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CONGRESSIONAL BRIEFING

Unlocking Capital For Climate Solutions: The Benefits of a National Climate Bank

Tuesday, June 08, 2021

About EESI...



NON-PROFIT

Founded in 1984 by a bipartisan Congressional caucus as an independent (i.e., not federally-funded) non-profit organization

💲 NON-PARTISAN

Source of non-partisan information on environmental, energy, and climate policies

S DIRECT ASSISTANCE

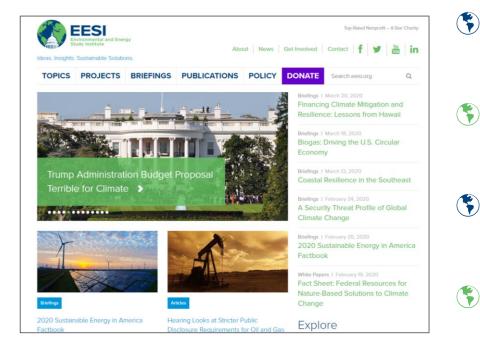
In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop "on-bill financing" programs

SUSTAINABLE SOCIETIES

Focused on win-win solutions to make our energy, buildings, and transportation sectors sustainable, resilient, and more equitable

...About EESI





HILL BRIEFINGS

Video recordings and written summaries of Congressional briefings

CLIMATE CHANGE SOLUTIONS

Bi-weekly newsletter with all you need to know including a legislation tracker

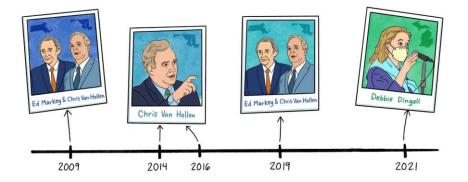
SOCIAL MEDIA (@EESIONLINE)

Follow us on Twitter, Facebook, LinkedIn, Instagram, and YouTube

FACT SHEETS

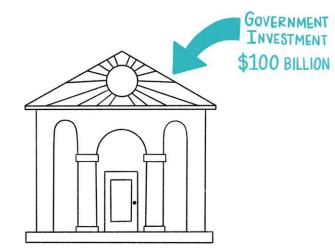
Timely, science-based coverage of climate and clean energy topics

Clean Energy and Sustainability Accelerator





Green Banks combine \$1 public money with \$3 private money





Green banks succeeding for last decade

21 green banks in 15 states & D.C. during last 10 years.

They have spent \$1.9 billion, causing **\$7 billion total investment** in clean power platform.





Time for green banks in every state

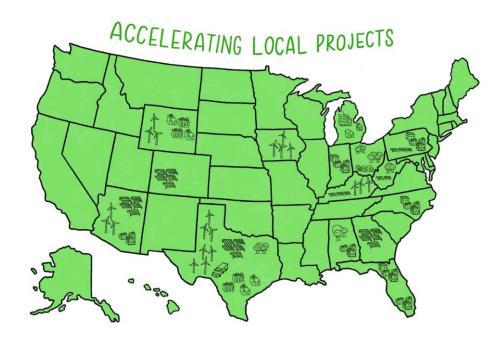
Currently 22 more states asking for green banks





Day 1: Accelerator funds state green banks

- Local solutions to local problems
- Involve private investors, utilities, contractors
- Involve mayors, city councils



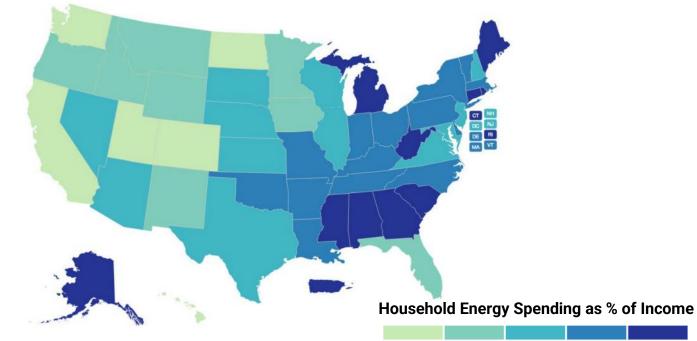


The Problem

Explained in 4 U.S. maps



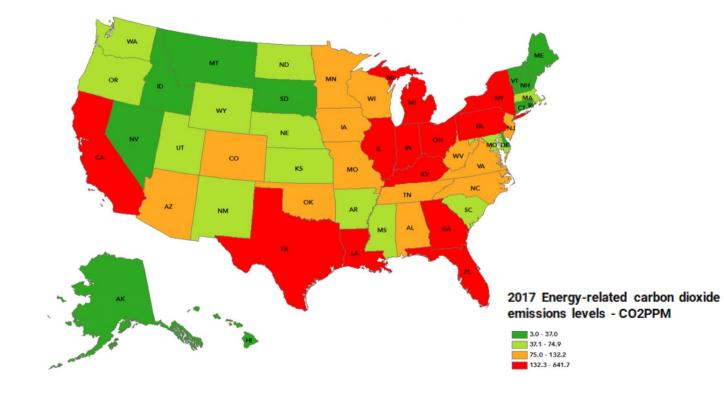
1. Carbon power hits consumers harder, differently in different states





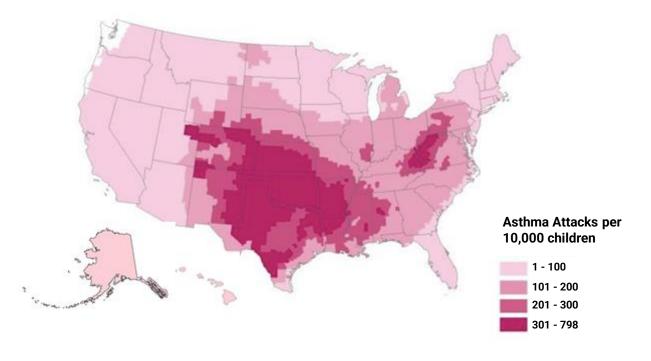
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2. States differ in dependence on carbon power



