

GREEN INVESTMENT BANKS: *Keys to Accelerating NDC Investment in Asia*

GCF Asia Structured Dialogue

Bali, Indonesia

April 26-29th, 2017

Presented by Doug Sims

NRDC Center for Market Innovation



GREEN BANK NETWORK

Major shifts required to meet NDCs

Investment from Fossil to Clean Implementation of Paris climate pledges will require over US\$13.5 trillion in green investment; keeping below 2°C will require an additional US\$ 11 trillion	Centralized to Distributed Energy resources are increasingly distributed, where access to reasonably priced capital can be limited	Resilience Changes already locked in require building-in resilience measures; significant investment needed in resilient infrastructure, water, climate-smart agriculture and other sectors	Greening Finance There are systemic barriers to green investment within the financial system itself, including investors' difficulty considering climate in investment decisions
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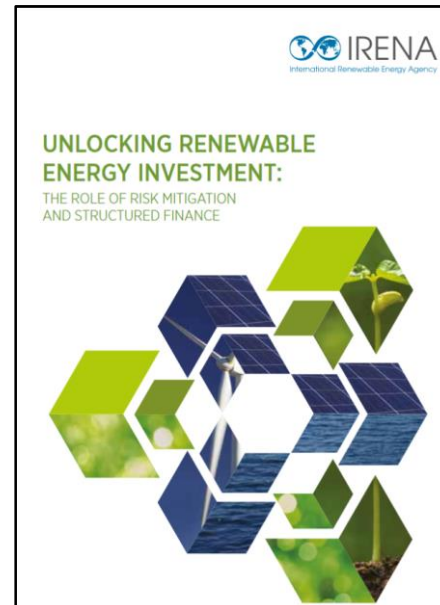
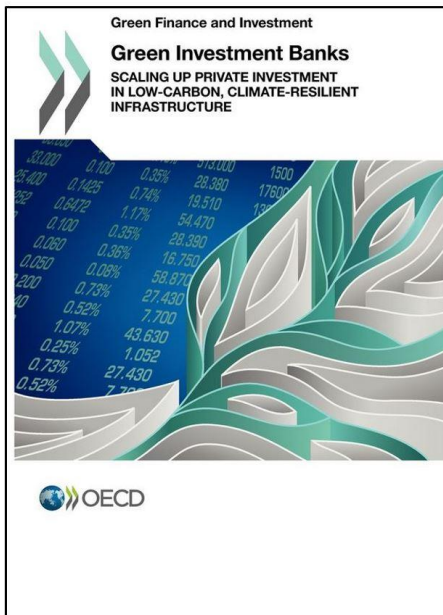
Public funding is limited, so it must be used strategically to catalyze private sector investment that achieves both NDCs and SDGs.

Policy and finance must work together, each informing the other.


Specialized, locally controlled NDC financing vehicles following the GIB model can help accelerate the transition, inform policy and bridge financing gaps.

Global actors increasingly recognize GIB model

- OECD Report on Green Banks released at Clean Energy Ministerial (CEM) event May 31, 2016
- **Felipe Calderon** of Global Commission on the Economy and Climate includes Green Bank model in four-point climate plan in Financial Times June 28, 2016



