Why Clean Energy?
Economic Development and Environmental Protection
Connecticut Green Bank
Expand Private Investment in Clean Energy

…transitioning programs away from government-funded grants, rebates, and other subsidies, and towards deploying private capital.

…CEFIA was established in 2011 to develop programs that will leverage private sector capital to create long-term, sustainable financing for energy efficiency and clean energy to support residential, commercial, and industrial sector implementation of energy efficiency and clean energy measures.
Case in Point
Residential Clean Energy Measures

▪ Enable energy efficiency improvements for at least 15% of single family homes in the state by 2020 – approximately 150,000 homes at $10,000 to achieve 20% energy reduction would require an investment of $1.5 billion

▪ Support the conversion from oil to natural gas for at least 200,000 households in the state in 8 years – at $7,500 for an average cost of conversion with equipment for an estimated investment of $1.5 billion

▪ Estimate potential market of over 150,000 households to install solar PV in the state – at an average cost of $30,000 per system would require an investment of $4.5 billion
Connecticut Green Bank
About Us

- **Quasi-public organization** – created by PA 11-80 and successor to the Connecticut Clean Energy Fund

- **Focus** – finance clean energy (i.e. renewable energy, energy efficiency, and alternative fuel vehicles and infrastructure)

- **Balance Sheet** – currently $120 million in assets

- **Support** – supported by a $0.001/kWh surcharge on electric ratepayer bills that provides approximately $30 MM a year for investments, RGGI (EE and RE) about $5-$10 MM a year, federal competitive solicitations (i.e. SunShot Initiative) and non-competitive resources (i.e. ARRA-SEP), private capital, etc.
Connecticut Clean Energy Fund
The Old Model

Equity

Grants

Clean Energy Fund

Debt
Connecticut Green Bank
The New Model

- Grants
- Equity
- Loans
- Subordinated debt
- Loan loss reserves
- On bill repayment

- Interest rate buy downs
- Third party insurance
- Energy savings performance contracts
- Commercial Property Assessed Clean Energy
Connecticut Green Bank
Board of Directors

Board of Directors

President & CEO
Bryan Garcia

Administrative Staff (CII)

Professional Staff (CGB)

Positions

Chair
Catherine Smith
DECD

Vice Chair
Rob Klee
DEEP

Secretary
Matthew Ranelli
Shipman & Goodwin

Committees

B&O
Rob Klee
DEEP

Deployment
Reed Hundt
Coalition Green Capital

AC&G
Matt Ranelli
Shipman & Goodwin

REFERENCES
Established Board of Directors in September of 2011 – bylaws, operating procedures, employee handbook, etc.
Connecticut Green Bank
Mission and Goals

Support the Governor’s and legislature’s energy strategy to achieve cleaner, cheaper and more reliable sources of energy while creating jobs and supporting local economic development.

Attract and deploy capital to finance the clean energy goals for Connecticut.

Develop and implement strategies that bring down the cost of clean energy in order to make it more accessible and affordable to consumers.

Reduce reliance on grants, rebates and other subsidies and move towards innovative low-cost financing of clean energy deployment.
Connecticut Green Bank
Organizational Structure

Operations
Accounting
Legal and Policy
Marketing
Human Resources
IT

Supply of Capital

Demand of Capital
Why a CT Solar Lease?
Carline and Stuart
What is a CT Solar Lease?

Annual Homeowner Cash Flows

Immediately cash flow positive

(20 years)
How a CT Solar Lease?
Basic Structure

CT Solar Lease provides **local installers** an important **sales tool**, while customers benefit from **affordable, no-money-down financing** and **peace of mind**.

**Connecticut Green Bank**
- Sub Debt
- Equity
- Loan Loss Reserve
- PBI (incentive)
- Developer services

**US Bank**
- Tax Equity

**CT SLII, LLC**
- Debt
- System, Insurance, Lease
- $ System
- Lease Payments
- Insurance, maintenance, “One Call” Resolution
- Assurant
- AFC First

**CEFIA Holdings, LLC**
- Debt Syndicate led by First Niagara
- First Niagara
- Webster Bank
- Liberty Bank
- People’s United Bank
- $ Debt

**Contractor (SHW, Resi. or Comm. PV)**
- Install

**PV or SHW Customer (Resi., Comm., or Muni)**
What is a CT Solar Loan?

Annual Homeowner Cash Flows

Cash flow positive by year 3 due to lower monthly payments and re-amortization of loan using ITC.
How a CT Solar Loan?

Basic Structure

CT Solar Loan provides **local installers** an important **sales tool**, while customers can take the **30% ITC** and benefit from **long-term, low cost capital** that allows them to **own** PV.
What is a Smart-E Loan?
Annual Homeowner Cash Flows

Value of ITC essentially covers net payments due over 12 year term

(savings)

(25 years)
How a Smart-E Loan?
Basic Structure

Community Banks and Credit Unions

- COREplus
- ion BANK
- eastern savings bank
- nutmeg state FEDERAL CREDIT UNION
- Quinnipiac Bank & Trust Company
- Thomaston Savings Bank
- PATRIOT NATIONAL BANK
- WORKERS' FEDERAL
- Liberty Bank

Connecticut Green Bank

Loan Loss Reserve tiered based on creditworthiness of borrower

Min. Underwriting Guidelines
Technical Project Approval

PV, RE, EE or HVAC Contractor

Technical Approval

Install

Residential PV, RE, EE, HVAC Customers
Residential Solar PV in Connecticut
2004 through 2014 (as of October 2, 2014)

