



ESCOs: The need of the hour for Energy Efficiency in India

Abstract:

An ESCo is a company that provides integrated energy services to its customers (mainly large energy users, but also utilities), which may include implementing energy-efficiency improvement projects, on a turnkey basis. An ESCo provides performance and savings guarantees, and its remuneration is directly tied to the energy savings achieved.

An ESCo ensures that savings are achieved through its projects because they are focussed on and motivated to ensure large savings that can be sustained. Since energy efficiency improvement is their primary business, projects are more likely to be implemented than through in-house teams where such activity is a secondary or even a tertiary responsibility.

There are some barriers to the growth of ESCos in India, but these can be overcome. ESCos can help Indian industry become cost competitive in the global marketplace.

Barriers to Energy Efficiency Improvement:

There has been a great interest in energy efficiency improvement since the first oil price shock in the early seventies, and recently interest has heightened further because of the global warming effects of high energy use. This three decade long experience in implementing energy efficiency projects in the OECD countries has provided substantial documentation of both the economic and the environmental benefits of adopting energy efficiency improvement measures. Yet, even in these developed economies, there remain a number of barriers to more widespread application of energy efficiency measures. Those associated with energy efficiency related work in India will identify similar barriers here. These include:

1. ***Customer inertia:*** Many facility owners and managers realize that opportunities to save energy and lower costs may exist, but they never move forward with them. Others do not perceive the need, or feel a sense of urgency, to implement energy efficiency measures. It is a low priority compared with other mission objectives.
2. ***Lack of technical resources:*** Managers often lack detailed energy consumption information about their facilities to help them understand their own energy and infrastructure needs as well as to identify and implement more beneficial energy savings choices. They also may lack the analytical tools to determine whether their facility is a good candidate for an energy efficiency retrofit and the technical expertise to implement a retrofit using existing staff.

3. **Absence of focus:** Energy efficiency is not a core functional area. Many organizations have competent and knowledgeable technical staff that can successfully implement energy efficiency improvement programmes. However, their core functions and responsibilities are quite different: maintenance, or production. Given this emphasis they do not have the time or other resources necessary to successfully develop and implement energy efficiency improvement projects.
4. **Poor understanding of project synergies:** Most facility owners and managers are not aware that comprehensive energy efficiency projects can meet multiple objectives. Energy efficiency retrofits not only decrease energy use and costs; but they also improve the facility infrastructure, lower operating and maintenance costs, reduce environmental impacts and improve comfort levels. In many instances energy efficiency helps a facility owner to improve its competitiveness by lowering operating costs.
5. **Capital Constraints and Unattractive Hurdle Rates:** Often, facility owners are leery of taking on long-term debt. Because of this, they are unwilling to undertake energy efficiency projects even though the debt required to finance the projects would be paid out of the energy savings. Additionally, many facilities, particularly in the commercial and industrial sectors, expect a higher rate of return on capital invested in energy efficiency projects than that of projects undertaken as a part of the facility's core mission. In many cases this means an energy efficiency project will be rejected outright, though the financial returns on the investments are similar.
6. **CEOs & CFOs are not interested in Energy Efficiency Improvement:** Perhaps the greatest barrier to energy efficiency improvement in India is that this is still considered to be the engineer's domain, and CEOs and CFOs are not yet aware of the potential that energy efficiency improvement has to improve the profitability of their companies. A study in the late 1990s showed that the average energy cost of companies listed on the Bombay Stock Exchange was 5% on sales; the average profit before tax of these companies was also about 5% on sales! It is possible to reduce energy costs by 25% or more through concerted efforts. This translates as a 25% (or greater) improvement in the profit before tax without assuming market and financial risks associated with introduction of new products or attempting to increase market share.

The Indian cement industry, where CEOs have been interested in energy efficiency because of business reasons, in 20 years has transformed from being one of the world's most inefficient cement businesses, to one where international benchmarks are Indian companies.

Energy audits may draw the attention of management to areas that might qualify for improvement and investment, but they do not ensure (for reasons mentioned above) that measures are actually implemented to save energy. Some solution other than in-house development and implementation of projects is necessary if

the Indian economy is to become energy efficient. (Presently the energy intensity of the Indian economy is about 50% more than the world average, and India being a large energy user in absolute terms, contributes significantly to the world average.) One answer is an ESCo.