GIB interest is growing, including in Asia



THE TIMES OF INDIA THE ECONOMIC TIMES

MARKET STATS: 28,343 ▲ 440.35, 8,744 ▲ 136.90, 30,848.00 ▼ -227.00, 67.03 ▼ -0.15

IREDA to convert to Green Bank, says chairman and managing director K S Popli

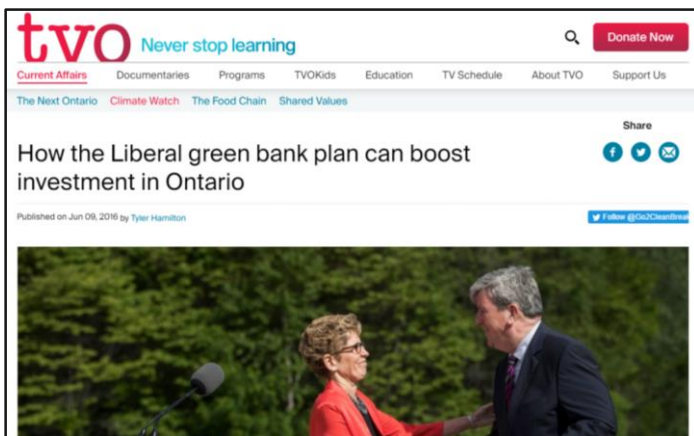
By Debjoy Sengupta, ET Bureau | May 04, 2016, 04:16 PM IST

READ MORE ON » Yes Bank | K S Popli | IREDA | Green Bank

KOLKATA: Indian Renewable Energy Development Agency (IREDA) may soon be converted into a Green Bank, its chairman and managing director K S Popli said on Wednesday in a statement.

Popli said IREDA might be converted to a Green Bank without undergoing any alteration in its basic structure to enable it access to funds from foreign banks that are not currently supporting solar and wind.

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RESUMEN INFORMATIVO

PERSPECTIVAS DEL FINANCIAMIENTO DE LAS ENERGÍAS LIMPIAS EN CHILE: ¿OPORTUNIDADES PARA LOS BANCOS VERDES Y LOS BONOS VERDES?

The G20 Embraces Green Finance

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BEIJING – The G20's finance ministers and central-bank governors have begun to undertake a stunning shift in mindset. They have become increasingly convinced that “green finance” – financing environmentally sustainable growth – should be at the center of economic-development strategies. Such an idea, until recently confined to a fringe of academics and policymakers, is potentially one of the most important new “truths” of the twenty-first century.

“China must establish a national-level Green Development Fund, much like the UK Green Investment Bank.”

- Ma Jun, People's Bank of China

GIBs are operating successfully around the world



GIBs have a niche in the ecosystem at the local level

- Our recent paper concludes that the GIB model can scale up climate finance in developing and emerging economies by:
 - Helping countries translate NDC goals into investments;
 - Being a locus of financial innovation to meet local market needs;
 - Being a partner to international sources of climate finance and Development Finance Institutions (DFIs); and
 - Being a conduit between the international/national level (upstream) and project level (downstream) actors.



<https://www.nrdc.org/resources/green-resilience-banks-how-green-investment-bank-model-can-play-role-scaling-climate>

GIBs are designed to achieve local climate policy goals

Australia: Clean Energy Finance Corporation

Accelerate the transformation of Australia into a more competitive economy in a world with less carbon, to catalyze greater investment in reducing emissions.

Malaysia: GreenTech Malaysia

Develop sustainable and widespread green technology markets and strengthen local green technology industry.

Japan: Green Finance Organization

Support the development of local communities to address the impacts of slow economic growth.

Connecticut, USA: Connecticut Green Bank

Prioritize reducing carbon emissions and reducing energy costs, as it contributes to the creation of local jobs by investing in clean energy.

New York, USA: NY Green Bank

Transform and accelerate the deployment of clean energy in the state of New York through funding and collaboration with the private sector.

UK Green Investment Bank

Accelerate the UK's transition to a greener, stronger economy. Focus on being “green and profitable”.

