

**GREEN BANK
NETWORK**

GREEN BANKS AROUND THE GLOBE: 2018 YEAR IN REVIEW

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About the Green Bank Network

The Green Bank Network (GBN) is a membership organization managed by the Natural Resources Defense Council and the Coalition for Green Capital. It was founded in December 2015 to foster collaboration and knowledge exchange among existing green banks, enabling them to share best practices and lessons learned. The GBN also aims to serve as a source of knowledge and a network for jurisdictions that seek to establish a green bank. The GBN founding members are the Clean Energy Finance Corporation (Australia), Connecticut Green Bank (United States), Green Finance Organisation (Japan), GreenTech Malaysia, NY Green Bank (United States), and Green Investment Group (United Kingdom).

Visit us at greenbanknetwork.org.

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Introduction from the ClimateWorks Foundation

Managing the climate crisis will require a near-zeroing of greenhouse gas emissions by around mid-century. This represents a radical change: all economies will need to undergo major economic transformations. No economy is yet fully on course, so no government can afford a laissez-faire approach to the pace of transformation. Infrastructure investment made now locks in emissions implications that will reverberate far into the future. We are in immediate need of public investment capable of accelerating commercial deployment of clean energy, energy efficiency, and the next frontier of near-market innovations in the low-carbon economy.

Yet public budgets will always be strained, a political reality as much as an accounting one. Effective public investment will need to be targeted to and catalytic of market forces wherever possible if it is to meet the scale of the challenge. Industrialized and emerging economies—where greenhouse gas emissions and their credible projected growth are greatest—have the advantage of mature financial sectors that can be brought off the sidelines to finance deployment at scale, if they can be catalyzed.

Whence the catalyst? Commercially minded public financial institutions with a low-carbon mandate now have a proven track record of activating the private sector. These institutions can deploy risk-tolerant public capital capable of attracting investment to low-carbon infrastructure in ways that explicitly and intentionally lead private capital into new markets. This is the experience of the green investment bank model.

As a core element of its sustainable finance grant-making strategy, the ClimateWorks Foundation has over the past several years sought to strengthen the growing network of green banks and their professionals, expand the model in industrialized and emerging markets, and ensure these activities precipitate a deeper reenvisioning of development finance and the role of public investment in the context of rapid decarbonization.

We are proud supporters of the Green Bank Network, many of the efforts outlined below, and the organizations that champion them. We also need new allies: public servants looking for effective ways to grow clean energy, energy efficiency, and the low-carbon economy in their jurisdictions to meet public needs; experts capable of cultivating such opportunities; and philanthropies that can help seed these efforts. We believe this Year in Review provides a valuable testament to the incredible work of today's green bank champions and acts as a rallying cry for tomorrow's.

Ilmi Granoff
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Note from the Green Bank Network Secretariat

The Intergovernmental Panel on Climate Change's (IPCC's) fall 2018 report finds that to meet the goal of limiting global warming to no more than 1.5 degrees Celsius, investments in low-carbon energy technology and energy efficiency will need to increase by roughly a factor of five by 2050 compared with 2015 levels. This will require an unprecedented mobilization and redirection of domestic and international capital. In short order, successful strategies will have to be adapted and scaled and new financial instruments will have to be deployed to apportion risk in novel ways. Stable and effective enabling environments will have to be put in place that are nevertheless sufficiently flexible to account for rapid change.

Crucially, each unit of public or donor money will have to be used to mobilize multiples of private capital. The problem is that in most jurisdictions, there is no financial institution specifically focused on doing this. Green banks are the critical actor missing from the landscape of financial institutions.

These specialized financial intermediaries are a focal point for facilitating the climate finance ambition and market transformation demanded by the Paris Agreement, while delivering multiple sustainable development goal-focused benefits to governments and the private sector. This report takes a snapshot of work of the members and partners of the Green Bank Network. More information is available at www.greenbanknetwork.org.

It has been a pivotal year for the pioneering green banks that are the members of the Green Bank Network. Since inception through mid 2018, the members collectively have committed about USD 11 billion for projects with a total value of more than USD 41 billion. The Clean Energy Finance Corporation invested across the innovation and project finance life cycle as well as across a wide array of clean energy asset classes critical to tackling Australia's toughest emissions challenges. Green Investment Group (formerly UK Green Investment Bank) continued to innovate in new structures and new geographic areas during its first year under private ownership. NY Green Bank's portfolio grew in size and diversity as it demonstrated the sustainability of its business model. Through its unique equity strategy, the Green Finance Organisation crossed a key threshold by mobilizing 10 times its USD 100 million investment in projects across Japan. As Connecticut Green Bank continued to win awards for innovation in government, spin out an affiliate, transform existing markets and enter new ones, such as electric vehicles, it ironically became a victim of its own success and had half of its annual operating revenues swept by the state legislature. Our sixth member, GreenTech Malaysia, was being repositioned after a change in government. Nevertheless, since the inception of its Green Technology Finance Scheme in 2010 and through the end of 2017, it had approved more than USD 900 million under the Scheme and the total cost of the 319 projects receiving funding was USD 1.775 billion. Investments have led to more than 3,785 million tonnes of CO₂e emissions avoided annually.

In the area of emerging new green banks, efforts in jurisdictions in Latin America, Africa, Asia, and Europe all made headway, including the launch of the Climate Finance Facility in Southern Africa—a first-of-its kind, path-breaking application of the Green Bank model, adapted for emerging market conditions. This report is a compilation of summaries of green bank activities in the past year in selected countries across the globe. It includes reports from operating green banks and progress reports on green bank development activities in countries that do not yet have green banks. It includes brief descriptions of:

- Recent activities, prepared by Green Bank Network members
- Green bank development activities in India, Chile, and Mexico, prepared by the Natural Resources Defense Council (NRDC)
- Green bank development activities in South Africa, Rwanda, Indonesia, Colombia, and the United States prepared by the Coalition for Green Capital (CGC)
- Green finance programs in China, including provincial green development funds, prepared by the NRDC
- Green bank development activities in Colombia and Vietnam, prepared by Vivid Economics

Finally, efforts to develop green banks in emerging economies must be tailored to those economies' particular circumstances. Rocky Mountain Institute describes an exciting new program, the Green Bank Design Summit, to be sponsored by the Agence Française de Développement and held in Paris in March 2019. The conference will enable public- and private-sector professionals working to design and set up green banks in emerging economies to access the lessons learned by countries that have already established green banks.

We hope that you will find the 10 compact reports composing this year-end review to be a useful window into the current status of green bank development in both developed and emerging economies. To gain a deeper understanding of green bank activities, see our new Transaction Database at www.greenbanknetwork.org/gbn-member-transaction-database.

