



**Report**  
**Financial Instruments to Promote Energy Efficiency:**  
**The experience from Local Financial Institutions**  
**In Latin America and the Caribbean**

Joint Workshop of the IDB, KfW and NAFIN  
October 18 & 19, 2012  
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The program of the workshop and all presentations can be found at:  
<http://bitly.com/tallernafinbid>

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## OVERVIEW OF PARTICIPATING INSTITUTIONS

Total number of attendees: **86**

### Participating Institution:

### Country or Region:

Development Banks and Financial Institutions	
Inter-American Development Bank – IADB	Latin America and the Caribbean
Nacional Financiera – NAFIN	Mexico
German Development Bank KfW	International
Central American Bank for Economic Integration - BCIE	Central America
FIRA – Mexican Agricultural Trust Funds Development Bank	Mexico
Caixa	Brazil
Banamex	Mexico
Sociedad Hipotecaria Federal - SHF	Mexico
Banco de Estado	Chile
Bancoldex	Colombia
Bandesal	El Salvador
Findeter	Colombia
Fideicomiso para el Ahorro de Energía Eléctrica – FIDE	Mexico
Financiera Rural	Mexico
NAVIX	Mexico
Bancolombia	Colombia
Banorte	Mexico
Banco General	Panama
Others	
United Nations Environment Programme	International
German Development Agency – GiZ	International
Ministerio de Minas y Energía Colombia	Colombia
Federal Electricity Commission – CFE	Mexico
Secretaria de Hacienda y Crédito Público (SHCP)	Mexico
US Agency for International Development – USAID	International
French Development Agency – AFD	International
Mexican Association of ESCOs – AMESCO	Mexico
MGM Innova	International
Carrillo and Associates	Guatemala
Ecothermia	Colombia
Econoler	International
Internationale Projekt Consult GmbH - IPC	Germany
Basel Agency for Sustainable Energy – BASE	Switzerland
Creara International	International
IPSE Energy	Mexico
Garper Energy Services	USA
Clean Tech Fund, L.P.	International
Water Capital	Mexico
Seguros Generales Suramericana S.A. – SURA	Colombia
Optima Energia	Mexico
INFONAVIT	Mexico
Associação Brasileira de ESCOS – Brazil	Brazil

## INTRODUCTION AND SUMMARY OF OUTCOMES

This workshop fostered dialogue between development and commercial banks, as well as national and international experts, on energy efficiency (EE) finance strategies for Latin America and the Caribbean (LAC). **It was the first time development banks and financial institutions (FIs) in the LAC region met to discuss and share experiences in this area.** Participants shared lessons learned in the development and provision of EE financing schemes and instruments, and generated proposals for further action and cooperation.

Discussions at the event were focused on energy efficiency on the demand side. The definition of EE put forth in this context was: “reducing energy consumption while maintaining the same energy services, without reducing quality of life, and while protecting the environment, ensuring supply, and promoting sustainable patterns of usage.” EE impact was discussed in terms of multiple benefits to society, including climate change mitigation, enhanced energy security, economic development, firms’ productivity and competitiveness, quality of life, and reduction of waste. Participants acknowledged that **EE offers the best short-term opportunities for sustainability investment and for increasing competitiveness in the LAC region.**

EE markets are highly complex, consisting of large numbers of small, dispersed projects with relatively high transaction costs for investment preparation and financing. EE involves the combined use of a variety of technologies that are at different stages of development, and requires the participation of all sectors of society. Participants discussed the critical roles of both FIs and governments in developing these markets. In particular, the workshop **strongly emphasized the role that National Development Banks (NDBs) can play in supporting EE finance in LAC**, given the institutional failures and market barriers in the region.

**In fact, the workshop showed that there are already an array of different experiences and strategies undertaken by various NDBs in LAC.** Guarantees featured prominently in the discussion of risk mitigation strategies, as did the ESCO model. At the same time, the workshop showed **a number of innovative financing mechanisms already working or in development** that go beyond these models, such as, among others:

- Programs to increase the supply of “green housing” mortgage and promotion of low carbon certification by Infonavit and the program Ecocasa of SHF, in Mexico and Minha Casa Minha Vida from Caixa Federal in Brazil;
- Development of validation, certification and insurance schemes for performance of technical services providers in the promotion of a green line for hotels and hospitals by Bancoldex in Colombia;
- Programs for supporting technical energy services provision and contractual arrangements in rural areas by FIRA in Mexico;
- Programs to financial incentives to cities, concessionaries and private sector companies providing public services and promote energy efficiency in public lightning by Findeter in Colombia and schemes developed by Optima Energia LFIs in Mexico;
- Programs aligned with government’s incentives and certification / standards to corporations to promote energy efficiency in industry by Nafin in Mexico and BCIE in Central America;
- Support to SMEs’ demand for green finance through special guarantee schemes, promotion of standards, technical assistance to undertake energy auditing that can be taken into account and amortized in green financing lines by Bandedal in El Salvador, BCIE in Central America and Nafin in Mexico.

