House Energy and Natural Resources Subcommittee on Energy Generation
Chairman Dick Stein and Chairman Michael O'Brien
Opponent Testimony on House Bill 6
Testimony of Tyler Duvelius
Executive Director, Ohio Conservative Energy Forum
April 23, 2019

Chairman Stein, Chairman O'Brien, my name is Tyler Duvelius. I serve as the Executive Director of the Ohio Conservative Energy Forum. I am here today to testify in opposition to House Bill 6, as introduced.

While working toward reduced carbon emissions in Ohio is a laudable goal, and one that we certainly all desire, OHCEF views a diverse energy portfolio as a conduit for economic growth, military might, and Ohio-led innovative progress. OHCEF has long acknowledged the importance of coal, natural gas, and nuclear energy in Ohio, but we also recognize the need for a diversified energy portfolio that is inclusive of new, renewable energy generation.

The introduction of this bill provides an important opportunity to recognize the value of a genuine, all-of-the-above energy policy in Ohio. Unfortunately, as introduced, HB 6 stops short of taking advantage of an opportunity to remove government regulations that are blocking the development of new sources of generation and the opportunities to create jobs, spur economic development, and increase revenue for local schools and communities. Ohio's energy portfolio should not be focused on creating new, government-run, tax and spend programs, but rather on trimming back existing government regulation - such as the current wind setback.

The cost of renewable energy has declined dramatically in recent years thanks to innovation-driven, free-market based technological advances. I have attached to my written testimony a report from Lazard, a top financial and asset advisory firm. This report seeks to create a "levelized" cost of energy by removing any subsidies (Exhibit 1). As you can see, the chart shows wind and solar energy competing with, and often beating, traditional sources of energy generation. The levelized cost of wind and solar hover around 6 cents per kilowatt hour (Exhibit 2). The removal of burdensome government regulations would allow renewable energy to compete fairly with other generation sources while unleashing economic benefits.

Any bill that tackles energy generation from a genuine, all-of-the-above perspective must include a revision to the current wind setback. Not including a revision to the setback is a missed opportunity to correct a burdensome government regulation that is impeding economic growth and restricting property rights for landowners. A poll of Ohio conservative voters by Public Opinion Strategies, commissioned by OHCEF, found that 75 percent of Ohio conservatives support a reasonable fix to the wind setback.

The same poll found 82 percent of Ohio conservatives support "allowing utility customers who generate their power for being compensated for generating more than they can use". With that in mind, it's time to take a look at implementing distributed generation policies that strengthen property owners' rights to generate energy on their land.

The inclusion of policies like these would provide the opportunity for local communities to create jobs, grow school funding, and spur economic development. To attempt to quantify this, the creation of sound energy policy would bring more than 13,000 new jobs, nearly $4 billion in capital investments, and $17.2 million in annual, local tax payments. In addition to these benefits, $16.9 million per year would be paid directly to Ohio landowners (Exhibit 3).

Finally, in a report released earlier this month by Clean Jobs Midwest (Exhibit 4), more than 112,000 Ohioans are employed by the clean energy industry. This is an increase of 4.6% from last year. 75% of these jobs are in construction and manufacturing. 11.4% of Ohio clean energy jobs, nearly 13,000 in total, are filled by veterans.

It is important to note that there are over 81,000 jobs in the energy efficiency sector. HB 6 would effectively eliminate the Energy Efficiency Resource Standard. OHCEF's support for energy efficiency comes from a self-evident principle – conservatives conserve. It should be no surprise that conservatives across Ohio agree. A whopping 83 percent of Ohio conservatives would support "requiring Ohio's utilities to provide cost-effective programs through which customers can market energy upgrades to their homes and businesses".

From 2009 to 2017, the EERS has saved Ohio more than 49 million megawatt hours of electricity. Our families, businesses, and churches have saved more than $5.1 billion on their electricity bills. In fact, according to the Midwest Energy Efficiency Association, for every $1 that was invested on energy efficiency programs in 2017, $2.65 in benefits for Ohio residents and businesses were created (Exhibit 5). Let's not discard energy policies that are working.