What is an ESCO?

Energy Services Companies (ESCOs) originated in France before the Second World War when engineers evolved this mechanism as a means to providing expert services to reduce heating bills of property owners and occupiers that could be paid from savings.

The concept moved from Europe to the USA in the 1970s. Thanks to the pressure from Regulators who demanded that Electric Utilities adopt Demand Side Management and undertake Integrated Resource Planning before sanctioning the costs of new power plants as part of the electricity rates, ESCos became popular. Many Utilities themselves established or took over ESCos and this business model became quite successful after an initial period of evolution. A recent estimate of the US ESCo market is US\$ 6 billion (mainly under the US Federal Government sponsored Federal Energy Management Program (FEMP)). There are over 100 active ESCos in that country. From the USA the concept has travelled to many countries and there is a great interest in ESCos in emerging market countries.

An ESCo designs, implements and finances energy efficiency and energy conservation projects on behalf of its customers on a guaranteed performance basis. The project design is such that the savings will usually be large enough to service the debt assumed to implement the measures and leave a surplus that is shared between the customer and the ESCo. An ESCo risks its payments on the performance of the measures implemented and the equipment installed. Because the payments to an ESCo are contingent upon the magnitude of the actual savings, ESCos are often called Performance Contractors. Some ESCos may even finance projects, recovering their investment from the resulting savings. In other words an ESCo is a single-window solution to all aspects of energy efficiency improvement.

A typical ESCo project includes the following elements:

- Investment grade energy audit;
- Identification of possible energy saving and efficiency improving actions;
- Comprehensive engineering and project design and specifications;
- Guarantee of the results by proper contract clauses
- Code compliance verification and guarantee;
- Procurement and installation of equipment;
- Project management and commissioning;
- Facility and equipment operation & maintenance for the contract period;

- Monitoring and verifications of the savings results; and
- Project financing.

While the ESCo will ensure all the above actions, the ESCo may not necessarily conduct all the work itself. Some work can be and is subcontracted; however, the ESCo has to ensure project implementation and be responsible for the result.

Financing of ESCO projects?

A number of financing options are available for Energy Performance Contract Projects. These include:

- Bank Financing
- Direct Customer Financing
- Public Financing (bonds)
- ESCo or third party financing

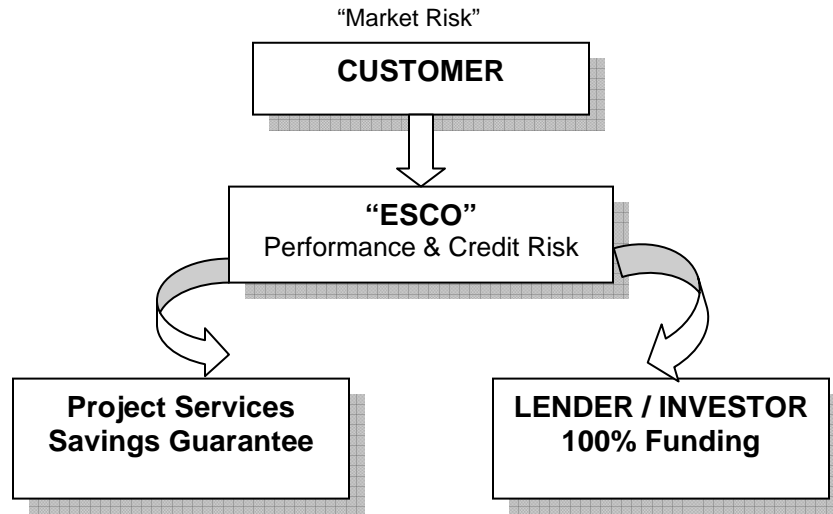
No matter which option is used to finance the project, the financing of the project is ensured through two main types of contracts:

- Shared Savings, and
- Guaranteed Savings.

Shared Savings:

Under a shared savings structure the ESCo finances the project, usually by borrowing money from one or more third parties. This structure is much less common than the guaranteed savings structure. In the case of shared savings, the ESCo assumes not only the performance risk, but the financial risk as well (including the underlying customer credit risk). The customer assumes no financial obligation other than to pay a percentage of the actual savings to the ESCo over a specified period of time. This obligation is not considered debt and does not appear on the customer's balance sheet. The portion of savings paid to the ESCo is always higher for shared savings than the guaranteed savings projects, reflecting the ESCo's significantly greater risk and expense for borrowing money.