Best regards,

Doug Sims,
Natural Resources Defense Council

Andrea Colnes,
Coalition for Green Capital

Clean Energy Finance Corporation (Australia)



The Clean Energy Finance Corporation set new records in the number and value of investment commitments in 2017–18 (year ended 30 June 2018), delivering a heightened focus on some of the nation's toughest emissions challenges through our support for innovative projects, technologies, and investment partnerships. We made new commitments of AUD 2.3 billion, with 39 direct investments across the clean energy sector in renewable energy, energy efficiency, transport, and waste-related projects. This saw the total CEFC investment portfolio grow to AUD 5.3 billion, with estimated annual carbon abatement of 10.8 Mt CO₂e.

In 2017–18 we maintained our role as a leading investor in Australia's renewable energy sector and further extended our reach into emissions reduction activities in infrastructure, agriculture, property, transport, and waste. In addition, our venture capital finance for innovative clean energy companies saw continued significant growth.

RENEWABLE ENERGY: In 2017–18 the CEFC invested in 10 large-scale solar projects and four wind farms, to deliver an additional 1,100 MW in clean energy Australia-wide. This included the Kennedy Energy Park, Australia's first fully integrated wind, solar, and battery project, as well as projects delivering low-cost energy to large industrial and commercial energy users through innovative power purchase agreements. We have now financed more than 20 large-scale solar projects and more than 10 wind farms Australia-wide. Together these projects are targeting more than 2,400 MW of additional renewable energy, sufficient to power more than 800,000 homes.

INDUSTRY INVESTMENTS: CEFC investments in agribusiness, infrastructure, transport, and property included new partnerships with leading sustainability-focused investors, including Dexus, IFM Australia, Lend Lease, Macquarie Infrastructure and Real Assets, and Mirvac. These investments are characterized by accelerated emissions reduction programs to deliver stronger technology and construction standards and new mechanisms by which to share insights and performance. We recognise it is simply not possible for the CEFC to directly influence the emissions and energy profile of every asset in the economy. By working with these industry leaders, we are providing finance for market-leading projects, which can also provide practical insights for others to adopt. This is an innovative way for us to maximize the impact of our finance. It's also an important way of developing new investment vehicles to meet the growing investor appetite for deeper exposure to sustainable investment.

ASSET FINANCE: The CEFC has a strong focus on extending the reach of our finance to enable smaller-scale investors to switch to clean energy technologies. These partnerships have helped finance more than 5,500 individual projects involving farmers, small businesses, manufacturers, schools, community facilities, and more. Projects range from AUD 10,000 to 5 million, with an average investment of AUD 125,000.

INNOVATION FUND: We have now invested AUD 56 million in nine Australian clean technology companies across a spectrum of technologies including second life batteries, smart meters, energy management, carbon fibre wheels, and technology to help deliver infrastructure for the internet of things.

FEATURED PROJECT: KENNEDY ENERGY PARK

TRANSACTION DESCRIPTION:

The AUD 160 million project, developed by Windlab Limited and Eurus Energy Holdings Corporation, just outside Hughenden in Central Queensland, integrates 43 MW of wind, 15 MW (AC) of solar, and 2 MW of lithium ion battery storage. It will be capable of generating enough power for more than 30,000 average homes and will provide electricity to remote outback communities from Julia Creek to Charters Towers more than 500 kilometers away.

TECHNOLOGY INVOLVED

Wind, solar and battery storage

GREEN BANK INVOLVEMENT

The CEFC provided AUD 94 million in senior debt finance

IMPORTANCE

The project is Australia's first fully integrated wind, solar, and battery project. It is expected to deliver lifetime emissions abatement of more than 3 million tonnes. The battery component provides increased grid stability for local communities by relieving demand on long transmission lines.

Connecticut Green Bank



In FY 2018, our seventh year of operation, the Connecticut Green Bank continued building public-private partnerships that leverage limited public funds by attracting private capital to spark the growth of green energy in Connecticut. It was a year filled with milestones and the opportunity to overcome a significant challenge in the form of a legislative sweep of operational funds.

NONPROFIT SPIN-OUT: In what was heralded as an “unusual move for a state entity” by the *Hartford Business Journal*, the Connecticut Green Bank spun out a nonprofit 501(c)(3) called Inclusive Prosperity Capital (IPC) on August 3, 2018. This act was spurred by the state legislature’s October 2017 sweep of nearly 50 percent of CT Green Bank’s annual operating budget into the state’s general fund to resolve budget deficits. The nonprofit allows CT Green Bank to maintain its commitment to the underserved (IPC will operate CT Green Bank programs for low- and middle-income homeowners, multifamily properties, small businesses, schools, and nonprofits) while attracting private investment from sources outside Connecticut.

C-PACE NEW CONSTRUCTION PILOT: In June 2018, CT Green Bank announced a pilot program that made Commercial Property Assessed Clean Energy (C-PACE) financing available for new construction projects in Connecticut. New commercial and industrial buildings designed and built to exceed what is required by Connecticut building and energy codes will be eligible to receive C-PACE financing for up to 20 percent of eligible costs for terms up to 25 years. Developers now have a financing lever to add to their capital stack that encourages them to achieve higher standards of efficiency.

NEW FUNDING SOURCE FOR OWNERS OF ELECTRIC VEHICLE CHARGING INFRASTRUCTURE: In September 2018, the Electric Vehicle Charging Carbon Coalition (EVCCC), which consists of Carbon Neutral Cities Alliance (CNCA), CT Green Bank, Electrify America, EVgo, Exelon, and Siemens, announced an innovative pathway to use the carbon credit markets to create a revenue stream for owners of electric vehicle (EV) charging infrastructure. A newly approved international methodology will help emissions-reduction valuation, allowing for increased private investment in EV infrastructure. CT Green Bank plans to aggregate credit flows for Connecticut-based EV chargers, sell the credits, and rebate the proceeds.

RECIPIENT OF 2018 STATE LEADERSHIP IN CLEAN ENERGY AWARD FOR “SOLAR FOR ALL” PROGRAM: CT Green Bank was honored by the Clean Energy States Alliance with a 2018 State Leadership in Clean Energy Award for its Connecticut “Solar for All” program, a partnership with PosiGen Solar Solutions. This was one of only six programs nationwide to win a 2018 “SLICE” Award for its outstanding accomplishments. The Connecticut “Solar for All” partnership is a groundbreaking public-private effort between CT Green Bank and PosiGen, which offers a low- to moderate-income (LMI) targeted solar lease paired with energy efficiency measures for homeowners, regardless of income or traditional measures of creditworthiness. Since the partnership launched, solar penetration in Connecticut’s low-income communities has increased 188 percent, and more than 800 low-income verified households have signed up to go solar with PosiGen.

