

**Alternative Market Frameworks for ESCO Finance:**  
Designing instruments and institutional strategies for financing energy efficiency products in Brazil

A Report

*Sponsored by:*  
**The Charles Stewart Mott Foundation**

INEE

*Prepared by:*



IIEC



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# Introduction

With power in tight supply in Brazil, there is widespread interest in designing a financial institution that will help overcome the barriers to a thriving energy efficiency industry. The market for energy efficiency projects in the industrial and services sectors in Brazil is potentially large, on the order of US\$300 million per year, and this estimate does not consider the large associated market for small-scale (less than 10 MW) cogeneration projects. Currently only a very small part of this potential is being tapped—perhaps 5%.

While there are diverse factors inhibiting the energy efficiency services market, it is generally agreed that the main barrier is financial in nature. In particular, there is difficulty in accessing long-term credit to support the implementation of energy efficiency projects by energy services companies (ESCOs). Complicating this situation are the credit guarantees that are typically required for energy efficiency performance contracts. Another problem standing in the way of a thriving market is the comparatively small scale of individual energy efficiency projects. Their relatively high transaction costs diminish project returns, thereby decreasing the interest of financial agents. Finally, to complicate matters, there is a scarcity of projects being presented, and very few end-users are using the existing programs that promote ESCOs. More attempts to get financing for energy services projects by established end-users and ESCOs might give needed comfort to a banker pursuing a long-term strategy to serve this niche. Of course, without the availability of sufficient financial resources, ESCOs are unlikely to pursue energy efficiency projects using the performance-contracting model.

Recent developments in Brazil's energy market could contribute to overcoming this paradoxical situation.

- The ESCO sector is maturing. Reference models have been improved and adapted to the Brazilian market, including performance contracts and savings verification methodologies.
- There is increased interest from utilities to sector-oriented funds in investing risk capital into the ESCO market.
- The existence of new risk capital might also lead to the emergence of “aggregators” with stakes in individual energy efficiency projects. Bundling projects might reduce the transaction costs for lenders, who can also benefit from the specialized sectoral know-how of the aggregator.
- There is renewed interest in developing an insurance and/or guarantee mechanism to support ESCO project financing. (This effort is underway primarily as a result of a World Bank loan to Brazil for energy efficiency).

At the same time, the prospect of future difficulties in electricity supply is stimulating both business and government to seek smaller-scale energy solutions closer to the consumers. For example, Portarias 212 and 314 unleashed about 200 proposals for cogeneration project and the Federal Government is committed to reducing its electricity

consumption by 20%. These developments will definitely encourage the ESCO market in Brazil.

It is in this dynamic context that IIEC hosted a workshop on January 23, 2001 in Rio de Janeiro, Brazil to bring together diverse organizations that have a stake in the emerging, and important energy services market. Bankers, investors, fund managers, ESCOs, utilities, end use energy consumers and public agencies had an opportunity to discuss possible designs for financial institution tailored to promoting energy efficiency. Together these organizations hold the solution to Brazil's energy efficiency industry paradox. They explored the incentives and institutional frameworks that could succeed in encouraging bankers to lend to energy efficiency projects. In particular ESCOs, were finally able to suggest how such frameworks could encourage borrowers to take the risks necessary to finance and implement performance contracts.

Attendance at the workshop was strong across these groups, except in the case of the end user community. FIESP, the Industry Association from Sao Paulo State was present, but no others. (See Appendix 1 for a complete list of attendees.) Future work to develop the financing mechanism for ESCO projects will need to include a wider representation of end users, since their creditworthiness is critical to securing any loan for energy services.

The objective of the Workshop was to provide a forum where participants would have an opportunity to discuss the current difficulties and approaches to enhancing access to financing. The discussion included proposals for specific financial vehicles and their institutional relationships.

The intent of the workshop was to help interested private sector actors – especially banks, investors, and ESCOs – develop their strategies to exploit the untapped potential of the emerging ESCO market. In addition, IIEC hoped to help the government and public agencies such as BNDES and PROCEL prepare strategies to assist in the formation of this new market which promises to provide significant public benefits in the form of improved industrial competitiveness through energy efficiency, environmental benefits, and a reduced need for new generation sources.

This brief report has been prepared based on the discussions at the workshop. The paper will be disseminated among workshop participants, government agencies and multilateral institutions, and to other stakeholders interested in promoting the ESCO market in Brazil.

It is the hope that the Workshop, this paper, and any follow up events can contribute to the programs being developed and underway by ABESCO, INEE, USAID, PROCEL and other groups such as the Technical Committee for Energy Efficiency of the CNPE.

# Opening Questions:

## Questions that will Drive the Design of an ESCO Market Framework

The designers of the workshop carefully reviewed the status and development of the Brazilian ESCO marketplace. The designers believed that once the framework that energy efficiency industry stakeholders are currently operating under was well understood and clearly articulated, then steps could be taken to improve that framework to substantially enhance the level of investment in energy efficiency.

It has been tempting to try to mold the Brazilian ESCO market following the North America's successful model, however it was clear to the Workshop participants that Brazil's unique market conditions call for a distinctive market framework. Of course, there are still lessons that were learned in during the 20-year industry history in North America that can be transferred to Brazil.

Brazil has all the pieces necessary for a thriving ESCO industry. Brazil has companies that can act, and have acted, as energy services companies (see the definition of ESCOs below). There are commercial banks such as Banco do Brasil and Unibanco that have expressed interest in supporting the ESCO market. Brazil's development bank, BNDES, has shown interest in and could lead an international effort to finance energy service companies. Brazilian firms are beginning to have more access to risk capital through the newly formed Renewable Energy and Energy Efficiency Fund (REEF) and the emerging Clean Tech Fund. Brazil's utility rates are high enough to support energy efficiency projects and are likely to rise to reflect increased demand and dwindling supply. In efforts to manage electricity and gas costs while enhancing energy reliability industrial demand for energy services is growing. International development agencies are willing to provide credit enhancement guarantees.

