

DEVELOPING INNOVATIVE ENERGY INFRASTRUCTURE FINANCING

FINANCIAL INNOVATIONS LAB® REPORT



MILKEN INSTITUTE

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INNOVATIVE ENERGY
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Financial Innovations Labs® bring together researchers, policymakers, and business, financial, and professional practitioners to create market-based solutions to business and public-policy challenges. Using real and simulated case studies, participants consider and design alternative capital structures and then apply appropriate financial technologies to them. This Lab report was prepared by Dan Murphy, Caitlin MacLean, and Joel Kurtzman. The Institute thanks the Lab participants for their contribution to the report and the United States Department of Agriculture for its support of the Lab. Specifically, the Institute thanks the USDA's Office of Energy Policy and New Uses as well as Harry Baumes and Marvin Duncan for their guidance.

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The great divide between so-called good and bad energy is disappearing, and the race is on to develop and deploy new energy sources alongside the old.

Introduction

The future can't come fast enough for a world seeking to expand its options on energy. The promise of wind, solar, and natural gas and advances in cleaner-burning fossil fuels signal better days ahead: for spreading global prosperity through innovation, for creating worthwhile employment, for enhancing energy security, and for promoting environmental stewardship.

The once-contentious conversation about finite and renewable energy sources has been supplanted by the realization that there is no one perfect technology. Promising renewables are competing against the utter reliability of fossil fuels. And oil companies now use plants, the sun, the wind, and the earth to address the energy needs of today and tomorrow. The great divide between so-called good and bad energy is disappearing, and the race is on to develop and deploy new energy sources alongside the old.

But the finish line is still distant, and the United States is exposed from an economic perspective and a national security one. As the economy continues its upward momentum, oil prices are sure to follow. The United States already unnecessarily suffers from a giant annual trade imbalance, spending more than \$400 billion a year on oil imports.¹ In terms of security, the nation spent approximately \$7 trillion defending the Persian Gulf's oil straits from 1976 to 2007.²

Meanwhile, new investment in renewable energies in North America stalled along with the economy in the late 2000s,³ and the U.S. government's spending on green energy is due to nose-dive in 2012.⁴ So just as relative competitiveness has arrived for alternative energy sources, fiscal and economic conditions have rained on their chances to scale up and expand in the U.S. and global marketplaces. Wind, solar, geothermal, and other reasonably competitive energy forms are all dressed up with seemingly nowhere to go.

For the United States, missing renewable energy's moment means losing the nation's competitive edge, especially against China, India, and Brazil,⁵ and it represents billions of dollars lost in technology exports and decades of continued dependence on energy imports.

Whether private and public-sector leaders can devise the mechanisms and commit to a predictable regulatory environment for the long term will determine where the world's energy innovations become available first and which countries will maintain and build the infrastructure to support them.



*Investing in renewable energy
can create opportunities for
much-needed U.S. jobs.*

This crossroads—where resource depletion and regulatory uncertainty intersect with unproven technologies—formed the backdrop for this Milken Institute Financial Innovations Lab® in November 2011 in Washington, D.C. Participants from the U.S. government, international financing organizations, private equity institutions, banks, and renewable energy companies met to understand and identify problems and devise ways to address the challenges in scaling up alternative energy technologies.

By identifying and carefully parsing the issues, borrowing concepts from finance models applied in different sectors of the economy, and weighing the benefits and risks of various solutions, the Lab participants advanced the discussion and identified additional avenues for investigation as the U.S. seeks to create a green and sustainable energy future.

Issues and Perspectives

In trying to identify impediments to public and private investment in renewable technologies, Lab participants acknowledged an unfavorable overall investment environment. Specifically, they found a large gap in capital access for early-stage technologies, when innovators are trying to create and prove new technologies, and another gap for later-stage technologies on the verge of commercialization.

Participants agreed that the markets should anticipate that a significant number of early-stage ventures will fail. Meanwhile, the challenge for late-stage, proven technologies is securing public financing that will entice private-sector investors.

While each stage of development has its unique barriers and risks, there are common obstacles to both. A combination of regulatory uncertainty, risk aversion, and the prevailing market structure has helped to curb investment from large banks and other private-sector investors. In addition, certain renewable energy sources still face an uphill battle competing with traditional fossil fuels, which enjoy government subsidies and are not priced to capture their costs to national security, damage to the environment, and other negative externalities.

