Green Banks: Financing Residential Energy Efficiency

Promoting Energy Efficiency Finance: Examples of Tools and Best Practices

DOE / Clean Energy Solutions Center Webinar

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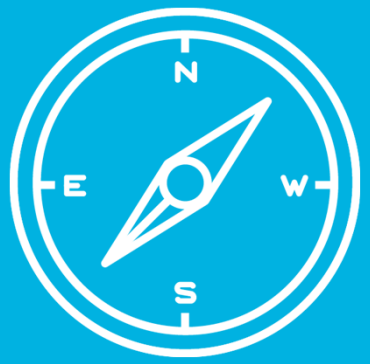


Global Clean Energy Context

Energy Efficiency Investment Opportunity

Investment in EE around the world was US$231 billion in 2016 (IEA 2017)

Brazil, Chile, Colombia, Mexico and Peru: conservatively, $43 billion in energy efficiency opportunity for Industry, Transport, and Buildings sectors by 2030 (IFC 2016)

LAC will need an US$176 billion annual investment to achieve their NDCs (IFC 2016)

The actual investment in LCR in LAC was US$32 billion in 2014 (CPI 2016)

75% public finance

Barriers To Financing Energy Efficiency

Barriers to Energy Efficiency Finance

Consumer Barriers

- Unaware of benefits
- Inexperience with improvement process
- Upfront costs
- Lack of or inadequate financing
- Complex process

Contractor Barriers

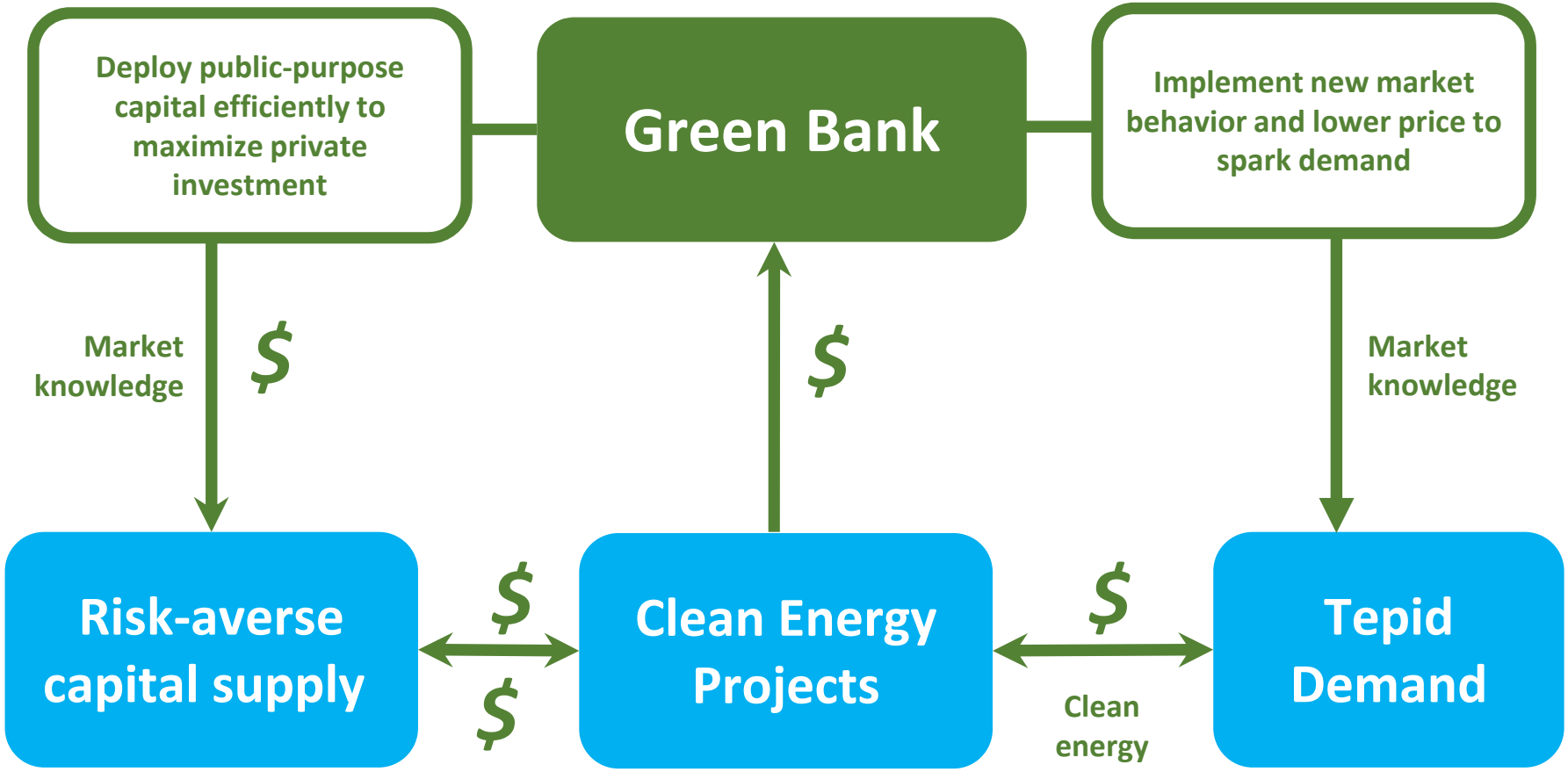
- Contractor expertise
- Capacity constraints (marketing, customer acquisition)
- Incipient development of ESCOs

