



# Connecticut Green Bank

## Sparking Connecticut's Clean Energy Economy

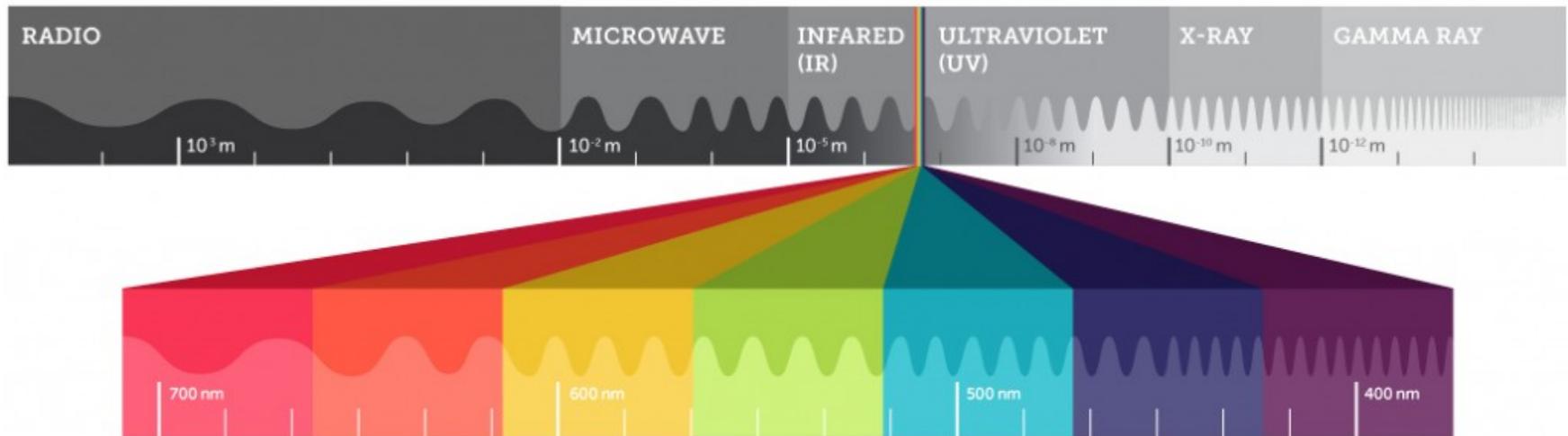
SIPRAC

August 8, 2019

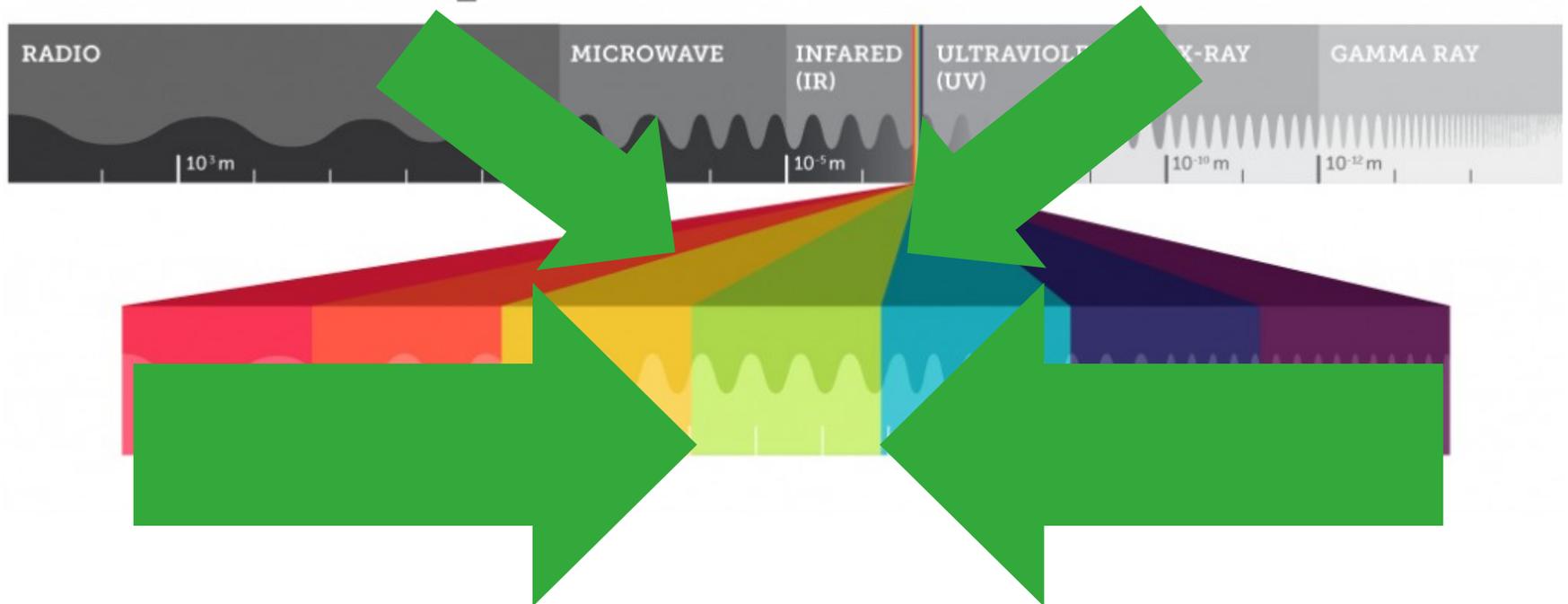


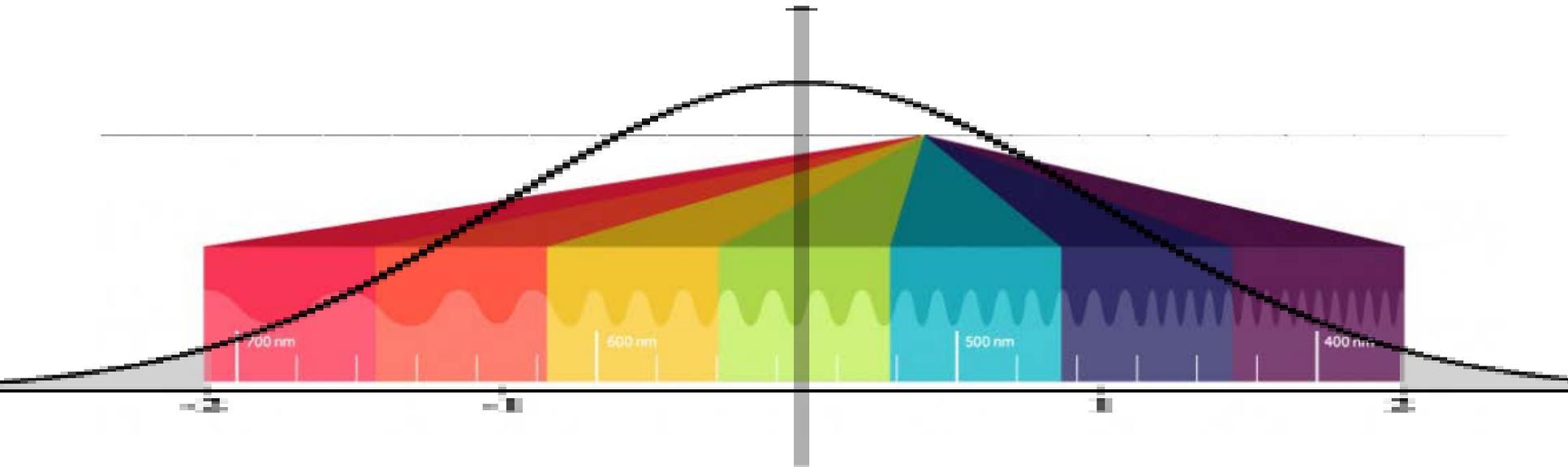


# The Visible Spectrum



# The Visible Spectrum





# Connecticut Green Bank

## Mission Statement and Goals



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

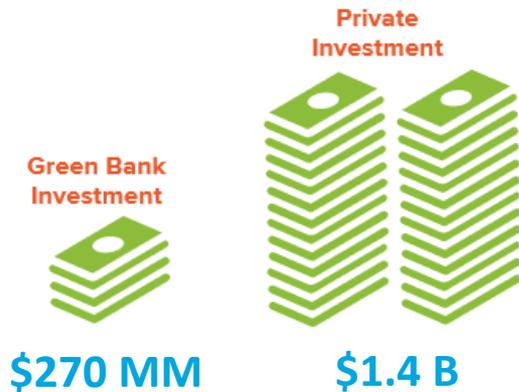
- Leverage limited public resources to scale-up and mobilize private capital investment in the green economy of Connecticut.
- Strengthen Connecticut's communities by making the benefits of the green economy inclusive and accessible to all individuals, families, and businesses.
- Pursue investment strategies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