GOVERNMENT SUPPORT IS TIGHTENING

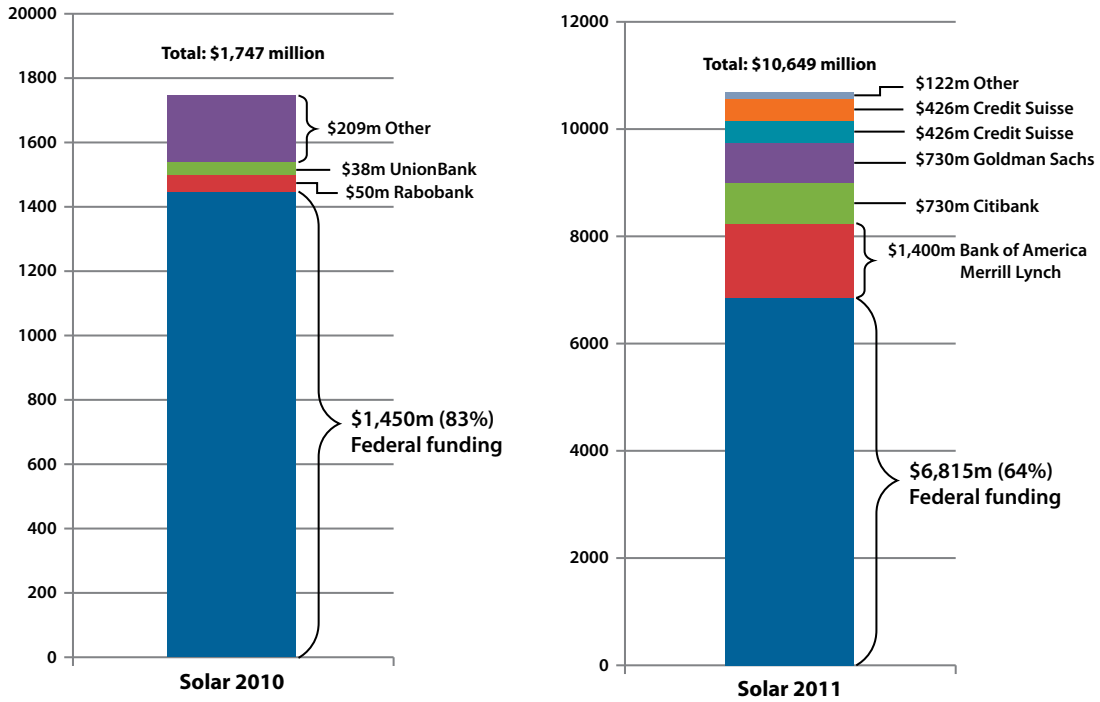
Most important, investment in U.S. clean energy and infrastructure is on the sidelines or even in retreat. For instance, certain capital-intensive federal efforts, such as those at the Department of Energy, and other broad government initiatives are being scaled back. In addition, the economic downturn has taken a toll. Governments at the local, state, national, and international levels are seeing massive budget cuts.

As an economic tool, the fiscal stimulus is playing out at an inopportune time. Federal infrastructure investment arguably has up to a 2.5 multiplier effect on the economy.⁶ For current highway and transit projects specifically, the Bureau of Economic Analysis and the Milken Institute estimate the multiplier effect exceeds three times investment. So for every \$1 billion invested, an average 25,000 jobs are created through infrastructure projects.⁷ Accordingly, just as the economy needs an injection of spending on energy and other infrastructure, federal budgets are being slashed.

The government has long been in the business of creating incentives to generate both supply and demand for renewables. Some say this creates such dependence on public subsidies that the market will never be self-sustaining. However, real-world examples show that federal stimulus is often necessary to jumpstart innovation. As figure 1 reflects, renewable energy projects have relied on government funding to incentivize private investment, although often not at an equal rate.

FIGURE
1

U.S. government has been solar's biggest backer



Source: GreenTech Media.

FIGURE
2

Expiration dates of production tax credit incentives

Alternative Energy Type	Expiration Date
Wind	December 31, 2012
Open/closed-loop biomass	December 31, 2013
Geothermal	December 31, 2013
Waste-to-energy	December 31, 2013
Landfill gas	December 31, 2013
Qualified hydropower	December 31, 2013
Marine and hydrokinetic	December 31, 2013
Solar	December 31, 2016
Small wind (less than 100kW)	December 31, 2016
Fuel cells	December 31, 2016

Source: Wilson Sonsini Goodrich & Rosati

However, renewable incentives put into place early in the Obama administration are winding down (see figure 2). Among currently competitive technologies, solar has five years remaining to produce, and the rest expire in just a year or two. Additionally, the U.S. Treasury's Section 1603 program, part of the American Recovery and Reinvestment Tax Act (ARRTA), expired December 31, 2011.⁸ This program gave cash in lieu of tax credits to companies that invested in renewable energy initiatives.

GAPS IN FINANCING

Investment in renewables has gained momentum over the past several years. In 2010 alone, global investment in renewable energy jumped 32 percent from the previous year to \$211 billion (see table 1). From 2004 through 2010, the compound annual growth rate of total new investment clocked in at 36 percent.⁹ But gaps in financing are evident across the energy value chain, as demonstrated in figure 3.

TABLE 1		<i>Energy investment going green</i>						
	2004	2005	2006	2007	2008	2009	2010	2004–10 % compound annual growth rate
Total new investment (billions of dollars)*	33	57	90	129	159	160	211	36
Wind	11.3	21.9	29.7	51.1	62.7	72.7	94.7	43
Solar	0.5	3.2	10.4	21.5	33.3	25.3	26.1	91
Biofuels	1.6	6.0	20.4	20.0	18.7	6.9	5.5	23
Biomass and waste-to-energy	3.7	6.7	10.0	11.4	10.1	11.5	11.0	20
Small hydro	1.1	4.4	4.2	5.0	5.8	4.1	3.2	19
Geothermal	1.0	0.4	1.3	1.9	1.6	1.4	2.0	44

*Total is not the sum of technologies.