**The workshop emphasized, however, that more exchange of experiences and understanding of best practices from different NDBs is needed, as there is still a broad range of existing barriers to EE finance in the region.** Many of these are generally characteristic of an undeveloped EE “culture”. In other words, EE measures are still largely new and unfamiliar in LAC. Policy- and lawmakers,

financial institutions, and end-users struggle to understand the business case for EE finance. Supporting EE market uptake therefore requires building the awareness and capacity across all sectors to identify EE opportunities, develop adapted policies and financial products, measure energy savings potential, assess risk, and understand EE technologies. The terms of conventional financing from local FIs in some cases are not attractive for EE project developers. There are also insufficient intermediaries in the LAC market, such as Energy Service Companies (ESCOs), to identify and develop EE business opportunities; and in some cases, current regulation actually hinders the emergence of these intermediaries. Highly subsidized energy prices in some LAC countries act also as a disincentive for EE investment.

Moreover, **the conditions for EE investments in the LAC region vary widely** given variations in local capacity, the characteristics of the range of target sectors and investment opportunities. The financing approach needed to implement a given EE technology depends on its current level of maturity, along with other factors, such as the characteristics of the target market segment and broader country conditions – including the macro-economy, institutional and regulatory structures, and the maturity of the financial system. EE markets are still young and dynamic, changing over time as the sectors mature and as relevant policy frameworks evolve.

EE financing approaches must therefore be suited to the complexities and dynamics that characterize these living systems. **While it has been possible to replicate the ESCO model in some of the LAC countries (such as Mexico and Brazil) with relative success, it has been virtually impossible in most other countries of the region.** The whole of Central America, for example, has at most 7 to 8 companies that could provide energy services. Moreover, substantial energy consumption in LAC takes place in small- and medium-sized enterprises (SMEs), meaning **the role played by SMEs and their potential with regard to EE improvements is very significant.** However, SMEs have more complex needs than other market entities, and addressing these requires tailored programs, micro finance conditions and activities.

A number of key recommendations and issues to be considered were highlighted in various discussions (and in particular in the conclusions of round tables). In general, participants recommended a **country-based approach** to designing specific measures for further development of the EE market in LAC. It is necessary to understand local contexts in order to develop dedicated instruments and appropriate technical backstopping. Public-private partnerships, as well as partnerships between FIs and vendors, were highlighted. Many recommendations revolved around the question of how to **broaden awareness and develop the business case for EE finance** both at the level of FIs and the potential investors. Participants recognized that mobilizing EE finance is not just a question of risk mitigation, but of enabling local FIs in LAC to reliably assess the risk of EE projects in the first place. There is substantial uncertainty and disbelief among FIs of EE savings projections, in addition to a lack of specialized training in EE finance. **Capacity building for local FIs is therefore key.**

The event highlighted a number of intervention areas where **NDBs and commercial banks could play a more proactive role with regards to offering financial support, supporting structuring of the markets and promoting access to credit.** NDBs were encouraged to embrace a role as agents of change and transformation that can help to develop an EE culture and set an example for local FIs. It was highlighted that is especially important is for these organizations to:

- Parameterize the risk associated with project/investment performance and develop financial instruments that can cover these risks, such as by promoting insurance schemes and funds with risk-sharing guarantees; and
- Promote mechanisms for market structuring, technical service providers and backstopping into green financing lines (such as outreaching on opportunities of EE projects to local financial institutions and private sector companies, promoting auditing and standards for setting energy efficiency results that can be monetized in their financing lines, promoting

contracts for energy service providers and systems for validating, verifying and arbitrating results, support mechanisms for monitoring, reporting and verification of results, etc).

Many of the investment barriers identified in the workshop relate to a lack of standards, perception of risks related to performance, and the role and services that can be provided by ESCOs, which could be partially dealt with through appropriate regulatory frameworks. The effectiveness and scale under which local financial institutions can promote investments in EE therefore also depends on **stronger engagement and dialogue with local governments**. In addition to specialized financing schemes, adapted public procurement and policy measures from government were also recommended.

## DETAILED SUMMARY

### I. The EE Finance Context in Latin America and the Caribbean

The overarching need for EE in the LAC region was frequently discussed in terms of climate change mitigation. To curb rising global temperatures, the World Energy Outlook scenario requires 72% of carbon emission reductions by 2020, and 44% by 2035, to come from EE. In other words, emissions reduction depends fundamentally on the implementation of EE measures, and especially so in the short term. Given that EE is also the most cost-effective option for CO<sub>2</sub> abatement, it was recognized as the most expedient measure to address climate change.

The roles of EE in supporting economic development and enhancing energy security, delivering large energy savings and productivity gains, and creating new economic growth areas with local job creation were also highlighted. Participants considered global data showing a strong correlation between per-capita energy consumption and quality of life indicators such as infant mortality and female life expectancy, underpinning their conclusion that quality of life is linked to the availability of energy.