# Connecticut Green Bank

Impact Investment – Social and Environmental



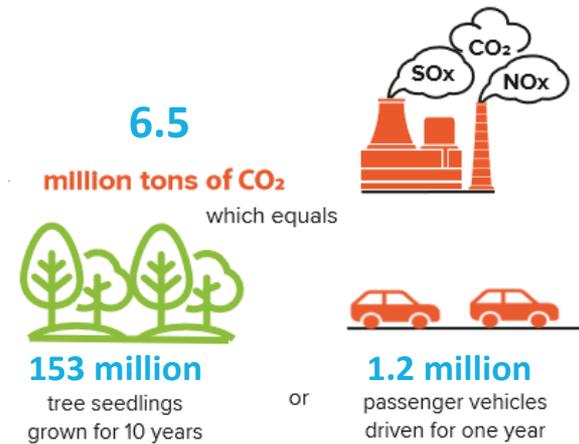
## INVESTMENT



## ECONOMIC DEVELOPMENT



## ENVIRONMENTAL PROTECTION



## TAX REVENUES



## ENERGY BURDEN REDUCED



## PUBLIC HEALTH SAVINGS



### REFERENCES

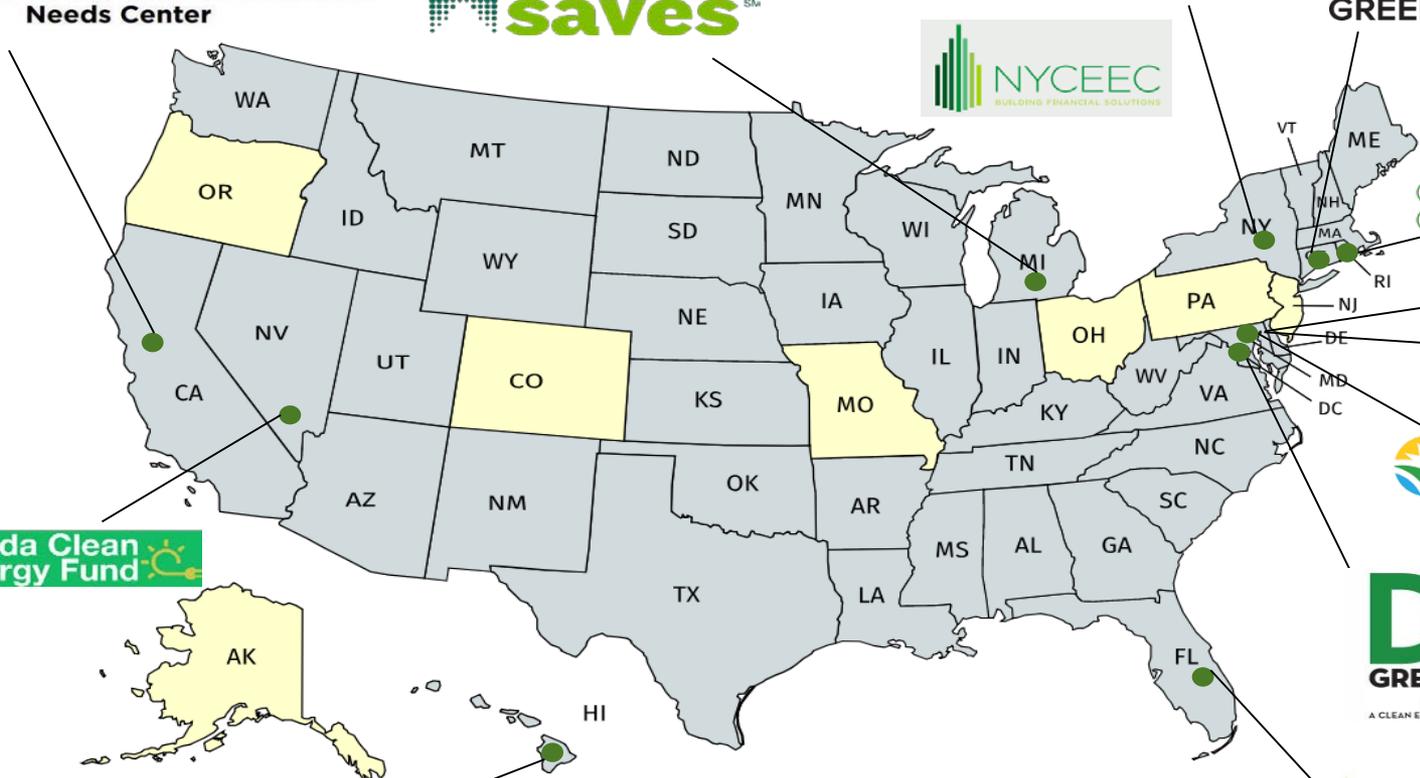