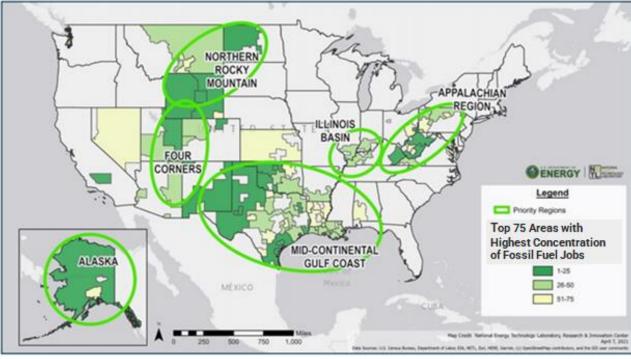


3. Leaving some children worse off than others



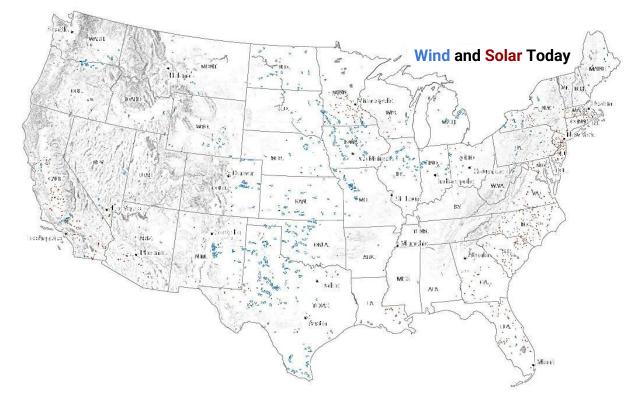


4. While transition hits workers differently in different states





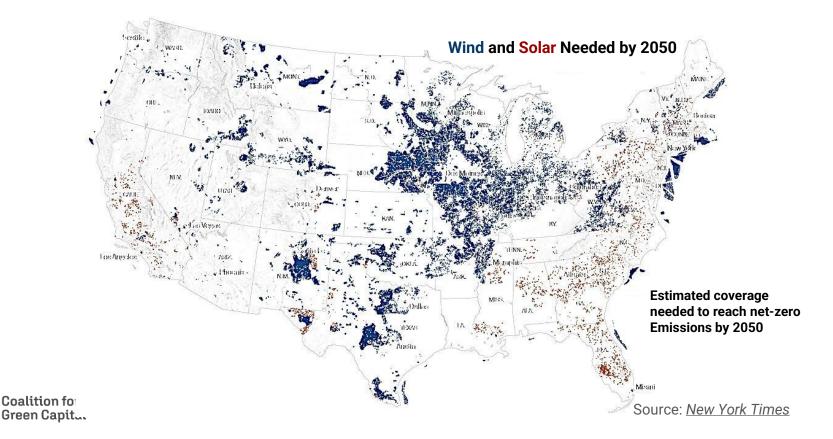
Today: Clean, Safe Power for Some



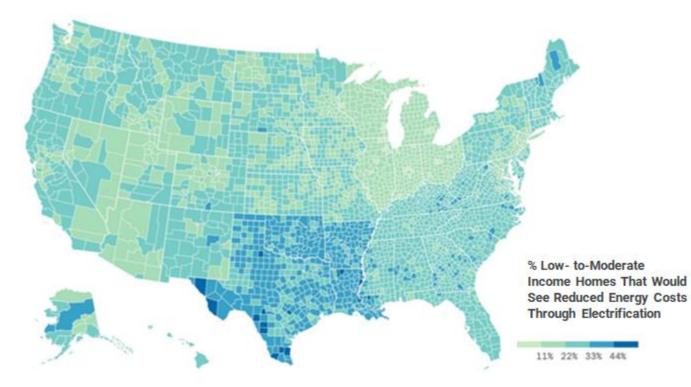


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Solution: Clean, Safe Power for Everyone



... lowering energy costs for everyone





....moving from carbon to clean, cheap, safer power



\$100B Accelerator Vital to Critical Objectives

- Wind and solar power electricity multiply market share by 6x
- High-voltage lines link offshore, Great Plains wind and desert solar to every distribution utility
- Battery storage in every regional grid
- Heavily-driven vehicles use electric motors