EE has therefore been established as an important objective within international policy structures in which LAC countries participate. The United Nations' "Sustainable Energy for All" initiative, to which the IDB has committed, aims to double the global rate of improvement of energy efficiency by 2030, which would imply a 2.4 per cent annual efficiency gain by 2030 compared to 1.2 percent from 1970 to 2008. Substantial effort is required to achieve this goal in the LAC region, which is currently behind in these projections.

#### a. Energy efficiency trends and perspectives

Many EE measures in the LAC region are rational investments today, meaning the projects are able to provide a positive return on investment from reduced energy use over their lifetime. Energy consumption in LAC is increasing exponentially and is understood to be outpacing development. Nevertheless, basic energy access is still lacking in much of the region; the Central American Bank for Economic Integration (BCIE) presented a figure of 8 million people without energy access in Central America, for example. New consumption can be accommodated either by increasing generation, or increasing efficiency. The latter is by far the more economical option. In LAC, the coverage of 10% of projected consumption in 2020 through EE measures would require an estimated USD 17 billion of investment, compared with USD 53 billion to achieve the same goal through investment in new generating capacity.

There have been significant efforts by governments and development agencies to support the EE market in LAC, and energy prices have been increasing. Nevertheless, and despite the rationality of these investments, workshop participants view the EE market as having not yet made significant progress in the region. Those groups that are active in EE are seen as still acting mainly out of conscience, with the market not yet adequately structured for EE to be taken up substantially based on market pressure alone, despite the substantial economic opportunities represented by EE potential.

EE implementation in LAC requires the engagement of all sectors, but different sectors represent different opportunities. Large potentials for EE were identified in the sectors of industry, transport, and buildings, with appliances and lighting as major elements. In Mexico, PRONASE has identified illumination as the most cost-effective EE sector, followed by appliances and electronics, industrial motor, and automotive fleets, respectively. The equipment with the highest consumption of electricity in SMEs in LAC includes electric processing motors, compressed air systems, and lighting,

refrigeration and air conditioning systems. The following figures were presented for EE investment potential in Mexico:<sup>1</sup>

- Public facilities: USD 2,890 million
- Municipal lighting: USD 2,500 million
- Boilers: USD 650 million
- Large users: USD 249 million
- Technological improvements: USD 101 million
- Traffic signals: USD 44 million

Many workshop presentations emphasized the importance of supporting conditions for financing EE in small- and medium-sized enterprises (SMEs) – the “base of the pyramid” of market actors. SMEs represent 60% of global emissions, and the EE potential of this group has not yet been realized. SMEs also have more complex needs than larger companies, and they broadly lack awareness of their impact on the economy and society.<sup>2</sup> SMEs therefore constitute an important target sector in EE development and financing strategy.<sup>3</sup> Organizations presenting a special focus on SMEs included FOMIN for the LAC region, BCIE for Central America, NAFIN and SENER for Mexico.

## **b. Energy Performance Contracting**

There is a strong need to improve the capacity of service providers and intermediaries in the region. The Energy Service Company (ESCO) model,<sup>4</sup> in which a service provider finances the EE technology, was recognized as important in theory for serving this purpose. However, the concept has important limitations and cannot address all barriers all the time. From many presentations, it was clear that this model is still very limited in the LAC region.

There is, however, substantial variation in the prevalence of ESCOs among LAC countries. For example, close to 200 ESCOs currently operate in Brazil, 20 in Mexico, and only 1 in Colombia. According to Bandedal, the whole of Central America has at most 7 to 8 companies which could provide energy services. There are also differences in how they operate. In Mexico, for example, ESCOs use a scheme of shared savings, as in other countries, wherein savings from an EE project are used to pay back the project debt; however, Mexican banks issue credit to the ESCO and not the end-user client, meaning the ESCO takes the financial risk alone and does not share it with the client as in other countries where this industry is more developed.

Participants agreed that while more ESCOs are needed in the region, where the ESCO model is not feasible because energy companies are not sufficiently large to take up investments, at least Energy Service Consultancies (ESEs) should be supported in promoting EE programs and with validation of their services and performance. In fact, different efforts to address EE financing intermediation and technical backstopping need to be developed in parallel. For many countries, it is very important to promote market structures that will allow ESEs to become more reliable (e.g. by promoting standard contracts, accreditation of companies that provide services, having arbitration for contracts and

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<sup>1</sup> Based on a 2010 IFC study (presented by Banorte)

<sup>2</sup> Participants noted the 2011 npower Business Energy Index, which demonstrated that 7 out of 10 SMEs believe large companies and the government have a greater impact on carbon emissions than SMEs.