Despite the existence of all of these necessary market elements, there still is not a flourishing ESCO market. In order to determine why this is the case the Workshop explored two sets of questions. The idea was that the answers to these questions would help to improve upon the existing ESCO market framework, increasing the investment in energy efficiency.

### Questions About Overcoming Market Barriers

- What are the key problems or barriers to the development of a mature energy efficiency services industry in Brazil?
- What can energy services companies do to overcome these barriers?
- What models or financing mechanisms can banks create to overcome these barriers? Can banks in Brazil implement them?
- What does the government need to do in the form of regulatory policy to assist banks and energy services companies in overcoming these barriers?
- What can customers do to overcome the market barriers?

- What can other parties such as development agencies, institutions (e.g. PROCEL) or non-governmental organizations (NGOs) do, that they are not doing, to overcome these barriers?

### Market-Building Questions

How do we structure the market framework to promote equity investments and long-term credit to the energy services industry?

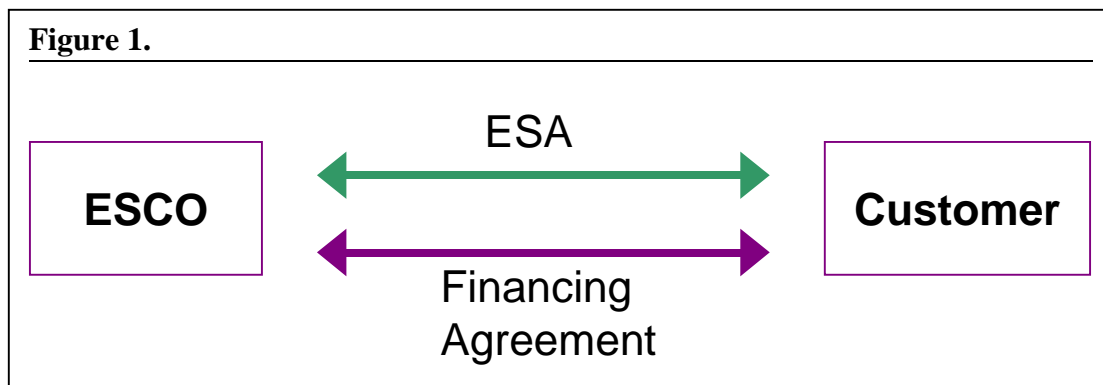
- What can the banks do to move development of the energy efficiency market forward?
- What can ESCOs do?
- What can venture capitalists do?
- What can government do?
- What can NGOs, and other institutions do?
- What can customers (end-users) do?

## What is an Energy Services Company?

During the Workshop Tom Stoner of Econergy International Corporation provided the participants with a definition for an Energy Services Company. The definition used over the course of the workshop is below.

*An ESCO provides customers with a means to reduce their energy use and demand through performance based contracting. The ESCO serves as a general contractor using standard overhead and profit margins and is capable of financing and guaranteeing its performance if it serves as a design/builder. These are the minimum requirements necessary for an energy efficiency company to be an ESCO. What then is missing for the Brazilian ESCO?*

The ESCO minimizes the risk to the customer of inflated construction costs and under-achieved savings. The firm provides maintenance services, if necessary and required by the customer. The challenge for the ESCO is working with the customer to overcome their concerns regarding value of service and amount of their payment. It is the ability of the ESCO to move with the customer and to satisfy their concerns that defines the ESCO's success. Figure 1 below demonstrates the nature of the transaction between the ESCO and the customer. The ESCO typically promises to generate energy efficiency and



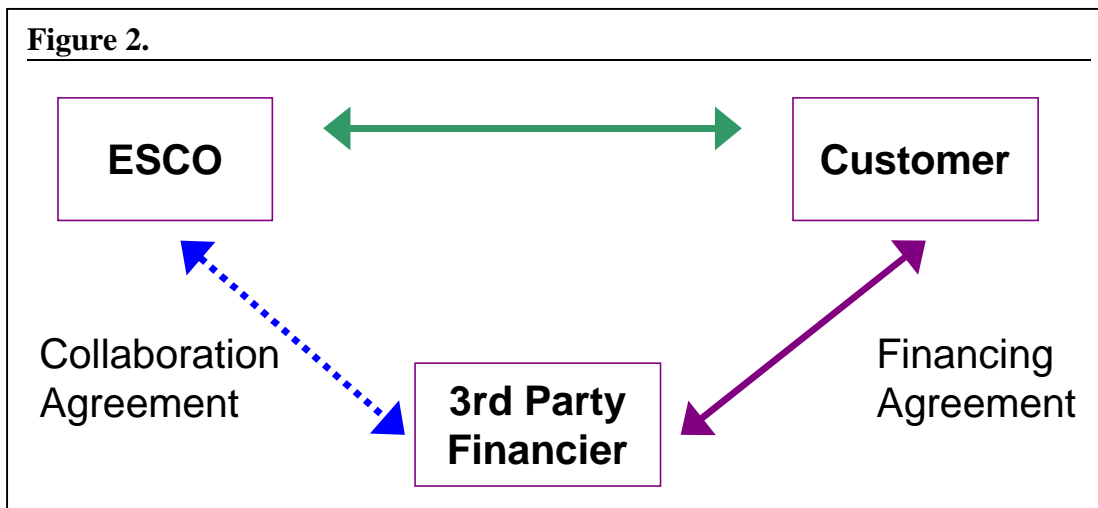
cost savings through its ESA. The customer commits to a payment schedule.

The fundamental concern the ESCO addresses is the issue of performance. Can the ESCO design and install a system that will enhance the overall design and purpose of the facility being evaluated? Can the ESCO install the system and maintain the system under the proposed design? Will the system actually yield the proposed results or savings? The greater the capacity of the ESCO to contractually alleviate these concerns the more likely the ESCO will be successful in engaging the customer in an energy services performance contracting project.