...creating jobs for everyone

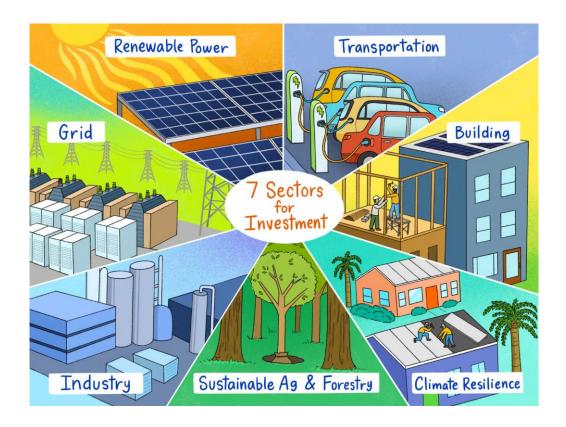


SOC Code	Job Classification					
17-2040	Chemical Engineers		SOC Code	Job Classification		
51-2022	Electrical and Electronic Equipment Assemblers			Job classification		
17-2071	Electrical Engineers		13-1071	Human Resource S	Human Resource Specialists	
17-2112	Industrial Engineers		13-1051	Cost Estimators	Cost Estimators	
17-2131	Materials Engineer		40.4044	0	Compliance Officers	
17-3012 17-3012	Float and Float and Float and Float and Float		13-1041	Compliance Office	Compliance Officers	
17-3012	Electrical and Electronics Engineering Technolog Industrial Engineering Technologists and Techni		13-2011	Accountants and A	Accountants and Auditors	
17-3027	Industrial Engineering Technologists and Techni Mechanical Engineering Technologists and Tech		13-2031 Budget Analysts			
41-4011	Sales Representatives, Wh			0 /	0 /	
49-9041	Industrial Machinery Mech		13-2040	-2040 Credit Analysts		
49-9043	Maintenance Workers, Machinery		13-2053	Insurance Underw	Insurance Underwriters	
51-1011	First-line Supervisors of Pr				Π	
51-2022	Elect SOC Code	Job Classi	fication			
51-2092	Team 11-1010	Chief Exe	cutives		ecialist	
51-2099 51-4041	Asse Mach 11-1021	General a	nd Operations M	anagers	and Clerks	
51-4041	Multi 11-2011		General and Operations Managers		Assistants	
51-4121	Weld		0	is Managers		
51-4122	Weld 11-2022	Sales Mar	nagers		ministrative Assistants	
51-4193	Platir 11-2021	Marketing	g Managers		opment Specialists	
51-4199 51-8012	Meta Powe 11-3012	Administ	rative Service Ma	nagers	llectors	
51-8012	Cutti 11-3013	Facilities	Managers		Clerks	
51-9061	Inspe 11-3021		-	Systems Managers	unting, and Auditing Clerks	
51-9124	Coati 11-3031	Financial		-,	0, 0	
	11-3051		Project Manager	·c	eping Clerks	
	11-3061		g Managers	-	S	
	11-3071		0 0	nd Distribution Managers	Checkers, and Clerks	
	11-3071		ation and Benefit	· · ·	Representatives	
	11-3121			0	nformation Clerks	
			Human Resources Managers		z, and Inventory Clerks	
	11-3130	Training a	framing and Development Managers		· ·	
	23-1011	Lawyers			trative Supply Workers	
	23-2011	Paralegal	s and Legal Assist	ants		



...in 7 key sectors

- Renewable Power
- Grid Infrastructure
- Transportation
- Buildings
- Climate Resilience
- Industry
- Sustainable Ag & Forestry





...in every community

- Accelerator \$100 billion + \$800 billion in private sector money = \$900 billion invested in 10 years
- 4 million jobs in 4 years
- Work in every community



Justice for all

- "True" carbon to clean transition delivers victory in climate crisis, justice for communities harmed by pollution, hit by job loss, left out of gains enjoyed by the rest of country
- Accelerator invests 40% into front-line, low-income communities





...so America can lead world.

- Accelerator-driven investment reduces 20% of American emissions
- Single biggest climate reduction program per dollar in American Jobs Plan
- "Biggest investment opportunity of century"







Co-Founder & CEO: Reed Hundt, rehundt@gmail.com

Executive Director: Jeffrey Schub, jeff@coalitionforgreencapital.com

Policy Director: Meghan Conklin, meghan@coalitionfogreencapital.com

Learn more at https://coalitionforgreencapital.com/accelerator/

Follow us @CGreenCapital





Connecticut Green Bank Unlocking Capital for Climate Solutions

Environmental and Energy Study Institute June 8, 2021

Connecticut Green Bank About Us



- <u>Quasi-public organization</u> broad enabling statute and powers set forth in Conn. General Statute 16-245n
- Focus Finance clean energy (e.g., renewable energy, energy efficiency, and alternative fuel vehicles and infrastructure) by leveraging public capital with multiples of private capital
- Support from a variety of sources, including:
 - <u>State Support</u> \$0.001/kWh surcharge (i.e., Clean Energy Fund) on electric ratepayer bills (about \$7-\$10 per household per year ≈ \$25 MM per year) and RGGI allowance proceeds about \$3-5 MM per year (renewable energy)
 - <u>Federal Support</u> competitive solicitations (e.g., SunShot, SEEDS), noncompetitive resources (e.g., ARRA-SEP, etc.), and maybe Accelerator
 - <u>Other Support</u> issue "green bonds," interest income, and foundations (e.g., PRI's)

Connecticut Green Bank Mission Statement and Goals





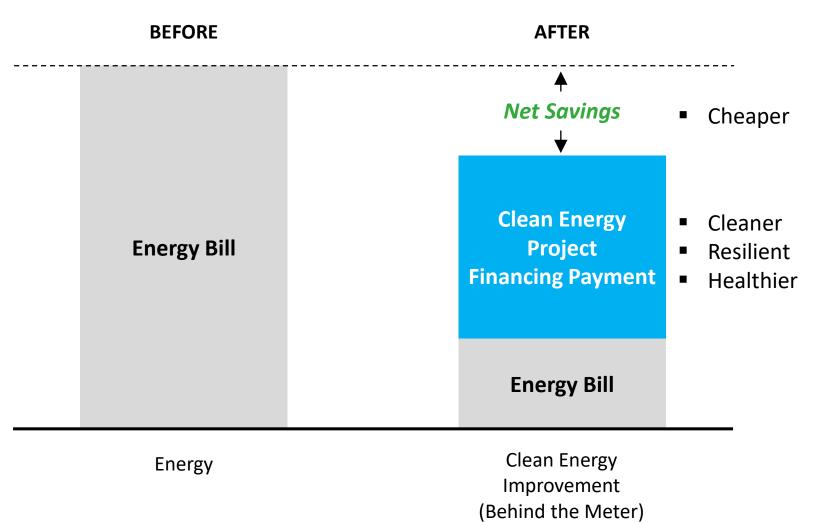
<u>Confront climate change</u> and provide all of society a healthier and more prosperous future by <u>increasing</u> <u>and accelerating the flow of private capital</u> into markets that energize the green economy.

- 1. Leverage limited public resources to scale-up and <u>mobilize private</u> <u>capital investment</u> in the green economy of Connecticut.
- Strengthen Connecticut's communities, <u>especially vulnerable</u> <u>communities</u>, by making the benefits of the green economy inclusive and accessible to all individuals, families, and businesses.
- Pursue investment strategies that <u>advance market transformation in</u> <u>green investing</u> while supporting the organization's pursuit of financial sustainability.