<sup>3</sup> Participants also considered the Carbon Disclosure Project, which shows that pressure from investors and governments are key reasons for the "greening" of supply chains; and that large anchor companies play a key role in driving this process by demanding more sustainable products from suppliers, thus setting a precedent that influences future purchase decisions and can catalyse a shift in the energy savings mentality of SMEs. These larger companies can therefore be important targets in an effort to reach the base of the pyramid.

<sup>4</sup> An ESCO is a legal entity that delivers energy services in a user's facility under Energy Performance Contracting (EPC). EPC is as a contractual arrangement between a beneficiary and a service provider for an EE project implementation, where the investments in that project are paid for in relation to a contractually agreed level of EE improvement. Participants recognised that the EPC concept can help address key barriers for EE projects implementation, including financing.

proper standards for monitoring). There were a number of examples of programs that piloted alternatives to the traditional ESCO approach, such as Sociedad Hipotecaria with housing and work under development with Bancoldex with insurance for ESE performance in Colombia.

### c. A range of experiences and approaches in LAC

The workshop highlighted a range of experiences **targeting different sectors for EE finance** in Latin America and the Caribbean. Select examples include:

- Nafin showed the efforts to promote investments for energy efficiency in local **manufacturing and industry and their supply chains** through support to government standards and certification schemes in Mexico;
- Ecothermia showed the work underway with Bancoldex to structure demand and address investment risks related to structuring projects for air-conditioning systems change and control, installation of solar thermal energy, boiler replacement for high efficient ones, co-generation in the **services sector (hotels and hospitals)**;
- FIRA presented experiences with financing energy efficiency for **agriculture** Mexico, including supporting the project development and structuring demand for credits for projects on: irrigation infrastructure, irrigation technology, electro-mechanical efficiency in wells, and efficient water usage;
- Optima Energia and Findeter, showed the potential to invest in **energy efficiency public / street lighting** given that it offers easy, inexpensive and substantial energy savings potential, and that most decisions influencing EE are taken at the city level;
- Water Capital showed schemes for pricing of energy efficiency benefits in for **water management**;
- Finally several workshop participants are targeting the **housing sector** and showed different innovative ways to promote incentives for energy efficiency in building construction, including the following initiatives:
  - o Infonavit presented their “Green mortgage” program that amortize conditions of credit for households willing to install a set of pre-selected technologies and use building efficiency measures;
  - o Sociedad Hipotecaria Federal (SHF) presented Ecocasa, a program of financial cooperation to promote the construction of more efficient housing in Mexico that reduces environmental impact. The program increases the production of low-carbon housing by financing developers through SHF, and increases the supply of mortgages for low carbon housing by providing resources for LFIs to fund mortgage loans for non-affiliated workers;
  - o CAIXA presented related EE initiatives targeting low-income housing in Brazil. Its efforts include support for solar water heating for low-income households through the program Minha Casa Minha Vida, and certification for sustainable construction of low-income housing through Selo Casa Azul CAIXA.

The workshop also highlighted how banks have developed **different approaches to target specific players in the market and in promoting EE in each country**, despite varying conditions for ESCOs and ESEs. For example:

- NAFIN works with more than 150 **financial intermediaries** to serve a diverse, multi-product network in Mexico. It supports SMEs and microenterprises with guarantees (84%), supply chains (13%), and the rest with traditional credit. It introduces methodologies to entrepreneurs and managers of these companies for incorporating and monitoring an energy saving plan, and supports the substitution and acquisition of equipment that guarantees energy savings;

- BANDESAL provides credit and technical assistance (TA) to **SMEs** in El Salvador for energy efficiency. The TA component assists enterprises in carrying out proper planning of investments for the implementation of cleaner technologies in their processes. It makes long-term investments (up to 12 years) that reduce energy consumption by replacing or upgrading machinery and equipment, and acquiring equipment for measuring and analyzing emissions and environmental impact;
- BCIE (CABEI) provides **SMEs** in Central America with access to financial products for environmental investments. Funding is channeled to SMEs through financial institutions that have a “Global Credit Line” with BCIE. Energy efficiency investments are made for savings equal to or greater than 15% of baseline energy costs, with financing up to USD 5 million.

Presentations elaborated a variety of **specific experiences related to the developing different types of EE financing instruments** in the LAC region. Select examples include:

- A number of presentations emphasized **guarantee mechanisms**. Econoler, in particular, presented an Energy Efficiency Guarantee Mechanism (EEGM) for ESCOs in Brazil developed by IDB and UNDP with GEF support. The guarantees, provided in Reals, enhance the availability of commercial bank financing to ESCOs as well as the confidence of end-user clients in the projected energy savings. It includes two products, a performance guarantee (for technical risk only) and a comprehensive guarantee (for technical and credit risk);
- A new type of instrument discussed was the potential use **of insurance for project / service performance**. The insurance company Sura presented an EE insurance scheme under development with support from IDB and Bancoldex in Colombia. The scheme is expected to insure energy savings estimated by ESEs to end user clients taking credit lines for energy efficiency programs. It is considered an important tool to promote better participation of ESEs in the LAX markets and enhance demand / access to credit;
- A number of presentations (such as KFW and Garper Energy) also highlighted how they monitoring, reporting and verification (**MRV**) **schemes for results of green / energy efficiency programs can be valuable tools to monetize results and decrease uncertainty risks** related to project / technical performance. Garper in particular showed a Smart Metering program developed by them to measure electricity consumption remotely using electronic communication systems. The information transmitted allows for precise energy analysis to detect anomalies, formulate solutions, and verify results.