Market Barriers

- Unfamiliarity with EE
- Perception of risk
- Lack of track record
- Individual projects are small
- Long payback periods
- Lack of adequate financial instruments

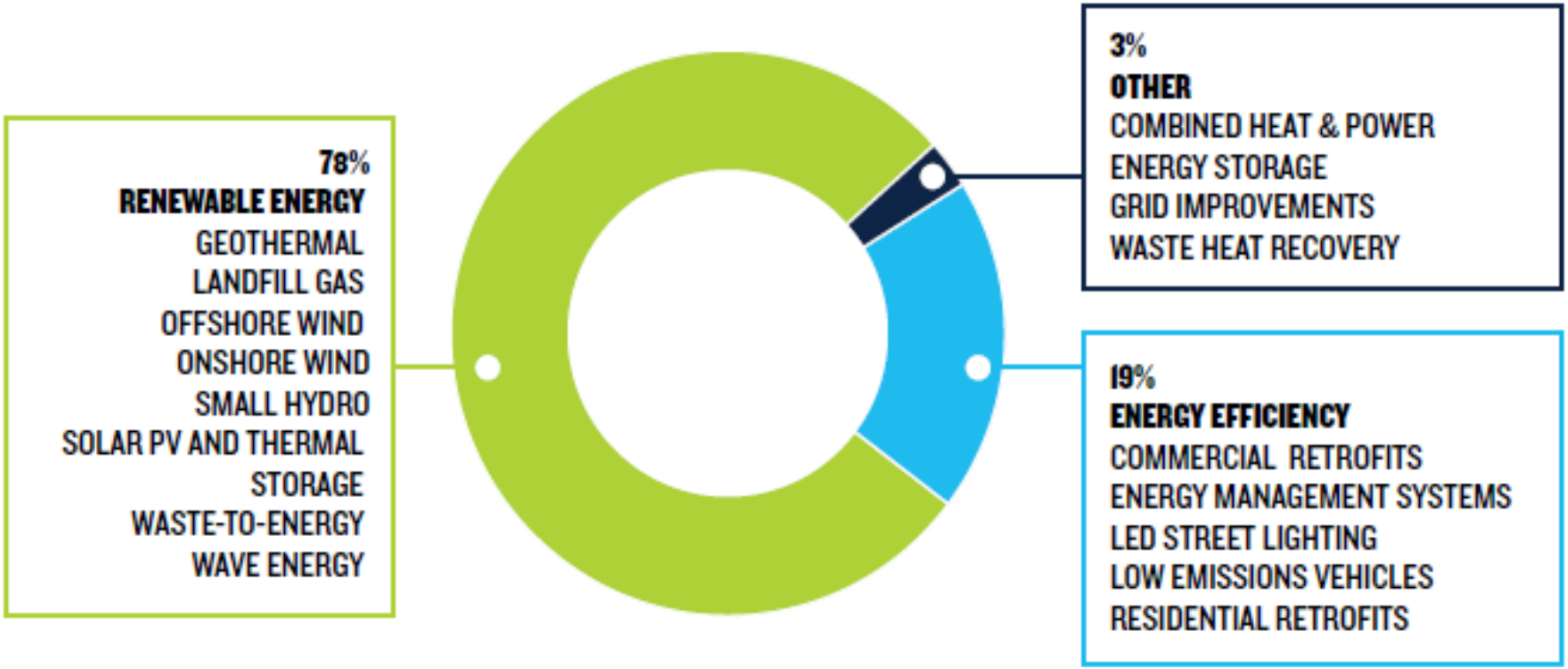
Green Investment Bank Model

Green Bank model is efficient, market-driven and sustainable



Characteristic of Green Investment Banks

GIBs invest in a wide variety of mitigation technologies



Through first quarter 2017
% of total $ invested or committed by GBN members

Case Studies

Green Banks have locally specific missions & structures

Institution	Mission	Structure/Oversight	Capitalization
Australia CEFC **(est. 2012)**	Accelerate the transformation of Australia into a more competitive economy in a world with less carbon, to catalyze greater investment in reducing emissions.	Independent Board that reports to Parliament through its responsible Ministers. New entity.	-Government funds
Connecticut Green Bank (est. 2011)	Prioritize reducing carbon emissions and reducing energy costs, as it contributes to the creation of local jobs by investing in clean energy.	CT Green Bank is a quasi-public corporation established as part of the Connecticut Legislature. Repurposed entity.	