Companies with proven technologies can't reach the scale necessary to penetrate the commercial market. Regulatory uncertainty undermines investor confidence. And equity markets are running in place, while venture capital is out on extended leave.¹⁰

Capital constraints vary depending on stage, as figure 3 demonstrates. Early ventures are not yet creditworthy enough to attract investment. The perceived and actual risk is often too difficult for investors to navigate, especially

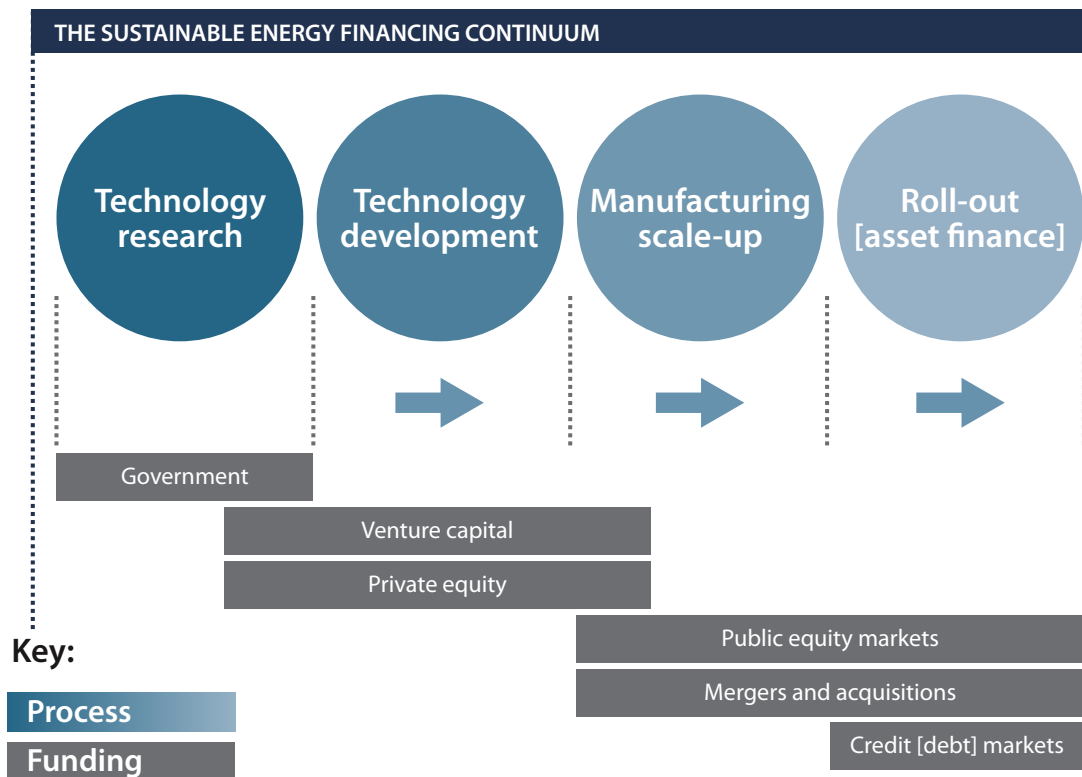
those not expert in structuring energy finance deals. And as the government continues to cut incentives meant to mitigate these early-stage challenges, new technologies will face an even bigger hurdle in securing financing.

Lab participant Marvin Duncan of the U.S. Department of Agriculture (USDA) noted the lack of private insurance for these projects and called for new products such as technology efficacy insurance that would make less mature innovations more palatable to potential backers.

Later-stage projects also face barriers. Demonstrating scalability requires investment in the infrastructure needed to prove competitive advantage at commercialization levels. With long investment horizons, projects need access to low-cost, long-term capital. Unfortunately, given the current economic climate, securing this patient capital is increasingly challenging for energy projects.

FIGURE
3

Capital needs for alternative energy technologies



Source: "Global Trends in Sustainable Energy Investment 2010 Report," Bloomberg New Energy Finance.

During the Lab's discussion, participants debated the most effective and realistic role of U.S. banks in financing projects. Citing the post-recession credit crunch, several said banks should be more willing to lend to otherwise solid and well-vetted projects. Others considered banks' involvement in technology projects to be cyclical in nature with financial institutions now stepping away from deals they may have done several years ago.

Bank representatives offered another view: Their role is not to fund technological innovation. Traditionally, that has been an equity-backed enterprise. Lab participants agreed that banks do not hold enough capital to do really risky lending, especially in this economic climate. As a result, banks stick with the tried and true as opposed to the novel and groundbreaking. Plus, the economic meltdown of the recent past weighs heavily on them.