If Ohio is to attract and retain 21st Century jobs while continuing to add reliable, blue-collar, renewable energy jobs, we must have forward-thinking policies that remove regulation and increase the generation of made-in-Ohio energy. A diverse, innovation-led, all-of-the-above energy portfolio should be committed to the new generation of renewable energy that works in concert with coal, natural gas, and nuclear energy. This will ultimately save consumers money, create jobs, and strengthen our overall economy. In doing so, Ohio will be well positioned for future economic success while we build a stronger Ohio for our children to inherit.

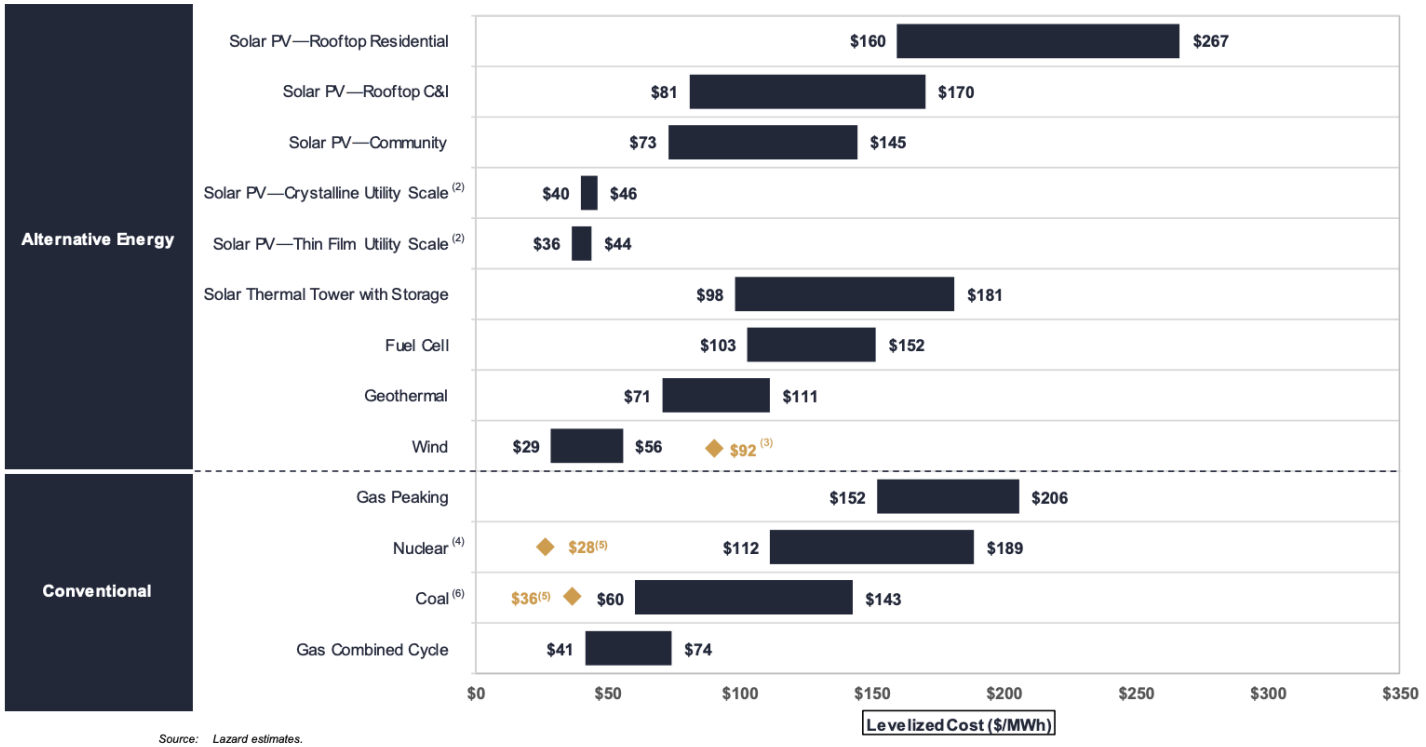
I am confident that a comprehensive, all-of-the-above energy policy that lifts all communities across our great state can be crafted. I hope the committee will take policies like these into consideration as the legislative process proceeds.