Connecticut Green Bank Data Warehouse – July 1, 2011 through June 30, 2019

# Green Banks

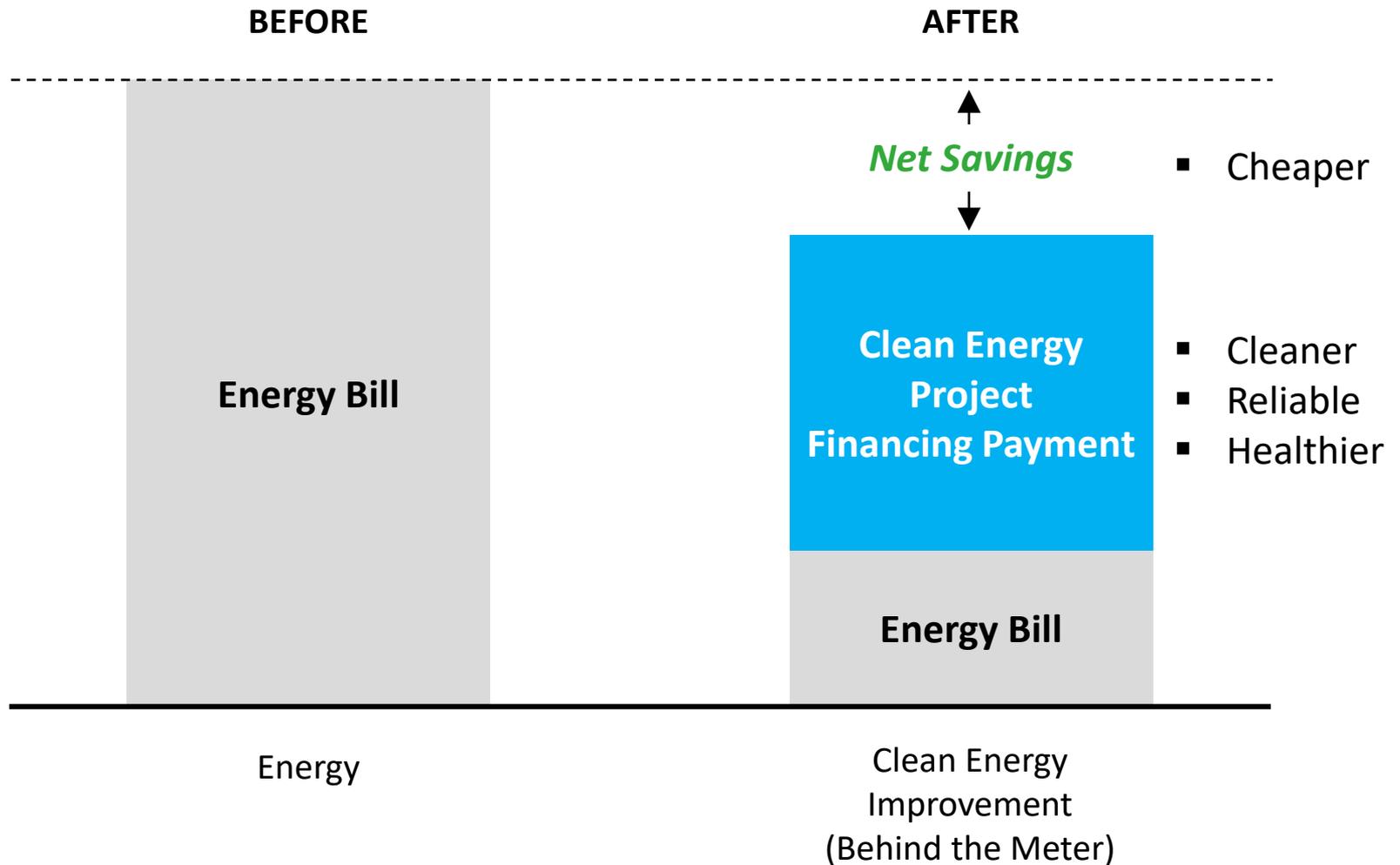
## Created Across the Country



 GB Exploration Project



# Energy Improvement Financing 101



**REFERENCE**

Definition provided by the Coalition for Green Capital and adapted by the Connecticut Green Bank