Banks, of course, aren't the only avenue to capital. But access to other sources can prove extremely challenging regardless of an enterprise's creditworthiness or a technology's promise. One difficulty with financing a deal in the United States is the relatively short tenors under which borrowers must operate. Long-term bank financing in 1990s Europe was virtually nonexistent, according to the European Investment Bank's Klaus Trömel. Asian, rather than American, financial institutions have long dominated the market for long-term capital dedicated to infrastructure projects. Investigating why Asian institutions were and are willing to engage in long-term lending for infrastructure projects is an avenue worth further exploration.

Three Ways to Ramp Up Energy Investment

The financial industry faces several technical issues that, if resolved, could allow capital markets to run more efficiently, opening them up to more opportunity-seeking investments, Lab participants said.

If access to capital continues to face constraints, regulations that amplify perceived risk vs. actual risk might need revision. To encourage energy investment, participants recommended:

- Updating relevant Federal Accounting Standards Advisory Board rules concerning capitalization of sale lease-backs to ensure that the perceived risk of expanding technologies to the commercialization scale is not affected by accounting nuances that might skew creditworthiness.
- Lengthening power purchasing agreements with the Department of Defense to 20 or 25 years from 10 to create long-term revenue streams that adequately address the investment time horizons. This can support a technology's ability to attract additional investment.
- Modifying trading restrictions on master limited partnerships and real estate investment trusts. Recent proposals have sought to tighten restrictions around asset-backed securities, which arguably will limit the effectiveness of these mechanisms to attract investment because of the lowered tax benefit.

POLITICAL RISK: A FICKLE AND REAL VARIABLE

The changing nature of political risk has also added uncertainty to investing. Abroad, expropriation might not be the threat it used to be, but institutions such as the Overseas Private Investment Corp. (OPIC) insure against it and other upheavals. At home, perceived risks are less obvious and predictable. Increasingly, projects hinge on the preferences of the policymakers in power.

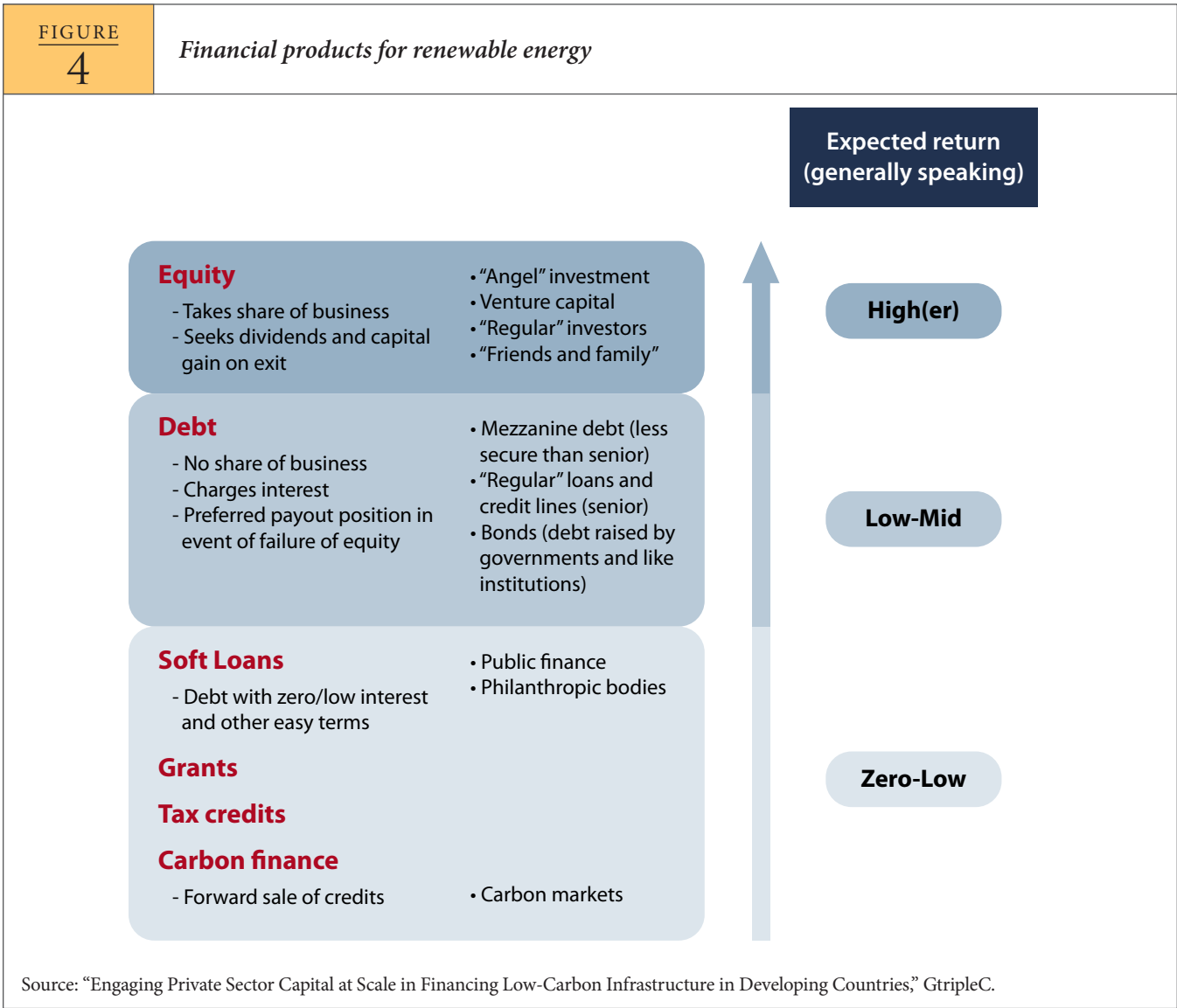
Taking this into consideration, Lab participants identified potential models of government policies that would be amenable to private-sector intervention. Many participants cited the gap-filling roles that the Export-Import Bank and OPIC play in adding value and securing capital for otherwise non-viable projects overseas. Independent expert scoring of projects based on their environmental risk and benefits also would offer currently absent, real-world credibility that would aid financing.