## II. Barriers to EE Market Uptake

Despite the fact that many EE projects are financially sound investments, mostly technically non-challenging, and good for the environment (GHG emissions reduction), they are not being implemented on a commercial basis in Latin America and the Caribbean. Participants see the reasons for this as related to a broad range of barriers to EE uptake, including:

### a. Undeveloped EE “culture”

- Energy efficiency is still a new topic in the market. A **poor understanding** of EE projects commonly hinders investment. EE end-users often mistakenly view these as infrastructure investments competing with other infrastructure investment options. When seen this way, it takes low priority against core business. EE cannot compete with internal capital for core business; there is no interest to use financing capacity for non-core investments. Instead, EE must instead be viewed as an investment in the generation of savings. Market actors are not accustomed to equating future savings with return on investment, however, and can be skeptical of this new approach.
- Participants observe a broad **lack of interest** from companies in more efficient processes and equipment. Developing an EE culture is like developing healthy living habits: the doctor

might say it's necessary, but the market won't force it to happen. Ecothermia, for example, has found that reducing energy costs is not the priority of hotels and hospitals in Colombia, whereas other costs – such as personnel – are more interesting.

- There is a **lack of information and awareness** about rational decisions influencing consumption and investment favoring energy efficiency. Energy consumers, and especially SMEs, often lack awareness about resource use, potential savings, or a possible increase in earnings. FIs in the region are similarly unaware of the potential returns from EE investments, or of the existing EE investment opportunities.
- **Lack of trust** in project results or the sustainability of benefits. Clients want certainty that the projects will deliver the advertised savings, but they are often unfamiliar with the EE finance model and therefore not easily convinced about cost reductions. In some cases the relevant EE technologies are also unproven.
- EE is a highly technical field. A general **lack of specialized knowledge and expertise** in this area – whether among FIs, policymakers and legal entities, service providers or end-users – is a hindrance to EE uptake across LAC.

## b. Market and regulatory structure

- The lack of trust is exacerbated by a lack of **technical standards**, allowing low-quality products to enter the market.
- **Supportive regulatory frameworks** are critical for helping to overcome initial adversity to a new financing model and are lacking in many LAC countries. In some cases, existing regulation even hinders EE uptake, such as by inhibiting the formation of ESCOs.
- More specifically, **contractual regulation** was recognized as inadequate in much of the region.
- A barrier arises from **how governments define cost** in public spending, which is often in terms of upfront expense, rather than the total cost over the lifecycle of a technology.
- The lack of **adapted public procurement** to support the ESCO model is a common barrier to its emergence.
- Appropriate **arbitration** for EE projects is lacking.
- There is a need for **accreditation** of EE services.
- **EE measurement** is another barrier frequently mentioned by workshop participants. Saved energy is difficult to measure. In order for companies to understand and accept the EE investment model, there must be standardized methodologies for measuring energy savings and an accepted profile of what constitutes “healthy” energy consumption.
- There is a clear lack of sufficient **intermediaries** in LAC. Someone must identify and structure EE projects. ESCOs are a potential solution, using energy performance contracting.
- SMEs tend to face greater **human resource constraints** (in terms of both profile and time requirements), making it challenging for these companies to pursue EE improvements.
- **Energy is highly subsidized** in LAC, distorting prices, preventing consumers from realizing the true cost of energy, and slowing EE uptake. For some large corporations in particular, energy can be relatively inexpensive. Low electricity rates discourage investment in EE measures by making them less profitable.

## c. Financial barriers

- One of the most significant barriers to the implementation of EE technologies is a **lack of commercially viable financing**. However, participants agreed that the problem is not a lack of available funds per se, but rather of **access to funds** at local FIs. This is caused by a disconnect between the current lending practices of local FIs and the needs of EE projects/end users. The terms of conventional financing are unattractive for EE investments, and loan tenor is too short.
- In some cases, this is because the interests of investors and end-users are simply not aligned.

In other cases, however, it can be understood instead as a **lack of adapted financing**. There is an absence of products on the market in LAC designed to finance efficient practices and technologies. Local FIs often lack the knowledge and capacity required to structure appropriate investment schemes.

