The Lab
The Global Innovation Lab for Climate Finance

Energy Efficiency Enabling Initiative

LAB INSTRUMENT ANALYSIS

June 27, 2016

The Lab is a global initiative that supports the identification and piloting of cutting edge climate finance instruments. It aims to drive billions of dollars of private investment into climate change mitigation and adaptation in developing countries.

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CLIMATE POLICY INITIATIVE

CONTEXT

Energy efficiency has enormous potential to help achieve global climate objectives, but current investment falls far short of what is needed to achieve a climate scenario below 2°Celsius temperature rise. The IEA estimates that USD 13.5 trillion in cumulative investments will be required in energy efficiency by 2035, with USD 6 trillion for developing countries (IEA, 2014).

Today's energy efficiency investments are primarily self-financed by end users, making it difficult to scale up the market without greater access to debt or third-party equity (IEA, 2014). This is especially true in emerging economies and in sectors where access to contractual models and structured finance may be limited, and where small and medium enterprises must prioritize competing investments.

INSTRUMENT MECHANICS

The instrument would operate as a private equity fund with a specific investment mandate in selected sectors and energy efficiency technologies. Public finance will be used to allow private investors to have preferred distributions, de-risking instruments will be employed at the project level to crowd-in private investors, and technical assistance will build knowledge to strengthen supply and increase demand.

The "Energy Efficiency Enabling Initiative" aims to increase the supply of risk capital (equity) by attracting private sector capital for a new energy efficiency equity fund.

The equity fund – the first and central pillar of the Initiative - will source and support energy efficiency initiatives. Backed by clear guidelines, investment eligibility criteria, and investment reporting, the fund will benefit from donor-backed concessional equity capital, which will enhance the risk-return profile of energy efficiency investments at the fund-level by offering priority distributions to private investors. The fund will be complemented by two additional pillars: a suite of instruments to de-risk investments at the project level (second pillar) and; tailored technical assistance to develop supply and demand for energy efficiency services in the target geographies where the fund will operate, as well as to disseminate lessons within targeted countries and other geographies (third pillar).

The overarching objective of the Initiative is to mobilize and crowd-in private investors, including institutional investors, as equity partners in the fund - and/or as equity and debt providers in the project-level investments. The Initiative further aims to facilitate project origination, assessment, and financing by centralizing financial and credit risk functions (traditionally performed by banks not familiar with EE projects) and integrate technical assessment functions (traditionally performed by engineering firms often without a strong financial background) into a one-stop-shop initiative. Finally, the Initiative aims to accelerate market development by disseminating lessons learned from real-life project implementation, contractual, and financing models to new markets, to further provide catalytic effects.

STAKEHOLDERS

Key actors involved in the implementation of the fund would include: a fund manager, donors, private investors, Energy Service Companies (ESCOs) and technology providers, local banks and development finance institutions (DFIs) providing de-risking instruments, debt finance, and end-users including private buildings, company owners, and public institutions.

In terms of private equity investors, the fund specifically targets institutional investors, whose appetite for energy efficiency investment remains modest, with public-private partnerships often necessary to trigger investment. Other potential private investors include infrastructure funds, and corporate investors.

Regional DFIs would have a key role to play, furthering the design, and refinement the instrument. At the same time, they would have the option to provide financial support at both the fund and single investment levels, and to drive linkages with complimentary energy efficiency initiatives.

MAIN COMPONENTS

The Initiative would be designed and operationalized largely with public grant resources, which would lower the cost for the private sector. The following section describes the three main pillars of the Initiative.

I. A fund - USD 100-150 million in size - with a donor-provided public finance equity component would facilitate origination of energy efficiency initiatives by providing capital, capacity, and expertise - otherwise unavailable in some target markets – by acting as a developer, deal integrator, equity investor, and intermediary. It could, for example, "layer" equity and debt capital from available pools to match investment opportunities, introduce innovative financial structuring and adapt contractual models drawing on technical assistance activities promoted by regional development finance institutions (DFIs). The public equity component would aim to catalyze private finance at the fund level. Public equity, for example, at 30-40%,[1] could mobilize private investors while preserving incentives for the fund manager to operate in a commercially sound manner. Private investors would see a "preferred return" payment structure, receiving payments up to an annual preferred rate with the public sector acting in a sort of first-loss position. Examples from existing clean energy funds suggest that the annual rate could be set between 5-10%. The general partner would then benefit from a share of profits once private (preferred) and public returns have been disbursed. In the upcoming weeks, the proponent will set a hurdle rate consistent with the target returns set by private investors and capital preservation required by both private and public investors.

II. A donor-funded guarantee de-risking facility – sized around USD 30 million - would be set up to provide, on a case-by-case basis, coverage for losses beyond what is borne by the equity investor. This guarantee would incentivize investments that have attractive energy savings potentials but would otherwise be deemed too risky. For the pilot phase, Inter-American Investment Corporation (IIC) would house the facility, manage the funds, perform project due-diligence and deploy the de-risking instruments in the approved transactions. Such a facility would have likely the shape of guarantees leveraging senior lenders in the capital structure by reducing a portion of their exposure.

III. A technical assistance package on the supply-side will target energy service providers looking to operate under ESCO models with Energy Performance Contracts (EPCs); on the