Additionally, participants discussed the need to refocus the dialogue around alternative energy. New technologies should be recognized for their ability to create a more stable energy future, new jobs, economic growth, and a more competitive export market, not for their ability to benefit one side or the other of the political aisle. Participants discussed how the narrative has moved from the benefits of renewables to the inefficiencies in government spending, a shift that has been detrimental to the industry. While spending realities should be acknowledged, some participants said, they argued that the benefits significantly outweigh the costs.

Financial Innovations for Energy Infrastructure

Successful models for financing green and traditional infrastructure projects already exist. Many do similar things, but each has its own value suited to its specific mission. With so many players (governmental entities, bond and equity holders, and institutional investors among many others) and a seemingly infinite number and type of projects (from traditional road construction to scaling up promising but novel green energy solutions), the potential for confusion abounds. This complexity led Lab participants to call for serious attempts to quantify both the risks and benefits of projects to promote better understanding.

Presentations covering a variety of successful infrastructure funding models highlighted the kinds of tools already available and their strengths, limitations, and potential usefulness to different projects (see figure 4).



Because investments in renewables are increasingly made in developing rather than developed countries,¹¹ discussion focused on adapting best practices from successful models to the U.S. market. The emphasis was on creating an environment attractive to investors, especially at the later stage. As former U.S. representative at the Inter-American Development Bank and current venture capitalist Jan Boyer noted, “From the point of view of the people that are deploying capital in infrastructure, political risk is higher in Pennsylvania than it is in Brazil today.”

EXPORT-IMPORT BANK

One funding model is the Export-Import Bank of the United States, commonly referred to as Ex-Im. The 77-year-old agency provides domestic firms and foreign buyers of U.S. goods and services access to credit and/or financing in order to promote U.S. exports. Specifically, Ex-Im leverages various financial tools—working capital guarantees, direct loans, loan guarantees, and insurance products—to satisfy its mission. These tools ultimately enable U.S. exporters to buy services, raw material, labor, and equipment, and help foreign buyers purchase U.S. exports. Through its activities, Ex-Im paves the way for international trade where it otherwise might not occur.

Mandated by Congress to focus on renewables, Ex-Im’s transactions have more than doubled, from \$330 million in 2010 to \$721 million in 2011. That business included financing a \$455 million solar deal in Canada, according to Craig O’Connor of the Ex-Im Office of Renewable Energy. He said the agency’s ability to offer 18-year financing terms helps drive down the costs for such deals. Additionally, because Ex-Im operates as a “one-stop shop” for financing, there is increased time efficiency as well as cost efficiency of transactions. Like so many sources of capital, though, Ex-Im Bank does not take technological risks, investing instead in technologies with a proven track record.

OVERSEAS PRIVATE INVESTMENT CORPORATION (OPIC)