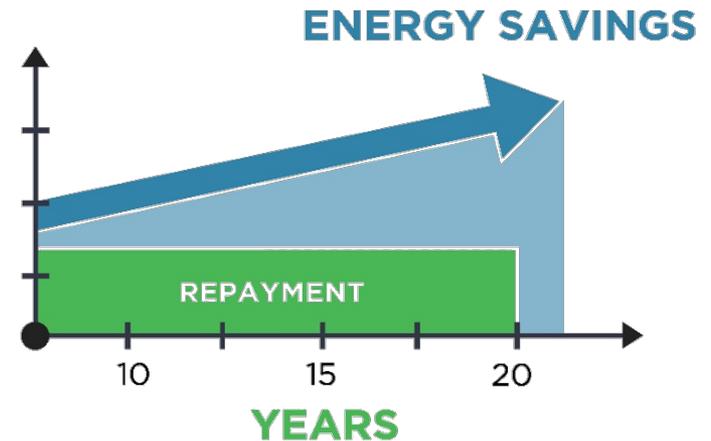
# Commercial Property Assessed Clean Energy



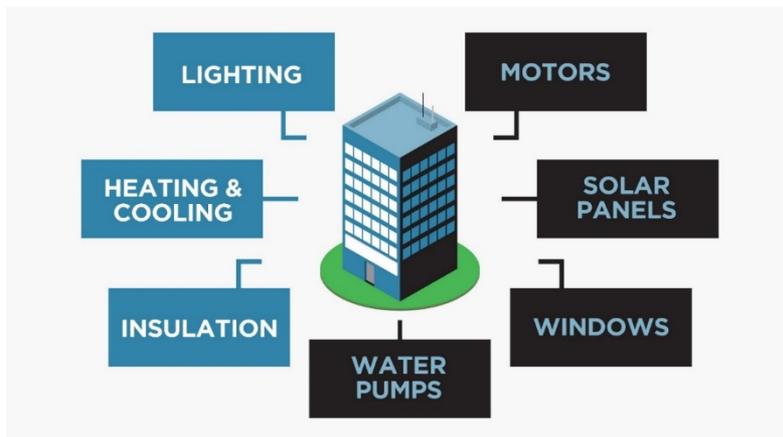
SPARKED BY  
CONNECTICUT GREEN BANK

CT Green Bank provides low-cost, long-term, 100% funding

Projects scoped to achieve positive cash flow starting in year 1 and to deliver savings that exceed the cost of investment



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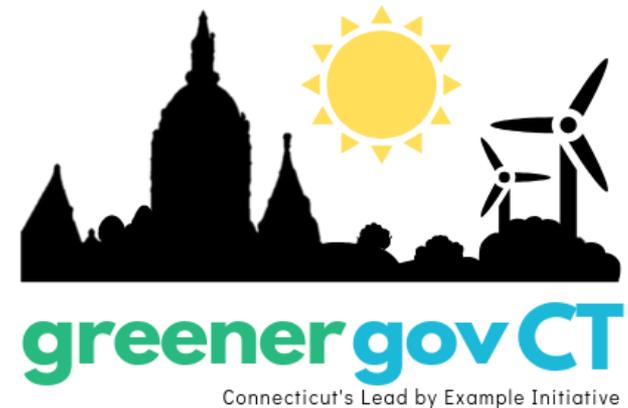


Owner repays through assessment that remains with property over time

# Helping Government Solar PPA and Green Bond



|                        |   |
|------------------------|---|
| <b>Market Segment</b>  | <b>State of Connecticut</b>   |
| <b>Product Summary</b> | Standardized solar PPA (approved by AGO)  |
| <b>Support Needed</b>  | <ul style="list-style-type: none"> <li>Capital to finance clean energy improvements –           <ul style="list-style-type: none"> <li><b>\$9.1m</b> Clean Renewable Energy Bonds sold to Bank of America</li> <li><b>\$1.5m</b> equity capital from CT Green Bank</li> </ul> </li> <li>GE Contractors to install Solar PV at 7 CSCU campuses</li> <li>Supportive state colleges and universities and state agencies</li> </ul> |
| <b>CT Results</b>      | Saving State of Connecticut <b>\$10 million</b> from <b>5 MW</b> of solar PV deployment (@2% inflation)   |



# Helping Families

## Energize CT Smart-E Loan



smart-e loan



|                        |  |
|------------------------|--|
| <b>Market Segment</b>  | <b>Residential Single Family</b>   |
| <b>Product Summary</b> | Partnership with hundreds of local contractors and eleven local community banks, credit unions and Capital 4 Change provides easy access to affordable financing for comprehensive clean energy measures, including H&S.<br><b>5-20 year terms at rates ranging from 4.49-6.99% for \$500-\$40,000 of borrowing.</b> |
| <b>Support Needed</b>  | <ul style="list-style-type: none"> <li>Provide 2<sup>nd</sup> Loan Loss Reserve (LLR) up to 7.5% of losses</li> </ul>  |
| <b>CT Results</b>      | 3,431 projects for <b>\$54.6 MM</b> financed (with \$5.9 MM of IRB), 8.3 MW, 81% projects have EE  |



