

## **Sparking the Green Bank Movement**

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# **Connecticut Green Bank**





# Who Are We?

# Connecticut Green Bank

## About Us

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- **Quasi-public State Entity** – Created by State of Connecticut in 2011
  - Successor organization to a grant based entity
  - Bipartisan formation
- **Focus** – Finance clean energy
  - Renewable energy, energy efficiency, and electric vehicles
  - NOT Technology Innovation and Venture Capital
- **Support** – Supported by a:
  - \$0.001/kWh surcharge on electric ratepayer bills (about \$10 per household per year) that provides approximately \$27 MM a year for investments,
  - RGGI about \$3 MM a year for renewable energy,
  - federal competitive solicitations and non-competitive resources (i.e. ARRA-SEP),
  - private capital,
  - private foundations, and
  - **RETURN ON INVESTMENTS**

# Connecticut Green Bank

## Mission and Goals



Support the strategy to achieve **cheaper, cleaner, and more reliable** sources of energy while **creating jobs** and supporting **local economic development**

- **Attract and deploy private capital investment** to finance the **clean energy policy goals** for Connecticut
- Leverage limited public funds to attract multiples of private capital investment while reinvesting public funds over time
- Develop and implement strategies that bring down the cost of clean energy in order to make it more accessible and affordable to customers
- Support affordable and healthy homes and businesses in distressed communities reduce energy burden and address health & safety

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# What Do We Do?

# Green Bank Model

Cheaper, Cleaner and More Reliable Energy



1

- Government Subsidies

2

- Green Bank Financing with Reduced Subsidies

3

- Green Bank Financing with No Subsidies

4

- **Private Sector Financing Only – FINAL GOAL**

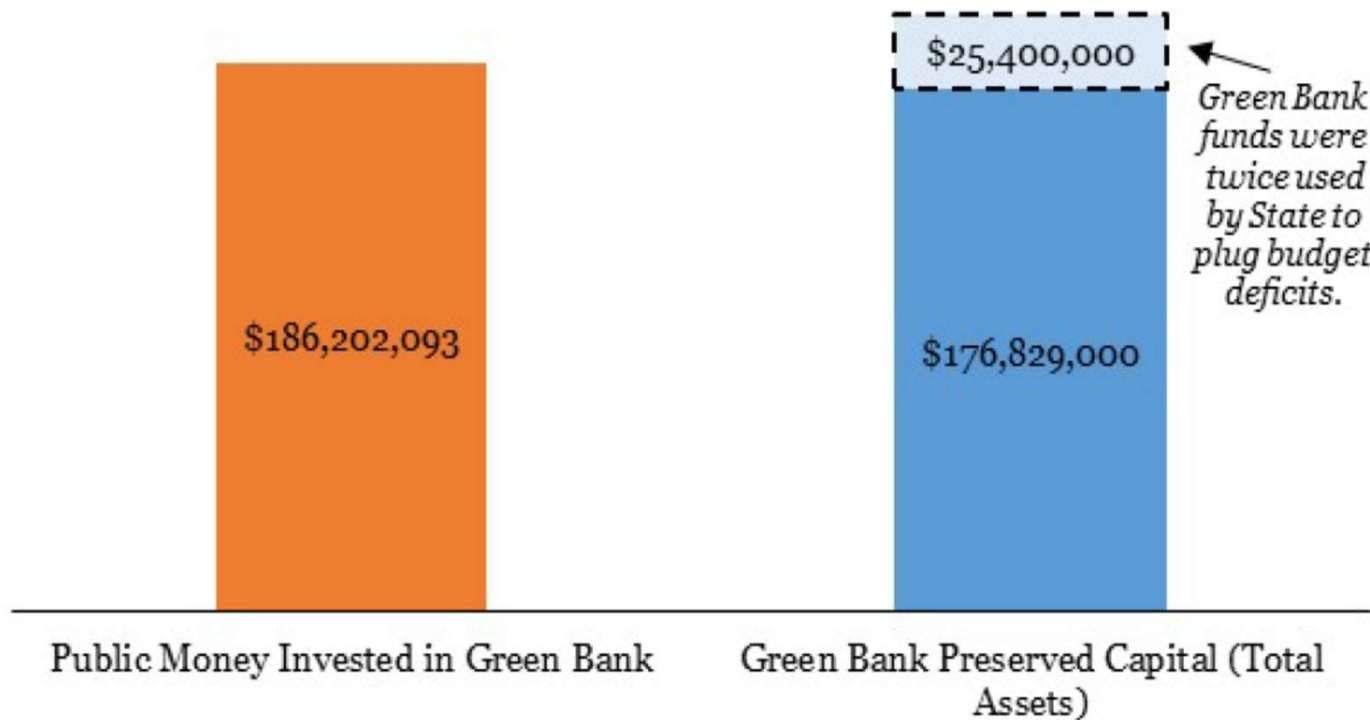
# Green Bank Preservation of Public Capital 2012-2016 Example