- Participants mentioned a lack of experience of standard models of financial analysis in LAC, making it difficult for FIs to develop financing products. There is often an **inability to monetize and price EE savings**.
- **Loan tenor** is generally more of a barrier in developing than in developed countries, because FIs view these markets as characterized by higher levels of risk in general, and so are averse to providing longer-term loan tenor. This hinders EE market uptake because EE investments are most viable over a long-term time frame. Similarly, the **payback period** of EE projects can also discourage client companies (dispersion of benefits).
- **High investment and transaction costs, insufficient return**. EE is a fragmented and diverse industry with small, numerous and dispersed projects involving sometimes complex technologies and transactions. Compared with normal operations, energy efficiency projects are small and represent a lower return on investment. The return often too low to justify the transaction costs, operating complexities or possible risks. In some cases, **soft costs** are a large portion (as high as 80%, according to one workshop participant) of total investment. This gives them low priority for FIs and end-users alike. Participants also mentioned the high cost of technological change in the market.
- **Risk capital** for EE projects in LAC is lacking. Related to this, the **perception of risk** is a common obstacle to financing, exacerbated by limited technical knowledge within FIs and thus an impaired ability to assess the risk of EE projects. Financial analysis of projects is perceived as complex, because energy savings are not translated into financial savings or the ability to pay. **Inappropriate distribution of risk** among actors is a related problem. Whereas vendors are willing to take performance risk, for example, financiers are not.
- There is a **lack of clear parameterization** of performance risks of energy service provision and the costs associated with them, which hinders the ability to develop proper risk-sharing mechanisms.
- In addition to the risk of employing new technologies, funders are often faced with projects that are **highly leveraged**. Technology vendors are often **undercapitalized**.
- **Standards for monitoring and reporting** are needed.

### III. Role and Importance of Financial Institutions

Development banks in Latin America and the Caribbean today share the general goal of sustainable development in the environment, social and economic dimensions. In this context, both development and commercial banks have a key role in developing, promoting and structuring innovative financing scheme, markets and green lines that are in line with the national and regional sustainable development goals. Given the strategic advantages of EE as a means to achieving these goals, participants recognized EE as an important niche market for financial institutions (FIs) in the LAC region.

Financing is one of the most important barriers to the market uptake of EE measures, and FIs play a critical role by satisfying this need. **Perhaps equally important, moreover, is the role of FIs in promoting market readiness for accessing credit**. FIs can provide much-needed technical assistance and can set an example that promotes uptake and learning within the market more broadly – helping to develop a “culture” among market actors drives the uptake of EE measures.

Workshop participants discussed experiences with various approaches to financing EE measures in the LAC region, including:

- Traditional financing: project debt, structured debt, and leasing equipment or capital

- Soft loans, mezzanine finance and special lines of credit
- ESCO financing
- Administering EE funds
- Guarantees – partial, solidarity, or energy performance
- Technical assistance
- Public-private partnerships
- Partnerships with vendors
- Demand management
- Alignment of credit to EE projects
- Escrow
- Build-own-operate-transfer
- Clean Development Mechanisms (CDM)
- Capacity and awareness-building programs

Detailed options were also presented with regard to: (1) the role of private and banks and NDBs; (2) public second-tier banks versus first tier, including where NDBs should or should not act as first tier, and what commercial banks can do; (3) monetization and internalization of EE as part of financing lines; and (4) integration of risks (perceived or real) in credit lines and risk-sharing mechanisms.

#### **a. Risk mitigation instruments and strategies**

From the perspective of NDBs and commercial FIs, mobilizing finance is largely a question of risk mitigation. Workshop participants discussed various strategies for managing the risk involved in EE projects in the LAC context. The presentations highlighted specific experiences with and barriers for different sectors and a range of financing mechanisms developed to cope with these.

Some of the risks faced by EE service providers, end-user clients and to FIs include the following:

- Project / performance or technical risk: The risk that the project will not generate the expected energy savings. Managing this risk requires technical EE expertise.
- Credit risk: That the service provider will not be able to pay back the project debt. This can be managed through a partial credit guarantee.
- Business risk: If the client profits decrease, consumption of energy also decreases. The client manages this risk.
- Systemic risk: Increase in interest rates or decrease in electricity rates for this type of client. This requires specialized coverage or reserves.

The **need for guarantees** (partial, solidarity, energy performance, credit) to facilitate risk sharing was frequently stressed, and participants observed that the countries experiencing success in the promotion of EE schemes have developed complementary guarantee schemes. Guarantees for technology risk were recognized as important given that EE technologies are generally new and some still unproven; and energy savings guarantees also featured prominently in this discussion.

Various examples were presented regarding risks associated with performance by energy service providers. Although ESCO guarantee schemes were recognized as interesting vehicles<sup>5</sup>, they are not the only alternative. This was noted as being important given the modest success story of the ESCO model in the region as a whole. Moreover, guarantees are only as strong as the credit and going concern of the company providing the guarantee. For this reason, end-users and/or lenders will often require the energy service providers to offer a collateralized guarantee on medium- to large-

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<sup>5</sup> ESCOs traditionally offer contractual guarantees or energy savings performance contracts that guarantee that energy cost savings will meet or exceed an agreed upon amount. If the guaranteed savings value is not met due to errors in the contractors' design or installation work, the contract requires the ESCO to pay the difference between actual savings and realised savings.

scale projects. Energy service providers in the LAC region, however, are often undercapitalized, making it difficult to meet these requirements.