NONPROFITS BENEFIT FROM SOLAR; SAVINGS FUEL THEIR MISSIONS: CT Green Bank has continued its focus on bringing solar and its associated savings to nonprofit organizations. Three examples are the Klingberg Family Centers, whose goal is to heal children and families whose lives have been traumatized by abuse and/or neglect, severe family problems, and mental health issues; Wellspring, a therapeutic and educational center dedicated to healing through relational approaches; and the Daughters of Mary of the Immaculate Conception.

The Daughters of Mary, for example, added solar arrays at their New Britain property through an investment of USD 2.8 million. The Daughters will benefit from USD 1.3 million of energy savings over the next 20 years, and this will help them continue to provide tremendous service to domestic abuse victims as well as affordable senior housing and day care services for children and the elderly.

FEATURED PROJECT: CONNECTICUT STATE COLLEGES & UNIVERSITIES SOLAR PV

TRANSACTION DESCRIPTION

In September 2017, the Connecticut State Colleges & Universities (CSCU) launched a multi-year partnership with Current powered by GE, SunLight Solar Energy, and CT Green Bank to install solar energy systems at eight campuses, producing more than 7 MW in total, to reduce energy consumption and decrease operating expenses. CT Green Bank secured the last available federal Clean Renewable Energy Bonds (CREBs) for this project before U.S. tax reform eliminated them.

TECHNOLOGY INVOLVED

Solar

GREEN BANK INVOLVEMENT

CT Green Bank acted as developer and arranger of the financial structure and also provided sponsor equity. After closing, in addition to being the owner, CT Green Bank performs the role of asset manager.

IMPORTANCE

The solar energy initiative is financed with private capital sourced by Connecticut Green Bank and once fully implemented is estimated to save CSCU more than USD 10 million within the first 20 years while supporting the state’s sustainability goals and helping to stabilize the power supply for these campuses.

Green Finance Organisation (Japan)



The Green Finance Organisation (Japan) (GFO) has continued its commitment to growing local clean energy investment and revitalizing communities, with investments covering renewables including wind, biomass, and other technologies.

Over the past six months, GFO has committed to investing in five projects, bringing the total number of commitments to date to 32. Twenty-four renewable energy power stations from those projects are operational (some projects include several power stations). Total funds committed to date were about USD 100 million, and those commitments have mobilized about 10 times that amount in total project value.

NISHIAWAKURA VILLAGE HYDROELECTRIC POWER PROJECT: A recent project is Green Finance Organisation's investment in a small private sector hydroelectric power plant in Nishiwakura village, in Okayama prefecture. On March 29, 2018, GFO announced it had directly invested 90 million yen (USD 818,000) of equity in this project. The local government of Nishiwakura village is the main sponsor and has established a special-purpose company for the project, which uses the abundant water resources of the Yoshino River crossing the village. The site of the project is at the northernmost tip of Okayama prefecture, and the village has a population of about 1,500 that is aging and declining in number. As a local government project, the deal will be a regional model that maximizes the use of regional resources and achieves both low-carbon and sustainable development. This project, along with existing village hydropower plants, will assure that Nishiwakura village's electricity needs are 40 percent covered by hydroelectric power generation.

HOKKAIDO BIOGAS PROJECT: Another recent project is Green Finance Organisation's investment in a biogas project in Hokkaido prefecture. On January 12, 2018, GFO announced it had directly invested 70 million yen (USD 636,000) of equity in the project (see Featured Transaction below). The biogas will be generated using pasture grass silage as fuel. Loans are cofinanced mainly by regional commercial financial institutions. This project is the first biogas power generation project for Kadokawa Construction Company and will be constructed using proprietary technology developed through collaborative research with Hokkaido University. In this way, the project can be a pivotal step in facilitating future implementation. The project will avoid 1,643 tonnes of carbon emissions annually. The project will also help establish the "biomass industrial city concept," aimed at creating employment in this new industry and stimulating agriculture, forestry, and fisheries locally.

OTHER RECENT INVESTMENTS: Other recent investments include two wind projects and two small hydropower projects.

In June, GFO sold its preferred stock in a wind power project near Mt. Fuji where GFO had previously invested 590 million yen (USD 5.4 million). This was the second sale of preferred stock; the first was around one and a half years ago.

GREEN BONDS SUPPORT: Finally, the Ministry of the Environment in Japan has been working to promote issuances of green bonds in Japan and published its *Green Bond Guidelines* in March 2017. As part of that effort, GFO will use a budget of about USD 6 million to subsidize the issuance costs of green bonds.

FEATURED PROJECT: HOKKAIDO BETSUKAI BIOGAS POWER GENERATION

TRANSACTION DESCRIPTION:

Installation of a 382 kW biogas power plant in Betsukai, a town in Hokkaido prefecture, using pasture grass silage from local dairy farms as fuel. Revenue will be generated from a 20-year offtake power purchase agreement and from the sale of fertilizer, a by-product of the digester process.

TECHNOLOGY INVOLVED

Biogas

GREEN BANK INVOLVEMENT

JPY 70 million (USD 636,000) preferred stock investment

IMPORTANCE

Demonstrates new technologies and feedstocks, including using local pasture grass silage as fuel. Also demonstrates that a locally sourced biomass industry can support an environmentally friendly and disaster-resistant city.

Green Investment Group (UK)



Green
Investment
Group

In our inaugural year GIG has signaled continued commitment to our mission and purpose, to support the growth of the global green economy.

In the last 12 months¹ we have;

- Arranged or invested over GBP 1.6 billion into green infrastructure projects
- Supported 10 new green transactions
- Expanded the GIG brand from the UK to Europe, North America and Asia
- Arranged one of the world's largest and longest green power purchase agreements
- Extended our scope into development stage investing
- Launched our new Energy Solutions and advisory services activity

Plans for the upcoming year

DEVELOPMENT CAPITAL: With maturing technologies, a growing number of investors are showing an appetite for low-carbon assets and a greater willingness to invest at the construction stage. GIG is responding to this demand by moving earlier into the project life cycle, investing globally in development projects, platforms, and businesses. By building our in-house development capability and working for our partners, GIG is delivering a sustainable pipeline of high-quality investment opportunities for later-stage investors.

INVESTING BEYOND SUBSIDY: As costs of renewables fall, many governments are aiming to maintain growth without employing traditional subsidies. With a growing track record of investment in projects with limited dependence on subsidy revenue, GIG is building the financing experience needed to attract long-term capital into this expanding market segment and is investing in the capability to source and structure the power purchase agreements that provide the commercial underpinning for these assets.

PARTNERSHIP PLATFORMS: With the aim of amplifying their impact, GIG continues to seek ways to complement its existing expertise and access to capital with the capabilities of leading partners. Increasingly, GIG is working closely with leading international original equipment manufacturers and expert developers, leveraging our respective strengths and global reach. With a flexible approach to partnership, we are opening up new opportunities, delivering competitive and efficient investment in emerging and established markets.