The State Put \$186  
Million in public funds  
into the Green Bank



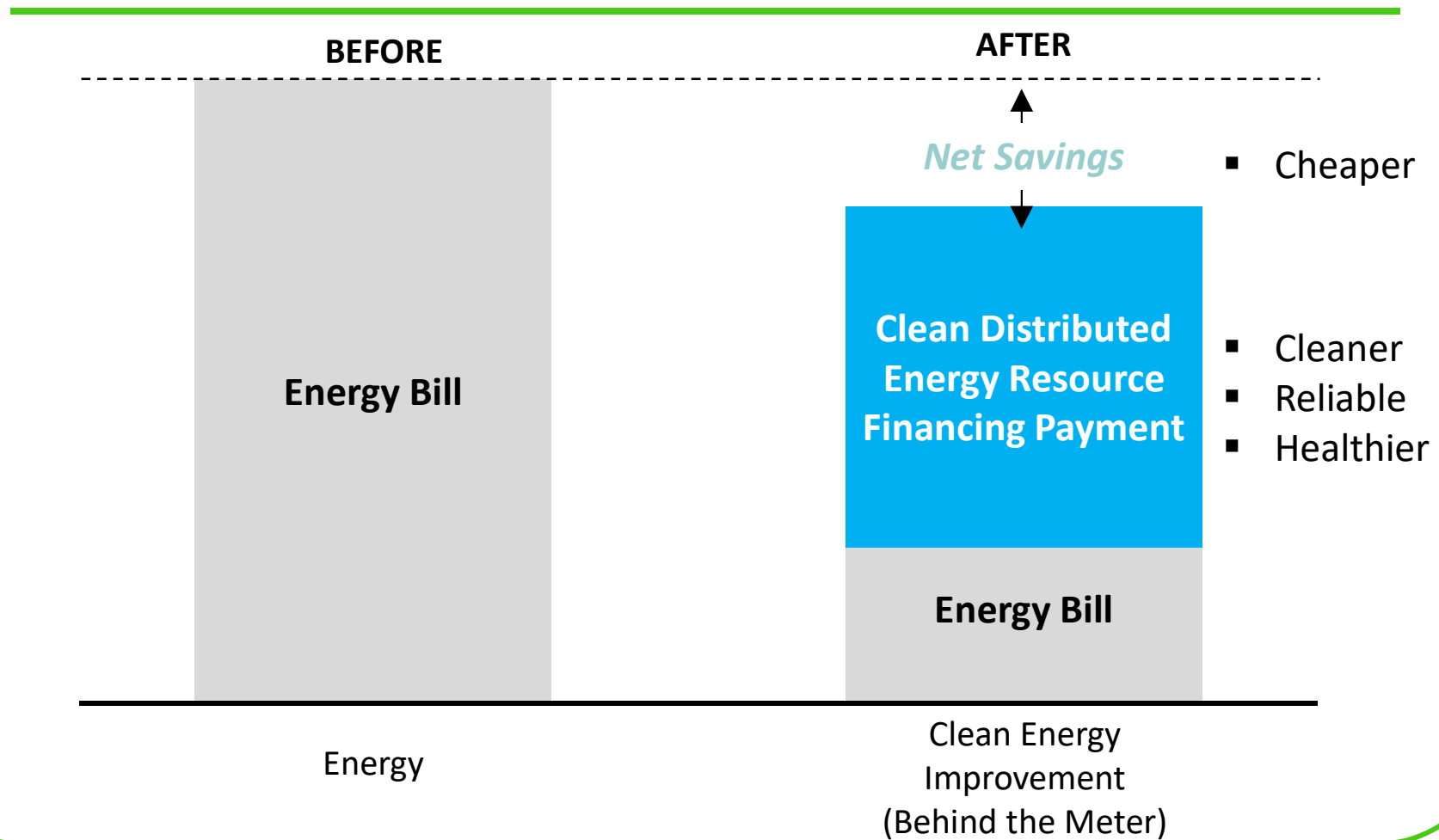
And effectively all of the  
capital has been preserved  
as Green Bank Assets