**REFERENCES**

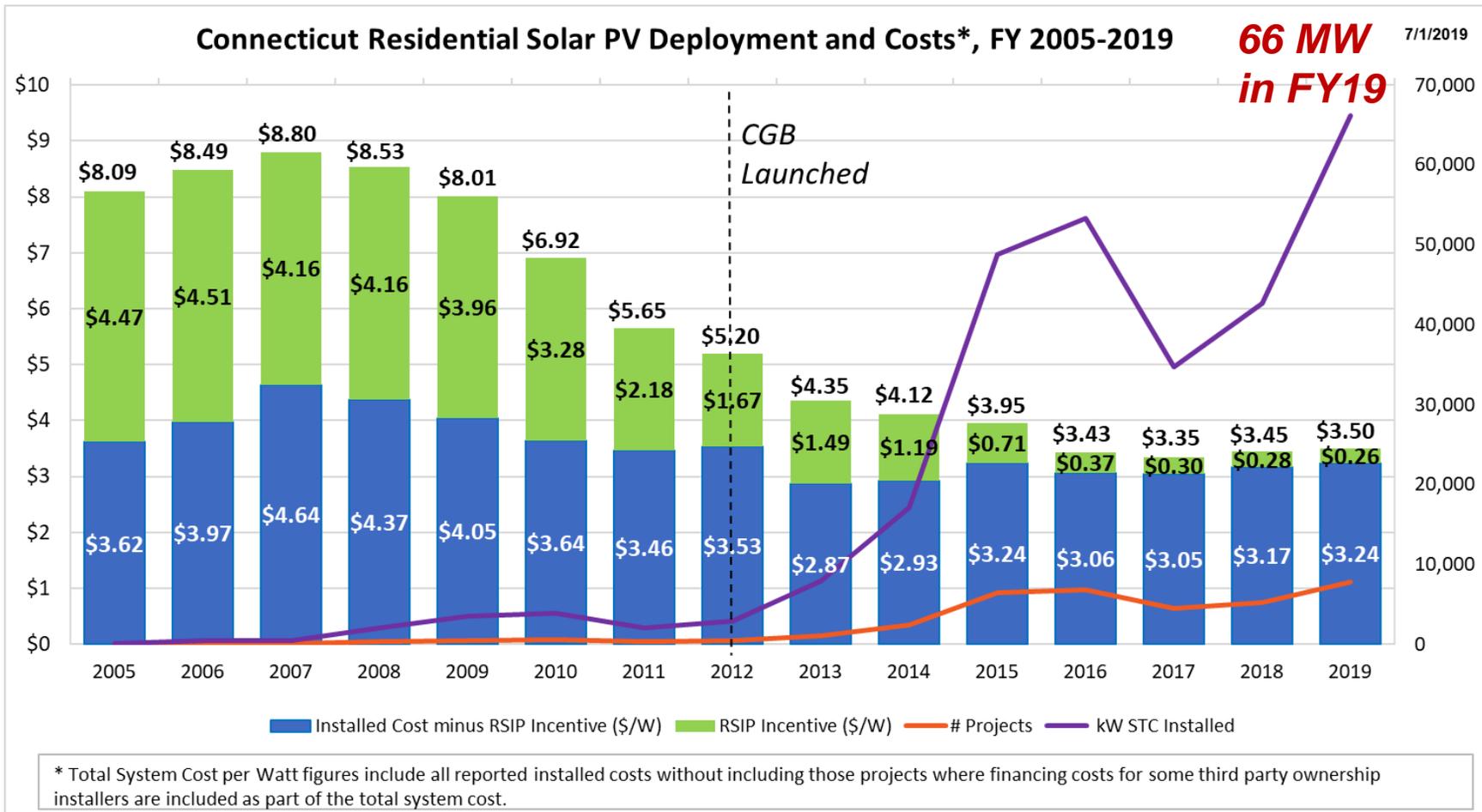
Data from Power BI through 12/31/18

# RSIP Progress by Fiscal Year

## 273 MW out of 350 MW



Installed costs increased slightly since FY17 while incentives decreased slightly and net customer cost increased (\$3.05-\$3.24/W), deployment up since FY17