Thank you for your time. I am happy to answer any questions the committee may have.

Exhibit 1: Lazard's Levelized Cost of Energy Report

Levelized Cost of Energy Comparison—Unsubsidized Analysis

Certain Alternative Energy generation technologies are cost-competitive with conventional generation technologies under certain circumstances[1]



Source: *Lazard estimates.*

Note: Here and throughout this presentation, unless otherwise indicated, the analysis assumes 60% debt at 8% interest rate and 40% equity at 12% cost. Please see page titled "Levelized Cost of Energy Comparison—Sensitivity to Cost of Capital" for cost of capital sensitivities.

(1) Such observation does not take into account other factors that would also have a potentially significant effect on the results contained herein, but have not been examined in the scope of this analysis. These additional factors, among others, could include: import tariffs; capacity value vs. energy value; stranded costs related to distributed generation or otherwise; network upgrade, transmission, congestion or other integration-related costs; significant permitting or other development costs, unless otherwise noted; and costs of complying with various environmental regulations (e.g., carbon emissions offsets or emissions control systems). This analysis also does not address potential social and environmental externalities, including, for example, the social costs and rate consequences for those who cannot afford distribution generation solutions, as well as the long-term residual and societal consequences of various conventional generation technologies that are difficult to measure (e.g., nuclear waste disposal, airborne pollutants, greenhouse gases, etc.).

(2) Unless otherwise indicated herein, the low end represents a single-axis tracking system and the high end represents a fixed-tilt design.

(3) Represents the estimated implied midpoint of the LCOE of offshore wind, assuming a capital cost range of approximately $2.25 – $3.80 per watt.

(4) Unless otherwise indicated, the analysis herein does not reflect decommissioning costs or the potential economic impacts of federal loan guarantees or other subsidies.

(5) Represents the midpoint of the marginal cost of operating fully depreciated coal and nuclear facilities, inclusive of decommissioning costs for nuclear facilities. Analysis assumes that the salvage value for a decommissioned coal plant is equivalent to the decommissioning and site restoration costs. Inputs are derived from a benchmark of operating, fully depreciated coal and nuclear assets across the U.S. Capacity factors, fuel, variable and fixed operating expenses are based on upper and lower quartile estimates derived from Lazard's research. Please see page titled "Levelized Cost of Energy Comparison—Alternative Energy versus Marginal Cost of Selected Existing Conventional Generation" for additional details.

(6) Unless otherwise indicated, the analysis herein reflects average of Northern Appalachian Upper Ohio River Barge and Pittsburgh Seam Rail coal. High end incorporates 90% carbon capture and compression. Does not include cost of transportation and storage.

Source: https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf

Exhibit 2: Cost of Renewable Energy

Power Plant Type	Cost (LCOE) $/kW-hr
Coal with CCS	$0.12-0.13
CC Natural Gas	$0.05
CC with CCS	$0.075
Nuclear	$0.093
Wind onshore	$0.059
Wind offshore	$0.139
Solar PV	$0.063
Solar Thermal	$0.165
Geothermal	$0.045
Biomass	$0.095
Hydro	$0.062

Adapted from US DOE[2]

Source: http://renewable-energysources.com/#2

Department of Energy Report: https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf

Exhibit 3: Opportunities for Economic Growth

Wind Project	Siting Status	MW	County	Project Investing in Ohio	Lifetime Operational Expenditures in Ohio	Lifetime Land Lease Payments	Lifetime PILOT Payments	Constructi on Jobs	Supply Chain Jobs	Operating Jobs
Buckeye	Approved	135	Champaign	$83,425,744	$46,509,140	$18,141,129	$27,211,693	83	456	7
Hog Creek	Approved	66	Hardin	$41,319,014	$23,325,074	$8,868,996	$13,303,495	60	223	4
Hardin	Approved	300	Hardin	$184,522,248	$101,235,013	$40,313,620	$60,470,430	152	1,012	14
Black Fork	Approved	200	Crawford, Richland	$123,240,131	$68,314,762	$26,875,747	$40,313,620	110	675	10
Buckeye II	Approved	140	Champaign	$86,485,215	$48,171,749	$18,813,023	$28,219,534	85	473	8
Northwest Ohio	Approved	100	Paulding	$61,958,014	$34,804,914	$13,437,873	$20,156,810	67	338	6
Greenwich	Approved	60	Huron	$37,638,280	$21,291,917	$8,062,724	$12,094,086	57	203	4
Scioto Ridge	Approved	231	Hardin, Logan	$142,187,786	$78,296,223	$31,041,487	$46,562,231	121	779	11
APPROVED TOTALS		**1,232**		**$760,776,431**	**$421,948,793**	**$165,554,599**	**$248,331,899**	**735**	**4,159**	**64**
Seneca Wind Farm	Pending	200	Seneca	$123,240,131	$68,314,762	$26,875,747	$40,313,620	110	675	10
Timber Road IV	Pending	200	Paulding	$123,240,131	$68,314,762	$26,875,747	$40,313,620	110	675	10
Icebreaker*	Pending	21	Offshore	$13,560,589	$7,560,380	$0	$0	40	70	2
Long Prairie Wind	Proposed	450	Van Wert	$276,783,371	$151,852,520	$60,470,430	$90,705,645	228	1,518	20
Emerson Creek Wind	Proposed	300	Seneca	$184,522,248	$101,235,013	$40,313,620	$60,470,430	152	1,012	14
Republic Wind	Proposed	200	Seneca, Sandusky	$123,240,131	$68,314,762	$26,875,747	$40,313,620	110	675	10
Emerson West Wind	Proposed	200	Erie, Huron	$123,240,131	$68,314,762	$26,875,747	$40,313,620	110	675	10
Avangrid Proposals	Proposed	250	Putnam, Van Wert	$153,784,632	$84,362,511	$33,594,683	$50,392,025	127	843	11
EDPR Proposals	Proposed	250	Not specified	$153,784,632	$84,362,511	$33,594,683	$50,392,025	127	843	11
PROPOSED TOTALS		**2,071**		**$1,275,395,995**	**$702,631,982**	**$275,476,403**	**$413,214,605**	**1,114**	**6,986**	**98**
TOTAL		**3,303**		**$2,036,172,426**	**$1,124,580,775**	**$441,031,003**	**$661,546,504**	**1,849**	**11,145**	**162**

