



coalition for green capital

Moving to Clean Energy Platform: Fast, Popular, Profitable and Global

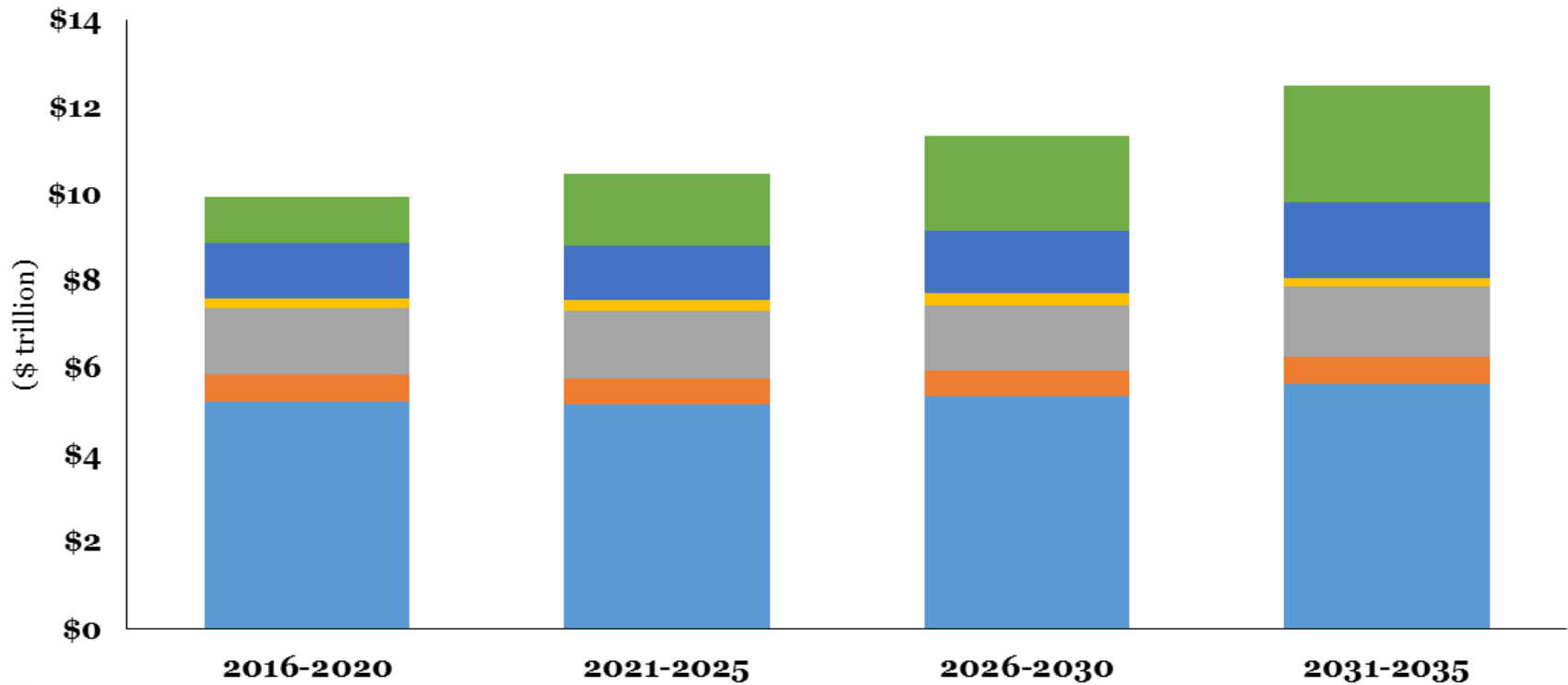
**OECD Green Bank Workshop
May 20, 2015**

Situation

- The 4 A's of Energy Supply: Abundant, Affordable, Available to All
- The 3 C's for Energy Consumers: Clean, Cheap, Convenient
- Remove market barriers to investment in clean energy solutions
- Build political support for clean energy solutions
- Clean Energy Solutions Investment Increase Global GDP
- Public-Private Partnerships Necessary To Build Investment

Global Energy Demand Requires \$2-3 Trillion Investment Per Year

Global Energy Investment Needs by 2035 - \$44 Trillion
Have to Redirect +\$20 trillion from Dirty to Clean



Progress

- Technology lowering cost of renewables
- Global savings available for productive investment
- Global awareness of climate change soaring
- Clean energy finance institutions being created
- \$400B in annual global low-carbon investment