The ultimate objective of the ESCO is to provide performance-based financing. When the ESCO's payments are contingent upon the realization of energy cost savings, then the vast majority of customer objections can be quickly and decisively eliminated. Contingent-based payments require that the system be installed according to design, alleviating the issue of cost overruns for the customer. This places the performance of the system squarely on the shoulders of the ESCO. By making it possible for the ESCO to provide these contractual rights to the customer, the market framework is set for the ESCO to be able to move sufficiently to build the industry and to be adequately interesting for the customer and possibly the banks to partake.

## **What Barriers do ESCOs and Banks Face?**

The primary benefit of energy efficiency (EE) projects is that they can be paid for through a portion of energy savings in an arrangement known as performance contracting. This way of looking at energy efficiency financing holds true whether an end-user is implementing the project independently or contracting the design and implementation of the project through an ESCO. The benefits of evaluating an energy efficiency project from a financial perspective are that this allows for third party financing and makes it possible to borrow against future savings to pay for the energy efficiency measures. In Figure 2, below, the role of the lending institution is clear. That role is to provide the credit for the transaction between the ESCO and the customer or "end-user" that benefits from the services provided by the ESCO.



There are, however, a number of specific market barriers to “financing” energy efficiency projects that both the ESCO and their banks face. The main obstacles identified in the Brazilian market are listed below.

#### **Barrier #1 Restrictions on Leasing**

Financial security (energy equipment or assets) cannot be clearly identified, as all plant and machinery may be covered under an existing financing arrangement. Hence it is difficult to secure the rights to remove EE equipment in the case of default. (In the United States there are separate filings of claims on assets such as Uniform Commercial Code filings).

#### **Barrier #2 Differentiating Savings “Revenue Stream” from Other Cash Flow**

Although energy savings generate new internal cash flow for the customer, these savings cannot be clearly differentiated from main cash flow. Thus, banks holding loans for existing equipment continue to benefit from the increased cash generated for security, while the EE project investor or financier does not necessarily benefit from the new cash flow generated by energy savings.

#### **Barriers #3 Small Project Size**

The average energy efficiency project size is typically in the range of US\$100,000 to US\$500,000. Due-diligence requirements from a project financing perspective create relatively high transaction costs, overburdening the project and thus jeopardizing its financial viability.

#### **Barrier #4 Lack of Sufficient Market Awareness on Demand and Supply Sides**

There is a general lack of awareness among financial intermediaries and commercial bankers regarding the available mechanisms for EE project structuring and financing. In addition, purchasers of efficiency, the end users, are put off by the complexity of the

process and by lack of understanding of performance contracting mechanisms for purchasing efficiency.

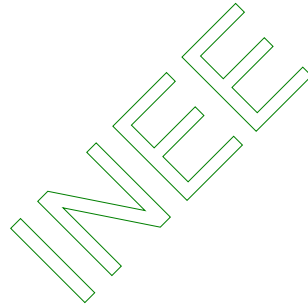
**Barrier #5 Legalisms and Pace of Project Implementation**

The legal process for implementing project tends to be overly complex and the pace, extremely slow. Not only is it difficult to secure the rights for EE equipment installation, it is also difficult to collect payment in the event of a dispute over performance, whether it is merited or not. This adds to the complexity of using ‘project financing.’

**Barrier #6 No Risk Allocation Framework**

The absence of an well-accepted risk allocation framework hinders projects’ financibility. Neither end-users nor ESCOs have adequate experience negotiating a workable energy services agreement.

Two presentations were made during the Workshop on two different proposals that have been made to address some specific issues in Brazil. These two proposals are summarized below.



# Initial Proposals – Workshop Morning Session

## Suggestion #1: The Super ESCO Model

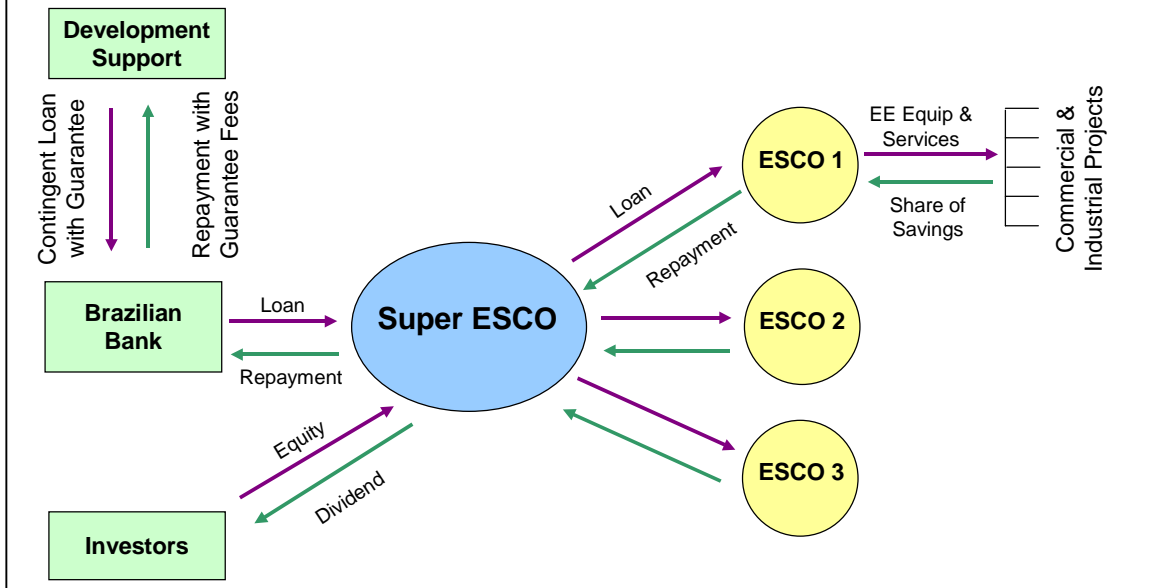
The Super ESCO is the name of the proposal to develop a leasing or financial company under Brazilian law to provide ESCOs and/or customers of ESCOs with energy efficiency equipment leases. The Brazilian constitution limits the ability of a “service” company to invest in project finance. Leasing is a financial function and is limited to financial corporations, which are regulated by the Brazilian Central Bank. Only certified leasing companies can lease and these companies can only be in the business of leasing. The Super ESCO would be set up as a leasing company and provide financing to ESCOs who could structure a payment model with the end-user based upon performance. The ESCO could then match the size and timing of its payments from the customer with the payments it owes to the Super ESCO.