Shared Savings:

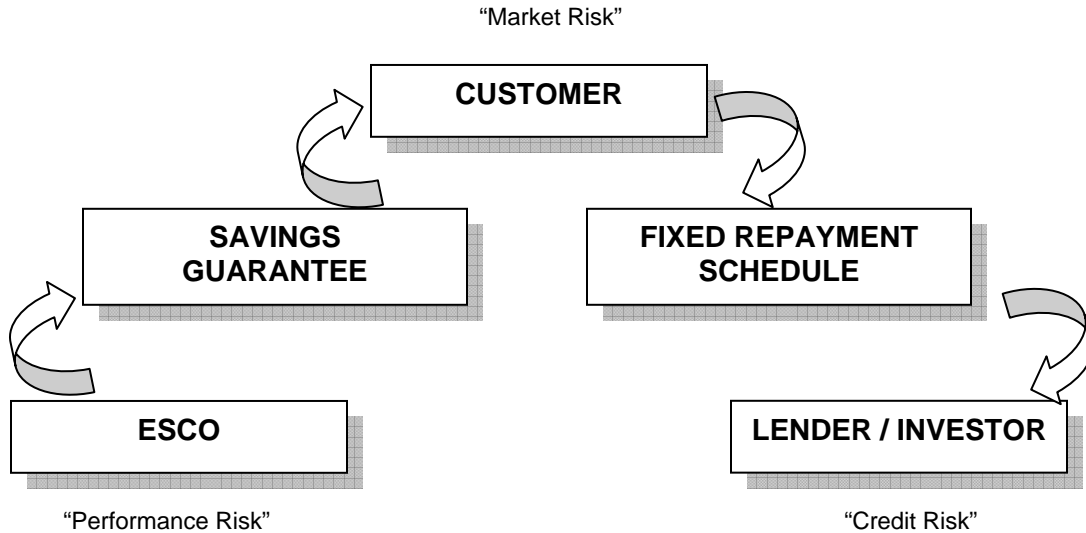


Since the ESCo is a service company, it typically has few assets that it can offer as a security to a lender. To add to this, the ESCo assumes the risk of non-performance of the measures as well as the credit risk of the customer. This makes borrowings by ESCos expensive. As a commercial entity, the ESCo has no option but to recover this cost from its customers, and this results in higher share of the savings going to the ESCo: something not quite in the customers best interest. For this reason this model was found to be less attractive as ESCo markets matured. The Guaranteed Savings system overcomes this hurdle.

Guaranteed Savings:

Under a guaranteed savings structure, the customer finances the project in return for a guarantee from the ESCo that the project's energy savings will cover the customer's debt service. Thus, the customer assumes the obligation to repay the debt to a third party financier, which is often a commercial bank or a leasing company. If the project savings fall short of the amount needed for debt service, the ESCo pays the difference. If the savings exceed the guarantee amount, the customer and the ESCo usually share the excess savings. The size of the share and the method of calculation vary widely, depending on the degree of risk assumed and the extent of services provided by the ESCo.

Guaranteed Savings:



It is important to note that in a typical guaranteed savings project, the ESCo has no contractual relationship with the bank or leasing company. The ESCo's guarantee is to the customer, and is a guarantee of performance (that the project will result in enough cost savings to repay the loan assumed to finance it), not a guarantee of payment. As a consequence, the bank or leasing company confines its risk analysis to the customer's general credit standing. The financial institution may regard the performance guarantee as a form of credit enhancement.

ESCOs prefer the guaranteed savings structure for three general reasons:

1. A third party financier more qualified in credit assessment than most ESCOs, bears the customer credit risk.
2. This structure keeps the ESCo's own balance sheet clear of project debt. Thus, it imposes the lowest debt service cost overall because the bank or leasing company provides the based on the creditworthiness of the customer.
3. By segregating credit risk from performance risk for the ESCo, the guaranteed savings structure serves as an incentive for the customer to resolve on-going project issues expeditiously since the customer bears on-going debt service obligations.