Preserving ratepayer capital as an asset to leverage  
more private investment that delivers more impact!

# Green Bank Model Basics

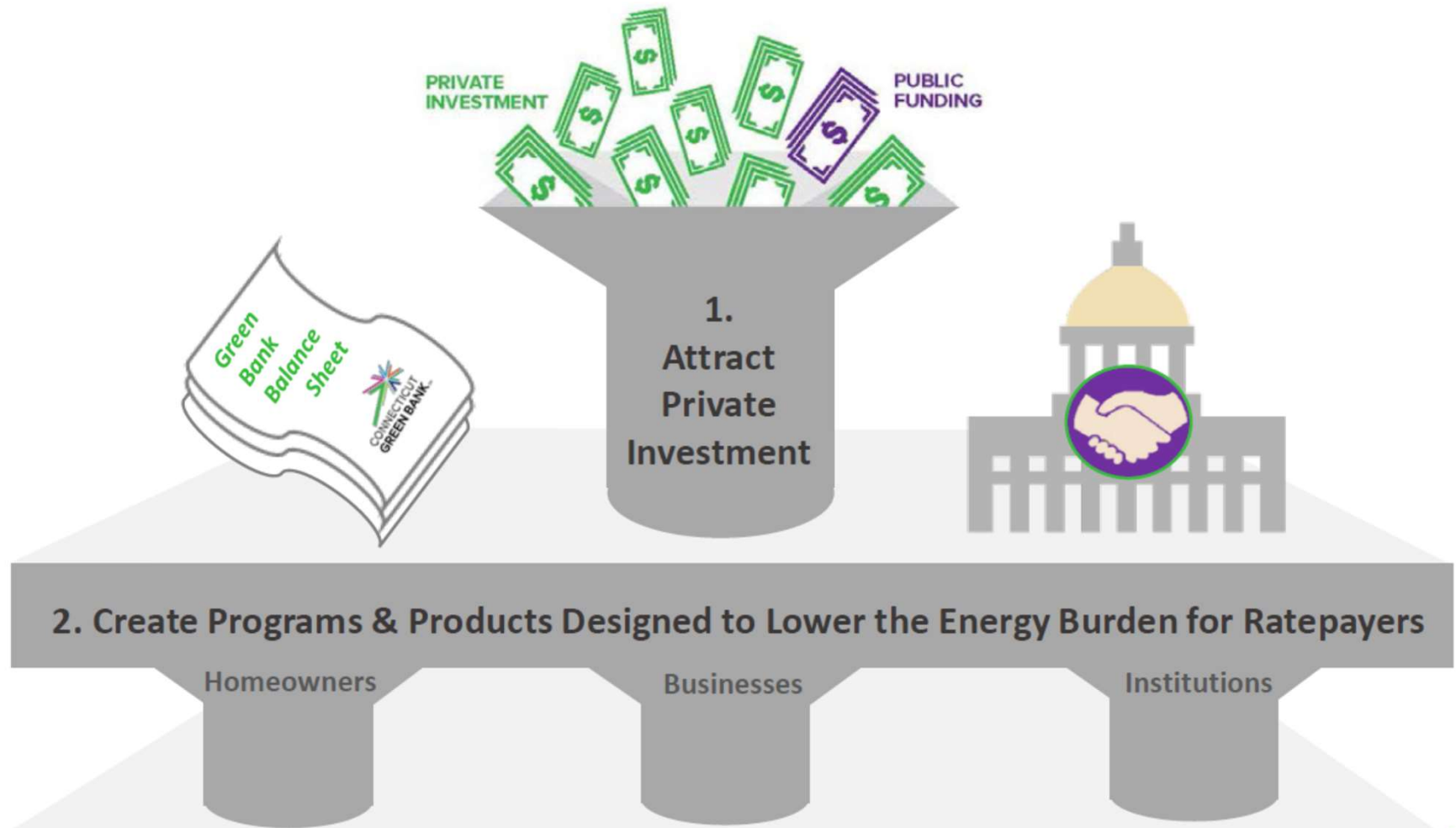
## Reduce Costs – Increase Customer Demand