There are essentially two types of ESCOs emerging in Brazil. There are approximately one dozen independent ESCOs which typically work with customers to design and install energy efficiency projects on a fee-for-service basis. There are a handful of examples where these ESCOs have used their own equity or have borrowed from non-institutional lenders to finance energy efficiency projects using a shared savings or equipment rental contracting arrangement. The second ESCO type includes utility subsidiaries that were set up in reaction to customer retention pressure by the parent utility operator. The emergence of this type of ESCO presents certain challenges to both the customer (who might be looking for independence) and to the ESCO who might be looking at stiff or unfair competition.

The Super ESCO will provide for analysis of projects by ESCO specialists and thus will minimize default with the collateral of the ESCO. The role of the Super ESCO will play out as follows. The Super ESCO will first review the engineering calculations to verify the estimated savings. It will then evaluate the ESCO’s client, whose financing position will be secured by the assumption of the rights of the energy service agreement between the customer and the ESCO by the Super ESCO in the event of default by the ESCO. (See Figure 3 for an example of the Super ESCO structure and its relationship to the customer and financing sources.) Examples of the Super ESCO model do exist in the United States. EUA Cogenex, an American ESCO, established the FLEXIFUND that purchased energy service agreements from independent ESCOs pricing the performance contracts by present valuing the anticipated payment stream from the customer. Energy Capital Partners in Boston, Massachusetts offered similar services to ESCOs and eventually ECP was sold to ABB Capital in 1999.

The Super ESCO will build its balance sheet for evaluation by lending institutions by raising equity capital. This way it will build up an equity base on which to support its debt, giving the lending institution comfort that adequate balance sheet and debt coverage

**Figure 3.**



ratios can be maintained over the life the Super ESCO. The investor in the Super ESCO will receive a risk-adjusted rate of return.

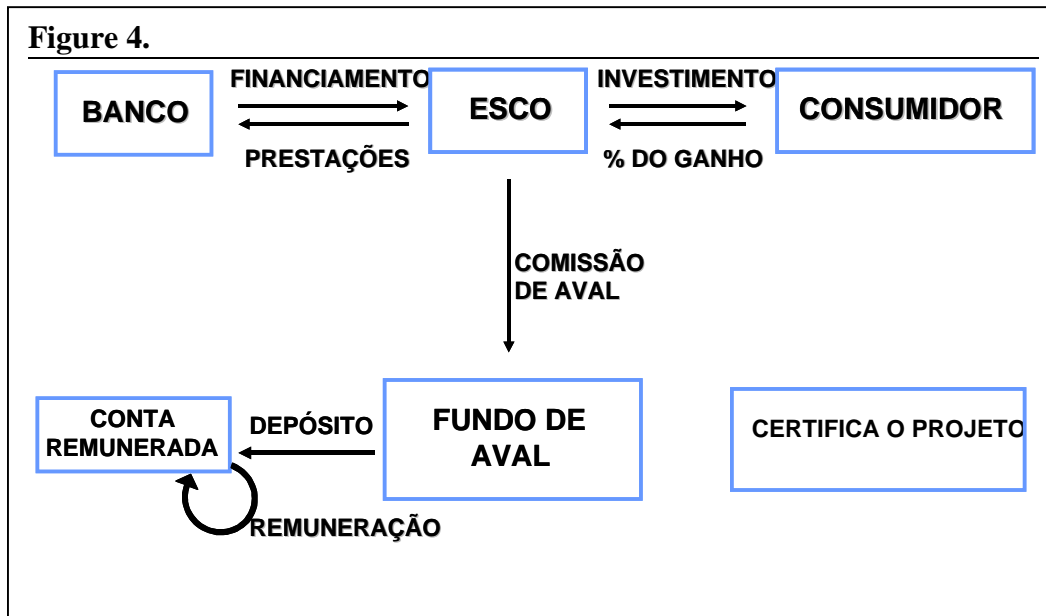
It is anticipated that the Super ESCO, regardless of the infusion of equity, will still require guarantees for credit. Adequate guarantees do not as yet exist (see below).

The ultimate benefit of the Super ESCO is that transaction costs would be mitigated by pooling projects and creating an adequate size to cause financing to occur.

## **Suggestion #2: The Guarantee Fund**

Fundo de Aval para Projetos de Eficiencia Energetica is the name of the proposal to develop a guarantee fund to reduce the cost of debt financing for ESCOs and their customers. The impetus behind the Fundo de Aval proposal is the need for an enabling mechanism to support the ESCOs' capital structure so those companies will be able to take advantage of the great potential of the market. The second reason for creating the Fundo de Aval is that banks in Brazil simply will not accept the receivables of an energy services performance contract as satisfactory collateral.

There are other "guarantee funds" available in Brazil, such as the FGPC, that have been tapped to support ESCO projects. However, the FGPC is still perceived by banks and others as excessively risky. FAMPE, another fund, is an alternative, but there are ceilings limiting the guarantee amount. Those limits make this alternative inadequate in light of the complexities of energy efficiency financing because it will not cover all the required financing.