Typical projects that would be implemented by ESCOs include (but not be limited to) the following:

- HVAC systems improvement in Buildings;
- Installation and operation of combined heat and power plants;

- Industrial facility refurbishment and operation;
- Industrial process improvements;
- Public lighting refurbishment and operation;
- Public water works refurbishment etc.

What are the customer benefits of using an ESCo's services?

A customer derives a number of benefits through engaging an ESCo. Benefits of using ESCo include:

- The customer does not need to commit its own human and financial resources into non-core activities like energy efficiency improvement.
- High probability of reduction in energy costs because the ESCo's remuneration is contingent upon savings being actually achieved and measured.
- The ESCo service fee is paid from the savings achieved, so there is no burden on existing cash flows, in fact there is usually a net positive cash flow throughout the relationship with the ESCo.
- The customer benefits from the latest energy efficiency expertise and technology
- The ESCo can arrange financing for the project
- The ESCo can arrange grant financing, potential subsidies and other public investment incentives as carbon credits.
- Most importantly, energy savings can begin to affect the company's profitability rather than remain as a project in some engineer's pending folder.

Some Misconceptions about ESCos:

There are a number of misconceptions in India about ESCos.

1. ***An ESCo always finances its projects:*** This is about the most common misconception about ESCos. Customers often believe that the only benefit that an ESCo brings in is the finance required to implement the measure. We have seen above that this is only one way of financing energy efficiency projects and probably not the least expensive method of financing such projects.
2. ***An ESCo bring in technologies that we do not know:*** While ESCos are usually aware of new energy efficient techniques they may consider deploying them only if they believe that the risk of failure is low. An ESCo has to guarantee performance and is naturally risk averse. Since an ESCo implements proven techniques for energy cost reduction, it is very

likely that the measures recommended by an ESCo are well known to engineers working in a facility where an ESCo is engaged.

So what is the benefit engaging an ESCo? This is more easily answered by an analogy: while a physician knows and can diagnose and say that surgery is required to cure an ailment, only a surgeon can do the work efficiently. So also it is the ability to actually implement the solution that is vitally important for success in energy efficiency projects – and this is what the ESCos bring to the project.

3. **An ESCo is a consultant/ energy auditor:** This is another common equivalence in the minds of customers. While consultants and auditors provide essential services they do not assume project risks. They provide fee based advisory services without bearing any risk of non-performance or poor performance of the projects. This is one of the major distinguishing features of an ESCo: it carries performance risk!

Making ESCos popular in India:

ESCos in India face a number of surmountable barriers that need to be worked on. Most of the barriers will fall with the lapse of time as the market becomes more familiar with the business, but some do need action by large organisation or the Government.

1. The concept is new and not widely known. Many customers find the model too good to be true, and believing that there is some “catch” in it, do not risk engaging an ESCo to help them.
2. Customers are reluctant to sign a long-term contract, which unfortunately has to be a long document to cover all the eventualities that might arise during the association of the customer with the ESCo. Successful cases of ESCo-Client projects will help customers to surmount their fears about such relationships.
3. There are too few ESCos in India. This is largely because there are very few persons who have the technical, financial and contracting knowledge to be able to deliver a good service.
4. Most ESCos are small companies with limited geographical reach who cannot meet the most common demand that they invest in the projects promoted by them.
5. Customers often want the contractual guarantees to be backed up by Bank Guarantees. This places an enormous demand for capital to be locked up to provide the collateral to be placed with banks that will extend the guarantee. This could be overcome by the creation of **Guarantee Funds** by a suitable Government agency or a large bank, insurance company or a financial institution.
6. As mentioned earlier, perhaps the greatest barrier to energy efficiency improvement in India is that this is still considered to be the engineer's

domain. Getting CEOs and CFOs interested in energy efficiency improvement will certainly give a fillip to ESCos.

Conclusion:

ESCos can help the Indian industry to significantly reduce its energy costs through economically attractive measures while reducing the risk of projects “going wrong”. ESCos can assure that the return on investments in energy efficiency improvement which are not exposed to market and financial risks, can be sustained over long periods and thus actually bring in the results that the investments were made for. ESCos complement existing company resources that can then focus on the core areas of the company’s activity, thus bringing in even greater returns to the company. In the current economic scenario, ESCos have a major role to play in helping Indian companies become more competitive in the global market.

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