Barriers in most markets are variations on a few themes



Utility and Large Commercial and Industrial Renewable Energy Projects

Innovative technologies:

Projects considered risky due to unfamiliarity with technology, lack of liquidity

SME-sponsored projects:

Lack of ability to provide guarantees or equity, lack of track record, high cost of structuring financing



Distributed Small and Medium Scale Renewable Energy Projects

Lack of interest from financial institutions due to small size

Inability to provide guarantees, equity, etc. due to the size of the sponsor

High cost of structuring financing

Unfamiliarity with technical and operational profile of the technologies

Difficulty perceiving the economic benefits

Lack of specific financial instruments



Energy Efficiency Projects

Difficulty perceiving the economic benefits

Perception that payback periods are too long

Lack of specific financial instruments

Incipient level of development of energy services companies

The Green Investment Bank Model

Sources of Funds to Capitalize Green Banks

Products and Tools

LCR Projects

International Institutional Investors, Capital Markets



Private Investment Capital (International & Domestic)



Philanthropic & Impact Sources



Public Sources - International Donors (bi-lateral)



Public Sources - Development Finance Inst.



Public Sources - International Climate Finance (multilateral)



Public Sources - Domestic budgets



**GREEN
INVESTMENT
BANK**

Co-Lending/Financing
(Debt & Equity)



Risk Mitigation & Credit Enhancement
(Guarantees, First Loss, Green Bonds)



Aggregation, Warehousing & Securitization



Innovative Financing
(Tax Credits, Lien-based Financing)



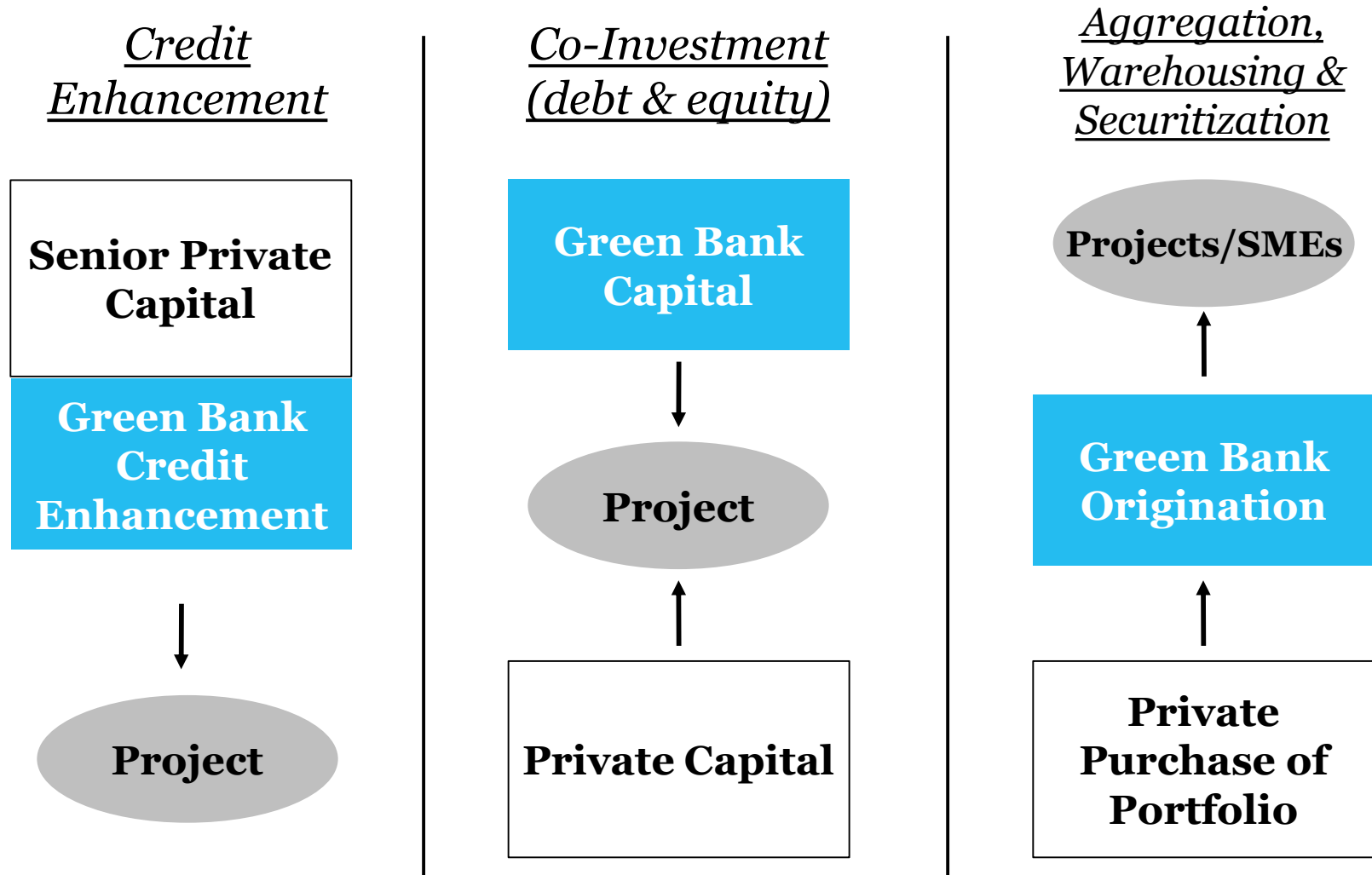
Grants
(Technical Assistance/ Advisory Services)