Similar to the Super ESCO suggestion, the tapping into the Fundo de Aval para Projetos de Eficiencia Energetica will also require an analysis of projects by specialists. This mechanism, along with the collateral of the SuperESCO, will minimize default. (See Figure 4 for a diagram of the Fundo de Aval structure relative to the end-user or customer and the individual energy services companies).

The investors in the Guarantee Fund would have to consider their capital infusion as a grant or as a loan with a small or variable return. It is possible that the Guarantee Fund could provide a mix of shareholder investments.

ESCOs tapping the Guarantee Fund would have to pay an annual commission to the Fund based upon the balance of “guarantee coverage.” The annual commission would be an additional interest charge to the ESCO and require an adjustment of the savings split paid by the customer to the ESCO to cover this cost of service.

# Results of the Workshop – Afternoon Session

The second part of the Workshop was designed to encourage participant input on the question of what specific actions specific actors might take to improve the market framework for ESCO financing and then to vote on the presented ideas. In this section we summarize the results (see Appendix 2 for a complete listing of the ideas presented and participants' responses to them.).

First, workshop participants were asked to consider five specific questions in small groups or on their own. They were:

- What can governments do to facilitate the development of the ESCO market on the credit side, equity side?
- What can banks do to facilitate the development of the ESCO market on the credit side or equity side?
- What can ESCOs do to facilitate the development of the ESCO market on the credit side or on the equity side?
- What can consumers do to facilitate the development of the ESCO market on the credit side or on the equity side?
- What can NGOs and other organizations do to facilitate the development of the ESCO market on the credit or equity side?

Once the workshop attendees had thought about their own answers to these questions, they were invited to write them down on 8 large sheets at the front of the room. Once all the ideas on the front board had been documented and clarified, each person was given counters in two colors. 10 counters represented a positive vote for an idea and 5 counters represented a negative response to an idea. People were asked to put blue counters on the ideas that most appealed to them, and, at the same time, identify with red counters the ideas with which they were least impressed. The only other rule was that the 10 positive votes had to be split between at least two proposals. There were no restrictions governing the distribution of the negative votes.

This summary is structured around the top three suggestions for actions each stakeholder group (government, banks, ESCOs and energy efficiency consumers) can take to improve the market for energy efficiency services in Brazil. The data from which we pulled these can be found in Appendix 2. The information gleaned from that data is elaborated on in this section and recommendations based on the data can be found in the last section, Next Steps.

An important general conclusion emerged from this exercise - enhancing ESCO financing does not depend only on one or two measures. There is no panacea. There must be strengthening in various areas and involving different stakeholders. To a considerable extent, the difficulty in financing is a symptom of other weaknesses in an incipient market

## **Government -- Aggregation of Demand**

1. Organize the procurement process for the mandated 20% energy efficiency improvement in Federal buildings in order to encourage performance contracting with ESCOs.
2. Create the initial conditions necessary to encourage the market in the various sectors through agreements with associations, federations and in partnership with ABESCO.
3. Use of the 0,25% wire charge on electricity distribution utilities (regulated by ANEEL) to promote the ESCO industry.

The three measures here focus mostly on the role of government in creating demand for energy services. In January 2000, legislation was passed that stipulated a reduction of 20% of the energy consumption of Federal buildings. This program could serve to provide a deep and large customer segment for ESCO services, which, would help to overcome the complaint by banks that not enough projects are being submitted. The resulting demand for energy efficiency project finance would encourage banks to develop expertise in this type of financing. The normalization of standard contracts and procedures for verification would add credibility to these business instruments. Both in the United States and Canada, Federal buildings programs have played a major role in consolidating the ESCO industry.

For this to occur, however, procurement and budgeting practices must be adapted and managers of the facilities educated and encouraged to use these instruments.

The other two avenues Workshop participants encouraged government to pursue were largely demand focused as well, though one left open the possibility for government involvement on the supply side. One suggestion was that government work to establish alliances with industry associations in order to encourage sector-wide approaches to energy efficiency. The specific objectives of these alliances were not laid out. Possibilities include, however, everything from targeted fiscal incentives for efficiency projects, to research and development support for the associations for exploration of sector-specific efficiency technologies and processes.

Finally, the Workshop discussed legal issues on how the 0,25% wire charge on electricity distribution utilities (regulated by ANEEL) might be used to promote the ESCO industry. The question arose as to whether a utility, through an energy services subsidiary, could sell energy services to a third party (or even make efficiency investments itself) and then count the up-front investments of these projects toward the wire charge requirement. There is follow-up work that needs to be done to determine exactly what the current legal status of the fund allows, and then to consider how those rules might be changed to provide maximum incentive for further development of the energy efficiency market in the country.

## **Banks – Enable Financing**

1. Create guarantee funds that will permit ESCO financing using receivables as a guarantee from the ESCO side.
2. Create technical capacity to evaluate and analyze projects, thereby creating financial products that work for the ESCO market.
3. Put equity into ESCOs through a technology development fund.

There are three fundamental things that banks can do to help stimulate the market for energy services in Brazil. All of them have to do with getting serious about investing in energy services, something that will require banks to become very familiar with how ESCOs work. It is not realistic, for example, for banks to expect ESCOs, as service providers, to ever have the assets themselves to back-up the size of the loans they ask for. It may be possible, however, once banks create the internal capacity to analyze projects, for them to create specialized vehicles for financing ESCOs. Project financing (i.e. using receivables on a specific project as a guarantee for the loan) is only of interest to banks with respect to projects that are much larger than typical ESCO projects. In spite of this observation made by participants from banks involved in project finance, there may be a way to pool projects into funds that allow such financing to occur. Rather than talk at cross purposes with ESCOs about the feasibility of project financing for energy services, banks would do the industry a service by recognizing the special financing requirements of this services industry and working to create solutions accordingly.