Zero Hour: New Principles

- Don't wait for international treaty or cash grants
- Don't wait for “better” technology
- Clean energy price is what matters to consumers
- Different countries will choose among regulation, taxation, subsidies to promote clean energy
- But everyone needs public-private investing
- Align private sector with public goals

Green Bank Paradigm

- Make clean energy solutions affordable
- **Government financing at cost of capital;** private sector financing to be profitable
- Maximize size, growth of clean energy solutions markets
- Maximize private/public investment ratio
- **Clean energy solutions out-compete carbon**

Clean Energy Finance Obstacles

- Global capital unfamiliar with clean energy solutions
- Clean energy finance institutions few in number
- P3 forms not broadly known
- Consumer demand unformed, disaggregated, blocked by bottlenecks
- Centralized vs. distributed unresolved tension
- Incumbents pricing downwards to thwart clean energy entry

Green Banks Re-invent Public Private Partnership Investing

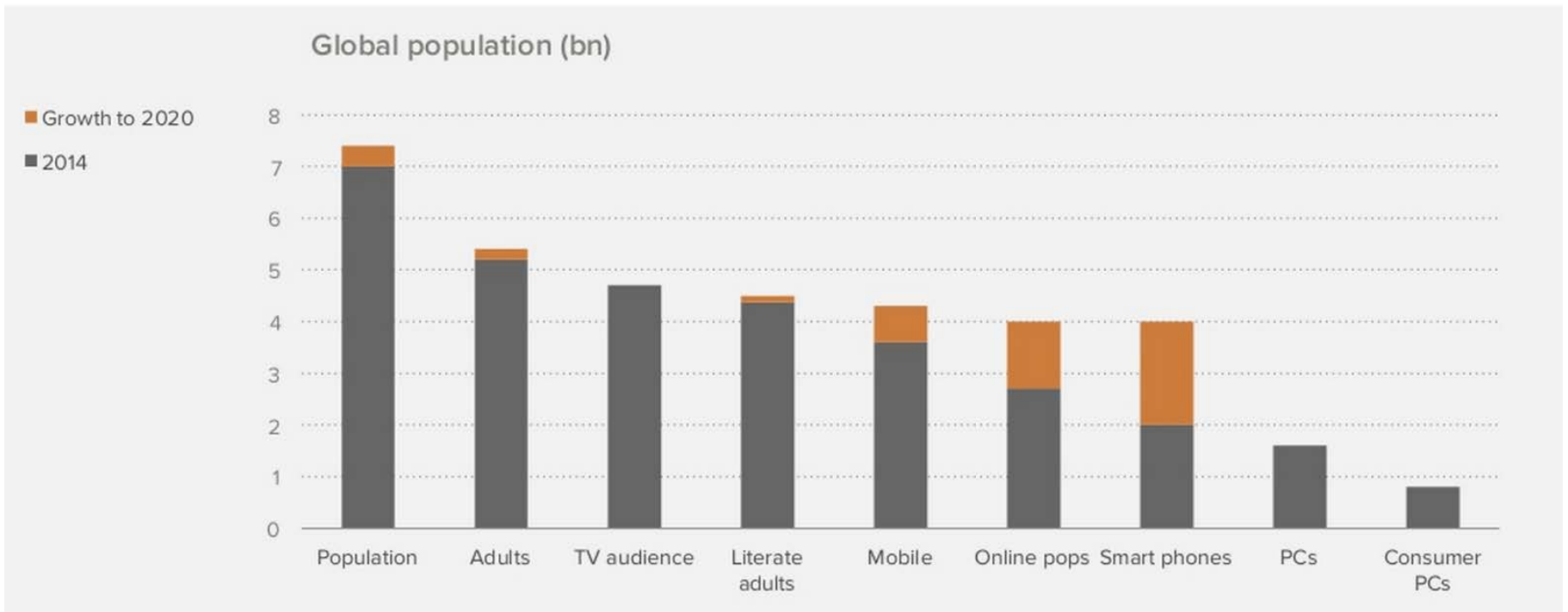
- Define, Prioritize National Clean Energy Markets
- Invigorate Supply Chain
- Use Big Data, Social Media to Create Demand
- Aggregate projects to build scale
- Bring Private Sector Lending to Scale