“Money In”

“Money Out”

GIBs customize a set of strategies to address local needs



“But don’t GIBs duplicate other institutions?”

No, GIBs differ from:

Multilateral financial institutions and national development banks, which:

- Have broad mandates
- Deploy large amounts of capital in large transactions in accordance with internal risk appetite

Public sector clean energy financing authorities, which:

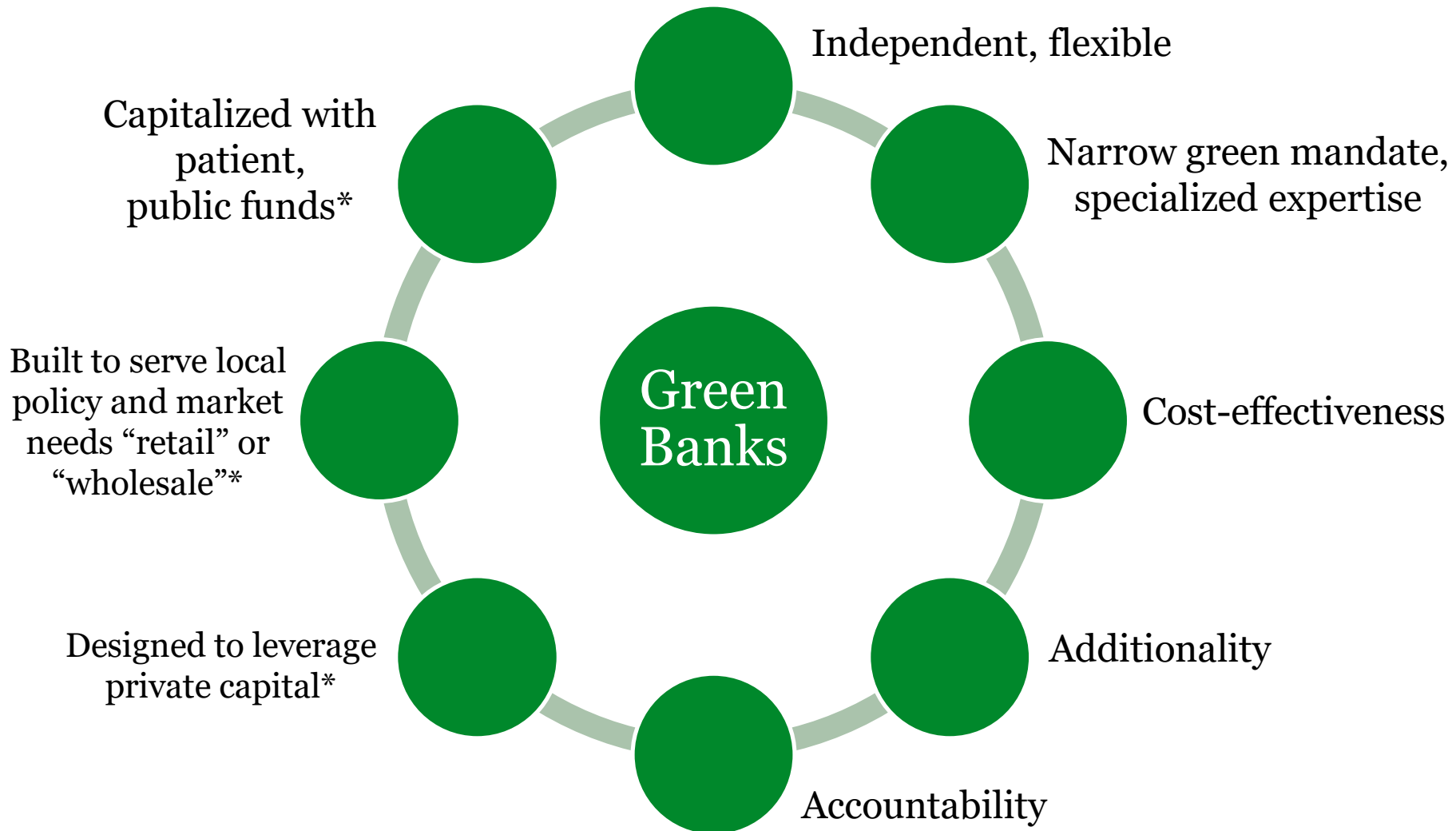
- Focus on straightforward concessional lending