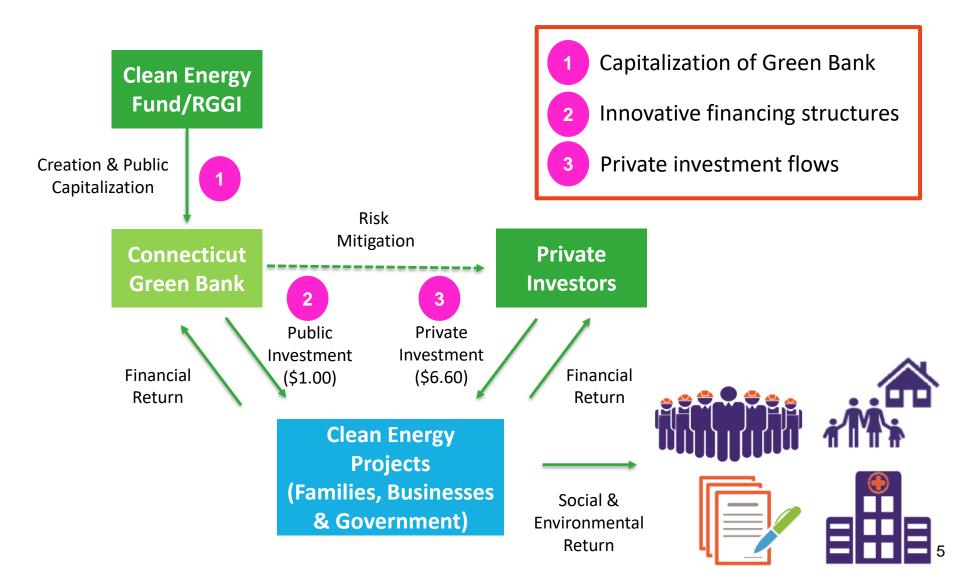
Reduce Costs – Increase Customer Demand

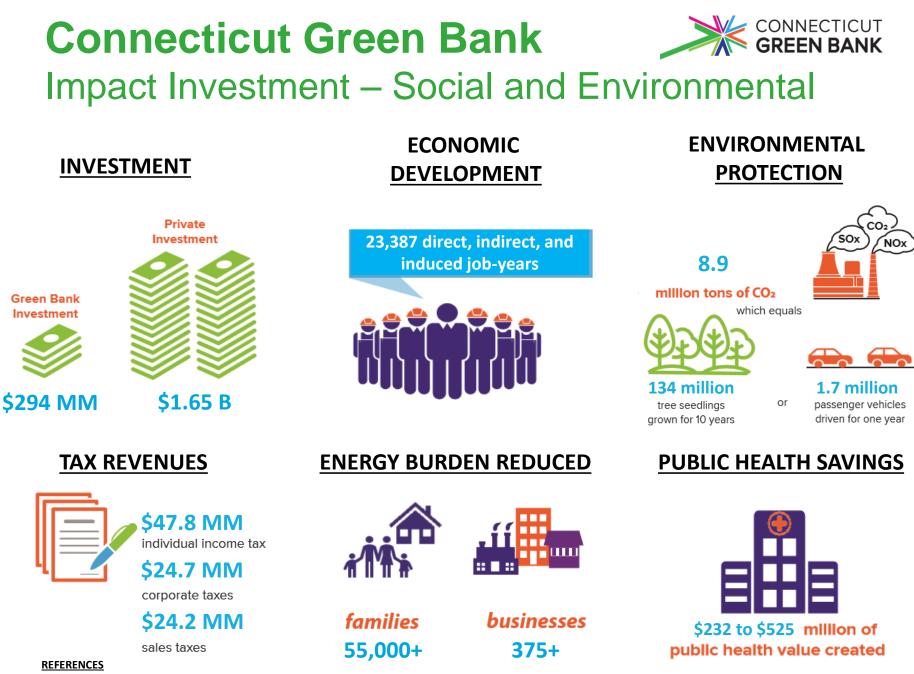


Green Bank Model



Reduce Risk – Increase Supply of Private Capital



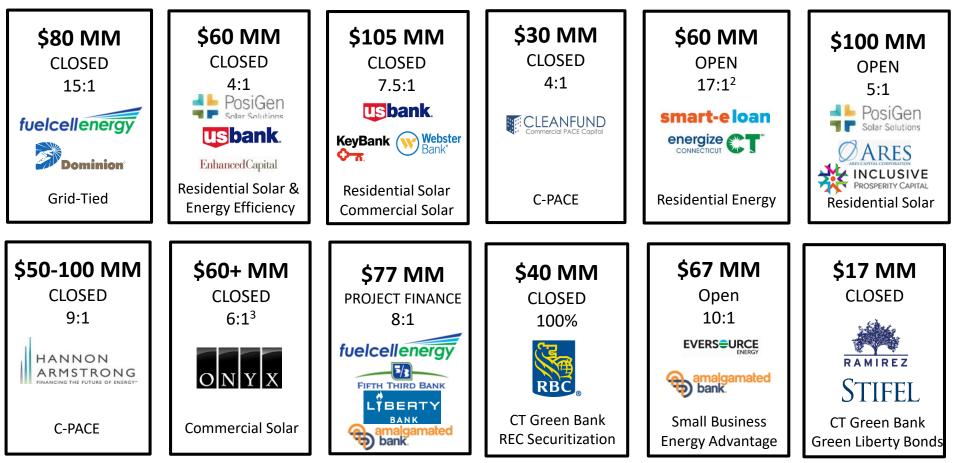


Comprehensive Annual Financial Report for FY2020 (p. 110)

Public-Private Partnerships



>\$800 Million¹ in Private Capital Raised (5 Years)



REFERENCES

- 1. Several transactions such as small hydro, wind, microgrid, CHP and anaerobic digestors not represented on slide
- LLR of \$3.3 MM yields high leverage and it is 2nd loss and thus with no to low defaults (i.e., 10 loans out of 3,447 have defaulted as of 12/31/18 with \$22K in LLR). IRB's using ARRA-SEP not considered in the leverage ratio.