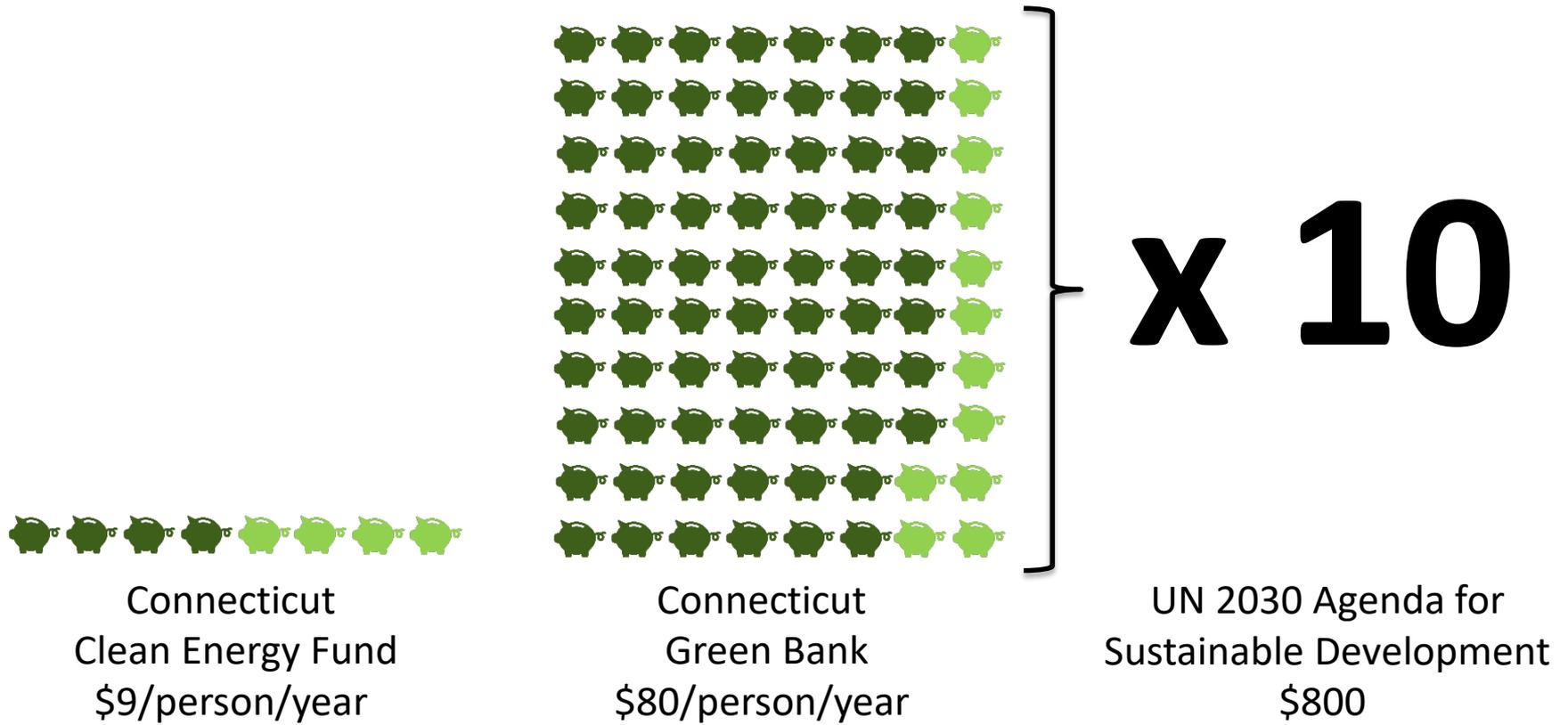


# Connecticut Green Bank

## From 1 to 2 Orders of Magnitude



- = \$1 in public investment in clean energy per person per year
- = \$1 in private investment in clean energy per person per year



**REFERENCES**

1. CT Population = 3,600,000. US Population = 321,400,000. World Population = 7,500,000,000.
2. CCEF Annual Investment = \$32 MM (1:1). CGB Average Annual 4-Year Investment = \$280 MM (6:1). UN Report = \$6 T assuming \$90 T over 15-years (i.e., since 2016).

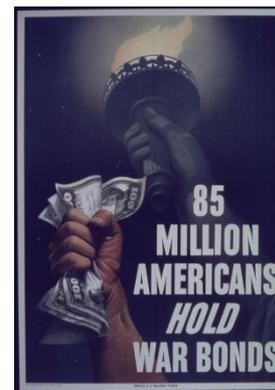
# Green Bonds US



...a world empowered  
by the renewable energy  
of community



- Fall/winter 2019 target release
- Denominations likely ~\$1,000
- Interest-bearing
- First issuance will help fund more residential solar PV in Connecticut



# Electric Vehicles

# 2019 Nissan Leaf

## Special Offer for Best-Selling Electric Vehicle



- **\$5,000 off** and **\$2,500 off** manufacturer incentives available, to Sept. 30
- Discount code available to any person or organization with electric bill. Town fleet, employees, residents.



| Trim   | Leaf S          | Leaf SV  | Leaf Plus S     | Leaf Plus SV | Leaf Plus SL |
|--|-----------------|----------|-----------------|--------------|--------------|
| <b>MSRP</b>                                    | \$29,990        | \$32,490 | \$36,550        | \$38,510     | \$42,550     |
| <b>Total savings (up to)</b>                   | <b>\$14,000</b> |          | <b>\$12,000</b> |              |              |
| Nissan rebate                                  | <b>\$5,000</b>  |          | <b>\$2,500</b>  |              |              |
| Federal Tax Credit (up to)                     | \$7,500         |          | \$7,500         |              |              |
| State rebate (CHEAPR program)                  | \$1,500         |          | \$2,000         |              |              |
| <b>Cost to customer*</b>                       | \$15,990        | \$18,490 | \$24,550        | \$26,510     | \$30,550     |
| <b>Savings off MSRP</b>                        | 47%             | 43%      | 33%             | 31%          | 28%          |
| <b>Annual fuel &amp; maintenance savings**</b> | \$650+          |          |                 |              |              |

\* Plus a \$895 destination/handling charge if needed, sales tax, registration fee, and optional extras.

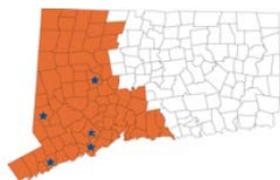
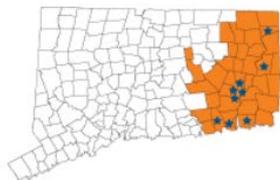
\*\* Compared to a new Ford Focus. Savings can be greater depending on the vehicle getting replaced

# smart-e loan

## EV pilot program (2017)



| Term (in months) | Not to exceed rate | # IRBs funded    | 113       |
|------------------|--------------------|------------------|-----------|
| 36               | 2.49%              | Avg IRB cost     | \$1,449   |
| 48               | 2.99%              | Avg vehicle cost | \$43,270  |
| 60               | 3.49%              | Avg loan amount  | \$38,723  |
| 72               | 3.99%              | Avg term         | 66 months |



**SPECIAL OFFER FOR ELECTRIC VEHICLE BUYERS!**

**Plug in – to amazing savings.**

**LIMITED-TIME LOW RATES 0.99%\***

**NO MONEY DOWN**

**Affordable financing for new or used electric vehicles, chargers and more!**

A new or used electric vehicle (EV) can help you save money on your car budget and fuel costs. With low maintenance and federal incentives, your EV car purchase will help you save thousands.