GEOGRAPHICAL EXPANSION: Bringing the UK Green Investment Bank's expert focus on green infrastructure together with Macquarie's global footprint was central to the rationale for the formation of GIG. While the business will continue to be led from the UK and remain highly active in this market, through expansion into Asia and North America, and increased investments in Europe, GIG has taken the first steps in realising the global opportunity.

MARKET TRANSFORMATION: GIG's Green Ratings and Sustainable Finance advisory businesses build on the pioneering capability in assessing, monitoring, and reporting green impact and offer a unique institutional experience to a growing international market. GIG is also bringing early-stage capital into initiatives, projects, and technologies with potential for significant strategic impact.

NEW TECHNOLOGIES: A dynamic energy market, increasingly dominated by renewables, has become a driving force for technological innovation. With the disruption of established value chains comes the scope for new business models that support the deployment of this new technology. GIG is investing in its global capability to invest in this new generation of energy infrastructure and in the businesses at the cutting-edge of this changing landscape.

FEATURED PROJECT: MARKBYGDEN ETT

TRANSACTION DESCRIPTION:

To fund the 650 MW Markbygden ETT project—Europe's largest single-site wind farm—co-sponsors GE and GIG were able to structure what is believed to be one of the world's largest corporate power purchase agreements (PPAs).

GE and GIG have been working on the project in northern Sweden since mid-2016, when they secured the project rights from developer Sjevind. While the project will be able to deliver power at grid parity in much of Europe, low wholesale power prices in the Nordpool power market, coupled with volatile pricing of El-certs, Sweden's market-based renewables support regime, made long-term financing impossible to obtain for the project on a merchant basis.

The answer was to reach agreement with Norsk Hydro on a 19-year fixed-price PPA, through which the Norwegian aluminum producer contracts to buy 1.65 TWh of power, representing more than 75 percent of the wind farm's projected output over the period. The long-term PPA allowed GE and GIG to raise €500 million in project finance debt.

TECHNOLOGY INVOLVED

650 MW generating capacity utilising 179 GE 3.6 MW turbines

GREEN BANK INVOLVEMENT

Co-sponsors GE and Green Investment Group

IMPORTANCE

Developing the innovative PPA financing market to overcome challenges in development funding.

¹ August 17, 2017 to August 31, 2018

NY Green Bank



NY Green Bank
A Division of NYSERDA

Since inception, NY Green Bank has worked to implement Governor Andrew M. Cuomo's vision of working in collaboration with the private sector to accelerate clean energy deployment in New York State and to transform financing markets. As of June 30, 2018, NY Green Bank had closed USD 522.3 million in cumulative transactions toward fulfilling its mission. To the best of

our knowledge, no other investment manager in the United States with an exclusively sustainable infrastructure credit focus has closed as many transactions and committed as much capital as NY Green Bank.

TRANSFORMATIVE YEAR: The past year has been transformative for NY Green Bank. NY Green Bank closed its first transactions in the second half of the fiscal year ending March 31, 2016, and in the fiscal year ending March 31, 2017 it continued to commit capital at a pace above expectations. In the 2017–18 fiscal year, NY Green Bank matured as an investment management organization. We continued to develop a strong pipeline and to close on commitments as in past years and also actively managed a large portfolio of transactions that had closed in prior periods. In addition to sourcing, structuring, negotiating, and executing new commitments, we reviewed portfolio performance on a monthly and quarterly basis; managed hundreds of portfolio fundings along with interest and principal payments; negotiated dozens of waivers and amendments; and prepared, publicly released, and presented quarterly and annual reports (both financial and environmental).

Not only did NY Green Bank maintain its self-sufficiency during fiscal year 2017–18, but it also generated revenues such that cumulative revenues exceeded cumulative expenses since inception. NY Green Bank committed USD 111.4 million to new investments, the majority of which financed new asset classes and business models where we provided substantial additionality in capital deployment to sustainable infrastructure throughout New York State. Examples include bike share, fuel cells, and interconnection finance, each of which was innovative in terms of the business model and/or the credit structuring technique utilized. Furthermore, each transaction contributed to the maintenance of an average portfolio-wide expected total value of projects deployed in the New York State of at least three times NY Green Bank's commitment.

PLANS FOR THE FUTURE: As the largest green bank in the nation, NY Green Bank intends to accelerate our momentum and impact in the coming year and to support key initiatives of Governor Cuomo that are expected to result in substantial market activity in New York State. Such activities include solar-plus-storage, stand-alone storage, energy efficiency supported by new pay-for-performance initiatives, and small utility-scale Clean Energy Standard solicitations. In addition, we expect to finance a substantial portion of transactions currently in our growing active pipeline, which includes community distributed generation, a model that has benefited from NY Green Bank's willingness to lead the market with innovative financing approaches.

NY Green Bank will also work to overcome financing issues that are likely to arise as new transactions and business models evolve around electric vehicle charging infrastructure, controlled environment agriculture, offshore wind, and anaerobic digestion. We will continue to be proactive, innovative, solutions-oriented, and responsive to market participants as we support the deployment of clean energy and sustainable infrastructure financing in New York State. We will work to prudently manage our portfolio and be transparent in reporting both our financial and our environmental results and impact. We will continue to invest in our organizational infrastructure and in growing our team in a manner that will provide a platform for greater clean energy deployment and portfolio management volumes for years to come.

As relates to Governor Cuomo's announcement in the fall of 2017 that NY Green Bank would seek at least an additional USD 1.0 billion from the private sector and expand its investment activities nationally, we will continue to explore various potential capital-raising and expansion opportunities, all of which will deliver even greater benefits to New Yorkers.

FEATURED PROJECT: DELAWARE RIVER SOLAR

TRANSACTION DESCRIPTION:

In April 2018, NY Green Bank entered into an agreement with Delaware River Solar, LLC to provide a USD 7.0 million bridge loan to finance the interconnection expenses of its community distributed generation (DG) projects in New York State. In July 2018, NY Green Bank committed an additional USD 55.0 million to participate in a term loan to finance the capital costs of Delaware River Solar's community DG portfolio of projects. These transactions are initially expected to support the deployment of up to 70.0 megawatts of solar photovoltaic in New York State, providing residents and businesses with a greater variety of energy choices and, ultimately, lower-cost clean energy opportunities.

TECHNOLOGY INVOLVED

Solar photovoltaic systems

GREEN BANK INVOLVEMENT

NY Green Bank is committing a combined USD 62.0 million to Delaware River Solar through the term loan and bridge loan facilities. These commitments are collectively expected to: (i) provide residential subscribers access to reliable, clean, low-cost energy; and (ii) reduce up to 43,360 metric tons of greenhouse gas emissions annually, or up to 1,084,000 metric tons of greenhouse gas emissions over a 25-year project life.