Private infrastructure funds, which:

- Protect their sector expertise as proprietary know-how
- Focus on profit maximization

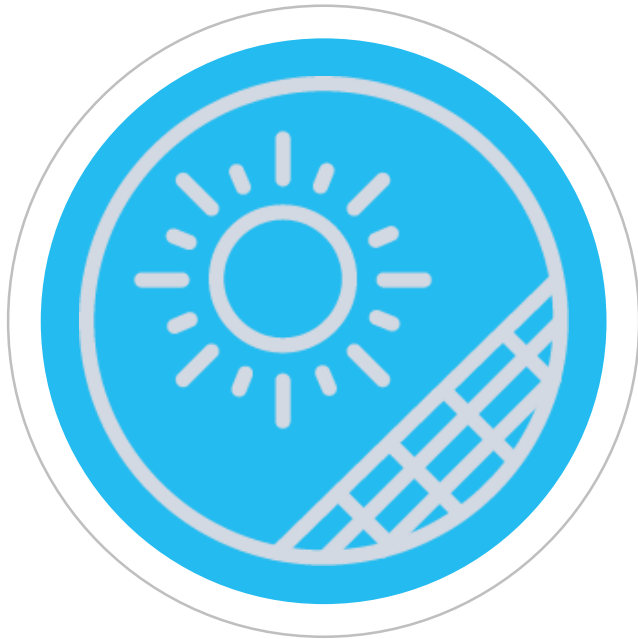
GIBs work with these institutions, as well as utilities, banks, end users of energy, equipment providers, contractors and others to increase the flow of capital and information into the market

GIB bring diverse features into a focused framework



Adapted from the OECD report, “Green Investment Banks: Scaling up Private Investment in Low-Carbon, Climate-Resilient Infrastructure”, 2016. An asterisk indicates characteristics that have been added to the OECD’s list.