# Green Economy Engine

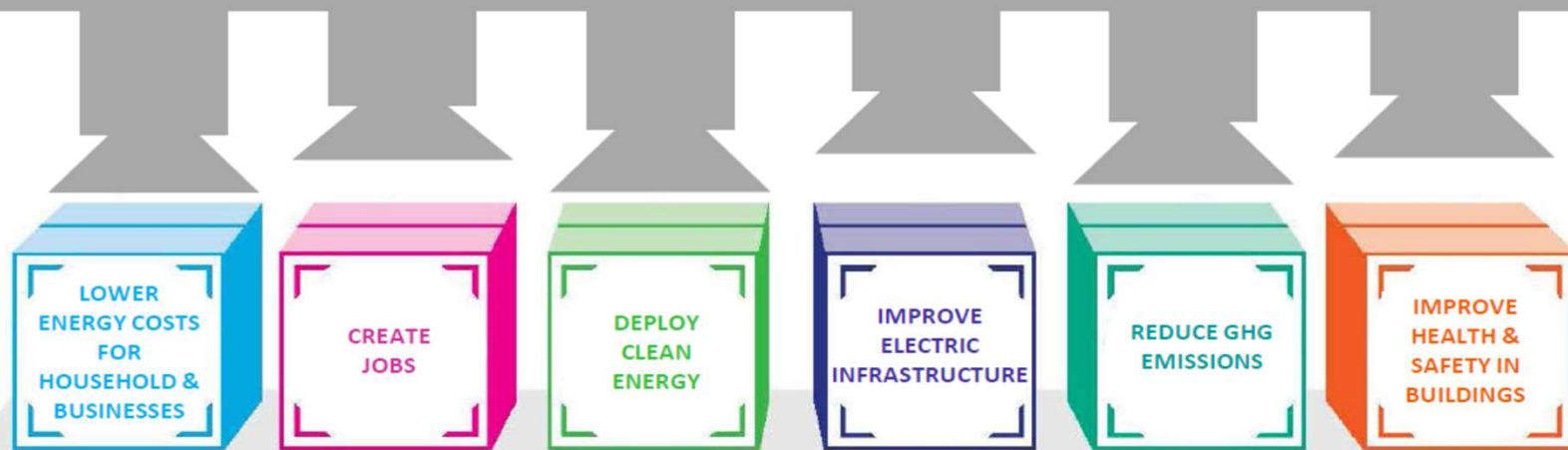
## What Does a Green Bank Do?