IMPORTANCE

These transactions will help to demonstrate the viability of the community DG model, drawing new investors and financial institutions into the marketplace and ultimately lowering the cost of capital. This, in turn, is expected to benefit consumers in the form of broader access to lower-cost clean energy generation.

NRDC: Green Bank Development in India, Mexico, and Chile



The Natural Resources Defense Council is a global nonprofit environmental organization with more than three million members and online activists. Since 1970 our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. Visit us at nrdc.org.

NRDC has been involved in design, implementation, and promotion of the green bank model since the days of its inception in the United States. Our experts in finance, energy, and climate policy have engaged with green banks on six continents. We will continue to expand the reach of the green bank model to help increase rapid, cost-effective deployment of low-carbon, climate-resilient infrastructure globally. In addition to serving with the Coalition for Green Capital as the secretariat of the Green Bank Network, our current work includes projects in India, Chile, and Mexico. NRDC's work in China is covered in a separate, following section.

INDIA is one of the largest renewable energy markets in the world. Globally, the country ranks number four on wind and number five on solar capacity. Still, there is a need for more, and accelerated, investment, especially in financially underserved market segments such as distributed solar. In 2018, with the support of the MacArthur Foundation, NRDC partnered with the Council on Energy, Environment and Water (CEEW) and the Climate Policy Initiative (CPI) to develop green finance solutions that will help achieve the country's climate and sustainable development goals.

The focus of our partnership's work to date has been on aligning the full stakeholder ecosystem around the need for instruments and institutions that leverage limited government funds in a way that increases domestic and international private investment in clean energy—what we call catalytic green finance. Catalytic green finance maximizes the effectiveness of public and donor funding by using it to address specific market barriers to private investment.

Over the past several years, many financing products and schemes have been developed and made available by private and public entities to address identified barriers to financing the scale-up of clean energy in India. While strong stakeholder support exists for these solutions, we recognized that a broader array of public and private stakeholders must participate and be invested in their prioritization, final design, and implementation. NRDC and its partners are working with the Ministry of New and Renewable Energy (MNRE), Indian Renewable Energy Development Agency (IREDA), Ministry of Finance, Indian development banks, state lenders, financial institutions, investors, and others toward alignment around and implementation of specific catalytic green finance approaches.

In particular, a solution that emerged this past year is establishing distributed green banks or “green windows” alongside existing financial institutions. Green windows would be ring-fenced funds with specialized mandates and teams dedicated to developing and deploying catalytic financial instruments by leveraging the resources and networks of those existing institutions to cater to the needs of underserved emerging markets, with suitable risk mitigation and market development solutions funded by concessional public and donor capital. These concepts are outlined in our report that details our green finance work in 2018, [Clean Energy for All: Framework for Catalytic Finance for Underserved Clean Energy Markets in India](#). Climate Finance Advisors provided a market assessment of capital providers able to fund catalytic strategies. Going forward, NRDC plans to continue to work with stakeholders during the design and implementation phases.

LATIN AMERICAN countries have demonstrated progressive leadership on climate action in recent years, and most countries in the region have committed to ambitious and far-reaching Nationally Determined Contributions (NDCs) under the Paris Agreement. Governments in the region must now focus on how to finance their climate commitments. This is no small feat since requirements for investment in low-carbon, climate-resilient infrastructure to achieve NDCs far exceed the capital public and private financial institutions are currently supplying. Conservative estimates by the International Finance Corporation found Latin American countries' NDC targets for infrastructure and industrial energy efficiency alone will require USD 176 billion per year between 2016 and 2030. Fortunately, the region's national development finance institutions (DFIs) are well positioned to help crowd-in additional private capital. However, they face financial, technical capacity, governance, regulatory, and policy constraints that prevent them from being more effective in supporting NDC implementation.

NRDC, in partnership with Climate Finance Advisors and supported by an advisory committee consisting of the Green Bank Network, Inter-American Development Bank, and ClimateWorks Foundation, is working to help overcome these barriers in Mexico and Chile. Our efforts are focused on advancing the “functional” green bank model by working closely with national DFIs in each country as they adapt best practices from international green banks to their local context.

In **CHILE**, NRDC is working with the Production Development Corporation (Corporación de Fomento de la Producción, or CORFO), the country's leading economic development institution, as it partners with the Sustainability and Climate Change Agency (Agencia de Sustentabilidad y Cambio Climático, or ASCC) to implement a Green Investment Platform. This platform would focus, at least initially, on crowding-in private capital to implement climate solutions in the Chilean micro, small, and medium-size enterprise (SME) sector. Targeting these companies addresses a critical sector in Chilean value chains—in 2014, 98.5 percent of all firms were classified as SMEs. The platform would fill the role and function of a green bank by harnessing the complementary features and functions of both organizations. On the financing side, it would mobilize private capital by providing credit support and other risk mitigation. On the market-making side, it

would play the critical role of driving market demand and enabling the origination and aggregation of a project portfolio. This would, in part, be done by engaging with businesses that have entered into voluntary public-private “clean production agreements” that are aligned with the platform’s financing strategy.

In **MEXICO**, NRDC is working with Banco Nacional de Obras y Servicios Públicos (BANOBRAS), the country’s fifth-largest financial institution and largest development bank. Efforts in Mexico aim to support the implementation of aspects of BANOBRAS’s Sustainable Bank Strategy. We aim to help BANOBRAS identify, evaluate, and reduce risks associated with climate change that could impact its project portfolio and support the integration of climate risk principles in strategic planning processes. We also aim to help identify “demand-led” solutions and recommendations that can help BANOBRAS strengthen its financial products and market strategy in order to attract greater private investment in key low-carbon sectors in Mexico based on the green bank model. Our work in Mexico builds on a successful conference, “National Development Banks & Green Banks—Key Institutions for Mobilizing Finance Towards the Implementation of Nationally Determined Contributions (NDCs) and the Accomplishment of the Sustainable Development Goals (SDGs),” that BANOBRAS cohosted (with the Inter-American Development Bank, Organization for Economic Co-operation and Development (OECD), La Asociación Latinoamericana de Instituciones Financieras para el Desarrollo (ALIDE), and the Green Bank Network) in Mexico City in June 2017.

Coalition for Green Capital: Green Bank Development in South Africa, Colombia, Rwanda, Indonesia, and the United States



The Coalition for Green Capital creates, incubates, and supports green banks—and similar green finance institutions—that invest in clean energy deployment and seeks to expand the effectiveness and impact of the broader green bank community. As a nonprofit dedicated exclusively to the success of green banks for the past decade, CGC works with partners around the world that have driven more than USD 2 billion of clean energy investment through green banks. The CGC team is currently working to cultivate a pipeline of national hosts for green banks in a number of countries and to secure the blended finance resources needed to capitalize these institutions. CGC (with NRDC) also serves as the secretariat to the Green Bank Network to support collaboration and knowledge exchange relevant to the green bank model.