Rapid growth in mobile

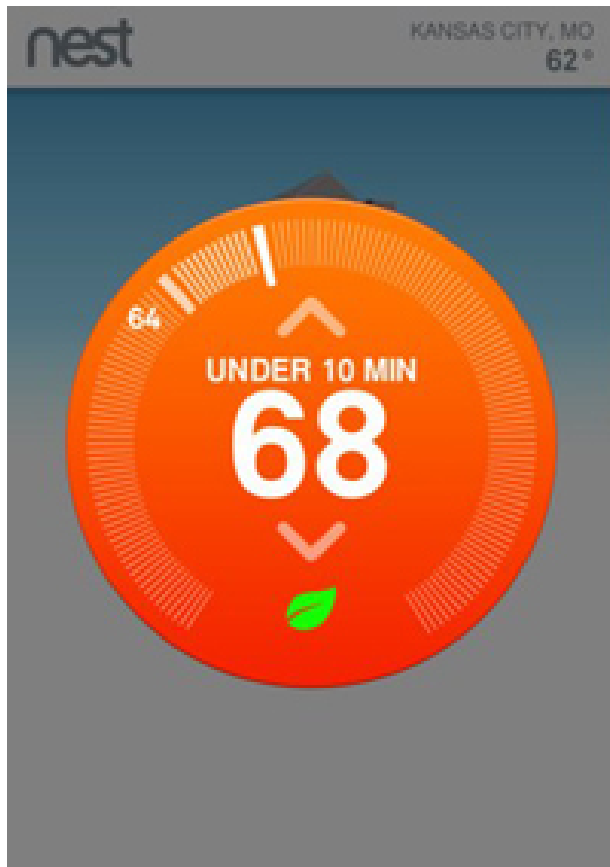
The world in 2020

By 2020 80% of the adults on earth will have a smartphone



Source: World Bank, GSMA, a16z

Efficiency+ Mobile



nest

ANNAPOLIS, MD 60°

nest

FORT WORTH, TX 95°



KATE'S HOUSE

HOME



BEDROOM



HALLWAY



LIVING ROOM

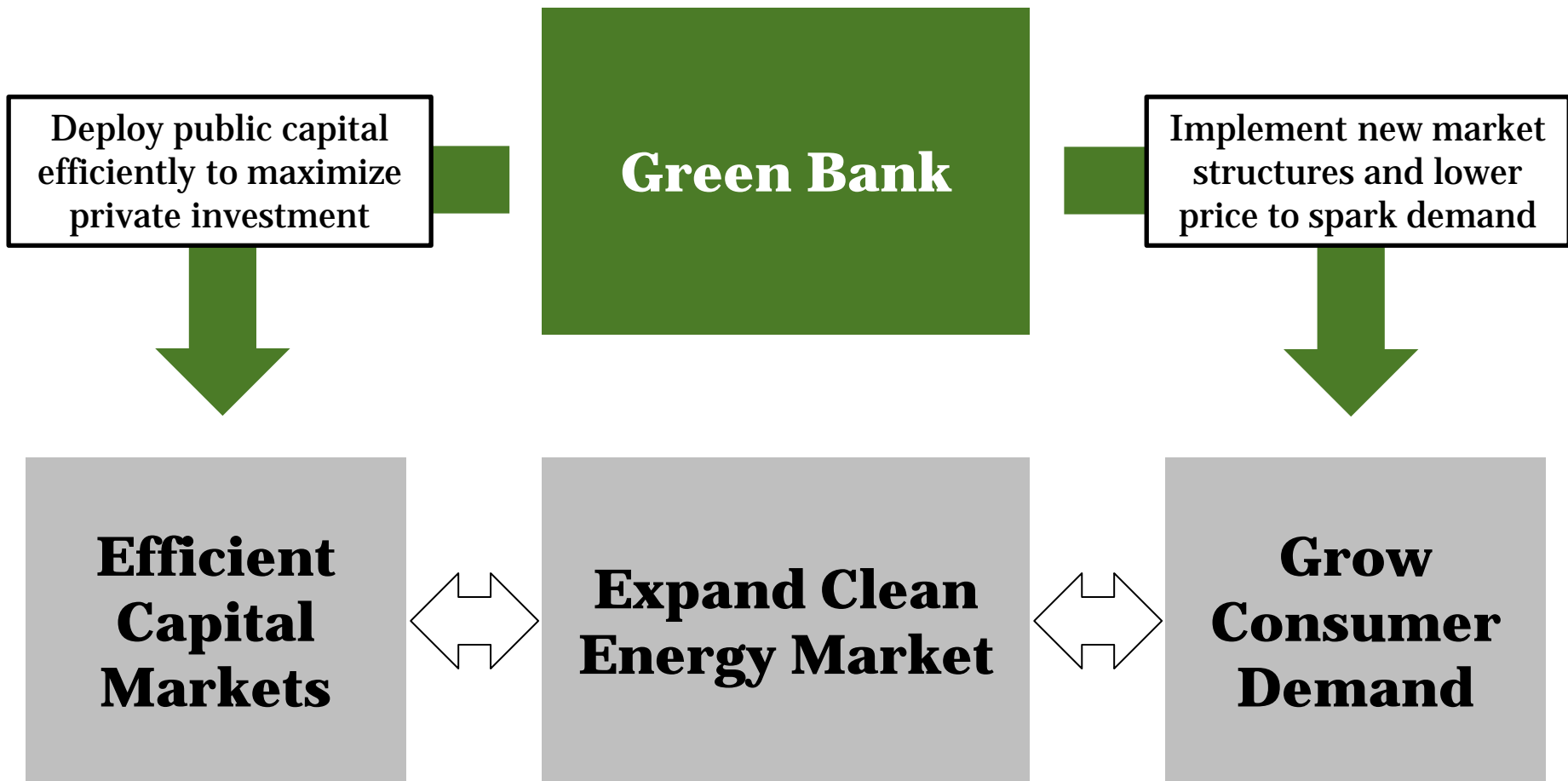
Solar + Mobile



Green Bank Mission