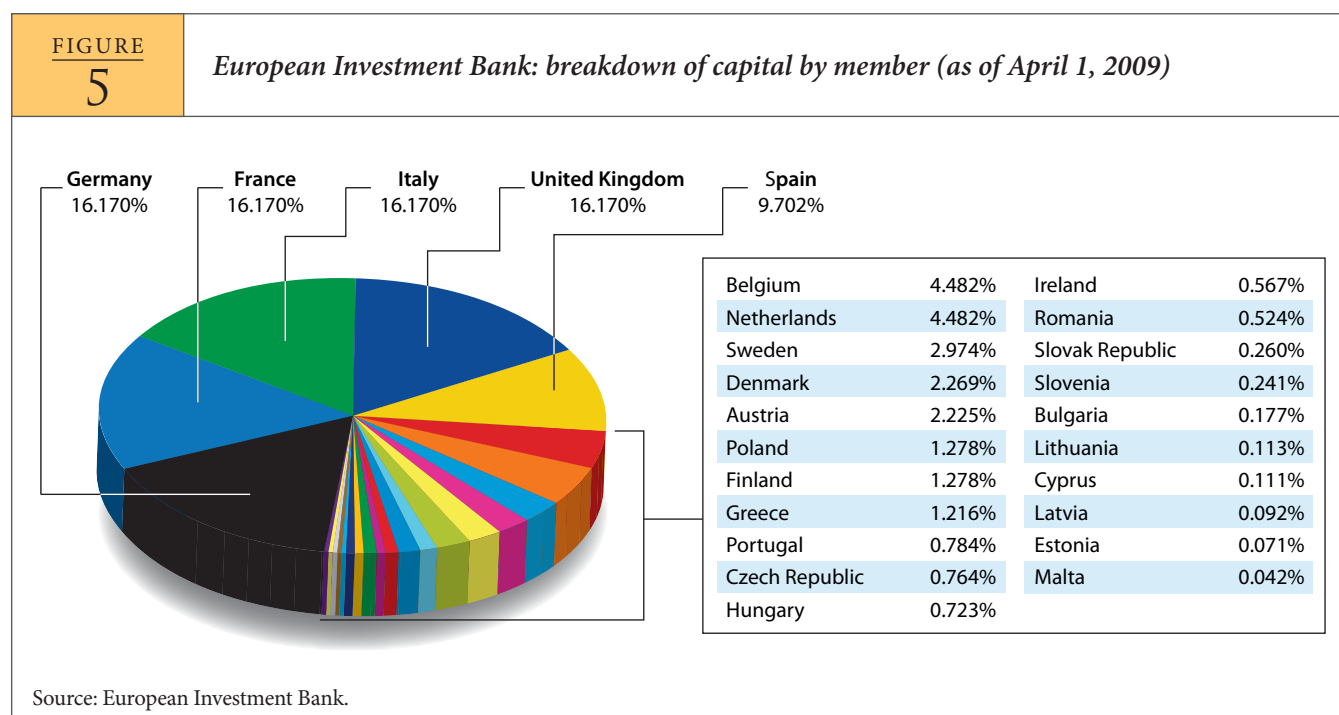
Another model is OPIC, the U.S. government arm that provides financing and political risk insurance to U.S. companies doing business overseas, and supports private equity investment in emerging markets. Its primary mission is overseas economic development conducted in support of U.S. foreign policy and U.S. commercial enterprises.

Due to the unfavorable global economic climate, half of OPIC’s \$29 billion line of credit is sitting on the sidelines. OPIC is one of the few government entities that has capacity to lend, even in this fiscally constrained environment. OPIC’s use of government-to-government diplomacy to resolve problems guards against political risk abroad ranging from coups to expropriation. Increasingly, though, it’s beginning to insure against more subtle regulatory risks abroad. On the domestic front, every OPIC project undergoes scrutiny to ensure that it’s not likely to adversely affect U.S. jobs.

EUROPEAN INVESTMENT BANK

The European Investment Bank (EIB), which runs a €2.5 billion surplus annually, finances a wide range of projects and small to medium-size enterprises with the goal of addressing socioeconomic imbalances and promoting energy innovation and sustainability. EIB’s AAA credit rating allows it to pass on lower costs of capital to its customers. Its loan portfolio is mostly funded through bond issuances through the capital markets around the globe.

EIB cites as advantages its long-term investment horizons and its 27 member nations carefully evaluating the nature of each other's projects (see figure 5). And because each EIB member supports the bank's capitalizations, members have a consequentially large percentage of uncalled capital at stake if projects fail. As a result, projects that don't meet key criteria are kept in check.



Insisting on high standards, especially from pre-accession countries, adds to the quality of the projects that EIB finances. Depending on the project, certain EU environmental or safety standards might have to be met for a project to qualify for financing.

Recently, the EIB found itself with excess funds and a shortage of good projects. So EIB's in-house experts worked with member states to identify and prepare several projects for financing. Keeping this advisory role separate from its lending activities is a subject of ongoing monitoring.

In February 2011, the European Union and the EIB launched a public consultation on the Europe 2020 Project Bond Initiative in a bid to further lower capital costs for project firms by attracting pension funds, insurance companies, and other institutional investors. EIB hopes the Project Bond Initiative will be fully functional in 2014.

PUBLIC-PRIVATE PARTNERSHIPS: TIFIA AND PRIVATE ACTIVITY BONDS

In the United States, financing for large and small public projects often takes place at the state or municipal levels of government. Public-private partnerships offer one way to underwrite infrastructure improvements. A pair of credit programs work hand-in-hand and are run by the U.S. Department of Transportation: the Transportation Infrastructure Finance and Innovation Act (TIFIA) and private activity bonds. The TIFIA provides credit to large

infrastructure projects through private activity bonds, which offer advantages of the stability of a governmental entity as a partner, a long-term investment financing window, and oftentimes better rates than a local government could acquire due to the structuring of the project's financing. Specifically, deals are priced at one basis point above long-term Treasury bills. Projects can last for up to 30 years, with the government committing a maximum of a third of their overall cost. This financing structure gives tremendous leverage, so that for every \$1 in funds made available by Congress, TIFIA makes \$10 in loans. It also reduces the risk involved during the long ramp-up of revenue-dependent projects, such as toll roads.

Private activity bonds enable privately developed and operated infrastructure projects to offer tax-exempt bonds to fund project costs. These instruments reduce the cost of capital by providing the stability of a governmental entity as a partner, a long-term investment financing window, and, as a result, better rates than local governments typically receive in debt markets.

