	638	(47)	-7.4%

COVID-19 Impacts by Value Chain



- Construction industry accounted for 6 in 10 job losses
 - +760 jobs back June-Oct
- Professional & business services about a quarter of job losses
 - +500 jobs back June-Oct

COVID-19 Impacts by Value Chain

	2019 Jobs	Cumulative Losses March - October	% of Jobs Lost
Agriculture and Forestry	59	(6)	-9.7%
Utilities	1,186	(7)	-0.6%
Other Services	2,488	(342)	-13.8%
Manufacturing	3,213	(312)	-9.7%
Trade	5,145	(291)	-5.7%
Professional & Business Services	12,237	(1,099)	-9.0%
Construction	19,767	(2,832)	-14.3%



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COVID-19 Response

Surveys to Inform Response

- In addition to the information gathered by BW Research, we conducted surveys to contractors
 - Survey #1 conducted April 14 – 24
 - Survey #2 conducted June 26 – July 16
 - Survey #3 underway now

Utilities' Pandemic Response

- Established a five-phase response to maintain progress in attaining energy savings, reducing GHG emissions, and supporting Connecticut's energy efficiency workforce.
- They include: (1) Health and safety, (2) Engage (workforce development), (3) Innovate (new channels and program offerings), (4) Plan (creating a pipeline of energy efficiency work), and (5) Install (increased incentives).



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Perspectives from the Front Lines

Residential Energy Efficiency

Lorenzo Wyatt

Home Comfort Practice

- 1. Introduce Company (background, history)**
- 2. Discuss COVID-19 Impact**
- 3. Recovery Efforts**



Home Energy Solutions - Contractor Perspective

- DEEP has stabilized industry during pandemic
- Health & Safety Protocols - workers and customers
- Enhanced incentives have worked
- Focus on workforce development



Home Energy Solutions - Contractor Perspective

- DEEP has stabilized industry during pandemic
 - Industry shutdown - 3/18/2020
 - Leadership - Utilities, health experts, contractors
 - Health & Safety Protocols - Back to work 6/22/2020
 - Enhanced incentives for efficiency upgrades



Home Energy Solutions - Contractor Perspective

- Health & Safety Protocols
 - Customer and contractor health declarations
 - PPE & disinfecting by field technicians
 - Distancing practices
 - Testing and contact tracing



Home Energy Solutions - Contractor Perspective

- Enhanced incentives have worked
 - Co-pay waived, \$2.20/sf for insulation, \$100/3-pane window
 - Contractors booking into February 2021
 - HES / HES-IE demand taxing industry capacity



Home Energy Solutions - Contractor Perspective

- Focus on workforce development
 - Contractors need audit and insulation techs, office
 - DEEP - C&LM 2021 Plan Update
 - Leveraging existing programs and resources
 - Promote EE industry training & employment



Home Energy Solutions - Contractor Perspective

- Enhanced incentives extended thru 3/31/2021
- Serving more ratepayers and creating jobs
- Solutions for Barriers to Weatherization imminent
- Accelerating pace of achieving CT 2030 EE goals
- outlook is positive...

HVAC

Paul Russo of Glasco Heating & Air Conditioning Inc.

- 1. Introduce Company (background, history)**
- 2. Discuss COVID-19 Impact**
- 3. Recovery Efforts**

Residential Solar PV

Mike Trahan of Solar Conn

1. Introduce Organization
2. Discuss COVID-19 Impact
3. Recovery Efforts

Commercial Solar PV

Mickey Toro of CTEC Solar

- 1. Introduce Company (background, history)**
- 2. Discuss COVID-19 Impact**
- 3. Recovery Efforts**

Commercial Energy Efficiency

Dan Robertson of Artis Energy

- 1. Introduce Company (background, history)**
- 2. Discuss COVID-19 Impact**
- 3. Recovery Efforts**



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Questions and Answers

Please use the Questions box in GoToWebinar.



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Thank you!