Energy Infrastructure



Residential Solar PV and Energy Efficiency Lease

Market Segment	Residential Single Family LMI (Co-Investment)
Product Summary	Solar lease + energy efficiency package (fixed 20 years) to reduce energy burden with alternative underwrite/no credit score using community based marketing approach
Support Needed	 Good solar economics including tiered LMI incentive Municipal, community and nonprofit introductions Subordinated debt capital – if available, but not required
CT Results	3,328 leases for \$91.8 MM investment, 21.9 MW, 99.9% get EE (HES), 63% ESA, and reached 75% LMI



Income Band (% State Median Income)	# Households	Energy Spending	Burden	Household Income	Affordability Gap per House hold
0-30	201,146	\$2,119	19%	\$11,152	\$1,450
>30-60	238,018	\$2,550	8%	\$31,875	\$638
>60-80	93,792	\$2,753	6%	\$45,883	No gap
>80-100	149,272	\$2,933	4%	\$73,325	No gap



REFERENCES Comprehensive Annual Financial Report FY 2020

Waste Infrastructure Food Waste to Energy AD Project



	Market Segment	Project Finance (Co-Investment)		
	Project Summary	Provided long-term subordinated debt (i.e., 15 years) at low interest rate (i.e., 2%) for 20% of the capital structure to finance the 1 st AD project of its kind in CT		
	Support Needed	 Links to food waste collection policy (PA 11-127) Attracted local lender as a senior debt provider (i.e., Peoples Bank) along with equity and tax equity 		
	CT Results	\$10 MM project, 1 MW, diverts organic materials from waste stream while producing renewable energy		





Water Infrastructure New England Hydropower



Market Segment	Virtual Net Metering – Municipality (Investment)
Project Summary	Long-term PPA (i.e., 30+ years) for behind the meter (VNM) for this run-of-the-river hydro facility in Meriden – first of its kind in the U.S.
Support Needed	 Project finance Support for start-up developer using European technology Working capital (Webster Bank), construction financing (Key Bank), and green bonds (BAML)
CT Results	\$3 MM investment using federal CREBs and 193 kW hydro project





Green Liberty Bonds



Celebrating the 50th Anniversary of Earth Day



Connecticut Green Bank Vision Statement





...a planet protected by the love of humanity



REFERENCES

Vision Statement inspired by the Innovations in American Government Awards at the Ash Center of Harvard University's Kennedy School of Government, Mayor Muriel Bowser of Washington, DC, Maya Angelou's "On the Pulse of Morning," and the powerful words of Mary Evelyn Tucker on "inclusive capitalism".





Green Bonds US

Thank You

Connecticut Green Bank 75 Charter Oak Avenue, Hartford (860) 563-0015 www.ctgreenbank.com www.greenbondsus.com



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Solar and Energy Loan Fund

"CLIMATE" LOANS THAT TRANSFORM LIVES

Non-Profit Community Development Financial Institution (CDFI)





Social Justice



Environmental Justice



Background

First and only Non- Profit "Green" Bank in Florida

Started with a \$3 million grant from the U.S. Department of Energy under the Obama American Recovery Act (2009).

Certified by U.S. Treasury as a Community Development Finance Institution (CDFI), in 2012.

SELF's Innovation

Underwriting loans based on "<u>ability to repay</u>"- <u>NOT credit</u> <u>score , income or assets</u>

Results

- \$25 Million in Loan and Grants for CDFI raised to date;
- **<u>\$18 Million</u>** deployed for unsecured home improvement loans **2,050** home-improvement projects in FL, AL, SC.
- **74%** of SELF clients are low-moderate income (LMI).
- Average Default rate <u>BELOW 2%</u>
- 600+ Contractors for SELF network (Green Jobs)
- **Received \$5 Million** JPMorgan Chase Pro Neighborhood Grant leveraging **\$65 Million in investments for 300 affordable housing**
- Up to \$50 Million Capital commitment for Commercial and Residential PACE (St. Lucie County only)



TO REBUILD AND EMPOWER UNDERSERVED COMMUNITIES BY PROVIDING ACCESS TO <u>AFFORDABLE</u> AND <u>INNOVATIVE FINANCING</u> FOR <u>SUSTAINABLE</u> PROPERTY IMPROVEMENTS, INCLUDING: <u>ENERGY EFFICIENCY; RENEWABLE ENERGY; WIND-HAZARD</u> <u>MITIGATION; WATER QUALITY AND DISABILITY AND AGING IN</u> PLACE HOME ADAPTATIONS, AND MORE.





LENDING PROGRAMS (Unsecured Loans)

*Personal Loans based on "Ability to Repay. No Income or credit score requirements.

1	CDFI	No minimum Credit Score or Income; Unsecured , 5% – 10.99 % ; 3- 10 yr. term.		
2	KIVA	Unsecured, Worldwide Crowdfunded Loans focused on Veterans & Women with zero (0)- 500 credit scores 5%- 5yr term loans.		
3 SAFE HOME		Resilience loans (i.e. roofs, impact windows, door, hurricane shutters) for increased safety, equity and reduced insurance costs. 8%-9.75%, up to 7 year terms.		
4	HALO	Home adaptation loans for elderly or residents with disabilities. Unsecured 5.5% -7% 7 yr. term		
5	WQL	Water Conservation and Water Quality Loans i.e., Septic-to-Sewer conversions. 5%-9.5% up to 10 yr. term.		



More than just Loans SELF provides:

- Financial Inclusion: SELF loans can help build or rebuild, credit
- Project Management: SELF loans ensure quality work and compliance with code.
- Jobs : Contractor Network. SELF loans protect homeowners from unscrupulous contractors, and scammers through a prevetted contractor network

Multifamily, Non-profit and Community Energy Improvement Loans

 Housing and Community Impact Fund (HCIF) – CLEAR LOANS (Clean Energy and Resilience loans) -

 New Loan Program to provide a line of low-cost, flexible unsecured, or "lightly secured" financing options for : Affordable Housing, Multifamily, Non-Profit and Community Development projects.