Source: A Renewable America Economic Development Report, May 2017

Exhibit 4: Clean Jobs Midwest Report

2019 CLEAN JOBS MIDWEST — OHIO

EXECUTIVE SUMMARY

Ohio: Home to 112,000 Clean Energy Jobs

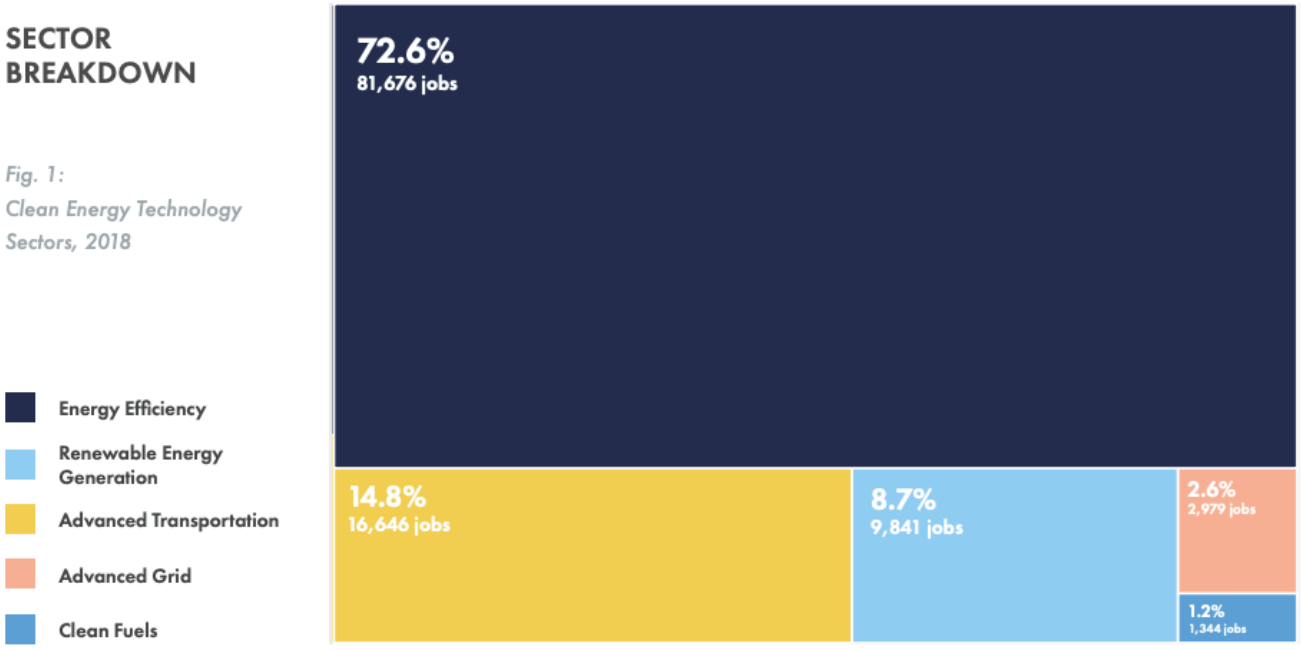
OHIO'S CLEAN ENERGY INDUSTRY ADDS 5,000 JOBS

The clean energy industry in Ohio is a major employer with more than 112,486 jobs. That's the third-most of any state in the Midwest, and it's enough to fill Ohio Stadium to capacity with thousands more people still outside tailgating. In 2018, Ohio clean energy businesses added 4,975 jobs. That's a 4.6 percent growth rate -- higher than the regional average. Advanced transportation added about 2,400 jobs for a 16.6 percent increase, higher than all other clean energy sectors in the state.

Energy efficiency remains Ohio's largest clean energy employer; the sector is home to 72 percent of the state's clean energy jobs. Thousands of different Ohio companies and establishments hire clean energy workers in any given year. Combined, these employers anticipate a 7.4 percent growth rate in 2019, a shade higher than the Midwestern clean energy industry average.

SECTOR BREAKDOWN

Fig. 1: Clean Energy Technology Sectors, 2018



1. Unless otherwise stated, all data is based on the 2019 USEER. Energy Futures Initiative. (2019). The U.S. Energy Employment Report. Washington, DC. www.usenergyjobs.org. The Data provided relies on thousands of data points provided via survey. EFI, NASEO and BWRP have made every effort to supply current and accurate information but assume no responsibility or liability for any decisions based upon the information presented. For more information on the survey methodology see cleanjobsmidwest.com/about.

Fig. 4:
Wind and Solar Jobs, 2018 and 2017 Comparison

Wind, geothermal, bioenergy, and low-impact hydro all grew by double-digits in 2018. There are now 1,733 jobs between these four sub-sectors; wind alone now employs 1,080 Ohioans.

IN ADVANCED GRID SECTOR, ENERGY STORAGE RACKS UP JOBS

The advanced grid sector employs 2,979 Ohioans, 137 more than in 2017 for a 4.8 percent growth rate. Energy storage is the sector's largest employer with 1,303 jobs, 59 more than 2017. As the fourth-largest clean energy employer in the state, the sector also includes jobs in smart grid, microgrid, and other grid modernization work.