Malaysia: Increase commercial bank lending



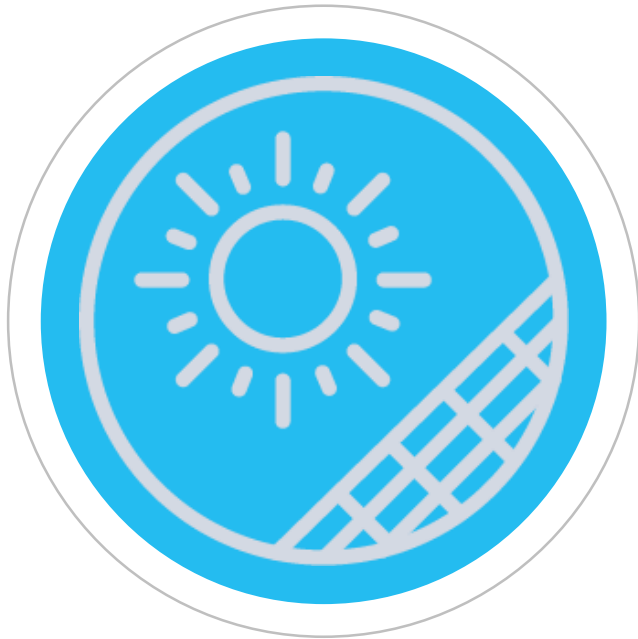
Goals: Promote green investments by providing easier access to financing and at a lower financing costs.

Investment Type: The scheme provides a 60% government guarantee on financing provided by financial institutions as well as a 2% rebate on interest/profit rate charged by the FI.

Result: As of June 2016, 248 projects have been supported so far through the scheme, with 80% being renewable energy projects such as solar and biomass.

New Investors: The GTFS has attracted 27 risk-averse banks and financial institutions to invest in green infrastructure projects.

Japan: Increase distributed RE development



Goal: Facilitate loan financing for green infrastructure developers in Japan by decreasing debt to equity ratios, and to support the implementation of new business models.

Investment Type: The Green Fund makes equity investments. Investments are made directly in projects as well as indirectly through sub-funds. Equity amount must be less than 50% of total equity, and Green Fund will stay in a project for 10 years maximum.

Results: Since FY2013, the Green Fund has made a commitment to invest a total of USD 78 million into projects totaling USD 664 million for a leverage ratio of over 8:1. Projects GFO invested are expected to offset an estimated 664,000 tons CO₂e every year.

New Investors: Undisclosed private financial institutions (including local), private companies, civil funds, and co-ops.

United Kingdom: Draw in pension funds



Goals: Attract capital into the UK's offshore wind sector from new, long-term investors seeking solid, risk-adjusted returns by investing in operational assets. Create liquidity/exit to permit re-investment by sponsors.

Investment Type: unlisted project equity. The Fund is managed by an FCA registered subsidiary of GIB – UK Green Investment Bank Financial Services Limited.

Result: As of April 2017, the fund had six investments in UK OSW farms.

New Institutional Investors: As of April 2017, the Fund had total committed capital of £1.12 billion from UK based pension funds, such as Strathclyde Pension Fund, as well as international institutional investors, including one of the **world's largest sovereign wealth funds and Sweden's AMF Pensionsförsäkring AB, a leading European life and pension company.**

Australia: Grow the green bond market



Goal: Support the development of the green asset-backed security (ABS) market in refinancing innovative solar and storage products by purchasing AUS\$20 million in certified green bonds issued by FlexiGroup Limited.

Investment Type: Investment in listed green bond (ABS).

Results: Expands the types of financial instruments available, combining an innovative financing approach with a focus on rooftop solar and storage. First use of certification from the Climate Bonds Initiative on a securitization in Australia. Observed 5 bps pricing benefit in green tranche.

USA: Increase residential solar deployment



Goal: Activate the residential solar market in CT by lowering the cost of financing for customer-owned solar systems.

Investment Type: CT Green Bank's solar loan program allowed homeowners to access financing to own a solar home system and take advantage of the investment tax credit. A private company partnering with CT Green Bank acquired new customers and worked with local contractors to do the installations. CT Green Bank offered customers low-cost solar loans sized based on projected energy savings.