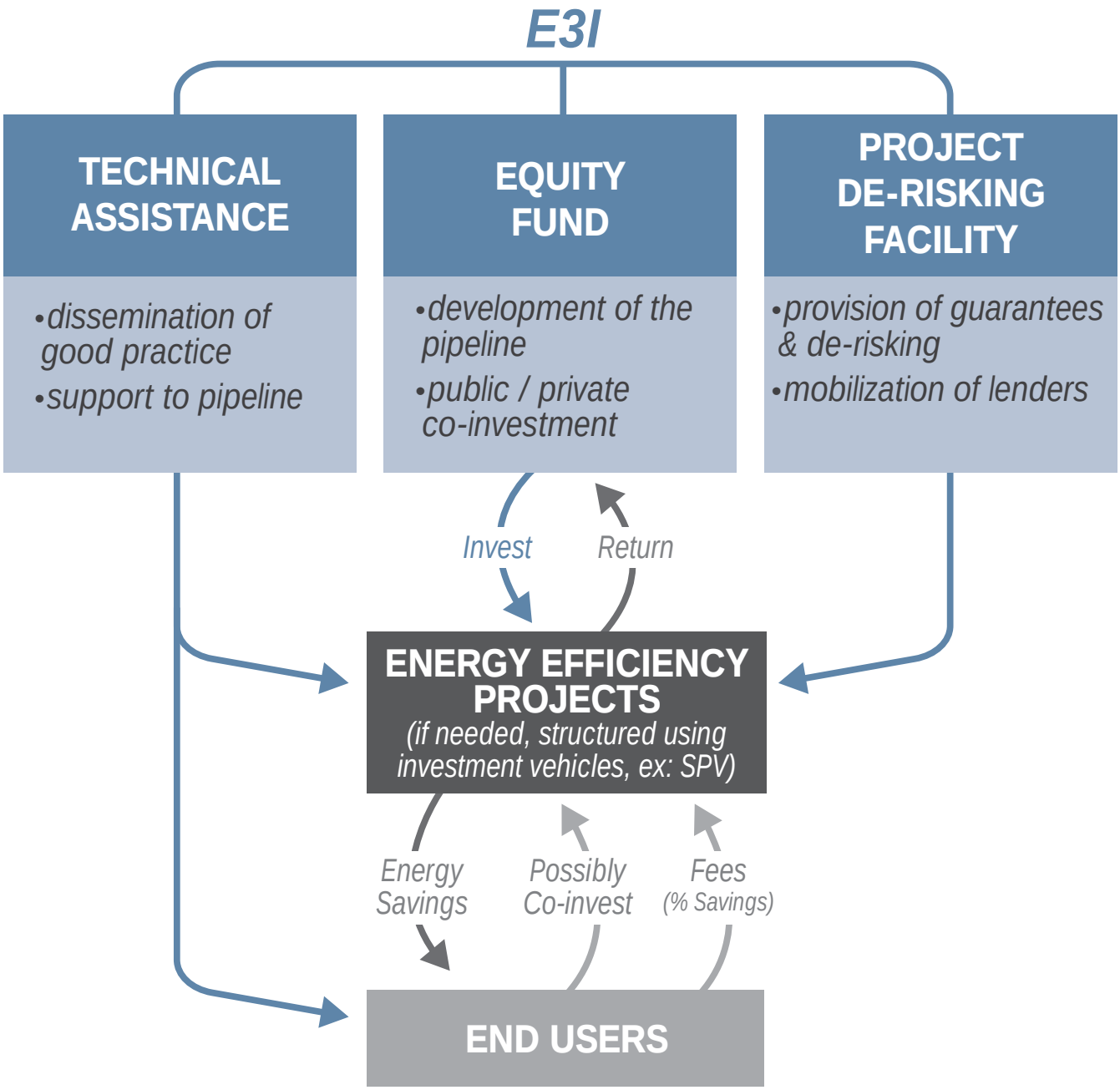
1 Initial assessment by the proponent based on Central and Southern American countries. The final share will ultimately depend on public equity availability, the fund's geographical mandate, and private investors' requirements.

demand side will contribute to the development of a number of regional workshops aimed at raising awareness regarding the benefits on energy efficiency, targeting small and medium enterprises' managerial and technical staff. Technical assistance will also contribute to the communication of results and dissemination of lessons learned.

Finally, the Initiative would make use of existing financing and risk mitigation instruments to further crowd-in private investment. The fund would access debt from traditional sources such as export credit agencies, equipment suppliers, and, importantly, local commercial banks, to reduce exposure to currency risk. Furthermore, the fund could access existing energy efficiency risk mitigation instruments such as the Energy Savings Insurance, to improve its risk profile.

See Annex II for more details regarding the structure of the pillars during the pilot phase.

Figure 1: Fund Structure



INVESTMENT CYCLE

The fund's deals will typically be structured through equity positions in Special Purpose Vehicles (SPVs) that will host all contractual rights and obligations for each individual deal or group of deals. The SPV, represented by the Fund manager, would sign all contracts and will retain rights to receive monthly re-payments from the client and utilize guarantees (e.g. re-possessing equipment in cases of default). This structure defines the earnings of the project, and ensures that lenders and investors receive income before intermediaries or end-users. To ensure end users have "skin in the game," a down payment and/or an equity co-investment would usually be required.

Energy savings resulting from the project's implementation would be realized at the end user level. This "project revenue" would then be allocated between the different actors in line with contractual provisions.

The fund would have a total investment horizon up to 12-15 years. The investment period would be the initial five years after which time the fund manager would be prevented from making new investments (year 6 to 8 or year 6 to 10 – "cool down period"). After that, different investment exit strategies would be applied ("wind down period"), such as through sales of shares in the SPV, sales of equipment, and refinancing. At the end of the liquidation period, investment capital and any remaining earnings not already distributed through dividends would be returned to investors.

INVESTMENT FOCUS

The fund would target developing countries that have emerging energy efficiency markets and significant technical potential. Based on interviews with eight fund managers, the Lab Secretariat scored countries on the level of private investment attractiveness, energy efficiency investment attractiveness, and energy efficiency market readiness. The fund could initially target countries with a relatively developed private sector including Mexico, Colombia, South Africa, or China. However, depending on the final fund design and level of public commitment, countries with more challenging investment environments could also be targeted, including Panama, Honduras, Jamaica, Nicaragua, Mongolia, India, Morocco, Jordan, and Lebanon.[2] For a pilot in Latin America the proponent has identified a potential pipeline of projects in Brazil, Colombia, Haiti, Mexico, Panama, and Peru.[3]

The fund would target small and medium enterprises (SMEs) and larger industrial or commercial businesses. Because energy bills in these sectors are comparatively higher than the residential sector, these end users offer more scope for returns. Public end users would be less of a priority due to rigid procurement rules and budgeting guidelines. The fund would support technologies that ensure a specific environmental target (e.g. 20% energy savings), and might include heat and power cogeneration; building management systems; heating, ventilation and air conditioning; lighting improvements; waste heat recovery; boiler upgrades; building shells; and smart grids.

2 See Annex I for more details on methodology. Analysis is preliminary and, eventually, the geographical allocation would be a result of specific negotiations and reflect risk appetite of private investors, and fund manager capacity and established origination networks.

3 See Annex II for more details on the pilot pipeline.

INNOVATION AND RISK MITIGATION

The instrument could be a key source of equity financing for particularly risky regions, sectors, and technologies.

INNOVATION: TARGETS NEW ENERGY EFFICIENCY SECTORS AND ENSURES HIGHER LEVERAGE WITH PROJECT-LEVEL DE-RISKING

The fund is innovative because it will fill investment gaps in countries and project types considered particularly challenging, while aiming to complement existing initiatives.