While both the TIFIA and private activity bond models offer useful tools that may be replicated in the context of financing green technology innovation and clean-energy infrastructure, the Lab discussants cautioned that transportation infrastructure projects capable of generating user fees may have a significantly different risk profile.



Aging energy infrastructure is in desperate need of new investment.

LESSONS FROM EXISTING MODELS

Though the models analyzed by the Lab participants are not directly applicable to the U.S. energy sector, important elements of successful financing initiatives can be refined and included in proposals for public-private partnerships. Lessons learned include:

- A common thread that runs through the Ex-Im, EIB, and TIFIA lending programs is the need for financing terms that include longer time horizons to offset short-to-medium-term periods when revenue streams are not fully developed. Private lenders, without government guarantees, participation, or willingness to take first losses, are simply not in a position to assume risks and significant repayment gaps associated with long-term clean-energy infrastructure and renewable energy commercialization projects.
- A key product offered by OPIC that incentivizes otherwise risky overseas commercial endeavors is its political risk insurance. Lab participants noted that government insurance products adapted to the specific needs of the green-technology and clean-energy sectors could induce additional private investment. For example, Duncan of the USDA noted a new product, such as technology efficacy insurance, would make investing in

early-stage technologies more palatable to private investors. One could also envision regulatory risk insurance products inducing the private sector to move forward on large clean-energy infrastructure projects currently slowed by an uncertain regulatory environment.

- Another idea derived from OPIC's successful investment funds model, which currently directs money into equity investments in foreign commercial enterprises, is to develop criteria and/or a scoring system for any future public funding or support for new projects. Ally LaTourelle of BioAmber Inc. suggested developing scoring criteria that would weed out destructive technologies and promote investment in green technologies and clean energy. The discussants also noted that a government-led scoring index of technological feasibility and environmental impact alone could be enough to provide useful information that would induce private-sector action.
- Ex-Im Bank's working capital guarantees have been effective in keeping production costs down, thereby improving price competitiveness. These guarantees could prove useful in promoting both early- and late-stage investment.
- EIB and the U.S. Department of Transportation both have had success in designing bond financing structures that can provide long-term capital at lower costs. These programs would be ideally suited for large clean-energy infrastructure projects. Toward this end, participants also discussed the potential for green bonds floated by the federal government.

SEEDING CEDA?

One green financing model has enjoyed bipartisan support in the Senate since 2009. The idea for the Clean Energy Deployment Administration (CEDA) was, in part, born out of frustration. It had become apparent that sound green energy technologies were easier to finance for projects abroad than domestically. Projects with those very technologies could receive assistance from U.S. entities, such as the Export-Import Bank or OPIC, as part of their deals overseas. Unfortunately, these opportunities do not exist in the United States.

CEDA attempts to fill that financing gap on the domestic front. The proposed Federal Energy Regulatory Commission-like unit within the DOE would finance the development and deployment of clean energy innovations avoided by commercial lenders. Its focus would be to help new technologies cross the so-called valley of death that so often takes down innovations as they move from start-up to scaling up for commercialization. A CEDA investment fund would provide a suite of credit tools, including loans and loan guarantees, and work to reduce private financing costs through bonds and other instruments. In a bid to become a self-sustaining entity, CEDA would be directed to take on investment portfolios to balance the risk inherent in such ventures, while also having insurance and a reserve to cushion against loan losses. The hope would be that this would insulate the decision-making process from political shifts. With an objective to finance tens of billions of dollars in otherwise commercial-ready projects, CEDA spent much of 2011 sidelined while a search for budgetary offsets to underwrite its creation faltered.

Crafting Solutions: Financial and Policy Recommendations

The multitude of financing options doesn't translate immediately into ready-made solutions in the current—or any—economic climate. That reality led Lab participants to focus on more pragmatic funding approaches. During the Lab and two follow-up working group sessions in December, participants focused on the structure and governance of a potential financing facility and infrastructure bank that would support activities with financial products similar to the models discussed above. While there was not a consensus on the best model to adopt, the following are recommendations that can be further explored and refined.

RECOMMENDATION: CREATE A GREEN FINANCE FACILITY

Participants discussed developing a finance facility that could provide financing for energy projects, although the best way to structure it was a subject of debate. Some participants thought the one-stop shop idea would lend itself to having a single facility that would provide financial products and services to both early- and late-stage energy projects, similar to the proposed CEDA. However, other participants suggested that focusing on the facility's funding parameters would be best, as specialization in this case is integral to success. As a result, they suggested two financing facilities, which would provide a variety of products and stage-specific financing (see table 2).

Lab participants rallied around the idea of a facility that could underwrite innovation for early-stage projects. It could support projects with public grants awarded with the understanding that the inevitable technological failures would be acceptable and, in fact, expected in the normal course of events. Simultaneously, a technical assessment body's scoring of different technologies' societal impacts would be linked to and inform the autonomous authority's decisions. The technical body could be modeled after the defunct Office of Technology Assessment or the Congressional Budget Office but perhaps set up as a public-private partnership.