Results: During its two years of operation, the CT Solar Loan provided financing for 279 projects totaling 2,186 kW installed. Given the proof of concept of the CT Solar Loan, a private investor committed to replace the public fund with private capital without the need for CT Green Bank involvement. The loans are being offered at affordable interest rates and is being offered in 3 states outside CT.

Various approaches are used to create GIBs...

Legislative

- The Australian Clean Energy Finance Corporation (CEFC) was created by legislative action through the CEFC Act of 2012 passed by Australian parliament.

Regulatory and Administrative

- New York chose to create their Green Bank as a division of an existing entity through combination of administrative action and regulatory ruling.

Re-purposing and Consolidation

- The Connecticut Green Bank was formed by fully repurposing an existing quasi-public entity, the Connecticut Clean Energy Fund (CCEF).

.....
...and to capitalize them

Domestic Sources

- Budget Funds
- Cap & Trade / Carbon Tax Revenue
- Utility Surcharge
- National Development Banks/Funds

International Sources

- International donor assistance (bilateral and private philanthropy)
- Institutional investors, pension funds, other private investors and capital markets (green bonds)
- Climate finance funds

Summary of different GIB pathways

Institution	Established	Structure/Oversight	Original Capitalization
Australia CEFC	2012	Independent Board that reports to Parliament through its responsible Ministers. New entity.	Government funds
Connecticut Green Bank	2011	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 Private sources.
GFO Japan	2013	GFO is a public entity in Japan that uses public dollars to make investments. New entity.	Capitalized by revenue of a carbon tax on fossil fuel consumption (Tax for Climate Change Mitigation)
GreenTech Malaysia	2010	GTM is under the purview of the Ministry of Energy, Green Technology and Water and a Board of Directors. New division.	Government funds
NY Green Bank	2014	Public Service Commission oversight New division of state energy office.	RGGI (cap & trade funds) NYSERDA funds (ratepayer funds)
UK GIB	2012	GIB was wholly owned by the UK Government. Sold to Macquarie in April 2017.	UK Government