Systemic Approach to Green Investment Bank Formation in Developing Countries

Building on its work with the Green Bank Network and development of the Green Bank Design Summit, CGC is working with countries, capital providers, philanthropy, development finance institutions, and others to develop a replicable approach to launching green banks so they can help address the urgent climate finance gap. A shift toward national climate finance institutions will better enable countries to achieve their Nationally Determined Contributions (NDCs) under the Paris Agreement as well as their sustainable development goals. This effort is structured around several elements:

1. Engaging countries and host institutions
2. Engaging funders in GB design, development, and early-stage operation
3. Developing pre-primed capitalization pools
4. Developing a standardized GB business model
5. Advancing country-driven GB formation

Current CGC Green Bank Formation Projects in Developing Countries

SOUTH AFRICA—CGC has supported development of the Development Bank of Southern Africa's new Climate Finance Facility (CFF). The CFF will be a first-of-its-kind application, based on the green bank model and adapted for emerging market conditions. It offers globally significant proof-of-concept value to middle- and lower-income nations seeking to address market barriers and quickly scale up the high levels of private investment required by Paris climate commitments. The Green Climate Fund's decision to provide a USD 55.6 million loan to the CFF marks the first time the GCF has backed the establishment of a local green bank. In addition, the (anticipated) USD 50 million loan from the Public Investment Corporation marks the first time a private commercial entity has joined in capitalizing a green bank facility.

COLOMBIA—In 2018 CGC began working closely with Findeter, a leading national development bank in Colombia, to frame the potential for a new green bank program to target green sectors under Findeter's investment mandate, working in close coordination with local stakeholders. Building on this, CGC worked with Findeter to produce an in-depth concept note describing the potential for a new green bank program, capitalized in part by international donor and climate funds, to act as a catalyst to increase private investment in green projects. Since completion of the concept note, CGC has focused on raising capital for the next phase of green bank program scoping and business plan design with Findeter and local partners and stakeholders.

While Colombia has made strides in improving the investment climate for low-carbon, climate-resilient technologies, investment is still below the levels needed to meet Paris climate targets. The National Planning Department estimates that private investment in climate projects must increase sevenfold to meet Paris targets. Catalytic green finance programs—such as green banks—are increasingly recognized locally as a valuable tool to help meet the green investment needs of Colombia.

RWANDA—At the invitation of the government of Rwanda, CGC worked with FONERWA, an agency within the Ministry of Environment, to assess the viability of a green bank in Rwanda. Based on the recommendations from this early-stage scoping process, CGC has been engaged by the government of Rwanda to develop structural recommendations and a comprehensive business plan for development of a Rwanda Green Bank to drive low-carbon investment in sustainable infrastructure across various economic sectors and support overall national planning objectives. This work is underway and will continue through 2019.

The Rwanda Green Bank will be a transformative initiative designed to serve a diverse pipeline of sustainable infrastructure projects across the suite of national development plans, all of which lay a foundation for significant low-carbon and climate-resilient investment. Rwanda's initiative would also demonstrate application of the green bank model to a lower-income country on the rise. In addition, it would be designed to serve investment interest in the broader East African region.

INDONESIA—In 2018 CGC began working with the Asian Development Bank (ADB) to advance its Green Finance Catalyzing Facility (GFCF) concept. The GFCF concept outlines potential options around local green finance institutions and is quite similar to green banks that are empowered with a mandate and a balance sheet to crowd-in private investment in green projects.

In 2018 CGC partnered with ADB to execute a hands-on green finance roundtable, “Catalyzing Green Finance: The Role of Government Facilities & Innovative Finance Instruments,” in Jakarta, Indonesia. The event was cohosted by ADB and PT Sarana Multi Infrastruktur (PT SMI) and showcased leading examples of green finance facilities and green banks working to drive new levels of investment in green projects.

Shortly after the roundtable, PT-SMI announced the launch of SDG Indonesia One (SIO) to provide financing support to green and sustainable development projects. It will be a locally owned blended finance facility housed under PT-SMI, drawing capital from various sources including philanthropy, climate funds, green investors, sustainable investing funds, SDG investors, international agencies, DFIs, commercial banks, sovereign wealth funds, and institutional investors.

Current CGC Green Bank Formation Projects in the United States

CGC is working across the United States to create and raise capital for green banks that finance clean energy projects using public, private, and mission-driven capital. This builds on CGC’s decade of experience supporting the creation of institutions in the United States, including the Connecticut and NY Green Banks. In the past year, CGC has accelerated U.S. activity by building local green bank capacity that is connected to centralized capital, proven products, and the best practices of other U.S. green banks and related entities. In 2018 CGC has worked with local partners in Nevada, Colorado, and Maryland to form nonprofit green banks that will use philanthropic, public, and private capital to serve local markets. CGC is currently launching new projects with market and government leaders in New Jersey and Ohio. To connect and support new and existing green banks and related local financing entities, CGC is launching the Green Bank Consortium, which will allow green banks in the United States to scale more efficiently, drawing on existing capacity, expertise, and products and larger pools of capital.

NRDC: Green Finance Review—China 2018



In the past year, China has put great effort into developing green finance strategies and approaches as new drivers for financial reforms to pursue sustainable development. According to the *China Green Finance Progress Report 2017*, published by the People's Bank of China (PBC), green finance is designed to support economic activities that improve the environment, address climate change, and conserve resources for

efficient utilization—i.e., to provide financial services to projects in the areas of environmental protection, energy conservation, clean energy, green transportation, and green building. These financial services can be in the forms of green credit, green development funds, green bonds, and green insurance, among others. The general approach to establishing such a comprehensive green financial system is both “top-down” and “bottom-up,” meaning that the central government provides a strong policy signal and incentive to push local governments and private sectors to innovate specific measures to help promote the development of green finance. At the same time, the central government calls for market players to participate: commercial banks, securities companies, fund companies, insurance companies, and trading platforms for environmental rights should all be part of this process to build a healthy, sustainable system.

Key perspectives and milestones:

There are four focused areas to which the pioneers of a green finance system in China have been paying special attention.

First and foremost is the establishment of a green finance regulation and standard system. The PBC is taking the lead to set up regulatory frameworks and has coordinated with other governmental agencies, including the China Banking and Insurance Regulatory Commission and the China Securities Regulatory Commission (CSRC) to publish guidelines, standards, and catalogues. *Guidelines on Establishing the Green Financial System (Guidelines)*, issued in 2016 by seven ministries, and *Division of Work for Implementing the Guidelines*, in 2017, provide a strategic plan for developing a green finance system in China. A series of guidelines and catalogues identify the “green” feature of the financial products and practices, including *Guidelines for Green Credits* (2012), *Green Bond Issuance Guidelines* (2015), the *Special Statistical System of Green Credit* (2107), and *Guidelines of Green Bond Evaluation and Verification* (provisional).