### 3. Apply Innovative Financing Tools to Deploy Public and Private Capital



### 4. Educate and Activate Consumers with Ratepayer-focused Marketing Strategies



### 5. Accelerate the Growth of Clean Energy Benefits to Connecticut\*

# Public-Private Partnerships Investment Transactions



Credit Enhance	Warehousing	Tax Equity Finance		Project Finance	PRI	Tax Credit Bonds
<b>\$45 MM</b> OPEN 20:1 <sup>1</sup>   Residential Energy	<b>\$50+ MM</b> OPEN 9:1  C-PACE	<b>\$75 MM</b> CLOSED 7.5:1    Residential Solar Commercial Solar	<b>\$60+ MM</b> OPEN 6:1 <sup>3</sup>  Green Bank Solar PPA	<b>\$65 MM</b> CLOSED 10:1   Grid-Tied	<b>\$5 MM</b> OPEN 100% <sup>2</sup>   Multifamily Energy	<b>\$9 MM</b> CLOSED 9:1   Green Bank Solar PPA
<b>\$6 MM</b> CLOSED 6:1  Residential Solar	<b>\$30 MM</b> CLOSED 4:1  C-PACE	<b>\$35 MM</b> OPEN 4:1    Solar for All	<b>\$22 MM</b> CLOSED 8:1 Colebrook Wind  5 MW Wind Project	<b>\$3 MM</b> OPEN 100% <sup>4</sup>  Residential and Commercial Storage	<b>\$3 MM</b> CLOSED 3:1   Archimedes Screw Hydroelectric Project	

# Calvary Temple Christian Center

## CPACE



**Market Segment**

**Commercial, Industrial, and Institutional**

**Project Summary**

New High Efficiency boiler and fuel conversion.

**Support Needed**

- 10 year CPACE loan for \$52,653

**CT Results**

Lifetime cost savings of \$267,220, annual fuel savings of 231MMBTU, reduced emissions



# Bridgeport Fuel Cell Park

## Project Finance



### Market Segment

### Grid-Tied Procurement

### Project Summary

Long-term power and REC purchase agreement through Project 150 (PA 05-01). 2<sup>nd</sup> largest fuel cell power plant in the world. Technology manufactured in CT and site located on brownfield in a distressed municipality.

### Support Needed

- Project finance
- “Back levered” financing to the developer to attract buyer for the project (i.e., buyer demanded a cash reserve fund for O&M)

### CT Results

15 MW fuel cell project totaling \$125 MM investment creating nearly 140 jobs



# Underserved Commercial Credits

## Green Bank Solar PPA



**Market Segment**

**Small/medium commercial, MUSH, affordable housing, nonprofits, community assets**

**Product Summary**

3<sup>rd</sup> party solar power purchase agreement, backed by C-PACE lien where possible

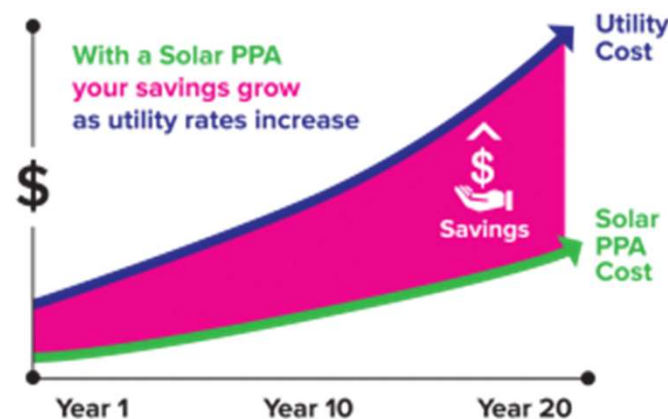
**Support Needed**

- Good solar economics for C&I
- Local solar installer & project developer introductions
- Municipal, community and nonprofit introductions
- Subordinated debt capital – if available, but not required

**CT Results**

94 PPAs closed/completed, \$69.3 MM, and 22.7 MW

**green bank solar ppa**



# Why Do We Do It?

# Green Bank Impact Report

## Economic Development (FY 2012-FY2018)



### JOBS

15,890 direct, indirect and induced job years



Supported creation of nearly **16,000** direct, indirect and induced **job-years**