GIBs are developed through a 4-phase process



Phase 1 Scoping and Education

Desktop analysis of
financing landscape

Outreach to
stakeholders



Phase 2 Analysis and Investigation

Market Analysis

Legal Analysis

Capitalization Analysis



Phase 3 Establishment

Stakeholder
Consensus

Enabling Legal Actions

Product Development



Phase 4 Operations

Capitalization

Commencement of
Operations

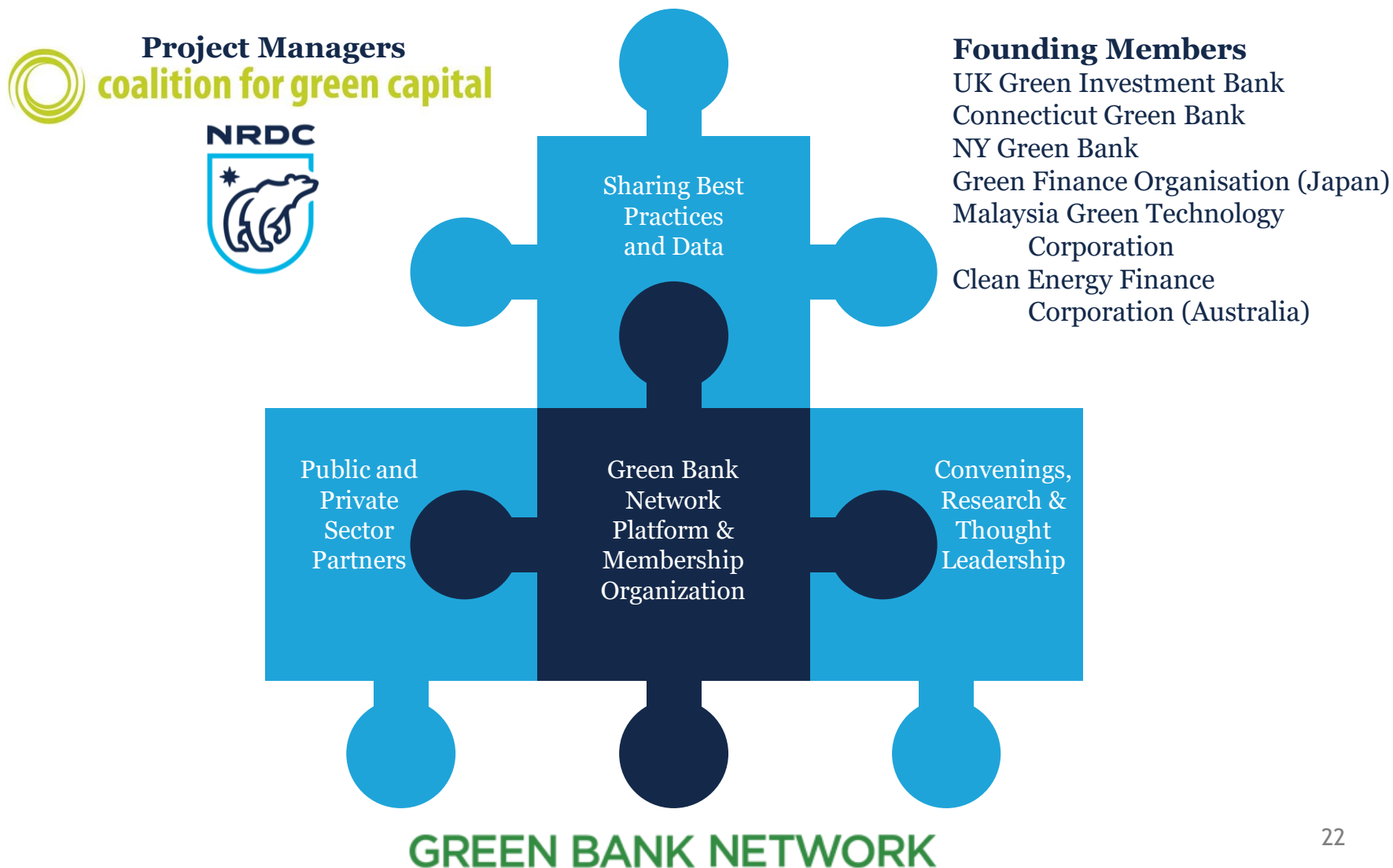
Ongoing Operations
and Reporting

Principal Stakeholders

NGOs
Renewable Energy Trade Associations
Energy Efficiency Trade Associations
Consumer Protection Groups

Governmental Ministries
(Energy, Environment, Finance)
Governmental Financial Institutions
Commercial Banks / Private Investors

We can help you set up your GIB



GBN members are already having an outsized impact

GREEN BANK NETWORK IMPACT THROUGH 2016

CALCULATIONS BY THE GREEN BANK NETWORK BASED ON AVAILABLE DATA. \$ ARE US\$

TOTAL CAPITAL COMMITTED OR INVESTED BY GBN MEMBERS

\$7.9 BILLION

&

TOTAL VALUE OF PROJECTS SUPPORTED BY GBN MEMBERS

\$25.9 BILLION

ANNUAL CO2EQ EMISSIONS AVOIDED*

12.26 MILLION TONNES

OVERALL LEVERAGE RATIO *(Non-GB \$ invested per GB \$ invested)*

2.25 : 1

BREAKDOWN OF GBN INVESTMENTS BY TECHNOLOGY TYPE



78.5% ENERGY RENEWABLE



18.8% EFFICIENCY ENERGY



2.7% OTHER
INCLUDING CHP, LOW EMISSIONS VEHICLES, AND ENERGY STORAGE



That's the equivalent of taking

5.6 MILLION

cars off the road



*GBN members do not claim that this abatement occurs independently of complementary policies

For more information contact:
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(<https://www.nrdc.org/about/center-market-innovation>)

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