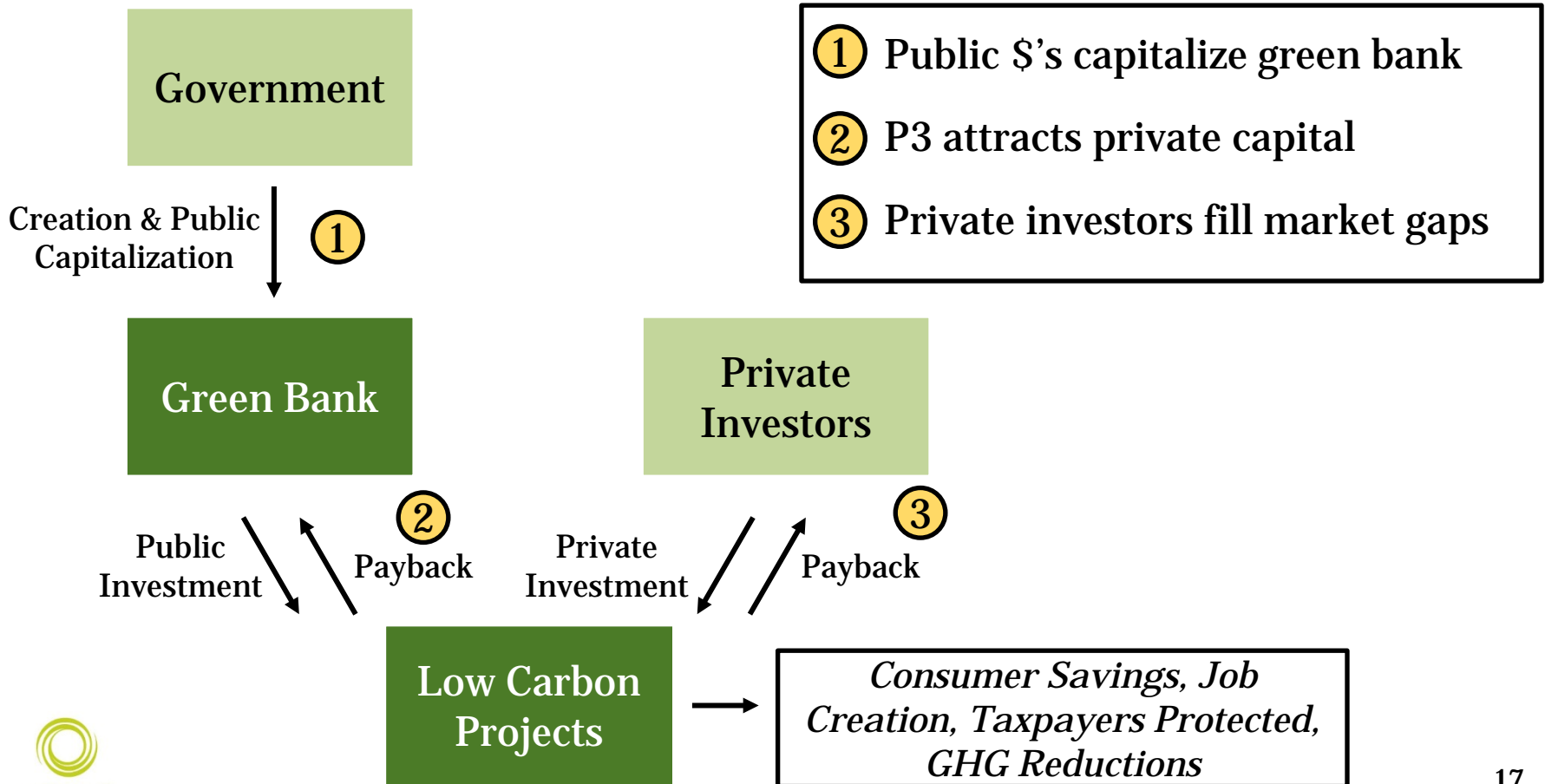
- Create **Institutions**
- **Enrich Ecosystem: E-Commerce, Social Networks, Green Bonds, Governance Improvement, Measurement**
- **Popular Opinion (Science Winning; Divestment; Corporate Responsibility; Green Funds)**
- **New capital suppliers: Corporate investments, local/state funds, pension funds, endowments, foundations, social impact investors**