#### How do I get started with an EV car loan?

- Find a dealer
- Select a qualifying EV (see chart at right)
- Get pre-approved with a participating Lender by visiting [www.ctgreenbank.com/smart-EV](http://www.ctgreenbank.com/smart-EV) to find a branch near you
  - Max term 72 months
  - Max loan amount \$30,000
- Close loan... and hit the road!

Visit [www.ctgreenbank.com/Smart-EV](http://www.ctgreenbank.com/Smart-EV) to learn more and get started.

#### QUALIFYING ELECTRIC VEHICLES

|               |   |
|---------------|---|
| Audi          | A3 eTron  |
| BMW           | i3 Rex / i3 / 330 iPerformance / 530 iPerformance             |
| Chevrolet     | Bolt / Spark EV / Volt  |
| Chrysler      | Pacifica PHEV   |
| FIAT          | 500e  |
| Ford          | Focus Electric / C-Max Energi / Fusion Energi                 |
| Honda         | Clarity (Fuel Cell or PHEV) / Honda Fit EV / Accord PHEV      |
| Hyundai       | Ioniq Electric / Ioniq Plug-In / Sonata Plug-In / Tucson Fuel |
| Kia           | Soul EV / Optima Plug-In / Niro PHEV                          |
| Mercedes Benz | B250e / C350e   |
| Mini Cooper   | SE Countryman ALL 4   |
| Mitsubishi    | i-MiEV / Outlander PHEV                                       |
| Nissan        | LEAF  |
| Smart         | ED  |
| Tesla         | Model 3   |
| Toyota        | Mirai / Prius Prime / Rav 4 EV / Prius Plug In                |
| Volkswagen    | e-Golf  |
| Volvo         | XC60T8 AWD  |

smart-e loan



\*APR = Annual Percentage Rate. Rates are subject to change without notice. Rates shown are available to borrowers with a satisfactory credit history. Connecticut registered vehicles only. Maximum loan amount is \$30,000. Other terms and conditions may apply. Offer may be rescinded at any time. This program is for purchase only and not refinancing current car loans or lease-end buyout. May only finance used EVs that are 5 model years old or less.

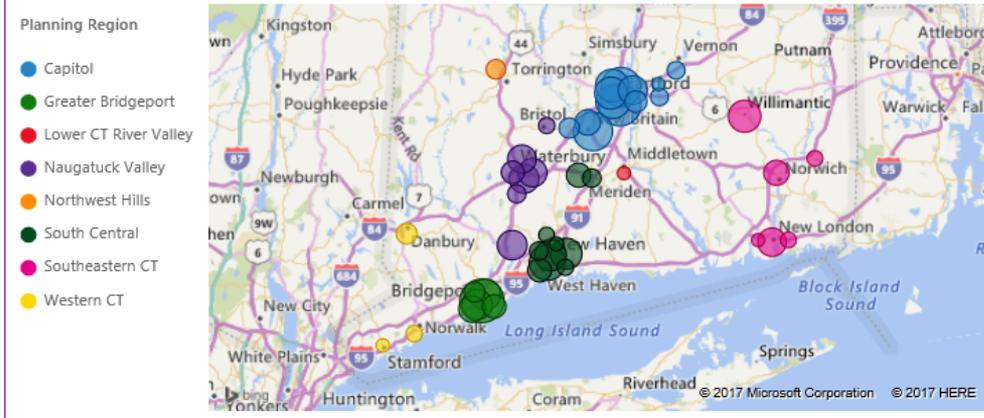
EASY AS CHILD'S PLAY

EASY TO APPLY | NO MONEY DOWN | LOW INTEREST FINANCING

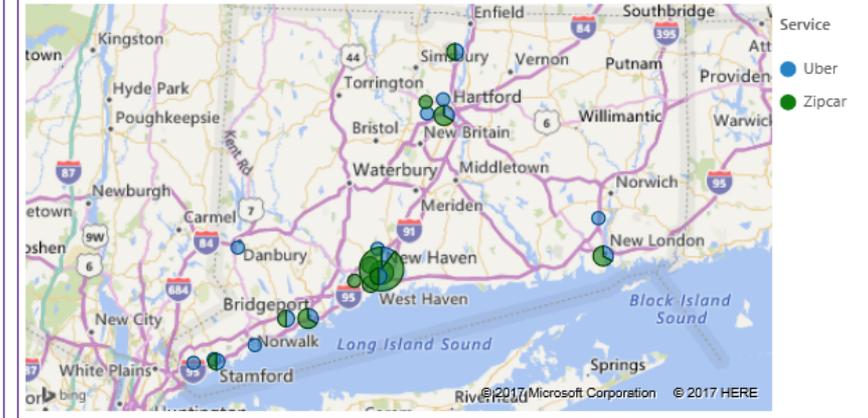
# EV Shared-Use Mobility Program Transportation Electrification Toolkit



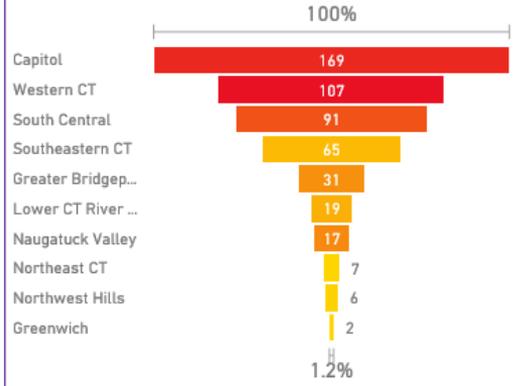
Low Income Household Concentrations by ZIP Code