"Gib-Sun Plaza" <u>FIRST ROOFTOP SOLAR ON A</u> PUBLIC HOUSING BUILDING IN FLORIDA

Leon Lowenstein \$200K Grant

Leveraged \$600K

Total \$800K

Solar System and Battery Storage for emergency response to Climate Impacts

Scope:

- 65 units of low-income rental housing
- 132 elderly residents, mostly Hispanics



CAROL: Widow; Recovering from Back Surgery High Efficiency A/C Loan Impacts: Energy Savings; Health; Dignity





Pamela Turner: U.S. Veteran; Single Mother of 4. Roof Loan (Resilience) Impacts: Health, Safety, Quality of Life





Mark Stanhope- U.S. Post Master SOLAR LOAN

"Its almost like you have to be rich to have solar but SELF makes it so everyone can have solar"

Impacts: Reduced Carbon Footprint; Long term savings





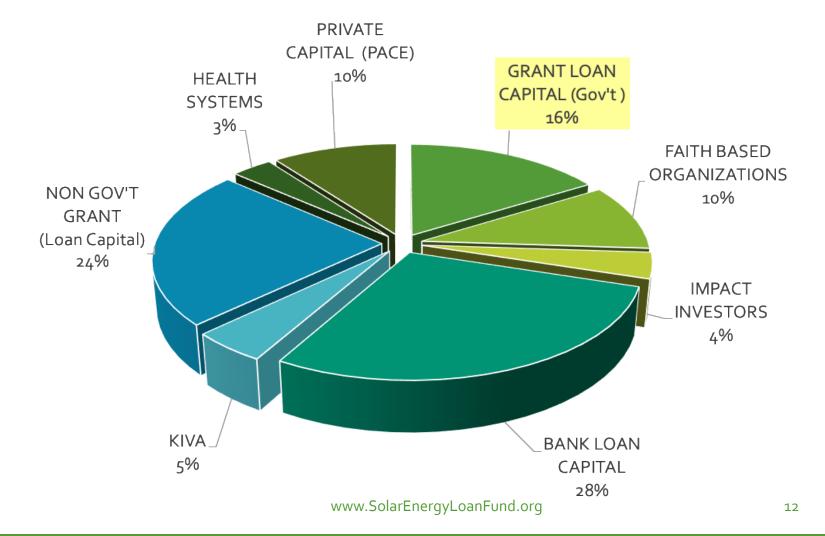
CAPITAL PROVIDERS

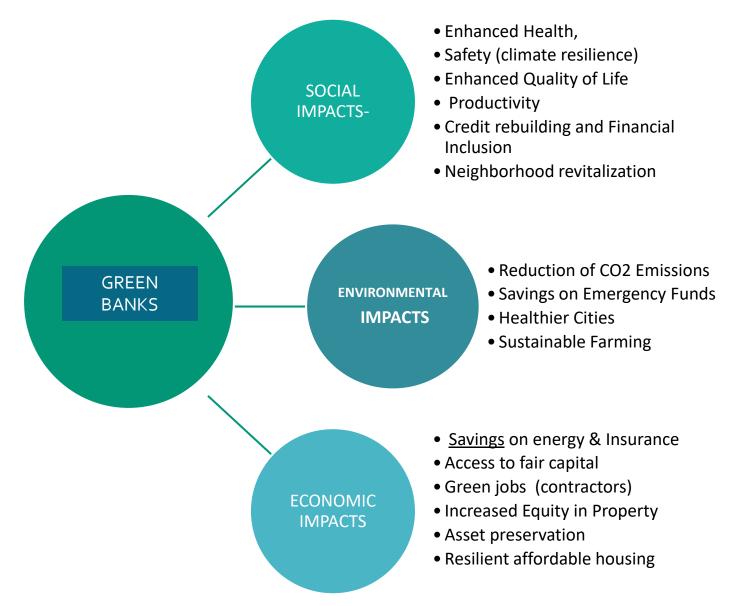
SELF's Investors

www.SolarEnergyLoanFund.org



Cumulative Loan and Grant Capital	(\$\$)
Total Loan Capital	\$19,549,203
TOTAL GRANTS (OPERATING)	\$4,996,115.39
TOTAL GRANTS AND LOAN CAPITAL	\$24,545,318.01





www.SolarEnergyLoanFund.org



For more information contact:

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772.468.1818

Or

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duannea@solarenergyloanfund.org

772.214.8661

www.solarenergyloanfund.org



Unlocking Capital for Climate Solutions

June 8, 2021

People. Planet. Employment.



GRID Alternatives' Mission

We build community-powered solutions to advance economic and environmental justice through renewable energy.

Our work includes:

- Direct solar project development & technical assistance
- Workforce development
- Low-income solar policy leadership

At GRID Alternatives, we believe that a successful transition to clean energy must include everyone.



Renewable energy can drive economic growth and environmental benefits in communities most impacted by underemployment, pollution, and climate change.

Our work is making a difference. Since 2004, GRID Alternatives has:

- Installed solar for 19,540 households who qualify as low-income
- Engaged 45,469 people in solar education and training
- Helped families save over \$500M in energy lifetime savings
- Prevented 1.3M tons of GHG emissions from being released into the atmosphere
- Provided nearly 261,000 job training hours focused on installs

Colorado project example: Ute Mountain Ute Tribe 1.2MW Community Solar Array



GRID Alternatives provided workforce training to 14 Tribal members, 11 of whom were hired as interns to help install the array.

Solar Deployment Hits Record Levels Despite Job Loss

Despite employment reductions, annual solar installations reached a record **19.2 GWdc in 2020**.