Second is the mandatory disclosure of environmental information by enterprises and financial institutions. According to *Guidelines on Establishing the Green Financial System* and subsequent updates, the CSRC mandated all listed companies in equity markets identified as key pollution discharge units to disclose relevant environmental information by the end of 2017, other companies to “comply or explain”—meaning they can either disclose or explain why they do not want to disclose—by the end of 2018, and all listed companies to make such disclosures by the end of 2020. As for financial institutions, during the China-UK Economic and Financial Dialogue (EFD) in 2017, China and the United Kingdom set up a Green Finance Taskforce to jointly promote green financial research and, in particular, a pilot program in which 10 Chinese and British financial institutions will voluntarily disclose their environmental information and explore the specific objectives, content, methods, and action plans in such disclosures.

Third is the certification and evaluation program that qualifies and quantifies a green project or financial service. The certification program mainly targets green bond products and provides green certification standards for the companies that are players in the green bond market. The evaluation program assesses the performance of financial entities in terms of achieving green targets (for example, emissions reduction). In December 2017, the China Banking Association issued the *Program for Implementation of Green Bank Evaluation* that includes 5 qualitative and 17 quantitative evaluation indicators for commercial banks seeking to earn the designation of being a green commercial bank. This year in August, the PBC published the *Notice on Carrying Out Evaluation of Green Credit Performance of Banking Deposit-Type Financial Institutions*. In this document, quantitative indicators of green credit performance evaluation are clarified in order to motivate banks to improve their environmental impact.

Fourth are the green project libraries where green projects with significant environmental benefits are catalogued to provide financial institutions with a pool of certified green projects for better transparency and efficiency. By the end of May 2018, five cities in three provinces had established a library with 423 green projects. In the Xinjiang region, the first phase of libraries in Hami, Karamay, and Changji listed 50, 161, and 126 green projects, respectively. The library established by the Jiangxi Ganjiang New District Administration Committee and the PBC Nanchang Central Branch identified 26 green projects, and Huzhou identified 60 green projects in its library. The sources of green projects will be gradually expanded to cover more provinces and regions.

Major features and progress:

In terms of aggregate numbers, green loans, securities, stocks, insurance, and funds have all been steadily growing in China. The scale of green loan assets grew from RMB 5,200 billion in 2013 to RMB 8,530 billion in 2017. China Development Bank, Industrial and Commercial Bank of China (ICBC), China Construction Bank, and Agricultural Bank of China are among the highest in terms of RMB value of issuance of loans to energy-saving and environmental projects, while Industrial Bank of China, China Development Bank, and ICBC are the highest with regard to their ratio of green loans. In 2017, green bonds issued overseas by Chinese institutions exceeded RMB 250 billion, and green bonds issued domestically reached just over RMB 209 billion. That same year, qualified green companies financed RMB 15.47 billion through IPOs and refinancings. In the green insurance market, environmental pollution liability insurance, green agriculture insurance,

catastrophe insurance, and new energy vehicle insurance have been developed to better serve the real economy. As of the third quarter of 2017, the number of China's socially responsible investment funds based on environmental, social, and governance criteria had reached 106. The Industrial Bank, Bank of Jiangsu, and Bank of Huzhou adopted the Equator Principles, which are risk management frameworks, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects.

There are several noteworthy themes in China's green finance program:

- **DIVERSE LOCAL PILOTS.** In June 2017, under the State Council's guidance, the provinces of Zhejiang, Jiangxi, Guangdong, Guizhou, and Xinjiang set up green finance reform and innovation pilot zones to explore new green financial products and conduct regulatory and banking green innovations.
- **LEVERAGING OF FINANCIAL TECHNOLOGY TO ACCELERATE GREEN FINANCE.** Fintech has been recognized by Chinese green finance experts and industry leaders as crucial to motivating investors and engaging the general public in promoting innovative design and green financial services and products.
- **GOVERNMENT-LED GREEN FUNDS.** Many provinces in China, including Inner Mongolia, Yunnan, Hebei, Hubei, Guangdong, Zhejiang, Xinjiang, Guizhou, Shandong, Shanxi, Chongqing, Guangxi, Jiangsu, Anhui, Henan, and Ningxia, among others, have established green development funds or green funds to further green investment and, in particular, to promote green urbanization.
- **SYNTHESIZING GREEN FINANCE AND ENVIRONMENTAL CREDIT/PERFORMANCE RATINGS.** Chinese regulatory bodies have begun to design incentive and penalty programs to push market players and stakeholders to take green finance projects seriously, especially through the mechanism of issuing environmental performance ratings.

Creating Green Financial Institutions in China

ESTABLISHING GREEN DEVELOPMENT FUNDS IS ONE TASK UNDER CHINA'S 13TH FIVE-YEAR-PLAN. The Ministry of Finance is designing a plan to create a national green development fund by integrating current energy-saving and environmental protection funds, government funds, and private capital through public-private partnerships (PPPs), while the National Development and Reform Commission (NDRC) is exploring a green industry fund. At the local level, more than 50 government-involved and PPP environmental funds or development funds have been established in more than 13 provinces. These funds aim to invest in local green projects in the energy-saving and environmental protection fields. For example, the Fujian Enterprise Technological Transformation Investment Fund has jointly financed 69 major provincial technological transformation projects in the areas of energy conservation, emissions reduction, and green ecological development with a total investment of RMB 65.2 billion. In 2018, Shandong Green Development Fund was established to support the clean energy, green transportation, and green building industries. This fund is designed to be financed by national sovereign loans from DFIs and multilateral development banks, including Asia Development Bank (ADB), Agence Française de Développement (AFD), and Green Climate Fund, and also by private investors.

PRIVATE SECTOR EFFORTS ARE GROWING. In the private sector, there were 70 public-offered funds with RMB 8 billion of capital focusing on investing in low-carbon, new energy, environmental protection, or sustainable fields by the end of 2017. Privately offered funds with about RMB 120 billion of capital aim to invest in green areas. However, a consistent standard for green funds is still under development. Although many sectors in China have been making significant efforts to develop green fund products, in practice, environmental performance-based investments have not yet been widely institutionalized, and environmental, social, and governance indicators are not well developed.

Looking forward, green finance development in China in 2019 will focus more on a market-oriented approach, continue promoting research into a green finance standardization system, provide stronger financial support for the green transformation of China's economy, designate more pilot zones to explore new green products, and enhance international collaboration on setting consistent standards for evaluation. It is still challenging for China's green finance to leverage sustainable development by promoting efficient incentives to mobilize more private and social capital to invest in low-carbon and green industries.