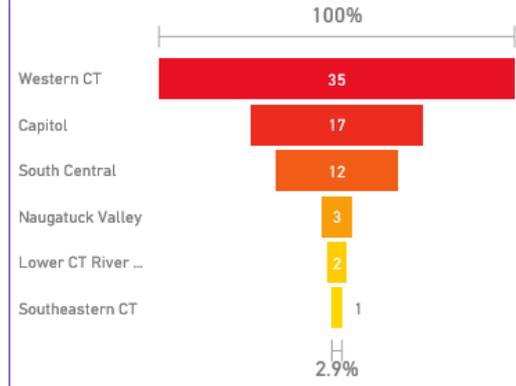
Uber & Zipcar Locations by ZIP Code



Level 2 Charging Stations



DC Fast Charging Stations



Color intensity proportional to CHEAPR rebates

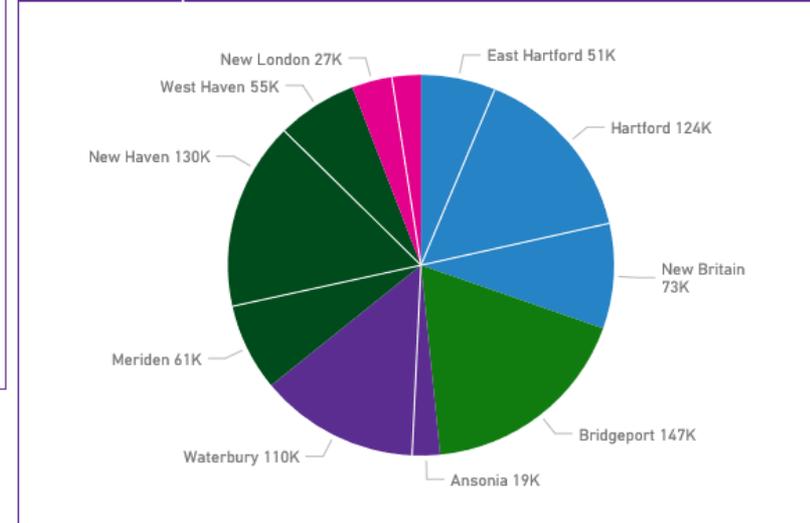
Population Type Filter

Suburban Urban

Existing Shared Mobility Service Filter

Uber Zipcar

Population of Cities with Limited Access to Vehicles



# Transit and School Buses

- Program development underway to determine method of support for mass transit electrification
- Transit agencies dependent on grant funds (VW, Lo-No) for diesel bus replacement – a barrier to scale.



## Considerations:

- Costs (development and administrative)
- Benefits (Job creation, economic & health impact)
- CO2 reduced per \$1
- Replicability & scalability
- Market need
- Financial risk
- ROI
- Serving underserved populations

# EV Charger Carbon Credits



## EVCCC Members



electrify  
america



SIEMENS  
Ingenuity for Life.



## EVCCC Progress

- Carbon credits based on GHG emissions savings from fuel-switching, and kwh delivered
- EVCCC's new EV charging methodology approved by VCS
- Founding members now developing first EV carbon credit projects
- Climate Leadership 2019 Award winner



## Return on Capital

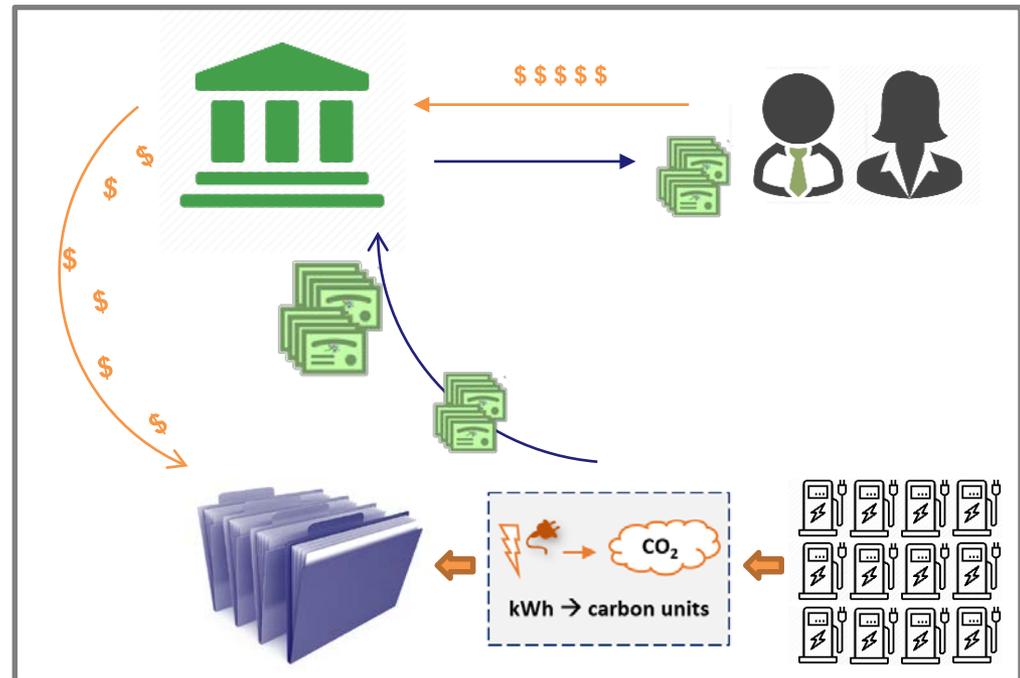
- 5-10% return on capital (based on \$5-10/ton) early estimates for transportation based carbon credits



# EV Charger Carbon Credits

Seeking to open access to carbon capital markets for EV charging systems.

- Vehicles credited based on GHG emissions savings from fuel-switching, factoring in the electricity supply mix feeding the EV charger
- Supporting the Transportation & Climate Initiative. TBD how voluntary + compliance markets may integrate.



# Thank You

**Matt Macunas**

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