The promotion of **risk/venture capital schemes** is therefore important in the LAC context for allowing projects to have more judicious structures. Energy savings **insurance schemes** can also be used to backstop energy savings guarantees and increase the bankability of EE projects. Insurance mitigates the risk of system underperformance and adds security on payback and ROI for financiers, addressing the issue of energy service providers who may not be able to support future guarantee obligations. Participants also discussed **credit lines with EE benefits**, such as in the case of housing programs in Mexico.

For LAC countries where the ESCO model is not yet successful, participants considered alternatives for hedging risk such as the following:<sup>6</sup>

- Model 1: Traditional model. Buyer assumes the risk in the selection and performance of the technology.
- Model 2: Purchase with guaranteed savings. Purchase assumes the risk of project selection and financing, but establishes with the technology provider a guarantee of performance and reliability, which includes the efficiency and availability of equipment.
- Model 3: Investment with shared savings. The buyer and supplier become partners; technology is acquired and installed either through a lease or a trust, establishing a portion of the savings for both parties.

Participants recognized the **importance of parameterizing the actual risks** related to performance and mechanisms (insurance, guarantee, concessional loan with technical backstopping, etc). The importance of dividing the different types of risk appropriately among financiers, technology providers and end-users was also highlighted, so that each risk is managed by the entity most capable of understanding it. For example: the ESCO, or the supplier of the chosen technology, should assume technical risk and the risk of energy performance; the end-user client should assume operating risks related to energy consumption; and financial institutions should assume financial risk.

Participants also recognized, moreover, that EE finance is commonly limited not just by risk itself, but by an **inability to reliably assess risk in the first place**. This often stems from uncertainty and disbelief of EE savings projections, in addition to a lack of specialized EE finance training. Project financiers must be sure that cash flows from future energy savings will be realized and will be sufficient to service the EE project debt, since project owners rely on such savings to re-pay the initial investment. End-users and local FIs, however, tend to treat energy savings projections skeptically, and conventional lenders are hesitant to include them in the underwriting models that determine loan decisions.

Workshop participants discussed various ways of overcoming this obstacle by improving the ability of financiers and project developers to assess the risk of EE projects. **Certification and standardization processes** must be developed for EE businesses that allow financiers and projects developers to take measured risks. This includes methodologies and benchmarking to improve the standardization of energy savings measurement. The process of conducting energy audits and collecting project data must become streamlined and standardized to deliver highly accurate reporting and modeling. It is also necessary to build the capacity and understanding of local banks in this area. FIs must get comfortable with certain technological risks.

## **b. Relationship between government, NDBs and commercial FIs**

National development banks and commercial FIs can also play important roles by **engaging**

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<sup>6</sup> Presented by Ecothermia

**government agencies, policymakers and regulators.** Given that EE business models, accounting and measurement practices are still unfamiliar to most of the market in LAC, public sector engagement, legal frameworks and promotion are especially critical for fostering the new industry and generating acceptance. Other roles such as arbitration and accreditation of services are also key. Legal support is critical for introducing EE frameworks to regional markets, and because EE models operate differently from conventional procurement methods. The lack of references to EE frameworks in some legal systems is viewed with considerable apprehension among potential EE clients.

In some countries, the potential industries, as well as their customers, are still waiting for government to establish guidelines and directives; and existing policy structures sometimes can actually hinder the development of EE markets. In Brazil, for example, which now has the largest number of ESCOs of any LAC country, public procurement at one time blocked the development of ESCOs through a least-cost bidding approach is not appropriate or viable for the ESCO model. Existing laws still make EPC exceedingly difficult in some countries and may even prohibit a private body from operating or managing a building's energy service infrastructure.

It is therefore highly advantageous for NDBs and other FIs to engage government in the effort to promote EE finance. In particular, **the relationship between government and NDBs is key in the LAC context.** For example, financing lines in Mexico were successful because were a common initiative between government, NDBs and FIs – such as the Green Mortgage and Sociedad Hipotecaria.

Moreover, participants differentiated between the roles of NDBs and commercial banks. The different challenges faced by each were a matter of discussion during the workshop, as well as the interrelation of NDBs and commercial banks when providing integral solutions for EE-investment. The workshop showed that **NDBs could play an important role by providing guarantees for other FIs and/or for SMEs, such as by acting as the government trustee for this purpose.**

#### IV. Conclusions and Recommendations

**The conditions for investments in energy efficiency in the LAC region vary widely** along with local capacity, target sectors and investment opportunities. While the ESCO model could be replicated in some of the LAC countries (e.g. Mexico and Brazil) with relative success, this has been virtually impossible in most other countries. The role played by SMEs and their potential with regard to EE improvements is very large and needs sector-specific programs, micro finance conditions and activities to address their needs.