The fund's design aims to overcome a limited track record in developing countries of strong private participation in equity funds in the energy efficiency sector. Nine of the 17 funds that the Lab Secretariat mapped offer equity to energy efficiency projects in developing countries in some portion of their portfolio, but only two of these focus on equity as their main investment, and only one focuses exclusively on energy efficiency. Funds in developing countries also rely heavily on development bank and/or government support with one third of them being entirely public.

The fund's integrated approach to risk mitigation allows it to reach a broader range of countries, project types, and ownership categories than have been covered previously. Existing initiatives (e.g. Energy Savings Insurance), which aim to mobilize equity capital, tend to focus on specific standardized energy efficiency technologies for small and medium enterprises. Additionally, existing equity funds often lack the risk coverage needed to engage in developing countries, and avoid investments with higher technological risk, bundling these investments with "plain vanilla" technologies or technologies which ensure asset security.

BARRIERS AND RISK ADDRESSED

The fund addresses several major barriers and risks that otherwise prevent investment from flowing to energy efficiency in developing countries.

Limited availability of critical equity finance: Equity is a key requirement for investment, whether it comes from the end-user or from another source as it enables other forms of financing.[4] However, the majority of energy efficiency improvements are self-financed by the end user, which impedes the investment scale-up necessary for a 2° Celsius temperature rise global scenario. Due to the burden that debt adds to budgets, third party equity financing is needed, but currently plays only a marginal role for energy efficiency (IEA, 2014). By providing this capital as the principal financial vehicle to support energy efficiency companies and projects, the fund addresses a key gap for energy efficiency investment in developing countries.

Limited availability of finance in developing countries due to perceived risks: Right now, local investors in developing countries perceive energy efficiency as risky due to their lack of an investment track record and familiarity with the sector. Making equity available to a project provides a first level of protection to investors. In addition, by providing a guarantee at the investment level on a case by case basis through its second pillar, the instrument would enable projects to move forward which are otherwise

4 Alternative financing sources such as loan require equity co-financing as a precondition for financing, in other cases initial equity disbursement covering 100% if the investment is needed in the first years of implementation of the project to reduce perceived risk and obtain refinancing. (MGM Innova, 2016).

unable to get off the ground (MGM, GEREEF, SI Capital, SDCL 2016). Combined with preferred payment structures, the guarantee would also reduce the risk profile at the fund level, increasing the attractiveness for the private sector to invest in these countries. The added upfront complexity in the structuring this pillar would result, down the road, in an easier and quicker access to project level de-risking tools for the fund manager.

Nascent energy efficiency markets: In many developing countries, energy efficiency markets are in the early stages with few operating energy services companies (ESCOs) (Panev, 2014). Equity funds find it difficult to enter these countries in the absence of significant local project development capabilities and capacity in structuring contracts and financing packages. The proposed fund addresses this barrier by filling a gap in technical and financial capabilities. Unlike other funds, which are supported by ESCOs for project origination and development, deal integration, and equity co-investment, the proposed instrument can replace ESCOs in many of these functions, acting like a sort of super-ESCO. The role of ESCOs, engineering companies, or manufacturers will then be to sell, originate, integrate and monitor the projects, rather than to spend time and resources on financial, legal, and accounting structuring. (MGM Innova, 2016). This flexibility increases the number of potential target markets, but implies higher transaction costs for the fund.

Limited availability of standard contractual models: In many developing countries, the complex contracting procedures related to energy efficiency projects fuel mistrust among end users, which hinders development (Panev, 2014). The proposed instrument would ensure a higher degree of flexibility by reforming energy contracting and looping in other technology providers. To this end, the fund would introduce tailored contractual and financing models that match the type of asset, appetite and ability of the owner to invest equity in the project, as well as the local regulatory and financial market framework.

Limited availability of debt financing from banks: Banks base interest rates on asset risk when they provide a loan, but have difficulty collateralizing cash flow savings from energy efficiency projects. Especially when energy savings are unclear in the long-term, loans are seen as high risk and become unattractive for investors (Ryan et al., 2012). As a result banks usually only lend to companies with strong balance sheets, leaving out smaller actors, which also require tighter due diligence (World Bank and ACET, 2016). The fund allows banks to deal with one entity – the SPV – which has the technical capacity for contractual and financial structuring. Furthermore, the fund's equity commitment at the project level provides first protection to their loans. Guarantees may however still be needed at SPV level even with this arrangement.

Limited demand for debt financing: Companies tend to use their credit space to borrow debt for their core business. Thus, even if debt is available to a company it is rarely used for energy efficiency projects. Banks also require detailed documentation related to the project, and possibly guarantees. These transaction costs negatively influence end users' decisions regarding energy efficiency investments. Part of the attractiveness of a centralized energy efficiency fund is that debt financing is managed at the SPV level, streamlining the process and eliminating the need for end users to take out loans.

High cost of capital: The instrument will reduce the overall cost of capital for energy efficiency projects by enabling greater debt leverage at lower rates than an individual SME would otherwise be able to achieve and by reducing the amount of equity needed for a single investment.

IMPACT

A USD 100 million fund would generate 220-225 GWh annual energy savings, abating 20-100 $ktCO_2$ every year, and mobilize USD 60-190 million in private finance in the pilot phase. If scaled in target markets, the instrument could generate up to 9000 GWh in annual energy savings, abate 5300 $ktCO_2$ in annual emissions, mobilizing USD 3-9 billion private finance.