Installed costs and incentives are **decreasing**, while
Access to financing and marketing are **increasing**

![Graph showing decreasing installed costs and increasing access to financing and marketing over time.](image-url)
Solarize Connecticut
Solar – Simple – Together

Solar Contracts Signed During and Since the 2012 Solarize Connecticut Pilot

REFERENCES
Graphic created by Ken Gillingham, Assistant Professor at Yale University School of Forestry and Environmental Studies (2013)
Undertake Energy Efficiency
Quick payback to finance solar PV
Why C-PACE?
Bishop Thompson and Co-Pastor Loyd-Thompson
What is C-PACE?
C-PACE and RGGI
Forstone Capital (Deep Energy Efficiency Upgrades)

- **Terms** – 20 years @ 5.5%
- **Project Cost** – $2,462,000
- **Assessment** – $166,563
- **Cost Savings** – $241,900
How C-PACE?
Securitization of Commercial PACE Transactions

In a ‘Watershed’ Deal, Securitization Comes to Commercial PACE

The Inside Story of How Connecticut Became So Influential in Energy Efficiency Finance

Securitization, the holy grail of the commercial sector.

The state’s green bank executed a landmark securitization of efficiency loans. Will lessons learned in Connecticut spread?

Nick Lombardi
July 8, 2014

Back in May, news broke in Connecticut that CEFIA, the state’s green bank, had inked a deal with specialty investor Clean Fund to bundle and securitize $30 million of PACE loans for energy retrofits in commercial buildings.
Purpose of a Green Bank
Sustainable Clean Energy Marketplace

1. Government Subsidies

2. Green Bank Financing with Reduced Subsidies

3. Green Bank Financing with No Subsidies

4. Private Sector Financing Only – FINAL GOAL

We are here

We want to be here: Typical investors can buy clean energy bonds or products, supported by a pool of underlying projects. Clean energy upgrades (and therefore financing) is the norm for residents, businesses, and MUSH market.

Ex: ABS (car, home, timeshare, education loans)
## The Green Bank Model Works
Doing More, Faster and with Less

<table>
<thead>
<tr>
<th></th>
<th>FY 2000-FY 2011 (CCEF)</th>
<th>FY 2012-FY 2014 (CGB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Energy (MW / Lifetime GWh)</td>
<td>43.1 / 2,299</td>
<td>65.3 / 3,189</td>
</tr>
<tr>
<td>Total Investment ($ MM)</td>
<td>$334.2</td>
<td>$350.2</td>
</tr>
<tr>
<td>Ratepayer Investment ($ MM)</td>
<td>$153.1</td>
<td>$100.0</td>
</tr>
<tr>
<td>Ratepayer Investment as Loans (%)</td>
<td>0</td>
<td>57</td>
</tr>
</tbody>
</table>

Jobs ↑  GHGs ↓
New York Green Bank
Follows Connecticut’s Lead

“Through the New York Green Bank, we will leverage public dollars to attract private sector investment into building a new clean energy economy that will help make our state greener and create jobs…With this initiative, we will promote job growth and business development, improve resiliency and air quality, and lower costs for consumers while providing them with greater choices and value for their money.”

When fully capitalized, the Green Bank is expected to have a $1 billion balance sheet.
New Jersey Energy Resilience Bank
Follows Connecticut’s Lead

“The launch of the Energy Resilience Bank, the first of its kind in the nation to focus on resilience, is yet another effort of the Christie Administration to increase energy resilience at critical facilities throughout New Jersey…Increasing energy resilience, whether through the Energy Resilience Bank, the BPU approved resiliency improvement measures implemented by utility companies or NJ’s Clean Energy Program, will minimize the potential impacts of future widespread power outages due to major storms like Superstorm Sandy.”

The bank is capitalized with $200 million through a federal Community Development Block Grant for Disaster Recovery as a result of Superstorm Sandy.
Green Bank Movement
United States
Green Bank Act of 2014
$50 Billion Federal Green Bank Modelled after CT
Realizing the Future
An Exercise in Team Work

Green Bank promise in CT

ROCKY HILL, CT – The Connecticut Clean Energy Finance and Investment Authority has helped consumers in Connecticut access energy that is more affordable and efficient.

Goldman’s Cleantech Activities Receive a Presidential Shout Out

MOUNTAINVIEW, CA – Goldman Sachs Group Inc.’s work financing and investing in clean-technology companies drew a mention Friday from President Barack Obama. “We’ve got public banks like Connecticut’s Green Bank and private banks like Goldman Sachs ready to invest billions in renewable energy,” the president Friday said during a speech at a Wal-Mart in Mountain View, Calif.

ROCKY HILL, CT – The Connecticut Clean Energy Finance and Investment Authority has proven that the green bank model is working. Through the Commercial Property Assessed Clean Energy (C-PACE) program…
The two or three main ideas which constitute the basis of the social theory of the United States were first combined in the Northern English colonies, more generally denominated the States of New England...The civilization of New England has been like a beacon lit upon a hill, which, after it has diffused its warmth around, tinges the distant horizon with its glow.

Alexis de Tocqueville
Democracy in America
Thank You!

Bryan Garcia
Connecticut Green Bank
President and CEO
845 Brook Street
Rocky Hill, CT 06067
www.ctcleanenergy.com
bryan.garcia@ctcleanenergy.com
(860) 257-2170