The most appropriate, specific measures for supporting further development of EE finance in LAC, therefore, will vary from country to country according to local context. In countries where the necessary conditions are in place for ESCOs to emerge, the best approach may be to support ESCO development. Where these conditions are not yet in place, the more appropriate strategy may be to work directly with local banks to go directly to end-users (with no ESCOs involved); or to work with the local government on support programs for FIs. **There is need to understand local contexts to develop dedicated instruments and appropriate technical backstopping.** A country-based approach was thus recommended.

The event highlighted a number of intervention areas where **NDBs and commercial banks could provide a more proactive role.** General recommended elements of an effective financial approach included:

- Adapted financing for EE projects
- Development of new financial structures to generate greater investment in EE
- Development of distinct instruments for different sectors/projects/purposes
- Guarantee funds to enable financing at competitive rates

- Support from development banks to mitigate credit and performance risks
- Development of a strategy for a sustainable solution for financing access by ESCOs
- Specialized financing programs targeting SMEs
- Possible specialization by FIs in specific technologies
- A focus on smaller and more diversified transactions
- Absorption by FIs of some degree of performance risk in order help the industry grow

Furthermore, with regards to offering financial support and promoting access to credit, it was recognized as especially important for these organizations to:

1. **Parameterize risk** associated with project/investment performance and develop financial instruments that can cover these risks, such as by promoting insurance schemes and funds with risk-sharing guarantees; and
2. **Integrate technical service providers and backstopping** into green financing lines.

Furthermore, the workshop showed that **NDBs can play a key role in promoting the necessary market readiness** for accessing credit lines for EE, supporting development of market conditions for increased appetite by the private sector to undertake investments and demand credit. Development banks were thus encouraged to embrace a role as agents of change and transformation, setting an example for commercial banks and helping to generate a culture around EE project finance. Beyond financing, the emphasis here is on awareness-raising, technical support, capacity building, baseline studies and pilot projects. Important measures include, for example:

1. Support for **capacity development of technical service providers and/or ESCOs** and for promotion of accreditation systems for these services. End-user clients and especially SMEs need technological advisory and support.
2. Promoting **capacity and awareness among local FIs** of business opportunities in developing and implementing dedicated financing lines or instruments for EE.<sup>7</sup> Local FIs require training in the design of tailored EE financing schemes, as well as capacity to assess the risk of highly technical projects.
3. Promoting **standard performance contracts** that can be offered by technical service providers and/or ESCOs to its clients.
4. Promoting **standardized systems** to: (i) identify and report energy savings and other related environment benefits (such as GHG emissions reductions) and how to best price / monetize these savings; and (ii) monitor, report and verify results in a comparable manner across sectors and activities. The development of **technical standards** can help avoid poor-quality products entering the market. Also recommended was the development of **model documents** such as for standardized procurement and the use of energy performance contracting.
5. Investment in **baseline studies** in order to identify opportunities for savings as well as the cost-benefit ratio of EE projects.

The effectiveness and scale under which local FIs can promote investments in EE depends also on **stronger engagement and dialogue with local governments**. Many of the investment barriers identified in the workshop relate to lack of standards, perception of risks related to performance and role and services that can be provided by energy service companies, which could be partially dealt with by appropriate regulatory frameworks. The establishment of **public-private partnership schemes** to finance changes of technology and promote good practices in energy end use was also recommended, as were **partnerships between FIs and vendors**.

Many recommendations revolved around the question of how to **develop the business case** for EE finance. Participants framed the challenge in terms of the need to carry a simple message to companies that will allow them to understand the potential and importance of EE. Translation into

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<sup>7</sup> NDBs could, for example, offer a 3-day training course for local FIs on contracts, opportunities and technologies.

language intelligible to business – e.g. in terms of consequences of non-action (parallel to medical advice) – was thus emphasized. The aim is to build trust that technical aspects are sound, will be effectively implemented, and will provide the expected results; and to build awareness of the economic benefits of energy efficiency for end consumers and FIs. Within this discussion, specific recommendations included the creating a **portfolio of projects** to show potential, and to support **pilot projects** where no track record exists. This was emphasized as especially important for markets where the ESCO model is new.

Recommendations for possible **government and policy measures** included:

- Regulatory support for EE
- Adapted public procurement to support energy performance contracting by ESCOs
- Fiscal incentives for efficiency and penalties for inefficiency
- Direct subsidies (interest rates, discounts, etc.)
- Payment through electric bill
- Decoupling of electricity rates from power distributors
- Efficiency standards
- Law establishing mandatory energy reporting, as in Thailand
- Energy label requirements for buildings
- Studies showing how EE influences tax revenues (per \$1 invested, get \$3 back...)
- Development of platforms for EE finance (like NAFIN in Mexico) and for awareness-raising