### Energy Burden



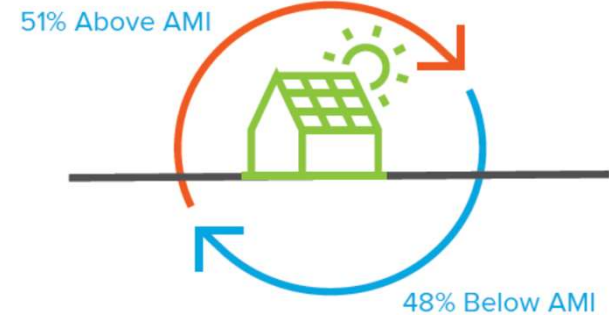
**30,000+**  
*families*

Reduced the **energy burden** on families and businesses



**300+**  
*businesses*

### Accessible and Affordable



Supported the residential market to reach **income parity** and **beyond parity** for rooftop solar PV



# Green Bank Impact Report Investment (FY 2012-FY 2018)



## Investment



Mobilized **\$1.3 billion** of investment into the state economy

## Leverage Ratio



Achieved a **leverage ratio** of **6 to 1** of private investment to Green Bank investment

## Tax Revenues



Generated nearly **\$60 million** in **state tax revenues**

# Green Bank Impact Report

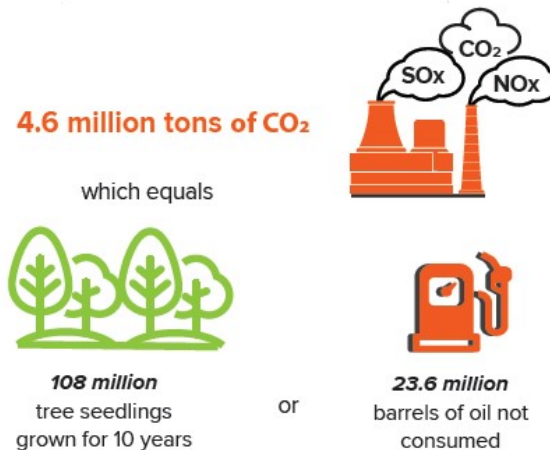
## Environmental Protection (FY 2012-FY 2018)

### Deployment



Accelerated the growth and installation of nearly **300 MW** of clean energy

### Pollution



Helped **reduce air emissions** that cause **climate change** and worsening **public health**

### Public Health



**Improved the lives** of families helping them **avoid sick days, hospitalizations, and even death**

# Global Investment Needed Confront Climate Change



- UN Report<sup>2</sup> says the world will need **\$90 trillion in public and private capital** over the **next 15 years** to **confront the worst effects of climate change**.
- Equivalent to **\$800 per person per year** – Connecticut Green Bank has achieved nearly **\$80 per person per year on average over the last three years!**