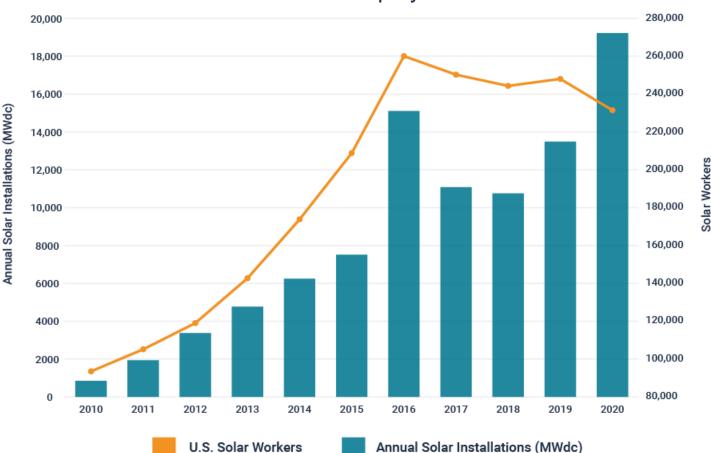
The industry was able to achieve these totals despite reduced employment in part due to a rapid increase in the share of utility-scale deployment.

- Utility-scale installations represented 73% of all solar capacity installed in 2020, a new record
- Because utility-scale projects use fewer installation workers per kilowatt deployed, the increase in utilityscale market share allowed for greater deployment with lower labor intensity

However, equally important was an **increase in labor productivity** across all market segments.

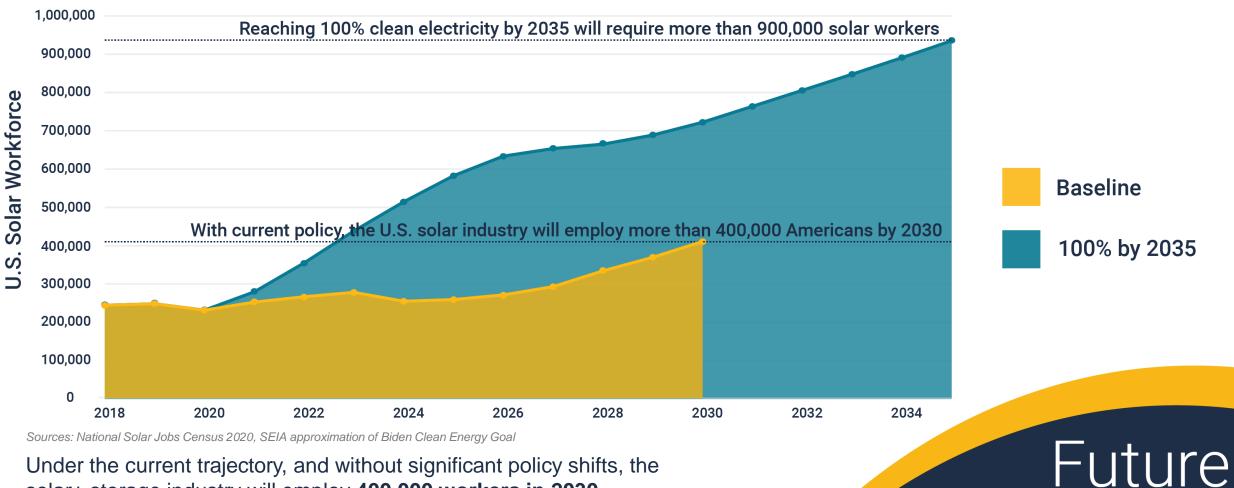
- Residential productivity increased 19%.
- Non-residential productivity increased 2%
- Utility-scale productivity increased 32%
- Slide credit: National Solar Jobs Census 2020

Labor Productivity Increased Allowing Increased Deployment



Sources: National Solar Jobs Census 2020, SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2020 Year in Review

Baseline Solar Employment Forecast vs. Workforce Needed to Reach 100% Clean Electricity by 2035



Workforce

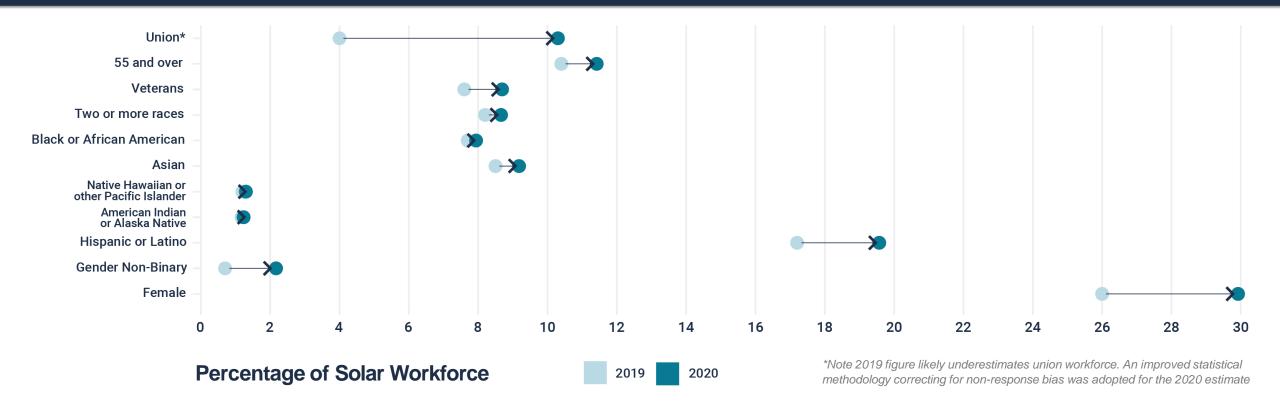
Needs

Under the current trajectory, and without significant policy shifts, the solar+ storage industry will employ 400,000 workers in 2030.

The path necessary to achieve President Biden's goals to decarbonize the grid and expand domestic manufacturing will require more than 900,000 solar workers across the supply chain by 2035.

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Solar Workforce Grew More Diverse in 2020



Nearly all demographic measures of diversity in the solar workforce saw modest increases in 2020, bringing numbers to an all-time high across most categories.

Women in solar grew from **26% to 30%** of the workforce.