CLEAN FUELS JOBS DROP

1,344 Ohioans work in the clean fuels sector. This was a 2.3 percent decrease from 2017, a loss of loss of 31 jobs. The clean fuels sector encompasses non-corn ethanol, non-woody biomass, and other technologies not yet in wide commercial production including algal biofuel, syngas, bioheat blends, landfill gas, and advanced biofuels.

Fig. 5:
Top 3 MSAs in Clean Energy Employment, 2018

Metro Area (MSA)	Total Clean Energy Employment	Renewable Energy Employment	Energy Efficiency Employment
Cleveland-Elyria-Mentor, OH MSA	22,125	1,568	16,268
Columbus, OH MSA	17,049	672	13,142
Cincinnati-Middletown, OH-KY-IN MSA	15,901	1,191	11,706

CLEAN ENERGY INDUSTRY OUTLOOK

Ohio clean energy employment grew 4.6 percent in 2018, a gain of about 5,000 jobs as the renewable energy, advanced grid, energy efficiency, and alternative transportation sectors all experienced growth. The industry now accounts for more than 2 percent of all jobs in the state. The alternative transportation sector experienced the most dramatic year-over-year increase in Ohio -- nearly 17 percent growth. This was due in part to the increased popularity of EVs. In 2018, EV sales increased 80 percent.

Clean energy job growth in Ohio is expected to continue. Clean energy employers in the state project a 7.4 growth in jobs in 2019, slightly higher than the regional average.

COMPARING CLEAN ENERGY JOBS TO FOSSIL FUEL JOBS

In 2018, more than 38,000 Ohioans worked in fossil fuel energy jobs in industries like coal, natural gas, and oil.[2] Jobs in the coal industry dropped by 9.8 percent, while renewable energy jobs grew by 5 percent.

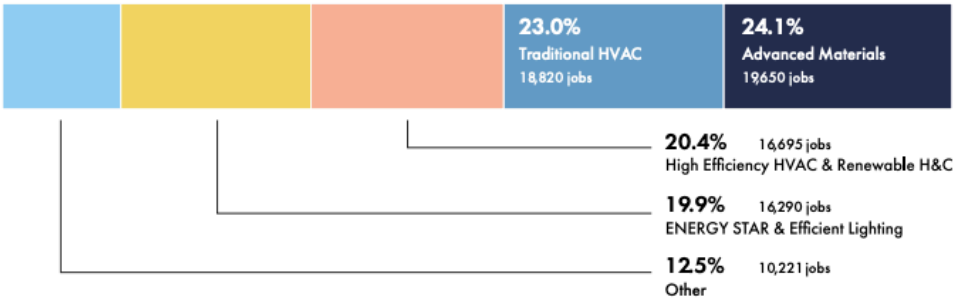
2. U.S. Bureau of Labor Statistics Local Area Unemployment Statistics, 2018 Preliminary Data

ENERGY EFFICIENCY REMAINS OHIO'S TOP CLEAN ENERGY EMPLOYER

More Ohioans work in energy efficiency -- 81,676 -- than any other clean energy sector in the state. In 2018, Ohio employers created 2,023 energy efficiency jobs, a 2.5 percent growth rate.

Energy efficiency workers help consumers around the state reduce the amount of wasted energy as they fuel their lives, homes and businesses. They manufacture ENERGY STAR-rated kitchen appliances; install efficient lighting systems at car dealerships; implement software that optimizes traditional heating, ventilation and air conditioning (HVAC) systems in high schools, and handle advanced building materials at new office towers.

Fig. 2:
Energy Efficiency Subsectors, 2018



ADVANCED TRANSPORTATION'S U-TURN

Advanced transportation is Ohio's No. 2 clean energy sector with 16,646 jobs. Following job losses in 2017, employment in the sector in 2018 spiked 16.6 percent, good enough for a gain of 2,374 jobs.