-RGGI (cap & trade funds) -Utility bill surcharge -Federal competitive and non-competitive grants (ratepayer funds) -Bonding authority -Private sources
NY Green Bank (est. 2014)	Transform and accelerate the deployment of clean energy in the state of New York through funding and collaboration with the private sector.	Public Service Commission oversight; New division of state energy office	RGGI (cap & trade funds) NYSERDA funds (ratepayer funds)

Clean Energy Finance Corporation (CEFC) – Australia

Goal

Reduce energy costs for low- to moderate-income residents with efficient and affordable housing

Barrier

- Community housing providers have limited funding
- Commercial banks are generally not active in the energy efficiency sector, or offer financing with inappropriate terms

Solution

- CEFC Community Housing Program drives development and construction of energy efficient affordable housing

Clean Energy Finance Corporation (CEFC) – Australia

Sample Transaction - CEFC Loan to St. George Community Housing

Total investment: AUD $170 million

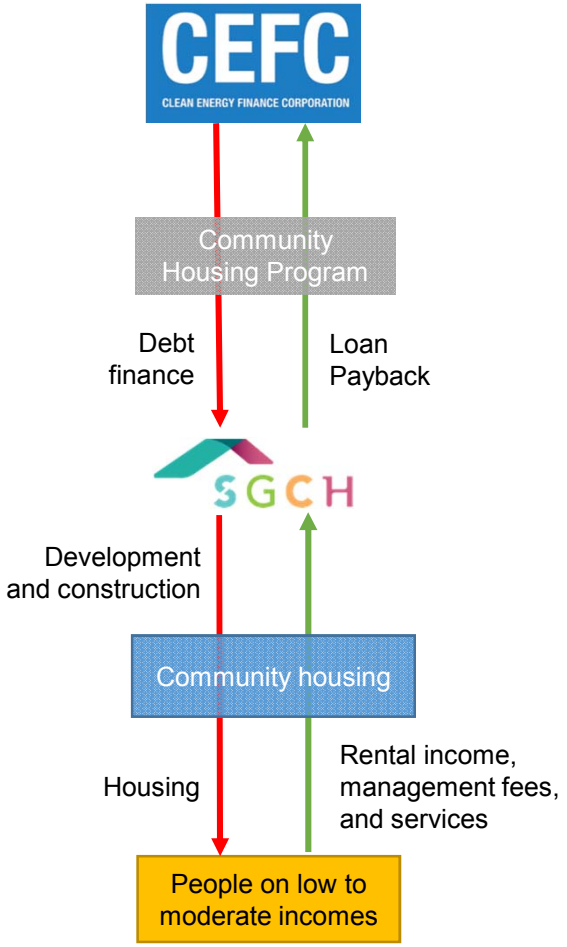
(over 2015 and 2017)