QUANTITATIVE MODELING

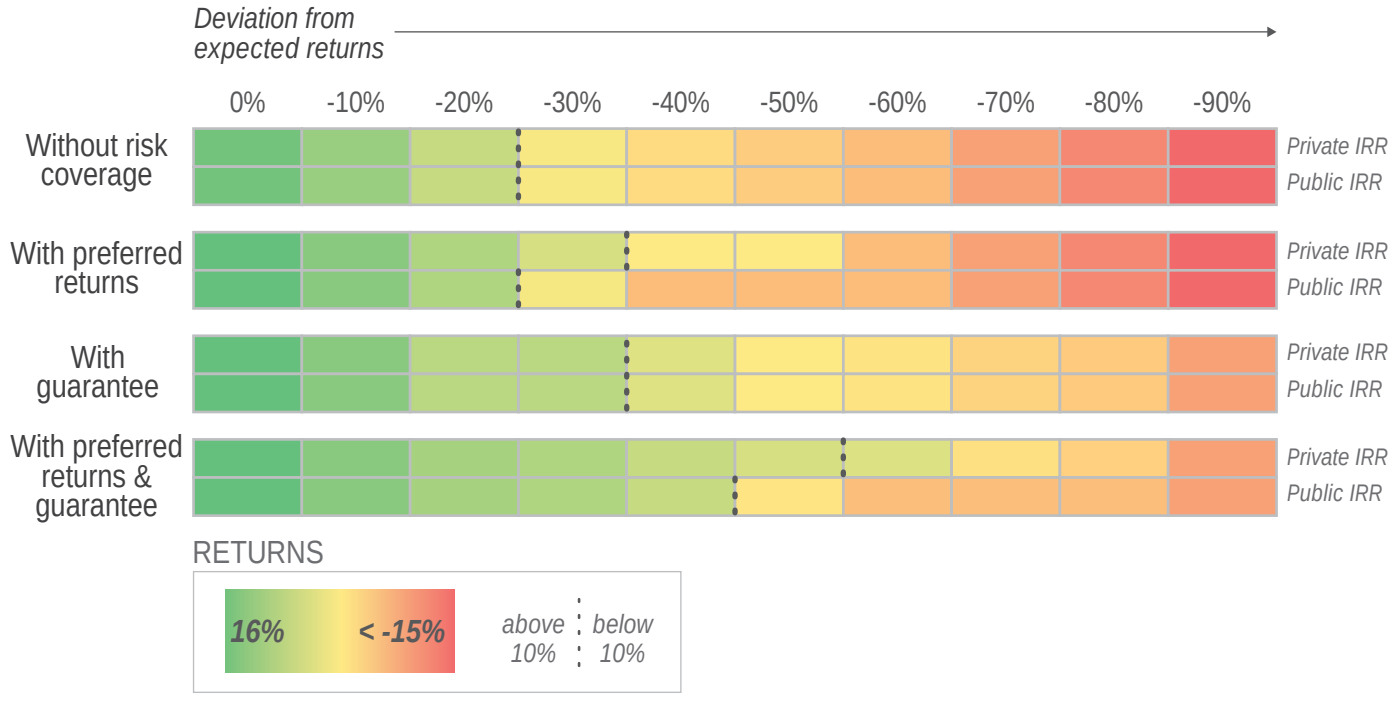
In order to assess the attractiveness of investment in energy efficiency for institutional investors, the main investors targeted, we developed a model simulating a hypothetical USD 100 million fund.[5] Main takeaways are summarized below.

The preferred payment structure ensures more stable returns to private investors and particularly to institutional investors, in line with their expectations. Underperformance first affects public actors, which would not receive catch-up sums until private investors receive their returns. This will allow private actors to obtain minimum returns of 10%, even in the case of underperformance of up to 30-40%, which without risk coverage would drop to 5-8% (see figure 2). Furthermore, the preferred return structure increases the likelihood of private investors achieving expected returns by 50%.[6]

5 See Annex I for details on the methodology

6 Institutional investors in equity funds in USA and UK general have a return requirement of 10% (9-12% as a range), we assume that the fund would target 15% IRR for investments in energy efficiency in developing countries (MGM, 2016).

Figure 2: Returns under different risk mitigation scenarios



Note: The figure illustrates the IRR for the public and private sector under different underperformance scenarios (x axis) and different combinations of risk mitigation instruments (y axis).

Higher risk coverage could be requested by investors in some countries, requiring the fund to increase its shares of public equity, limiting the leverage effect of the fund. **Combining public equity and preferred return structures with investment risk guarantees lowers reliance on limited concessional equity (see paragraph 5.1.2) and achieves higher leverage of private finance at fund level.** We estimate that in order to ensure expected returns to investors in case of underperformance, the preferred returns threshold should be increased slightly and coupled with a higher participation of public equity as a shareholder on the fund (on the range of 40%), in order to secure appropriate coverage. Our analysis shows that the additional use of a guarantee instrument at project level allows private returns of 10% for higher underperformances (up to 50-60%), which without risk coverage would only allow for capital repayment. Furthermore, adding a guarantee would more than double the certainty of expected returns compared to no risk coverage, allowing for a lower public equity share. We estimate that, in order to ensure expected returns to investors, a lower preferred return threshold could be offered if matched with guarantees at the investment level, independently from the public sector share. In that scenario, higher shares of public equity would be needed only for covering unlikely expected underperformances above 50%.

INSTRUMENT IMPACT

Environmental and social impacts

Assuming[7] that all revenues generated at project level will be contractually tied exclusively to actual energy savings, we expect that a USD 100 million fund piloted in potential target countries like Mexico and Colombia, would support 220-225 GWh annual savings, corresponding to 20-100 $ktCO_2$ abated every year.[8] When fully invested, the fund would enable the end user to realize around USD 30 USD million in savings on energy bills each year.

The replication of the mechanism in other countries could deliver 1150 GWh of energy savings every year out to 2025, with yearly emissions reductions of around 660 $ktCO_2$, which is comparable to the annual emissions of Rwanda. In a scenario that factors in best-practice adoption and a higher investment mobilization, impacts could be even greater and annual savings reach 9000 GWh, or 5300 $ktCO_2$.

This could catalyze a larger impact down the road by building a successful track-record for private investors, and mobilizing a wider range of ESCOs and technology providers as part of energy efficiency market development.

Private finance mobilization and replication potential

In an initial pilot, considering the cost to establish the fund, and depending on the strategy used to cover risks by the fund manager, USD 11 to 41 million in public finance contributions could mobilize USD 60 to 190 million in private equity finance, with additional USD 60 million of debt being accessed through the SPVs.

Replication and scaling up of the Initiative to 2025 could generate USD 600 million in investment at fund level between public and private sources and USD 1 billion of overall finance mobilized. USD 180 million of public equity and USD 5 million in grant funding could mobilize around USD 750 million of private equity investment at the fund and investment level, and an additional USD 250 million of commercial debt.

7 See Annex I for details on the methodology.

8 Difference in the range depends on the different energy grid emissions factor of the two countries (0.1 ktCO2/GWh in Colombia and 0.45 in Mexico).

Success in the replication and scale up of the fund depends on the engagement of the private sector through the implementation of risk mitigation strategies and potential availability of public equity capital. Low use of complementary tools and financial sources as well as scarce availability of public equity could restrict investment potential to USD 200 million, while the combination of equity and other financial instruments would bring finance mobilized to USD 3-9 billion through to 2025.