#### REFERENCES

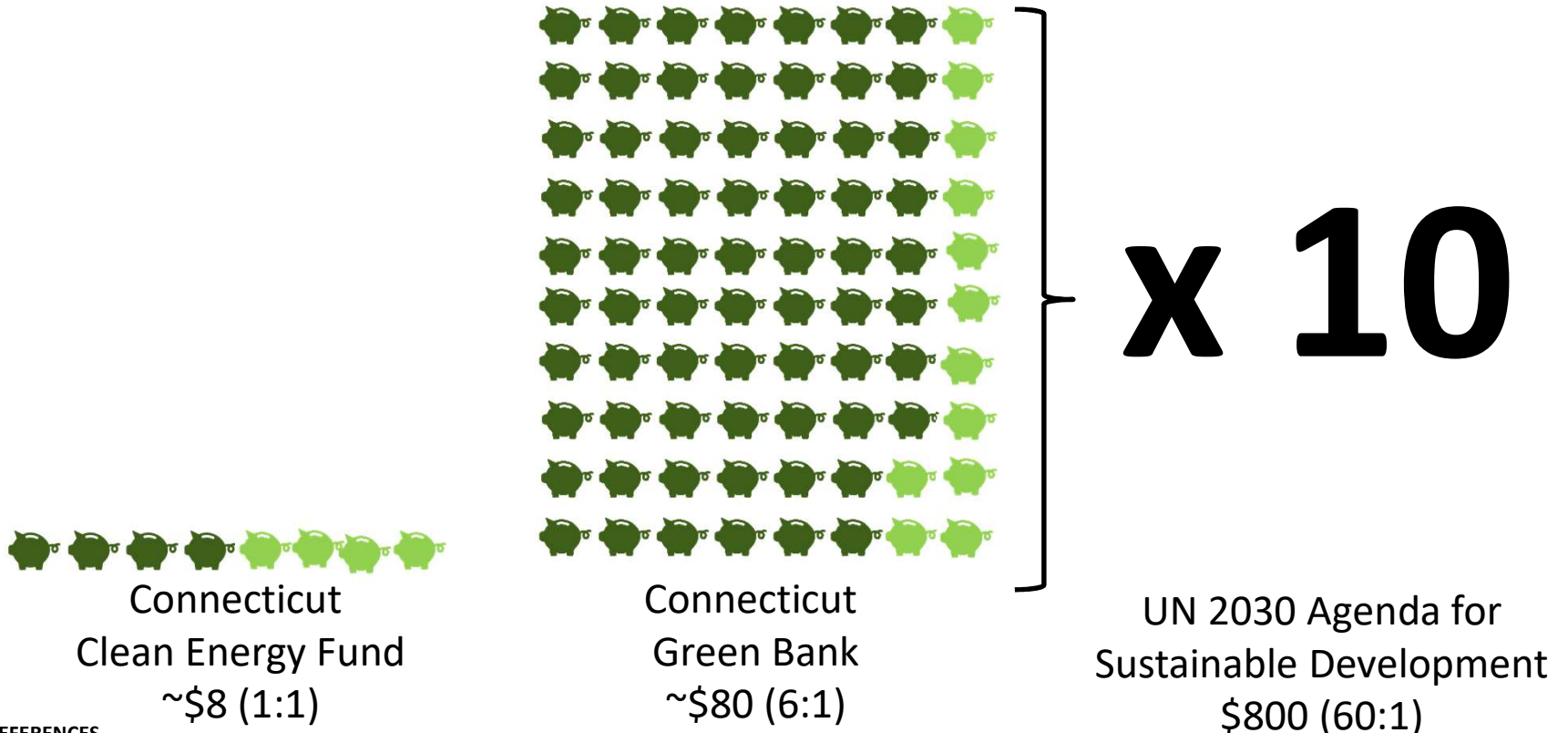
1. How to Raise Trillions for Green Investment by Hank Paulson in the New York Times (September 20, 2016)
2. Financing Sustainable Development: Moving from Momentum to Transformation in a Time of Turmoil by the UNEP (September 2016)

# Global Investment Needed

## Confront Climate Change (cont'd)



- = \$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 and 1:1. CGB Average Annual 4-Year Investment = 280 MM and 1.5:10. Center for American Progress = \$200 B. UN Report = \$6 T.

# Connecticut Green Bank

## Sparking the Green Bank Movement



 **HARVARD Kennedy School**  
**ASH CENTER**  
 for Democratic Governance  
 and Innovation

**\$1 BILLION**  
 CLEAN ENERGY  
 INVESTMENT ACROSS THE  
 STATE

THE CONNECTICUT GREEN BANK, THE 2017  
 INNOVATIONS IN AMERICAN GOVERNMENT WINNER

HARVARD Kennedy School  
**ASH CENTER**  
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 and Innovation

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**2.6 MILLION**  
 TONS OF CO2 EMISSIONS  
 REDUCED IN THE STATE

THE CONNECTICUT GREEN BANK, THE 2017 INNOVATIONS  
 IN AMERICAN GOVERNMENT AWARD WINNER

HARVARD Kennedy School  
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**13,000**  
 NEW JOBS CREATED

THE CONNECTICUT GREEN BANK, THE 2017 INNOVATIONS  
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- **Questions**

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