The later-stage facility would allow companies to obtain capital for infrastructure projects that need financing to scale up and expand proven, mature technologies. For these more advanced companies, financing arrangements along the lines of the U.S. Department of Transportation's TIFIA program were recommended. The DOT's dual TIFIA and private bonding activities offer a path to market for proven technologies. Lab participants pointed to the simultaneous private capital drawing power and risk management savvy of having governmental units invest no more than a third of a project's cost. Moreover, if a federal agency like the DOT can help stretch the tenor and accept payment last, this only adds to the appeal. Introducing new kinds of federal bonding authority also was explored to help stretch time horizons for both mature and less mature projects. Issuing green bonds could be one means to help secure financing on early-stage projects, and accessing even partial federal loan guarantees could draw capital where it is needed.

TABLE 2	<i>Potential product offerings</i>	
	• <i>Early stage grants</i>	• <i>Equity co-investment</i>
	• <i>Short-term construction equity</i>	• <i>Wholesale capital</i>
	• <i>Long-term debt capital</i>	• <i>Mezzanine debt</i>
	• <i>Medium-term subordinated debt efficacy insurance</i>	• <i>Offering to buy completed renewable assets</i>
	• <i>Insurance wraps</i>	• <i>Purchase and securitization of project finance loans</i>
	• <i>Default risk guarantee product for energy-efficiency projects</i>	

RECOMMENDATION: ESTABLISH AN INFRASTRUCTURE BANK

There have been many proposals for a national infrastructure bank. Some of these models include energy as part of their mandates. Lab participants discussed the feasibility of such a bank and its ability to effectively finance energy projects.

Participants debated whether or not there should be a separate “green bank” or if it should be within a larger, national infrastructure bank. Additionally, there was concern that a bank structure in general did not lend itself to overcoming some of the greatest challenges facing energy technologies, especially in the early stages.

However, there have been successful models at the state level, which some participants suggested might be a better approach, given the movement toward state funding and governance over energy projects. The Iowa Power Fund and Connecticut’s Clean Energy Finance and Investment Authority are two examples. The latter recently created an \$18 million green bank to provide small businesses, nonprofits, and individuals with loan guarantees for clean-energy projects.

“There’s also a substantial amount, given their size, of R&D investments the states are doing,” noted Sue Gander of the National Governors Association. They also offer the potential to fund larger, regional projects that call for cross-border participation. Aligning capital to states’ unique needs and capabilities stands out as the biggest ongoing challenge for state investment banks.



An infrastructure bank could support projects like residential retrofitting.

The Debate on Qualifying Projects

One Lab debate was left unsettled: whether a financing facility or bank dedicated to energy projects should favor renewables or simply allow all energy forms to compete.

Some participants favored screening out fossil-based energy sources because of their ecological impact. Others sought mechanisms that were indifferent to energy type as long as they met wide-ranging minimum environmental standards. For instance, qualifying projects would have to help diversify energy sources and contribute to the stabilization of greenhouse gases.

Despite their disagreement, nearly all participants desired approaches that sidestep political controversies and recognized that project failures invite backlash most would rather avoid.

As previously mentioned, there was discussion of utilizing the European Investment Bank model: giving each state power for governance over a bank, while maintaining national oversight of their activity, as the EIB does with its member states. This proposal received significant interest from the Lab participants but would require further study to determine precisely how it would be applied here.

RECOMMENDATION: ALIGN THE CHARACTERISTICS OF POTENTIAL SOLUTIONS

While participants did not agree on one single facility or bank structure, they deemed certain characteristics of any potential solutions favorable and integral to success. Many of these were based on the models represented during the day.

Governance and Operations:

The facility or bank should be technologically agnostic, meaning that performance would be the basis for choosing to invest in one technology over another. It should also operate with a long-term mandate (10 years or more). Lengthy time horizons for both an entity's structure and the projects it finances contribute to the stability the capital markets seek. It was suggested that the solution be independent and insulated from political activity and pressure, if possible. Establishing predictability and a long-term consistency of policy concerning renewables would assist in scaling up the industry.

Finance:

Regardless of stage, the financing facility or bank should encourage the formation of project portfolios to reduce overall risk and, thereby, attract additional private capital resources. It could also devise mechanisms to “crowd in” and catalyze deeper private capital investment, rather than competing with it. Some participants suggested starting with \$10 billion to \$20 billion in capital with a goal that that amount can be leveraged at a 10:1 ratio, as the TIFIA model has done.

Many participants felt strongly that, with these common characteristics, a more effective and efficient program of solutions could be created to leverage public funding with private capital to make the alternative energy sector competitive.

Conclusion

Whether a broad base of elected U.S. leaders can muster the political will to agree on a clear statement of purpose on renewable energy and infrastructure investment remains an open question. The thicket of issues surrounding almost any energy and environmentally impacted enterprise is thorny and sometimes paralyzing.

By themselves, financial innovations can only address the currently steep financing challenges. A one-step-at-a-time approach to funding worthwhile projects may create momentum toward removing more consequential barriers to investment. But only broad-based investment and long-term commitment can give the United States momentum in the race to develop and deploy new energy sources and secure a 21st century energy future.

APPENDIX

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ENDNOTES

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