Investment trends seem to suggest that learnings derived from the structuring of "pilot funds" do translate into accelerated investment in the clean energy sector. Historical trends regarding the deployment of clean technology funds (Preqin, 2015) show that the number of clean tech funds launched every year increased from 15 in the period 2008-2010 to 24 in 2013-2015, peaking at 34 in 2014. Such acceleration can be partly explained by the increase in the deployment of follow-up funds."[9]

However, the likelihood that the instrument will be transformative and able to attract progressively higher shares of private investment with limited public sector contributions is anecdotal at this point. The principal evidence of a shift towards a higher participation of the private capital to energy efficiency funds comes from developed countries, where clean funds investing in energy efficiency projects are moving from a public-private model towards fully private.[10] In developing countries, the public sector still dominates, though anecdotal evidence suggests there is increasing interest from the private sector:

- GEREEF, the EIB Fund of Funds for renewable energy and energy efficiency, closed USD 120 million of private capital. Discussions with GEREEF management and investors, such as family offices or Australian pension funds, stress the importance of priority distribution to private sector investors to trigger their investment (MGM Innova, 2016).
- For the proposed pilot fund in Latin America - which follows an entirely publicly funded initiative in the same region (the pre-pilot MSEF) - two private sector players are considering investing. Nippon Koei, the largest environmental consulting company of Japan, and Shikoku Electric, a regional Electric Utility also in Japan. Several family offices have expressed interest and the Initiative's team will be engaging in discussions with them over the next few months (MGM Innova, 2016).

9 "Follow-up funds" are funds launched by investment companies which have previously already managed at least one fund.

10 All of the seven mapped funds operating in developed countries successfully target private investment. Three of them are instead entirely private (Sustainable Investment Capital, Idea Energy Efficiency and Sustainable Development Fund, Suma Capital EE Fund).

IMPLEMENTATION PATHWAY

The instrument requires a 24 months implementation path with an expected setup cost of USD 1.2 million. The fund operationalization and construction of the project pipeline are critical for the set-up phase. Replication is dependent on the availability of public equity capital.

PATHWAY AND IMPLEMENTATION COSTS

The proponent estimates that a timeline of 24 months, or 36 months when accounting for potential delays, will be required to prepare a pilot and achieve the following milestones:

- Further **refinement and development of concept** with Lab support: 6 months.
- **Legal and operational design** and initial mobilization of funds: 12 months.
- Country and market specific adaptation of **financial structuring and contracting models**: 6-18 months.[11]
- Definition of eligibility and quality criteria for prospective projects.

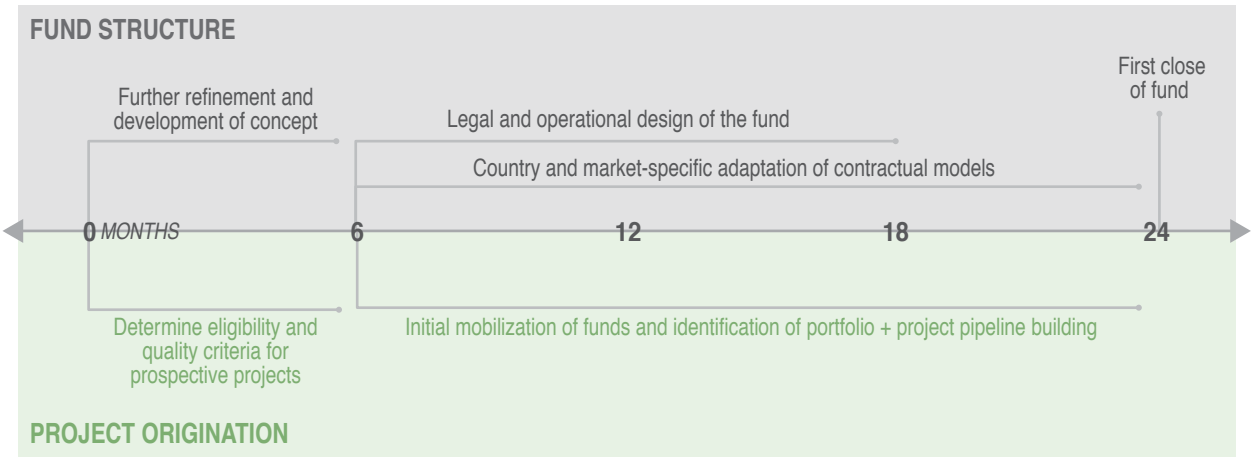
In parallel, enabling measures supporting project pipeline development and transactions would also be needed for nine months or more, including market studies, eligibility and quality criteria development, and legal and financial work on contracts and financial structuring based on international best practice.

In addition, fundraising and building a project pipeline is expected to take place for 18 months and likely continue during the operational phase of the fund (Prequin, 2014 and GEEREF, 2016).

The time can be **reduced to 12 to 18 months** if the fund manager chosen to implement the pilot has a strong network and pipeline of indicative projects in place and has established relationships with private investors.

For the pilot phase in Latin America, selection of the fund manager and due diligence is envisaged for July 2016, with a first legal close in the first quarter of 2017 and a final close with target capitalization in the third quarter of 2018.[12] The proposed pilot

Figure 3: Concept implementation timeline



11 In Mexico MGM (2016) took 18 months to design the EE SPV contracts.

12 For detailed information on the implementation pathway for the pilot refer to Annex II.

fund would build on the experience and pipeline matured during the implementation of the public fund MSEF in the region[13] (pre-pilot), which will be expanded to target the private sector in this pilot phase.

Once the fund is established, market development measures to generate awareness and demand would need to run in parallel with the fund's investing activities for one to five years during its operation phase.

Based on a review of existing energy efficiency and renewable energy funds, we estimate approximate costs to establish a fund for a pilot in the range of USD 1.2 million. More specifically:

- USD 0.7 million required for the establishment of the fund, including scoping, specialist technical advice from private equity funds regarding fund design, fundraising and financial structuring issues, as well as legal advice (DFID, 2012);
- USD 0.5 million needed for every target country, covering country specific business plan, due diligence and feasibility analysis, and guidelines for operations and legal documents (CIF, 2012).

These estimates for implementation costs do not cover allocations to contract design and standardization and knowledge dissemination. Overall, for the pilot envisaged in Latin America, an estimated, additional USD 1-2 million is needed for technical assistance for instrument.[14]

Learning from the set-up of the fund is crucial, and once the structures (e.g. SPV) and contracts are in place, the scaling up of the Initiative in the same country would require significantly less time and capital.