Part of recognizing the special needs of the ESCO industry will involve willingness to engage with other public and private sector providers of equity and credit to finance ESCO projects. This means, for example, if a guarantee fund were created by another bank, or coalition of other actors, banks would have to be willing to accept that backing of the efficiency market as a guarantee for the projects. This willingness will be facilitated in proportion to the understanding bankers have of the specialized needs of ESCOs.

Finally, banks could further support the ESCO industry by making their contributions to the technology R & D fund directly.

## **ESCOs – ESCO Sell Thyself**

1. Project certification and ESCO accreditation.
2. Develop high quality, complete, and viable business plans with at least 3 years of financial projections
3. Adopt a strategy to securitize contracts in order to improve the credit position.

The most important thing ESCO's can do is to build trust in their business model. There are several points along the ESCO "production" chain at which the links are weak. The weakness in the links is largely due to the newness of the Brazilian ESCO business

model, but there are also points of legitimate concern that ESCO's themselves can take steps to mitigate.

First, banks and customers alike need to be sure that ESCOs can deliver the savings they promise in the projects they design. While measurement and verification (M&V) is an important part of this process (and something which Workshop participants felt that third party actors should do) M&V takes place after the investment decisions are made on the part of banks and consumers. Project certification and ESCO accreditation, however, are ways of ensuring that the general technical capabilities of the ESCO, and the design of particular projects have been reviewed and approved by a third party *before* investment decisions are made. ESCO submission to the accreditation and certification body, specially designed for this purpose, would give consumers and banks an additional layer of authority to back up the trust they have in an ESCO's technical assessments. It would not matter whether this body was housed within ABESCO, or was a private sector company fulfilling a role similar to United Laboratories in the product market in the United States.

Another element that will enhance the trust that is vital to the smooth functioning of any market is the longevity of ESCOs. Since the line of business they are involved in is relatively new, anything that can be done to convince investors, on the credit or equity side, that the company is here to stay is desirable. It is in that light that the suggestion that ESCOs make real efforts to develop reliable business plans was made.

Lastly, ESCOs might take steps to securitize the contracts they enter into. On this front, however, the same factors that apply to financing will hold. Investors won't buy bonds that securitize contracts unless they believe in the fundamental soundness of an ESCO's business plans. If, because of the newness of the business model, government guarantees have to be used initially to encourage others to invest in ESCO companies and projects, that would be acceptable. In fact, using public sector guarantors was a possibility raised in the context of steps that banks could take above. Ultimately, however, the unwillingness of the private sector to serve as ultimate guarantors of ESCO projects must be overcome if the market is to be sustainable.

## **Consumers – Make Efficiency, Economic and Technical, a Priority**

1. Improve access to information, association action, federations, cooperatives, etc.
2. Total energy sales have two parts, the supply and demand side. Not enough attention has been given to the demand side. Different consumer groups—federal customers, industries, SMEs and individuals—have different demand needs. To the extent that customers can aggregate their voices vis a vis the energy services market, they have more possibility of getting their needs met in the market.
3. Form associations between ESCOs and consumers for special purpose corporations that would bring equity to the projects.

One of the fundamental barriers to financing energy efficiency projects is their size relative to other projects banks are asked to finance. Making matters worse is the fact that ESCOs do not have the tangible assets they need to collateralize their loans. Project aggregation might serve to mitigate both of these barriers to financing. If banks were to lend to an industry association to finance a pool of energy efficiency projects, the concerns regarding project size and risk would be alleviated, especially in the event that the lender agreed to serve as a guarantor. In addition, aggregation of projects by industry sector under the auspices of trade associations will sharpen the “voice of efficiency” in the policy and financial arenas. The suggestion that consumers make information available regarding their successful energy efficiency projects increases the likelihood that those projects will be replicated.

Beyond aggregation, however, there are other possibilities for ESCO/consumer collaboration that might make financing easier to come by. The second suggestion that came up in the Workshop is that the needs of the demand side buyers of energy efficiency (the consumers) must be considered in the design of a financial facility. The point was made at the Workshop that most of the focus has been on how to enhance the ability on the supply side for the ESCOs to provide their services. Clearly, however, for a market to function the demand side interest must be there as well. Any plan to support the ESCO market in Brazil must address that reality.

Another suggestion similar to project aggregation and customer involvement was that customers and ESCOs collaborate to find equity for their projects. The structure of such collaboration, however, was not defined at the Workshop. One possibility, however, could be that a coalition of consumers could use their collective balance sheets to secure financing, either on the debt or equity side, and then put out an RFP to hire an ESCO that would provide energy services using that line of credit/equity. There is definitely room for creativity on how to most effectively involve the consumer in stimulating the market for energy efficiency services.

## **NGOs and Other Institutions – Honest Brokers**

1. Sponsor the creation of guarantee funds and build stakeholder support and awareness for them with a focus on consumer councils.
2. Organize access to and forums for development funds.
3. Assist in setting rules for accreditation, certification and monitoring and verification.

The most important thing participants in the Workshop thought NGOs could do was encourage the creation of government/private sector sponsored guarantee funds to protect banks against default on loans for energy efficiency projects. The following reasons were given for why the NGO community is uniquely positioned to play this role:

- NGO’s are the one group in society that can bridge the gap between the long-term policy interests of the government and the shorter-term economic interests of the

private sector. These divergent interests may be a cause of some of the market failures of the energy efficiency market.

- Because transparent mission statements define NGO interests, both government and the private sector can have confidence in the NGO's role as an honest broker.

As explained above, energy efficiency projects are difficult to finance because ESCO's seldom have balance sheets strong enough to convince the banks of their ability to pay. In addition, projects dependent on the "revenue stream" created through avoided energy costs are vulnerable not only to the risk of default by the ESCOs themselves, but also to default by the final guarantor of the project, the consumer of the energy efficiency.