Type of capital: Debt

Length of investment: 10 years

Project: Construction of 500 new energy efficient homes, retrofits to existing buildings.

Improvements include: improved insulation, LED lighting, energy efficient appliances, smart meters, solar installations, etc.



Connecticut Green Bank (CGB) – Connecticut, United States

Goal

Serve low-income and multifamily markets

Barrier

- Inability of property owners to pay upfront costs and unfamiliarity with how to implement improvements
- Private sector capital providers are hesitant to provide finance until a track record is demonstrated

Solution

- Suite of solutions for technical assistance (pre-development work, project definition, contractor network) and project finance (Low Income Multifamily Energy (LIME) Loan, Commercial Property Assessed Clean Energy (C-PACE), Solar-only, and Catalyst Financing)

Connecticut Green Bank (CGB) – Connecticut, United States

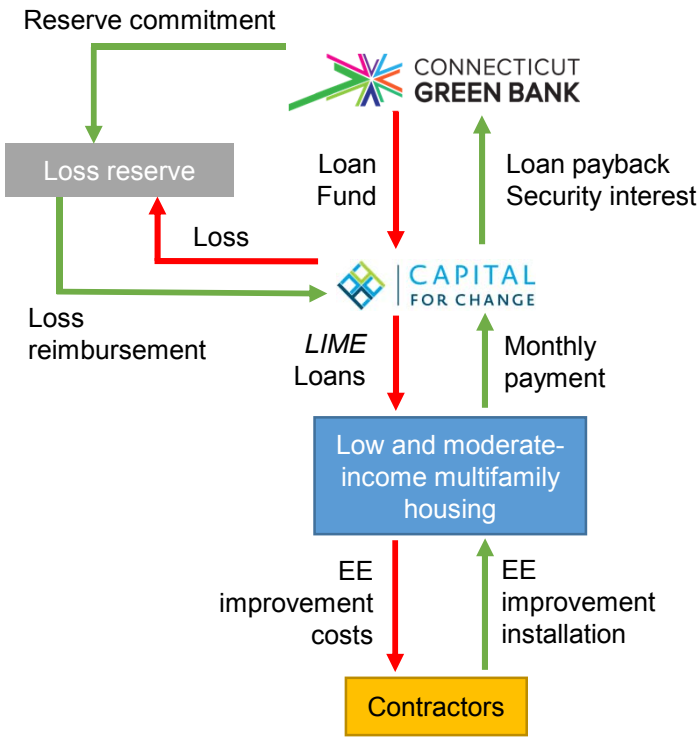
Sample Transaction - Capital for Change: Low Income Multifamily Energy (LIME) Loan

Total investment: $3.5 million to capitalize the available funding for Low Income Multifamily Energy (LIME) Loans

Type of capital: subordinated, secured debt

Length of investment: long-term loans of 10-20 years

Project: EE upgrades in existing multifamily buildings of five or more units with at least 60 percent of units used as affordable housing. Improvements: heating and cooling system, hot water systems, lighting and appliances, renewable energy systems (solar PV, solar thermal, etc.)



NY Green Bank (NYGB) – New York State, United States

Goal

Ensure clean, cheaper, and reliable electricity in the state of New York; Make 500,000 homes more energy efficient.

Barrier

- At household level , upfront costs are high
- Large-scale private investors are hesitant to invest due the lack of a track record of successful projects.

Solution

- NYGB capitalize Special Purpose Vehicle (SPV) entities to become intermediaries that finance energy efficiency upgrades and manage individual loans.