13 According to IDB/MIF, anchor investor of the fund, the fund has showed good results in terms of capital deployed and wealth of the portfolio to date.

14 For detailed information on costs for the pilot refer to Annex II

IMPLEMENTATION RISKS

There are several implementation risks related to operationalizing the fund and eventual replication, which a fund manager will need to manage.

Implementation risks related to operationalizing the fund

Excessive transaction costs could result if design and operationalization process are delayed, or if there is difficulty reaching an agreement on governance and eligibility criteria for investments, adapted contracts or financial structures for specific markets.

Operation risks: Building a pipeline that fits within the fund's investment guidelines is one of the key factors for the successful implementation of the fund. Project development, deal integration, and equity investment in emerging energy efficiency markets significantly increase operation costs for the fund – also due to the small size of deals - from the 1.2% out of committed capital generally expected by investors (Allianz, 2016) to 1.5-2%, depending on the level of capital commitment.[15] For a fund manager moving into the space for the first time it could take up to five years to establish momentum into the pipeline. Finding suitable exit options when projects are liquidated rather than held to maturity adds another layer of risk.

Risk of investment not meeting investors' requirements: In order to operate effectively on a commercial basis, fund managers must enjoy relative freedom in identifying investment opportunities that enable them to satisfy return

15 For example, a typical USD 100 million Private Equity Fund invests on average in 10-20 transactions, with tickets varying between USD 5 million and USD 10 million. An energy efficiency fund in Latin America needs to bundle transactions of USD 500,000 or less to be effective, especially if it supports SMEs (MGM Innova, 2016). In general, there is some consensus between investors that the 2% management fee on committed capital is adequate as operational costs for energy efficiency pipeline development are very high.

requirements of targeted investors, which are higher in emerging markets than in developed markets (Allianz, EMPEA, 2016). However, to meet Lab objectives, the instrument needs to find a balance between proven and innovative technologies to ensure its learning and catalyzing effects (Climate Strategy & Partners, 2016). Establishing clear, upfront investment criteria and guidelines on technology allocation, and an adequate governance mechanism for the fund itself, with participation and voting opportunities for public and private investors, would help meet the interests of both public and private investors. Criteria and guidelines should be accompanied by appropriate incentives in the structure of management fees and preferred returns (Allianz, Climate Strategy & Partners, and Norfund, 2016, BlackRock, 2016a). Here, views differ significantly regarding the correct preferred return threshold. While some investors suggest a focus on a smaller range of technologies in order to allow for lower due diligence costs (Norfund, 2016, BlackRock 2016a), opting for preferred returns higher than 10% to attract investment (Allianz, 2016), others suggest lower hurdle rates, targeting private investors based on their long-term interest in scaling the sector and addressing return concerns by balancing commercial aspects and long-term innovation and catalytic goals on a portfolio level (Climate Strategy & Partners, 2016).

Implementation risks related to replication

Increasing private equity investment in energy efficiency in developing countries remains challenging, particularly for institutional investors: Current trends for equity investment in energy efficiency[16] reveal that annual commitments have been steady at 5 billion per year since 2005, which is in line with total energy efficiency investment growth trends (including grants and debt) and with equity investment trends in the broader Clean Technologies sector. 95% of energy efficiency investment has been located in developed economies (BNEF, 2016), in contrast with the overall clean technologies sector where developing countries' share is 15%. Targeting institutional investors poses an additional challenge as they have allocated only 5% of their entire portfolio to developing economies (BlackRock 2016b and Inderst and Steward 2014), with South Africa being the most popular destination (EY, 2013).[17]

High competition on private equity return requirements: Illiquidity of investment and risk inherent in private company investments requires returns higher than 20%, even though the preferred return is typically set at a much lower level. Funds that consistently cannot deliver above the preferred return not only get a much smaller share on profits, but also tend to disappear due to lack of competitiveness. In addition, energy efficiency private equity funds have specific difficulties in attracting investors, as currently there is still limited appetite for these kinds of investments.

Scarcity of concessional public equity from the public sector: We found that public equity investment in energy efficiency is a relatively small share (1.5-2%) of total development finance flowing in the sector. Only four equity investments were tracked by the OECD up to 2012; concentrated particularly in the years 2009-2010

16 Equity considered from the BNEF database include: Asset finance from balance sheet equity, syndicated equity, tax equity, mergers & acquisition of company equity, reverse takeover, strategic stake in Public Company, private equity buy-out / corp spinoff and expansion capital. Energy efficiency sectors considered from the BNEF database include: technologies which reduce use of energy in the residential and commercial sector, as well as in industrial processes.

17 Within the renewable energy sector, institutional investors such as pension funds and insurances have been preferring investment in the US and Europe to Asia, Africa and Latin America. South Africa was the most popular country, with 9% investors having invested. 'Elsewhere in Africa' received 6%, South America received 7%, China received 3%, 'elsewhere in Asia' received 6%, and the Middle East received also 3% of renewable energy infrastructure investments

for a total amount of USD 41 million according to OECD data (2015a and 2015b). After 2012, four other equity commitments were made in 2014 amounting to a total of USD 36 million. This corresponds to an average availability of about USD 10 million per year. Energy efficiency grant flows could be considered a potential source of available finance for the instrument, if one considers lost equity similar to a grant. However, equity requires that public donors take on a more active role in managing their investment than when financing a project via a grant.

KEY TAKEAWAYS

In many emerging countries, the lack of availability of upfront investment finance and/or prioritization of energy efficiency, combined with the lack of availability of contractual models and capacity to structure investments constrain growth of a commercially sustainable energy efficiency investment market.

The goal of this instrument is to mobilize private equity capital at scale for energy efficiency financing in emerging economies via an energy efficiency equity fund. The fund will benefit from donor-backed equity capital to enhance the risk profile of energy efficiency investments. The mix of public equity, preferred returns to private investors, and investment-specific guarantees is able to lower the risk for private investors, while reducing the need for scarce concessional equity, enabling higher private leverage.

