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
Green Bank Investment
Private Investment

$270 MM  $1.4 B

ECONOMIC DEVELOPMENT
19,905 direct, indirect, and induced job-years

ENVIRONMENTAL PROTECTION
6.5 million tons of CO₂
which equals
153 million tree seedlings
grown for 10 years
or
1.2 million passenger vehicles
driven for one year

TAX REVENUES
$41.1 MM individual income tax
$21.5 MM corporate taxes
$20.3 MM sales taxes

ENERGY BURDEN REDUCED
families 45,000
businesses 360

PUBLIC HEALTH SAVINGS
$125 to $275 million of public health value created

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

BEFORE

Energy Bill

AFTER

Net Savings

- Cheaper
- Cleaner
- Reliable
- Healthier

Clean Energy Project Financing Payment

Energy Bill

Clean Energy Improvement (Behind the Meter)

REFERENCE
Definition provided by the Coalition for Green Capital and adapted by the 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

Owner repays through assessment that remains with property over time
## Helping Government
Solar PPA and Green Bond

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>State of Connecticut</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Summary</strong></td>
<td>Standardized solar PPA (approved by AGO)</td>
</tr>
</tbody>
</table>
| **Support Needed** | • Capital to finance clean energy improvements –  
$\text{9.1m}$ Clean Renewable Energy Bonds sold to Bank of America  
$\text{1.5m}$ equity capital from CT Green Bank  
• GE Contractors to install Solar PV at 7 CSCU campuses  
• Supportive state colleges and universities and state agencies |
| **CT Results** | Saving State of Connecticut $\text{10 million}$ from $\text{5 MW}$ of solar PV deployment (@2% inflation) |
## Helping Families
Energize CT Smart-E Loan

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Residential Single Family</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Summary</strong></td>
<td>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&amp;S. 5-20 year terms at rates ranging from 4.49-6.99% for $500-$40,000 of borrowing.</td>
</tr>
<tr>
<td><strong>Support Needed</strong></td>
<td>▪ Provide 2nd Loan Loss Reserve (LLR) up to 7.5% of losses</td>
</tr>
<tr>
<td><strong>CT Results</strong></td>
<td>3,431 projects for $54.6 MM financed (with $5.9 MM of IRB), 8.3 MW, 81% projects have EE</td>
</tr>
</tbody>
</table>

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


REFERENCE: Residential Solar Investment Program (RSIP) Data by Fiscal Year as of July 1, 2019

* Total System Cost per Watt figures include all reported installed costs without including those projects where financing costs for some third party ownership installers are included as part of the total system cost.
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.

Get code: [www.ctgreenbank.com/ev](http://www.ctgreenbank.com/ev)

## 2019 Nissan Leaf Special Offer

<table>
<thead>
<tr>
<th>Trim</th>
<th>Leaf S</th>
<th>Leaf SV</th>
<th>Leaf Plus S</th>
<th>Leaf Plus SV</th>
<th>Leaf Plus SL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSRP</td>
<td>$29,990</td>
<td>$32,490</td>
<td>$36,550</td>
<td>$38,510</td>
<td>$42,550</td>
</tr>
<tr>
<td>Total savings (up to)</td>
<td>$14,000</td>
<td>$12,000</td>
<td>$12,000</td>
<td>$2,500</td>
<td>$7,500</td>
</tr>
<tr>
<td>Nissan rebate</td>
<td>$5,000</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$7,500</td>
<td>$2,000</td>
</tr>
<tr>
<td>Federal Tax Credit (up to)</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$7,500</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>State rebate (CHEAPR program)</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$2,000</td>
</tr>
</tbody>
</table>

| Cost to customer* | $15,990 | $18,490 | $24,550 | $26,510 | $30,550 |
| Savings off MSRP | 47%     | 43%     | 33%      | 31%      | 28%      |
| Annual fuel & maintenance savings** | $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)

<table>
<thead>
<tr>
<th>Term (in months)</th>
<th>Not to exceed rate</th>
<th># IRBs funded</th>
<th>Avg IRB cost</th>
<th>Avg vehicle cost</th>
<th>Avg loan amount</th>
<th>Avg term</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>2.49%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>2.99%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>3.49%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>3.99%</td>
<td>113</td>
<td>$1,449</td>
<td>$43,270</td>
<td>$38,723</td>
<td>66 months</td>
</tr>
</tbody>
</table>

### Special Offer for Electric Vehicle Buyers!

- **Plug in** to amazing savings.
- **Low Rates** 0.99%
- **No Money Down**
- **Limited Time**

**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**

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audi</td>
<td>A3 eTron</td>
</tr>
<tr>
<td>BMW</td>
<td>i3 - 135i/135d/330i/320i Performance / 530i Performance</td>
</tr>
<tr>
<td>Chevrolet</td>
<td>Volt / Bolt</td>
</tr>
<tr>
<td>Chrysler</td>
<td>Pacific PHEV</td>
</tr>
<tr>
<td>FIAT</td>
<td>500e</td>
</tr>
<tr>
<td>Ford</td>
<td>Focus Electric / C-Max Energi / Fusion Energi</td>
</tr>
<tr>
<td>Honda</td>
<td>Clarity (Fuel Cell or PHEV) / Honda Fit EV / Accord PHEV</td>
</tr>
<tr>
<td>Hyundai</td>
<td>Ioniq Electric / Ioniq Plug-in / Sonata Plug-In / Tucson Fuel</td>
</tr>
<tr>
<td>Kia</td>
<td>Soul EV / Optima PlugIn / Niro PHEV</td>
</tr>
<tr>
<td>Mercedes-Benz</td>
<td>B250e / C350e</td>
</tr>
<tr>
<td>Mini Cooper</td>
<td>SE Countryman All 4</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>IMIEV / Outlander PHEV</td>
</tr>
<tr>
<td>Nissan</td>
<td>LEAF</td>
</tr>
<tr>
<td>Smart</td>
<td>ED</td>
</tr>
<tr>
<td>Tesla</td>
<td>Model 3</td>
</tr>
<tr>
<td>Toyota</td>
<td>Prius / Prius Prime / RAV 4 EV / Prius Plug-In</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>e-Golf</td>
</tr>
<tr>
<td>Volvo</td>
<td>XC60 PHEV</td>
</tr>
</tbody>
</table>

**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. Rates on loan amount $5,000-$50,000. Other terms and conditions may apply. Offer may be revoked at any time. This program is for purchase only and not refinancing several car loans or leases. Visit [www.ctgreenbank.com/smart-EV](http://www.ctgreenbank.com/smart-EV) to learn more and get started.
EV Shared-Use Mobility Program
Transportation Electrification Toolkit

Low Income Household Concentrations by ZIP Code

Level 2 Charging Stations
- Capitol: 169
- Western CT: 157
- South Central: 91
- Southeastern CT: 65
- Greater Bridgeport: 31
- Lower CT River Valley: 15
- Naugatuck Valley: 17
- Northeast CT: 7
- Northwest Hills: 6
- Greenwich: 2

DC Fast Charging Stations
- Western CT: 35
- Capitol: 17
- South Central: 12
- Naugatuck Valley: 3
- Lower CT River Valley: 2
- Southeastern CT: 1

Population of Cities with Limited Access to Vehicles

Color intensity proportional to CHEAPR rebates

Population Type Filter
- Suburban
- Urban

Existing Shared Mobility Service Filter
- Uber
- Zipcar
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**

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**EVCCCS Members**

- Climate Neutrals
- Electrify America
- Exelon
- EVgo
- CONNECTICUT GREEN BANK
- Siemens
- CNCA

**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

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