Growth was led by jobs building and developing plug-in hybrid vehicles, electric vehicles (EVs), and hybrid electric vehicles. The hybrid electric vehicle sub-sector now employs 7,243 people, 11 percent more than in 2017. Employment in Ohio's plug-in hybrid vehicle sub-sector grew 31.4 percent to 3,474 jobs, while the EV sub-sector employs 4,462 people, about 24 percent more than a year ago.

NEARLY 10,000 OHIOANS WORK IN RENEWABLES

The third-largest employer in the state's clean energy industry is renewable energy generation with 9,841 workers. Bucking a national downward trend in renewable energy jobs, Ohio's renewables sector employment actually increased 5 percent, adding 472 jobs.

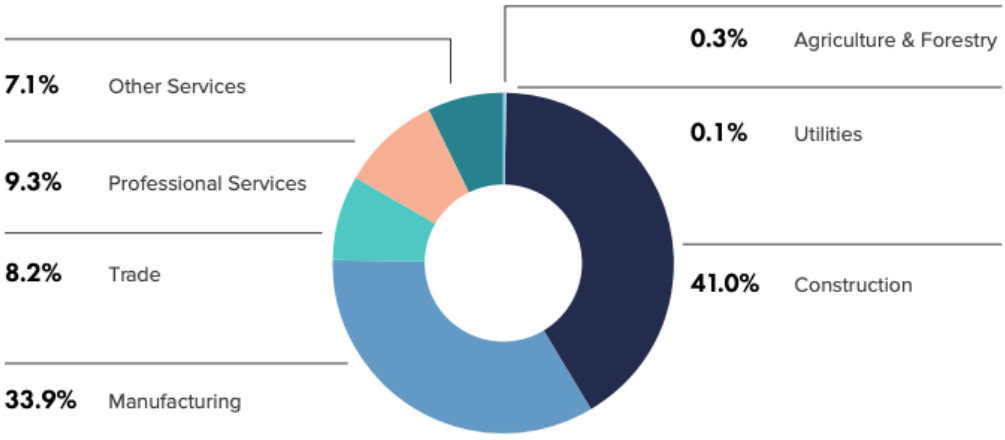
Fig. 3:
Renewable Energy Subsectors, 2018

Solar is Ohio's largest renewable energy sub-sector with 8,108 jobs and grew by 0.2% in 2018; the state employs more solar energy workers than any other state in the Midwest.

VALUE CHAIN

In addition to breaking down clean energy jobs by industry, jobs can also be categorized by their function in the value chain. This report divides the clean energy jobs value chain into the following categories: agriculture, utility, construction, manufacturing, trade, professional service, and other service jobs. Each value chain category captures jobs from multiple clean energy sectors and industries.

Fig. 6: Clean Energy Jobs Value Chain, 2018



When Ohio clean energy jobs are broken down by their placement in the value chain, construction is home to 41 percent of the jobs, while manufacturing is home to 33.9 percent.

DEMOGRAPHICS

Throughout the state, 11.4 percent of the state's clean energy workers are military veterans. By comparison, veterans make up 6 percent of the national labor force.[3] The large ratio of military veterans transitioning to clean energy jobs is partially the result of the U.S. Department of Defense's long-standing commitment to investing in renewable energy, energy efficiency and training programs that prepare veterans for private-sector employment in industries like solar.

Small businesses drive the state's clean energy sector – 63 percent of Ohio's clean energy businesses employ fewer than 20 individuals.

3. 2018 Bureau of Labor Statistics Current Population Survey (CPS) https://www.bls.gov/cps/demographics.htm

SUMMARY

The businesses and establishments that constitute Ohio's clean energy industry added about 5,000 jobs in 2018, a 4.6 percent growth rate. This means clean energy jobs in Ohio are growing slightly faster than the Midwestern regional average, and three times faster than the country as a whole. Taken together, the clean energy industry in Ohio is home to about 112,000 jobs, which is about 2 percent of all the jobs in the state.

While energy efficiency remains the dominant employer with nearly three out of every four Ohio clean energy jobs, 2018 also saw big job gains in advanced transportation, renewable energy, and smart grid. While solar jobs in Ohio slipped, the sub-sector nonetheless remains a bigger employer in the Buckeye State than in any other state in the entire Midwest.