The instrument "Energy Efficiency Enabling Initiative" aligns with the Lab criteria in the following ways:

- **Innovative:** Energy efficiency funds are not new concepts. However the proposed instrument targets energy efficiency sectors that are not served by existing energy efficiency funds, and integrates de-risking instruments in an effective manner.
- **Catalytic:** The fund would provide a leverage ratio of 1:3 initially that would be increased over time as more private capital is mobilized, achieving a potential leverage of 1:18 if more financial instruments are involved (high scenario).
- **Transformative:** Through 2025 the expected investment in the central scenario would correspond to USD 600 USD million dollars invested at fund level between public and private sources and USD one billion of overall finance mobilized. If higher leverage is pursued at scale, the instrument could leverage investment of USD 3-9 billion between public and private sources, achieving annual emissions reductions of up to 5300 ktCO2. While establishing similar funds can also enable learning in the market, success of the fund will ultimately depend on whether the fund can overcome private investors' (particularly institutional investors) limited appetite for equity investment in developing countries and on the constraints represented by limited availability of equity from the public sector.
- **Actionable:** Setting up the fund may take up to two years to complete from a standing start with costs of approximately USD 1.2 million. The proponent expects 12-18 months for the set-up of a pilot fund in Latin America, benefiting from the experience and pipeline from the implementation of a previous public initiative in the region (MSEF 1).

Next steps for the instrument include finalization of the pilot design in a specific target area and mobilization of funds from donor countries. The role of The Lab could be to contribute to

the definition of the remaining details of the Initiative and execute a first pilot, facilitate the mobilization of funding contributions from donors and private equity investors, while supporting the dissemination of results. More specifically, Lab Members' financial support could feed into each of the three pillars as follows:

- 30% public equity finance in the pilot fund. As USD 5 million has been allocated by IDB, the fund could target 100-150 million, this would correspond to financing of USD 25-40 million;
- USD 30 million commitments for a guarantee facility backing the fund. Donor resources to support the facility would allow concessional pricing for guarantees and mobilize lenders in the market;
- USD 1-2 million is requested as grant to support technical assistance.

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ANNEX I - METHODOLOGY BOX

Country selection

In order to identify potential countries for the implementation of the instrument, we developed a **scoring system** based on macro-indicators summarizing the level of private investment attractiveness, energy efficiency investment attractiveness and energy efficiency market readiness. The scoring system was based on interviews with 8 fund managers.

- the **Private investment attractiveness index** is based on average share of domestic credit to private sector, foreign direct investment, lending interest rates, political risk scores, ease of doing business index and stability of currency;
- the **energy efficiency attractiveness index** is based on average annual energy consumption growth, share of population without access to electricity, share of energy imports, energy intensity levels, energy grid emissions factor, and electricity price average;
- the **energy efficiency market readiness index** is based on number of ESCOs operating in territory and related growth projections, number of policies supportive of energy efficiency, number of development finance institutions active on energy efficiency in the country.

Financial model

The financial model simulates the model simulating the possible configuration of a hypothetical USD 100 million fund. The model simulates:

- **Investment of a fund** (and associated returns) in individual SPVs operating in Mexico. Based on feedback retrieved from fund managers on the structure of a potential investment plan in Latin America, we assumed three types of SPVs each representing contract types and investment structures associated to specific energy efficiency technologies. The model also simulates equity refinancing through debt at individual SPVs level, by computing it as a function of expected cash flow structure after equity investment. We assume that investment in the portfolios of each SPV generated annual energy savings corresponding to 25% of invested capital, in line the 20-40% range achievable on average in Mexico (IDB and FIRA, 2013).
- **Waterfall distribution** of returns from the fund to different investors' classes until the end of the fund period. The first group (Class A) includes private investors (limited partners), investing 70% of capital in the fund and benefiting of a 10% preferred annual repayment hurdle. The second group (Class B) includes public investors, committing 30% of finance to the fund's equity. 20% of revenues are also distributed to the general partner according to the performance of the fund after repayment of the hurdle rate for the investors. Base case scenario allows for an expected return of 15% for investors.
- Impact of uncovered **energy prices uncertainty, credit** and **currency risk** on the individual SPVs. Currency risk and uncertainty in energy prices were calculated looking at 10 year trends (SENER, 2015), payment default rates were instead calculated using as a proxy sector-specific default rates for loan repayments in Mexico (Batiz-Zuk, et al., 2009), identified as a potential target for the implementation of a pilot in Latin America. Risk distributions were used to generate 1000 scenarios on potential returns for the projects.
- Coverage of risk impacting on equity through **guarantees** targeting 80% of the investment in a project, beyond the initial 20% loss, which would be borne by the equity investor.

Estimates of instrument's potential

For estimating the replication and scaling up potential of the instrument by 2025 in the central scenario we assumed an average size of funds of USD 100 million, with a USD 20 million annual commitment of public equity from donors (doubling with respect last 10-year values), an average public-private share in the fund of 30-70, leverage of 30% debt (resulting from model estimates) and 20% equity at project level. Average electricity prices of 0.165 USD/kWh and grid emissions factors of ktCO2/GWh are based on averages for the countries identified from our mapping exercise. The instrument's potential under the low and high scenario is calculated using low and high ranges for each of the mentioned figures.

ANNEX II – STRUCTURE OF PILOT COMPONENTS

Based on documentation shared by the Inter-American Development Bank between the 10th and 15th of June. The mechanism details are not yet final and inputs from public and private stakeholder are still being considered with the purpose to best align their expectations.

PILLAR I - STRUCTURE OF THE "FUND PILOT"

Indicative Terms

Target size	USD 100 – 150 million
Manager	TBD
Term	5 year investment period; total investment term of 12 years plus two 1-year extensions
Subscriptions	Minimum US$ 1.0 million
Start-up Expenses	1.0% of committed capital paid at first close
Indicative return:	10-15% net IRR
Management Fee	2% if Fund capitalization is US$ 100 million[a] 1.75% up to USD 150 million; 1.5% above USD 200 million.
Waterfall distribution	First, 100% of invested capital returned to the Private Sector LPs; Second, 100% of invested capital returned to Public Sector LPs; Third, preferred return of 5% to the Private Sector LPs; Fourth, preferred return of 5% to the Public Sector LPs; Fifth, GP catch-up of 20%; Sixth, 80%/20% Split.

a Assuming a 2% management fee in a USD 100 m fund, the distribution will be: total salaries USD 1.4 m; technical and DD USD 300'000; travel budget USD 100'000; administrative USD 50'000; marketing and events USD 50'000; accounting, legal, other USD 100'000.