An NGO that can serve as an honest broker between government, the private sector, and these purchasers of energy efficiency can help ensure that the interests of each are taken into consideration in the design of a guarantee fund. In turn, the guarantee fund will ensure that there is buy-in up-front from all its participants. This buy-in ensures that the fund's design is sustainable, which is important to meet the long-term goal of developing a sustainable market for energy efficiency services.

A second role Workshop participants envisioned for NGOs was that of "informational broker" with respect to available multilateral and bilateral funds to support fledgling ESCO markets. As the guarantee fund is designed, for example, it may be that several different already existing sources of support can be aggregated to provide a mechanism for financing efficiency in Brazil. Again, as an objective party, an NGO can liaison among existing sources of support to encourage them to work together toward the goal of energy efficiency financing.

Finally, NGO's can act to foment the energy services market by setting up a facility capable of certifying the results of the energy savings specific energy projects have achieved. Third party M&V verification will reassure buyers and sellers of energy efficiency, not to mention the banks which finance their undertakings, that the projects perform as promised by the ESCO. The third party's service will greatly reduce the possibility of disagreement about the achieved savings, thereby alleviating risk. In order to maintain the mutual trust that is crucial to the success of the M&V process, the certification agency must be completely disinterested in anything except the actual amount of energy that is saved through the project in question.

# Next Steps

There are three broad areas for action that, if taken, would have the most significant impact upon the development of the ESCO industry Brazil. These three lines of action are necessary not only to leverage public funds, but also to stimulate the flow of private investment into the ESCO industry. They are:

## **1. Specialized Guarantee Fund for ESCOs**

A specialized Guarantee Fund for ESCOs and their energy efficiency projects would serve as a catalyst for the emergence and growth of the ESCO industry. There are other guarantee funds in Brazil but these are widely viewed as inadequate and ill prepared to serve the ESCO industry. A specialized Guarantee Fund, on the other hand, could develop the in-house capability to assess the technical and financial risk of the projects in addition to developing standardized contracting procedures to streamline the process. This would be beneficial to the ESCOs and to ESCO customers as well as to the Guarantee Fund itself. In order for the Fund to be successful, it is important that banks, government (most likely through PROCEL and its World Bank program, perhaps complemented by USAID and its Development Credit Authority), and ESCOs and their customers are actively involved in its creation. That involvement is the only way to ensure the Fund meets the needs of the stakeholders and is sensitive to market requirements.

## **2. ESCO Accreditation and Project Certification**

Work should be undertaken to develop a program that provides accreditation to those ESCOs that have earned it. The ESCO could be accredited by an organization such as ABESCO, similar to the method used in the United States by a national ESCO association there. As part of the accreditation of firms, it will be important to have professional certification of professionals as well.

Additionally, a reputable organization or public body should be chosen to certify the energy efficiency projects themselves. Certification of projects could be determined by a variety of standards such as adherence to international monitoring and verification protocols. The key actors necessary to successfully creating such an accreditation and certification program would include NGOs, ESCOs (most likely through ABESCO) and possible government involvement through PROCEL.

## **3. Stimulate Demand for Energy Efficiency Services**

Through recent legislative actions, government programs are underway in Brazil that are well adapted in principle to stimulate demand for ESCO services in the public sector, However, more support will be needed to prepare standard procedures and orient the

relevant managers in the public sector. It is equally important that private sector demand stimulation initiatives are undertaken, such as through industrial groups. A pioneering example of this kind of effort is the CNI (the National Confederation of Industries), which has spent significant resources developing pilot ESCO projects in the industrial sector. These efforts could be further supported and coordinated with other industry Federations and Associations. The stakeholders whose efforts are necessary to stimulate demand for ESCO services include the government, NGOs, and the ESCOs themselves.

Each actor may have to do things on their own initiative, since there is no one particular actor who will define the “rules of the game.” The recent World Bank loan to Brazil for energy efficiency projects creates a significant opportunity that can be used to foment the ESCO industry in Brazil. The more PROCEL, as the manager of the loan funds, can coordinate and rely upon the other actors in the ESCO industry, the more dynamic the framework for building a thriving ESCO industry. Ultimately, independent actions, to be most effective, will need to be coordinated with the steps other actors are taking so that they will be complementary to one another.

Stakeholders interested in promoting the ESCO market in Brazil need to work together to accomplish the tasks they themselves set for themselves at the IIEC workshop. Those actors that should be involved in each of those tasks are summarized in the chart below. They are numbered 1-5 according to the degree to which it made sense to workshop participants that they be involved in each initiative.

Step	Govt.	Banks	ESCOs	Consumers	NGOs
1. Design Fund	5	1	2	3	4
2a. Accredited ESCOs	4	3	2	5	1
2b. Certify ESCOs	5	2	3	4	1
3. Aggregate Demand	2	5	3	1	4

For IIEC’s part, we propose to follow up on our late January initiative with two workshops. The first will be a meeting that focuses on the specifics of the design of the guarantee fund. That meeting will include banks, equity funds, multilateral institutions like the IDB/BRD, MIF, the IFC, bilateral institutions like AID’s DCA, and more end-use consumers. Although the end use consumers will not be using the fund directly, they will need to weigh in on whether the premium the ESCOs pay for the guarantee is an additional cost they would be willing to have passed through to them. If the final guarantors of the loan are not interested in paying the costs of getting it, then the most carefully designed guarantee mechanism will not be successful at stimulating the ESCO market. It is true that, according to the feedback from the workshop, NGO’s should not take the lead in running the guarantee fund. Because **the design** of such a fund requires collaboration among several of the players, however, an NGO, as an uninterested intermediary, is the one actor that can encourage the type of cooperation needed in the

design of a successful fund. It is for that reason that we think it is appropriate and necessary that we sponsor this additional workshop.