Source: https://www.cleanjobsmidwest.com/wp-content/uploads/2019/04/Ohio_CJM-Exec-Summary-FINAL.pdf

Exhibit 5: Midwest Energy Efficiency Association Energy and Bill Savings Analysis

Energy Efficiency in Ohio

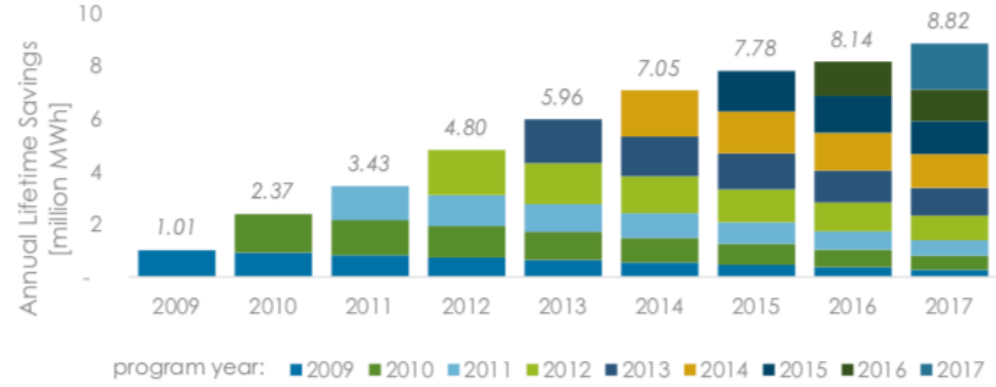
Energy & Bill Savings for Customers, 2009-2017

Using annual savings data reported by Ohio's investor-owned utilities, the Midwest Energy Efficiency Alliance (MEEA) has estimated the lifetime energy and energy bill savings that have accumulated to customers since the beginning of Ohio's energy efficiency resource standard in 2009. Our analysis runs through 2017, the most recent year for which actual savings data are available. **Cumulative savings of 49 million MWh of electricity have generated $5.1 billion in customer bill savings** over the period.

Cumulative Energy Savings

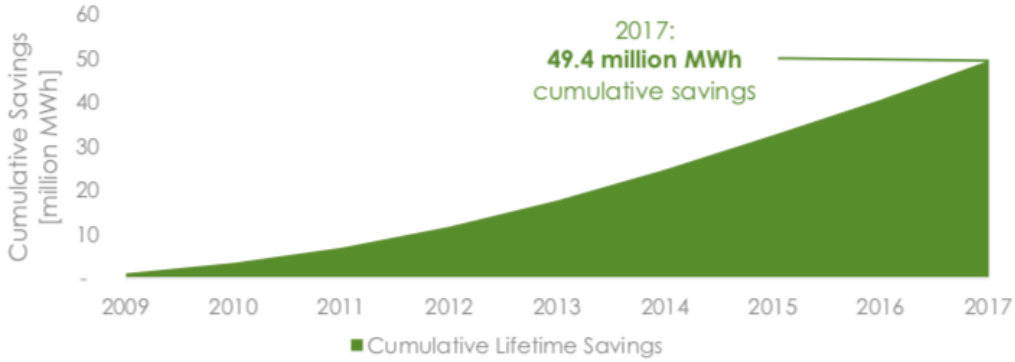
Savings from energy efficiency programs do not only accrue in the year the energy efficiency measure was installed but also persist in future years over the lifetime of the efficiency measure. This accumulation of savings is shown below.

Figure 1: Annually accumulating electricity savings from Ohio EE programs, 2009-2017



By 2017, the program year savings plus the persistent savings from previous program years add up to **8.8 million MWh annual lifetime savings**. Cumulatively, the electricity savings that have accrued from Ohio's energy efficiency resource standard through 2017 are over 49 million megawatt-hours.

Figure 2: Cumulative lifetime electric savings from Ohio EE programs, 2009-2017



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