NRDC Project to Mobilize Retail Banking Assets

To this end in 2019, with the support of the Hewlett Foundation, NRDC is launching a project on mobilizing retail banking assets for climate mitigation in China. The project will work in three dimensions:

- Establishment of enabling policies that help overcome real and perceived financial risks in climate investments;
- Demonstration of viable financing models and instruments that help attract retail savings and channel them to fund climate mitigation projects; and
- Expansion of public awareness of and confidence in financial products that cut carbon footprints.

By leveraging China's firm climate commitments and the rising public demand for a clean environment, this project will bring together Chinese retail banks—both traditional commercial banks and financial tech companies—to direct increasing amounts of retail capital toward climate change mitigation.

Vivid Economics: Green Bank Development in Colombia and Vietnam



Supporting green investment banking in Colombia and Vietnam

Over the past year, Vivid Economics and a range of expert local partners have been supporting Colombia and Vietnam to identify green banking needs and ways in which to improve green banking institutional capacity. The work in both countries, supported by the ClimateWorks Foundation, makes the case for action by both government and existing public banks to strengthen their green banking mandates, enhance their focus on catalysing private finance, build specific capabilities and tools, and, where necessary, increase their capitalization to meet the scale of investment required by the countries' climate mitigation and other green commitments.

Building on a strong national development banking system in Colombia

Since January 2018, Vivid Economics and Econometría have been working closely with the National Planning Department (Departamento Nacional de Planeación or DNP) and four major development banks in Colombia to understand the country's investment needs and current national capacities and to set out a road map for enhancing the development banks' institutional capacity to boost private investment in climate mitigation and green growth.

The first phase of the project focused on a quantitative assessment of the scale of green investment needed to deliver Colombia's climate mitigation and green growth goals. Our analysis indicated that overall green investment will need to increase by 12 to 40 times current levels to meet 2030 sectoral emissions reduction targets. Previous experience in markets that have already gone through similar shifts suggest that private sector financing will need to grow at least twentyfold.

Our work catalogued a suite of market failures and barriers to investing that inhibit the private sector and could prevent Colombia from achieving its green growth ambitions. Based on this assessment, the team worked closely with the development banks—Findeter, Bancóldex, Finagro, and Financiera de Desarrollo Nacional—to implement a diagnostic assessment of each institution's sectoral focus areas, as well as their confidence and expertise in applying specialised financing tools to address market barriers to private green infrastructure financing.

Following our assessments, we developed a suite of guidance materials for DNP, setting out recommendations for strengthening institutions and aligning their focus areas in line with their experience and capacity. We supported DNP in integrating these recommendations into a government white paper on the national green growth strategy. The project has helped embed support for green banking approaches among national public financial institutions, and the team is now working with DNP and the development banks to further embed support for green banking capabilities and tools to support Colombia's ambitious green growth path.

Accelerating green finance in Vietnam

Vivid Economics is leading a similar project to support green investment banking tools and approaches in Vietnam. Since June 2018, we have worked closely with partners in the State Bank of Vietnam, the Asia Foundation, and GBRW Consulting to build support for green investment banking in the country.

The work is at an earlier stage than our work in Colombia but following a parallel track. It is being closely led by national guidance and the local context, incorporating broad engagement with a wide set of public and private banking institutions and supported by steering and advisory groups made up of national and international green financing experts. Along with assessments of sectoral investment needs and a diagnostic assessment of green financing capacities and gaps in the country, the project will deliver an institutional design blueprint and capitalisation plan for a Vietnamese green financing institution, either stand-alone or building on existing institutions.

The team's engagement has already found strong national support for green banking approaches to help unlock finance for low-carbon projects, which will inform the work through early 2019. The outputs of this project will be incorporated into the State Bank of Vietnam's green financing strategy and is expected to guide government policy in ensuring sufficient green financing capacity to meet the country's green growth goals.

Rocky Mountain Institute: 2019 Green Bank Design Summit



For emerging economies, channeling climate finance through national green banks can strengthen domestic ownership to achieve climate and development goals. Following the success of green banks in driving clean energy investment in developed countries, more than 20 developing countries and emerging economies (including Rwanda and South Africa in Africa; China, India, Indonesia, the Philippines, and Vietnam in Asia; and Brazil, Chile, Colombia, and Mexico in Latin America) have expressed interest in setting up a green bank or are engaged in doing so already.

Looking ahead, we see the Green Bank Design Summit in 2019 as a first-of-its-kind convening for stakeholders, critical to launching climate finance institutions in emerging markets.

While green banks have proved useful in the context of OECD countries they have arguably greater potential in emerging markets because of their ability to alleviate market failures impeding private investment in green infrastructure. The Development Bank of Southern Africa (DBSA) is in the process of creating a new Climate Finance Facility (CFF) within DBSA using the green bank model to catalyze greater overall climate and clean water investment in the Southern African Development Community. This region faces significant climate challenges and is still reliant on fossil fuels, and a lack of affordable financing has prevented the deployment of climate-friendly projects. The CFF will address market barriers by co-financing projects with local commercial banks through subordinated debt/first loss positions and providing credit enhancements to crowd-in private capital. Colombia is looking to South Africa's institutional example as it considers how it can create a new, dedicated facility in an existing national development bank.

Despite widespread interest in green banks, there is no established platform for those setting up green banks to learn from others' experiences and to coordinate efforts. As a result, green bank creation and capitalization tend to be ad hoc, and there is a long and uncertain path toward securing funding for design, development, and start-up of new facilities. A collaborative approach that connects stakeholders and coordinates activities will accelerate green bank formation and better mobilize resources for low-carbon development.

Collaboration focused on engaging with other green bank practitioners and building community, collecting and sharing knowledge, and supporting green bank formation and investment will enable faster, more seamless green bank creation and implementation, in particular through sharing resources like lessons learned, templates, and road maps between countries, investors, and technical assistance providers. For capitalization and co-investment, a coordinated approach to working with multilateral development banks (MDBs), development finance institutions, and climate funds will identify ways these institutions can support national green banks directly. Several interested emerging economies have already said they see great utility in ongoing collaboration, including:

- A one-stop online shop for research and case studies on effective institutional design, capitalization strategies, and financial instruments;
- Tailored matching services to connect countries to technical assistance providers and funders with the right resources to meet their needs; and
- Ongoing knowledge exchange via convenings, online resources, and workshops.

The Green Bank Design Summit will kick off this collaboration by convening for the first time the public and private sector professionals working to design and set up green banks in emerging economies. The Summit will be developed in partnership with country stakeholders and designed to support their efforts to build effective institutions. The French development bank Agence Française de Développement will host the Summit in Paris in March 2019. It will be a highly interactive, invitation-only meeting of approximately 100 participants, with 40 to 50 representing developing countries and the rest comprising representatives of DFIs, MDBs, donor countries, and philanthropic institutions; as well as private investors and green bank technical experts. Following the Summit itself, participants and the broader green bank community will continue to collaborate through structured coordination on activities they have identified as critical to green bank formation and investment.