 While the industry overall lost workers in 2020, the number of women employed in solar increased by nearly 4,800 to over 69,000

Slide credit: National Solar Jobs Census 2020

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Since 2015, solar industry employment has increased by **39%** for women, **92%** for Hispanic or Latino workers, **18%** for Asian workers, **73%** for Black or African American workers, and **19%** for veterans.

• Over that same time, overall solar industry employment has risen by 11%

The share of workers who are members of labor unions now stands at **10.3%**.

Though the solar industry has made significant progress in diversifying over the past 5 years, there is **still significant work to be done** before the solar industry matches the diversity of the country.

 Solar workers identify as "female" at almost three times the rate as the overall construction industry Veterans make up a larger share of the solar workforce (9%) than the overall economy

Diversity in Solar Is Comparable to Other Industries

Environmental justice and equity are embedded in solar industry policy priorities and growth planning and will be critical as the industry rises to meet the joint challenges of climate change, the energy transition and social and environmental justice.

50% 45% 40% Percentage of Workforce 35% 30% 25% 20% 15% 10% 5% 0% Female Hispanic or Latino Asian Black or African American 55 and over Veterans U.S. Manufacturing U.S. Wholesale and Retail Trade U.S. Construction



Slide credit: National Solar Jobs Census 2020

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Sources: National Solar Jobs Census 2020, Bureau of Labor Statistics

Genera	al and Operations N	/lanagers						com
Mainte	enance and Repair	Workers						
Projec	t Management Spe	ecialists						
Sales I	Representatives							
Roofer	rs							
Solar F	Photovoltaic Install	ers	*"Other Ene	rgy Industries" ind	cludes Natural Ga		nd Wage Statistics, Nuclear and Hydi ergy Industries"	
\$0	\$20,000	\$40,000	\$60,000	\$80,000	\$100,000	\$120,000	\$140,000	\$160,000
	olar		Average	Annual Comp	ensation			
S								

Solar Compensation is On Par with Similar Trades

Compensation in the solar industry is comparable with similar occupations in other energy industries and higher than U.S. averages for most of the same positions.

Solar installers make similar amounts to their peers in the **roofing industry**.

Solar electricians make more than the **average electrician**.

Construction managers in solar make more than average and more than peers in other energy industries.

Slide credit: National Solar Jobs Census 2020

Top States for Solar Jobs

State	2020 Rank	2019 Rank	2020 Jobs	Change from 2019
California	1	1	68,677	-7.5%
Florida	2	2	11,219	-8.1%
New York	3	3	10,214	-4.9%
Texas	4	5	10,088	-1.7%
Massachusetts	5	4	9,495	-8.7%
Arizona	6	6	7,346	-5.5%
Utah	7	9	6,926	-2.5%
Colorado	8	8	6,771	-5.6%
Ohio	9	7	6,532	-10.3%
Nevada	10	10	6,174	-11.8%

Top States for Employment Growth Since 2015

State	Employment Growth Since 2015	Percent Change
Florida	4,659	71%
Utah	4,246	158%
Texas	3,058	44%
Virginia	2,352	120%
Minnesota	2,003	101%
New York	1,964	24%
Pennsylvania	1,810	72%
Indiana	1,794	114%
Illinois	1,779	51%
Colorado	1,771	35%

Top States for Solar Jobs per Capita

State	Jobs per Capita
Utah	1:473
Nevada	1:503
California	1:576
Vermont	1:615
Hawaii	1:617
Massachusetts	1:741
Colorado	1:854
Arizona	1:974
Rhode Island	1:1,087
New Mexico	1:1,128

State Overview

Primarily as a result of the pandemic, solar employment **dropped in 44 states in 2020**, representing the most broad-based labor reduction on record.

The pandemic had uneven impacts at the state level, however. States with large distributed solar markets experienced the most employment loss, as residential and commercial segments were hit hardest by work restrictions and have yet to fully recover. Markets with larger shares of utility-scale deployment fared somewhat better, though those labor forces were also reduced by workers missing time due to the pandemic.

In a handful of markets, rapid year-over-year increases in deployment, often in utility-scale solar, **helped to offset job losses in distributed markets**, leading to modest levels of employment growth or lower levels of job loss.

Of the top 10 states for solar employment growth percentage in 2020, 8 of them also rank in the top 20 for solar deployment growth rate in 2020.

Colorado's commitment to a renewable energy future

In Colorado:

- In 2019, Polis Administration unveiled a Roadmap to 100% renewable energy by 2040 and Bold Climate Action
- From 2014-2019, Colorado saw a 15% growth in energy jobs, which are projected to grow another 9% through 2024 – outpacing national growth of 5.6%
- Colorado was ranked 13th in the nation for installed solar capacity as of Q3 2020. The state is home to 346 solar companies employing 7,000 people throughout the state

Success Story

Michael Martinez

Graduate:

2020 GRID Alternatives Colorado Installation Basics Training Program

Current Occupation: Solar Installer, ARE Solar



"Being able to work with and be a part of GRID these past 5 weeks has been one of the biggest blessings in my life. Before coming to my first class, I was out of work 4-5 months with barely enough money to make rent...the fact that GRID gave me the chance to come out here with them to better myself, not only by putting rent money and food on my table, but it gave me something to do with my time, a chance at expanding my knowledge in this field, a good atmosphere to be in daily, and a whole new outlook on life and my current situation for the better."

Success Story

Paul Matthews

Graduate:

2020 GRID Alternatives Colorado Installation Basics Training Program

Current Occupation: Site Surveyor, Avolta Solar and Owner, Black Star Drone Solutions



Paul was the first in line to be enrolled in GRID Colorado's first ever cohort of Installation Basics Training, launched in 2020. Paul was looking to blend his military and drone pilot experience to be a part of the booming clean energy transition.



People. Planet. Employment.

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What did you think of the briefing?

Please take 2 minutes to let us know at: www.eesi.org/survey

> Materials will be available at: www.eesi.org/060821bank

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Tuesday, June 08, 2021