Connecticut Green Bank (CGB) – Connecticut, United States

Sample Transaction – NYGB's Investment in Sealed, Inc.

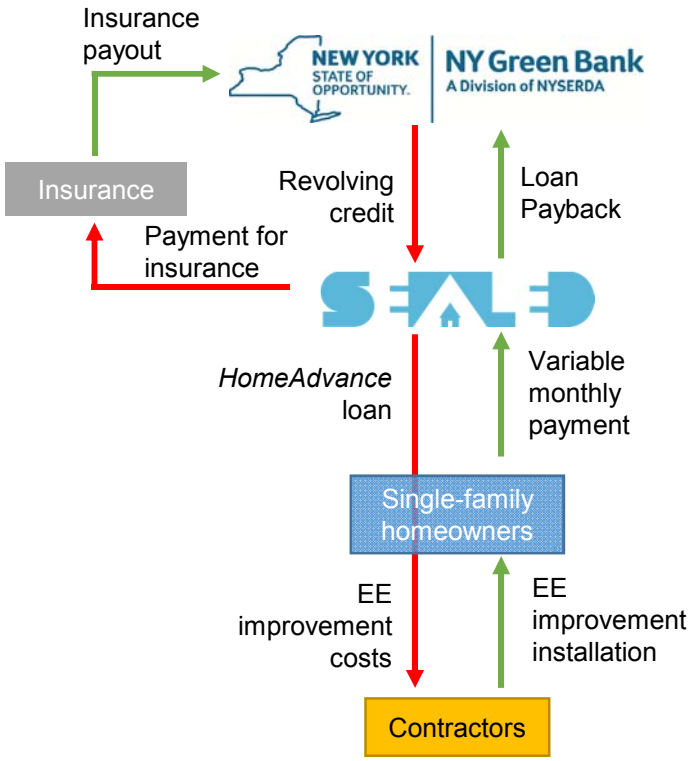
Total investment: $5 million to finance Sealed's *HomeAdvance* loans

Type of capital: Revolving credit

Length of investment: undisclosed

Project: EE upgrades in existing single-family homes in New York State.

Improvements: boiler replacement, air and duct sealing, wall insulation, LED lighting, and smart thermostatns.