Tactics at Work: Use Green Banks to Transform Markets



Green Bank Model

Create New Public Institution to Channel Public & Private Investment



Green Banks Lower Price of Clean Energy

Price of Solar Generated Electricity in Connecticut (cents/kwh)

		% of GB Capital in Solar Project			
		0%	10%	20%	30%
Solar Install Cost (\$/Watt)	\$4.5	21.0	18.7	16.3	14.0
	\$4.0	17.4	15.4	13.3	11.2
	\$3.5	13.9	12.1	10.3	8.5
	\$3.0	10.3	8.8	7.2	5.7

More Green Bank Capital Lowers Price!

Source: Rooftop Solar PV “Green Bank” Financing Model, Sponsored by The Connecticut Green Bank and the Coalition for Green Capital, Developed by the Brattle Group. Available for download from: <http://www.coalitionforgreencapital.com/the-model.html>
 Assumptions: Developer Equity Return is 15%, Tax Equity Return is 12%, total leverage is 40%, Commercial Debt is 6% for 6 years, Green Bank Debt is 2% for 15 years, 15-Year REC price of \$0.03/kwh, 6-year state incentive of \$0.225/kwh. Structure is 20% Green Bank Debt, 20% Commercial Debt, 48% Tax Equity and 12% Developer Equity