Finally, ESCO market stakeholders also tapped NGOs as the most appropriate actor for setting up an accreditation and certification institution for ESCOs. Who ends up providing this function, however, is not the most important thing. The most important thing is that the momentum the January workshop, combined with additional follow-on efforts of a myriad of stakeholders in the ESCO services market in Brazil, becomes a platform from which meaningful initiatives can be launched that make energy efficiency an important and productive leg of the country's energy policy.

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## Appendix 1: Meeting Participants

<b>Name</b>	<b>Company/Organization</b>	<b>Name</b>	<b>Company/Organization</b>
Nitin Pandit	IIEC	Eduardo Moreno	ABESCO
Elisa Owen	IIEC	Di Magalhais	ABESCO
Denise Knight	IIEC	Ricardo Vaz	Servtec ESCO
Nelson Albuquerque	INEE	Tom Stoner	Econergy International
Andre Guimaraes	A2R	Daniel Witcher Junior	EIT
Jucara Reis	Hypovereins Bank	Alan Douglas Poole	INEE
Fernando C.S. Milanez	INEE	Sergio A Fonseca Pinho	BBL
Nelson Malizia Alves	INEE	Mariangel Lima	Consulado do Canada
Rui Mano	Kema Consulting/X Energy	Jaqueline BN Poole	Ecosecurities
Ademar Cury Da Silva	Escoelectric	Pedro Roberto Cauvilla	FIESP
Luis Roberto de Bruel	CR Almeida	Jose Fernando S. Pinto	Light
Nuno Cunha E Silva	Ecosecurities	Luiz Felipe Negreiros DE SA	Light
Augusto Juca	USAID		
Fernando Antonio Lopes	Procel		
Simone Barbosa Nigii	Procel		
Frederick Day	Global MVO		
Osorio De Brito	INEE		
Abrahaio Oigman	Solvar Cons Impr		
Walsey Magalhaes	BNDES		
Paulo Roberto Goncalves	BNDES		
Maria Luiza Viana Lisboa	Procel		
Gerson Sampaio Filho	Teknergia		
Waldyr Seruelin Filho			

## Appendix 2: Documentation of Voting and Suggestions

Entity	Activity	Credit	Equity	Yes Votes	No Votes
NGOs and other organizations	Continuous Training	X	X	2	
	Organize access and forums for development funds	X	X	9	
	Organize access to venture capital funds		X	1	
	Include energy conservation on the “soap opera at 8”			1	13
	Setting rules for accreditation certification monitoring and verification	X		9	
	Sponsor the creation of guarantee funds and build stakeholder support and awareness for them with a focus on consumer councils			10	1
	Build technical capacity of Escos for credit analysis of non-financial institutions	X		3	
Customers	Association between ESCOs and consumers for special purpose corporations that would bring equity to the projects		X	6	
	Access to information, association action, federations, cooperatives, etc.	X	X	9	
	Facility access	X	X	1	
	Promotion of successes			2	
	Allocate resources to energy efficiency R and D				
	Cooperative loan for the creation of a performance contract model specifying the technical responsibility of the ESCO.		X	2	
	Total sales have two parts, the supply and demand side. We have focused only on the supply side without recognizing the demand side. Needs are different for federal	X	X	7	

	customers, industries, SMEs and individuals. [supondo que eu, pequena o media empresa) iria me envolver num programa de conservacao de ee, se a minha conta de luz e estou sem capital de giro e tenho outras dificuldades de mercado (competitcao), minha contabilidade nao reflete minha atividade e nao posso ter nem engenheiro por ser meu interlocutor? O que posso fazer?]				
ESCOs	Project certification and ESCO accreditation	X	X	15	
	Made good, complete and viable business plans with at least 3 years of projections	X	X	15	
	Get loans based on the receivables of contracts	X			
	Pressure the government to regulate the business				27
	Marketing – be present in all discussions	X	X	1	
	Measurement and verification by independent technical entities	X	X	4	
	Adoption of basic instruments of the business: M and V, performance contracts, ESCO training and dissemination	X	X	4	
	Adopt a strategy to securitize contracts in order to improve the credit position	X		7	
Banks			X		3
	Create technical capacity to evaluate and analyze projects – create financial products that work for the ESCO market	X		13	
	Put equity in ESCOs as a part of a technology development fund		X	6	7
	“receive training in order to prevent a conversation between deaf people” -- speak the same language!				
	Create guarantee funds that will permit ESCO financing that will use receivables as a guarantee from	X		15	

	the ESCO side				
	Finance the final consumer	X		4	
	Include in the guarantees securitized receivables	X		2	3
	Set requirements for international project finance (robust cash flow, arbitragem int'l regulada dela eei (no caso da esa), share holders with financial capacity, larger size of projects and currency risk	X		1(for project aggregation)	1(aga inst the idea of finance in \$)
Government	Include ESCOs in the research and technology funds		X	6	1
	Encourage efficiency projects in public buildings (demand side measure)			2	
	Pass a law requiring efficiency in public buildings and then organize the public procurement (demand side measure)			16	
	Flexibilizar lei 8666 and contracts of performance (i.e. can light esco use those funds – can they be counted against the 1%) (demand side measure)		X	4	
	Use ANEEL's 1% in the guarantee fund. Is this legally possible. Could the project be approved by ANEEL and done by and ESCO AND could you then earn a fee on this?(demand side)		X	7	
	Investments by ESCOs counted as part of the concessionaire's 1% (demand side)			1	14
	Create new forms of credit avoiding concentration in devp. banks	X		6	
	Create the initial conditions necessary to encourage the market in the various sectors through agreements with associations, federations and in partnership with ABESCO			10	
	Diverse policies to encourage the market not based on the concessionaires (concern is that the			4	

	ESCOs related to concessions would have an advantage, e.g. cross subsidization of business lines, with respect to other ESCOs				
	Initial resources for a guarantee fund in order to encourage private participation		X	5	

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