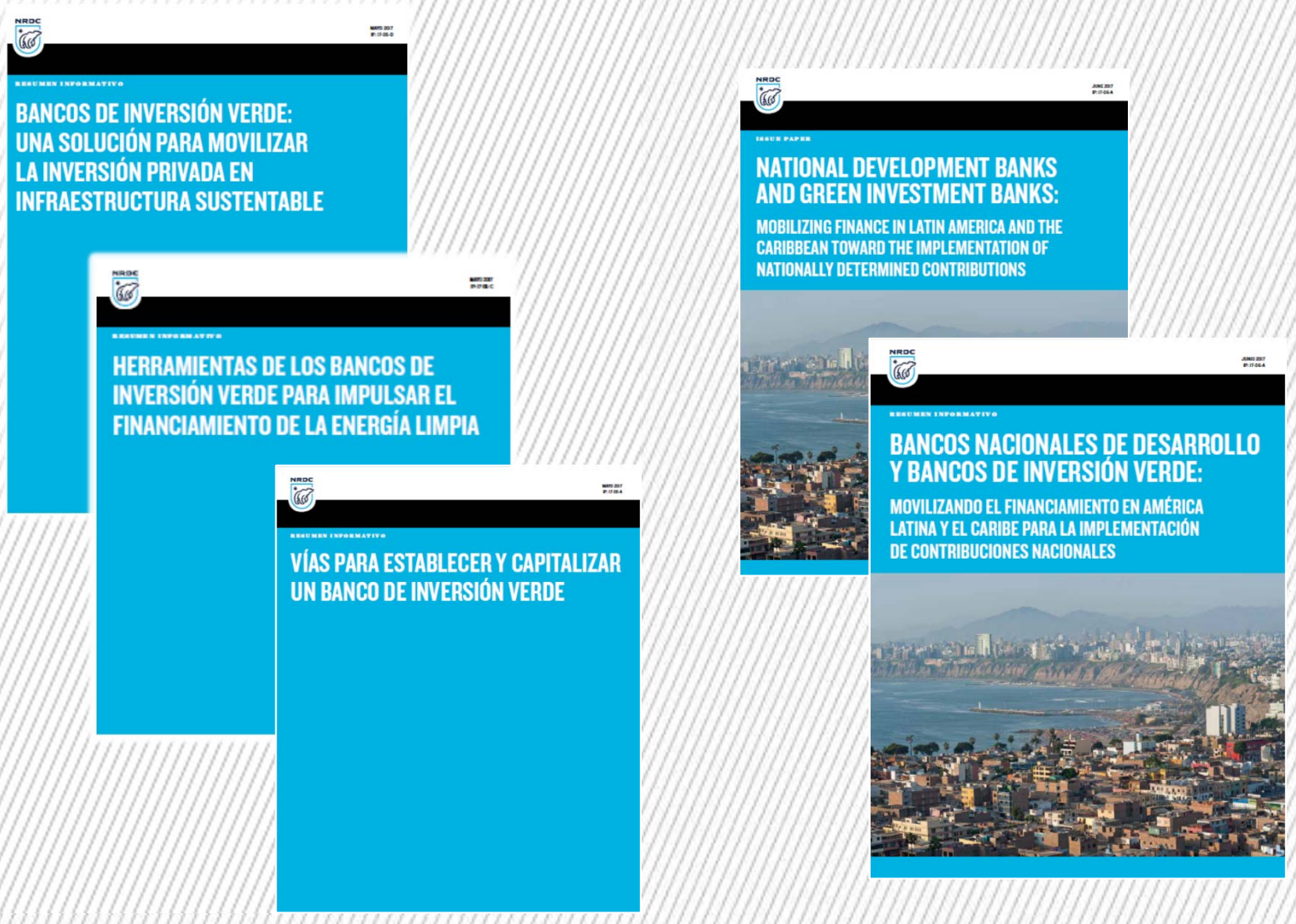


Lessons Learned

Lessons Learned and Best Practices

- *Policy mandate or directive is key, especially for sectors like affordable / family housing*
- *Efficiency standards help ensure performance and results*
- *Complement and align efforts with other government initiatives and utility programs*
- *Active stakeholder engagement and flexibility to adapt*
- *Provide technical support and simple, straightforward process*
- *Collect data and document (and share) progress*

Green Bank Model and Latin America



https://www.nrdc.org/resources/green-investment-banks-tool-bolster-climate-action-latin-america

LAC GIBs can help NDBs address barriers to NDCs

NDB Barrier	Potential GIB Solution
Lack of long-term, low-cost capital	Entity with sole mission of crowding in private capital to finance NDCs could be attractive to donors and private investors
Insufficient risk-adjusted returns	Separate pool of GIB capital could take on transaction risk that NDB might be reluctant to take on itself, thus enhancing its performance
Conservative investment mandates	Role of GIB could be to lead the way for NDB to expand into new sectors
Risk perception of climate finance investments	GIBs can incubate innovative investments • Pioneering energy efficiency • De-risking aggregation of small scale projects • Introducing new technologies to market • Developing adaptation-focused financial products
Lack of technical capacity	• GIB can attract sector specialists and can devote resources to in-house technical expertise • Indeed, this is an element that the existing GIBs see as essential to their success.

Many structural options for LAC GIBs

GIB Structural Option		NDB Needs Assessment		
		Ability to Leverage NDB Network	Financial	Technical
NDB Green Division	GIB division within the existing institution	+++	+	+
NDB Green Affiliate (controlled by NDB)	Quasi-independent SPV managed by NDB personnel	+++	++	+
NDB Green Affiliate (joint venture/fund)	Quasi-independent SPV co-managed with a private fund manager	++	++	+++
New Institution/GIB	Fully independent GIB	+	+++	+++

Key: A "+" indicates the degree to which the structural option is able to address the barrier.

Questions/ Discussion

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