Case Study: CT Green Bank

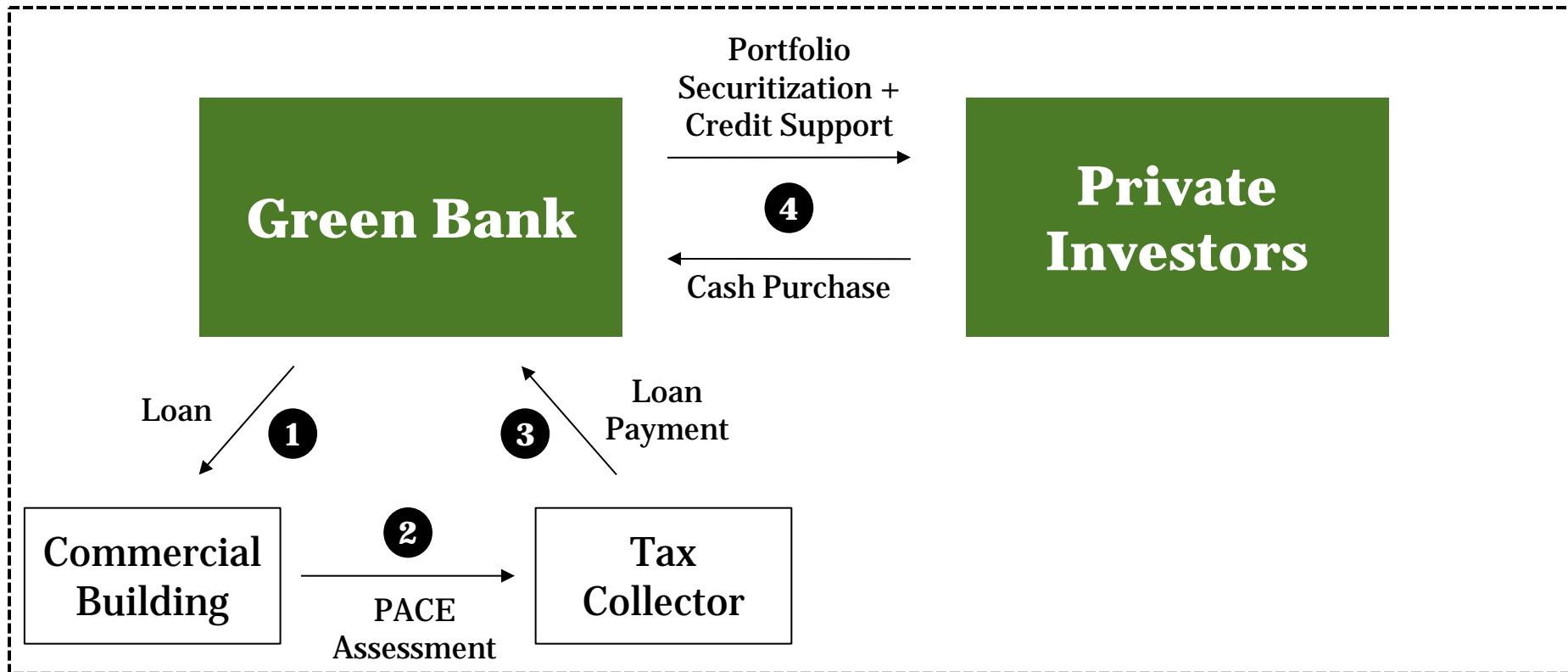
- 1 **Bipartisan legislation in '11 to create new Institution**
 - Quasi-state corporation; separate board
 - Goals linked to state energy plan
 - ~\$40M in annual public capital (SBC & RGI) + borrowing authority

- 2 **Uses P3 finance structures to pull in private investors**
 - Loans, leases, credit enhancements, PACE, securitizations
 - Products can achieve \$10:\$1 private: public leverage ratio

- 3 **Rapidly expanding distributed power & efficiency investing**
 - Private capital already flooding into new markets (solar loan, commercial efficiency), CTGB can pull back

Case Study: Efficiency Investment

Centralized State-wide Green Bank Administration



Successful P3 Investment

Green Bank Accelerated Annual Deployment 5X!

	CT Grant Authority FY 2000 – 2011	CT Green Bank FY 2012 – 2014
Years in Operation	11	3
Total Investment	\$349 Million	\$350 Million
Public/Private	\$168/\$181 Million	\$100/\$250 Million
Renewable Energy Installed	43.1 MW	65.3 MW

Green Banks Open to Partners

- Banks
 - Commercial banks*, local lenders*, investment bank project finance
- Specialized Capital
 - Private equity, hedge funds, high net-worth tax avoiders
- Institutional Capital
 - Pension funds*, asset managers*
- Mission-driven Capital
 - Social Impact Investors, Development Finance Institutions (GCF)
- Government; GCF
- Utilities

*Newly available sources

New Markets, New Institutions

State Green Banks

Connecticut
Green Bank

NEW!
California
CLEEN Center

New York
Green Bank

Hawaii Green
Infrastructure
Authority

New Jersey
Resilience
Bank

Rhode Island
Infrastructure
Bank

National Green Banks

Australia
Clean Energy
Finance
Corporation

UK Green
Investment
Bank

Japan Green
Fund

GreenTech
Malaysia

State Green Banks In Development: MN, MD, DE, VT & NV

International Developments: OECD leading global green bank initiative

Critical Roles for Finance Philanthropy

- Capability Building
- Institution Creation
- Social Networking; Information Exchange
- Seed Capital; Demonstration Projects
- Catalyst for Other Financing Sources
- State, Regional, Nation-State, International



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Thank You

Reed Hundt, CGC, Chief Executive Officer

www.coalitionforgreencapital.com