Potential pipeline to date:

Country	Nr. of Projects	Project Type	Technology	Investment (USD)
Brazil	7	Commercial EE	A/C, lighting, SPV, water heating, LED lighting, solar water heating	9,825,000
Brazil	1	Commercial/Industrial EE	LED lighting, AC, motors, compressors	5,000,000
Brazil	1	Distributed generation	Solar Distributed Generation	1,000,000
Brazil	2	Hybrid SPV / Waste-to-energy	Hybrid pyrolysis and SPV	6,400,000
Brazil	2	Industrial EE	Membrane process, heat pumps	15,850,000
Brazil	1	Power Factor Correction	Installation of capacitors bank	150,000
Brazil	2	Waste-to-gas	LFG to pipeline (collection and treatment), Bio-digestion	15,000,000
Colombia	3	Industrial EE	High efficiency motors, speed motor control, new air compressor, Turbines, motor, catalyzers, Moto-generators	10,540,000
Costa Rica	1	Commercial EE	Chillers, boiler, fan & coils	1,100,000
Costa Rica	1	Solar Utility	Solar PV, inverters	4,000,000
Haiti	1	Distributed Generation	Solar PV	5,000,000
Mexico	1	Distributed Generation	Rooftop Solar PV	3,000,000
Mexico	1	Industrial EE	Parabolic panel solar water heating	200,000
Panama	2	Commercial EE	Energy efficiency, Chiller with heat recovery, LED lighting, laundry retrofit	1,078,000
Panama	1	Distributed Generation	Solar	3,000,000

Implementation pathway for the Fund

- June-July 2016: Selection of the Fund Manager and Due Diligence
- July-December 2016: Finalization of investment strategy; Start of fundraising period –Multilateral Investment Fund (MIF) acting as anchor investor. Expected approval of MIF's investment by October 2016[18]:
- February 2017: Negotiation of legal documents: Limited Partnership Agreement, Subscription Agreement, etc.
- 1Q 2017: First legal close with USD 50 million
- 2Q 2017: First Investment Committee and First Disbursement
- 1Q 2018: Second close with capitalization of USD 100 million
- 3Q 2018: Final close with target capitalization of USD 150 million

PILLAR II – PROJECT DE-RISKING FACILITY

The de-risking instruments - e.g. guarantees - provided by the Facility will be used to support projects in which counterparty risks or the quality of the collateral available would increase the financing costs to a level that would make the project no longer financially viable.

Product structure

Although different technical arrangements are possible and each opportunity will be evaluated on a transaction-by-transaction basis, the aim of the de-risking instruments will be to strengthen the borrower's senior lender credit rating and improve access to local currency loans. This will further strengthen the risk rating by lowering the currency risk embedded in hard currency financing. The majority of the guarantees are expected to be issued as partial credit guarantees to the senior lenders (typically by 25-50% of the loan). However, subordinated lenders (quasi-equity positions) can also be considered when necessary to ensure the financial viability of the project.

Expected size and mobilization

A facility of $30 million has been envisaged to support the pipeline generated by a fund of $100 million. Based on Inter-American Investment Corporation (IIC) experience in the provision of such guarantees, on average each dollar committed in the guarantee directly mobilized four dollars from lenders and, indirectly, around 8 dollars for the overall financing of projects (including equity and other capital sources).

Implementation

The IIC will house the facility, manage the funds, perform project due-diligence and deploy the de-risking instruments in the approved transactions. The IIC has extensive experience in managing this type of facilities and deploy such de-risking instruments. As an example, the IIC managed the $100 million IIC Climate and Clean Energy Facility that extends debt financing to energy efficiency, water efficiency and small-scale renewable energy generation in Latin America and the Caribbean. This facility is supported by a pool of US$30 million from a combination of donor resources - the Nordic Development Fund (NDF), the Clean Technology Fund (CTF), and the Self-Supply Renewable Energy Guarantee Program (SREP) - used to mitigate risk by providing partial guarantees over the facility's loans, which can increase credit profiles, lower collateral requirements, and extend concessional terms to the borrower.

18 Potential investors include Lab Members, Multilateral and Bilateral organizations (e.g. GEF, GCF, DEG, EIB, JICA, BIO, CABEI, Proparco, CAF, TRIODOS, OeEB, DANIDA, IFC), Other Impact investors (e.g. Calvert Foundation, Responsibility, Oikocredit), Private, Family Offices (e.g. HNWI, Environmental firms), etc. Donors from the public sector will have the option to enter the fund: (1) as equity investors, (2) providing grants to support the TA facility or (3) providing financing for the guarantee facility.

PILLAR III – TECHNICAL ASSISTANCE PACKAGE

Market development

On the energy services supply side, the technical assistance package will target energy service providers, including consulting, engineering and manufacturing firms looking to operate under ESCO models with Energy Performance Contracts (EPCs). This component includes:

- Capacity development on project identification and evaluation, structuring and sale of Energy Performance Contracts (EPCs), Measurement and Verification (M&V) protocols, technical standards and basic marketing techniques.
- Research, compilation and dissemination of contractual models and modalities that have been used successfully to address barriers in energy efficiency project origination and implementation across the selected geographies.
- Training on the implementation of the market awareness/demand side development component.

On the energy services demand side, the technical assistance activities will focus on developing a number of regional workshops – possibly offered by local energy service providers trained through the supply side program - targeting SMEs managerial and technical staff, aimed at raising awareness regarding the benefits of implementing good energy management systems and upgrading to more energy-efficient equipment.[19]

19 This component will be structured in programs, covering a specific sectoral and/or geographical scope (e.g. hotels in the Riviera Maya, Food&Beverage firms in Jamaica, etc). For each program a specific set of measurable goals will be established, including (i) number of people trained, (ii) of audits conducted, (iii) of dissemination workshop organized).

Knowledge management and dissemination

The objective of this component is to document, organize and communicate the results and lessons learned generated through the implementation of the Energy Efficiency Enabling Initiative. The following audiences would be targeted: (i) private sector companies that can benefit from either improved energy efficiency (demand side) or broaden their service offering in energy efficiency (supply side); (ii) financial institutions that want to develop new products targeting energy efficiency to SMEs; (iii) other civil society organizations, multilateral organizations and networks of experts, with experience or interest in developing similar projects across the LAC region; and (iv) governmental agencies within targeted countries which have mandates to promote market development for energy efficiency.

Execution and expected budget

TA activities will be executed and supervised by the Multilateral Investment Fund of the IDB. Specific activities to be implemented by technical consultants hired through competitive process based on qualifications, with a preference for local firms strengthened through the supply-side component (see above);

Timeline: 2 to 3 years.

Budget:

- USD 300k-400k/country for Colombia/ Mexico/Brazil/Peru (Colombia already has a package in the context of the CEET Project, so may not need it there)
- USD 200k-300k/country for Caribbean and CA countries
- USD 300-400k dissemination beyond LAC