



Briefing Paper on Energy Services Companies

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This report describes briefly the concept and practices of energy services companies, performance contracting and third party financing. It summarizes what is meant by these and other terms now used in this growing and evolving field. The report describes how the performance contracting industry got its start, how energy services projects are structured and how they are being examined for adoption in the non-OECD world. The report also lists 94 energy services companies that are active in the United States, Europe, and in developing countries.

WEEA has prepared this report as part of its Best Practices Program to report on practical and effective approaches to increase energy efficiency. The topics of energy services companies, performance contracting, and third party financing are attracting attention within the energy community and this report attempts to describe what is now being practiced. The report attempts to be descriptive only -- not prescriptive. It does not analyze specific energy services company experiences or summarize their project activity, nor does it describe options that might be taken to strengthen the industry. Those topics are left to other, later reports.

Acknowledgments

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Introduction

Although investments to improve energy efficiency are often cost effective and offer attractive rates of return, many profitable investment opportunities are being lost due to broad national, economic and institutional factors which restrict investments in energy efficiency. But the problem of financing may be the major factor causing the slow rate of progress in developing countries in achieving modern standards of energy efficiency. The lack of credit and the inability to obtain financing for projects are strong deterrents to investments in energy efficiency in many countries around the world.

Alternative financing mechanisms have developed because they can overcome the barriers that have inhibited profitable energy efficiency investments. Competition for limited investment capital, uncertainty regarding the types of efficiency technologies and practices most worth adopting, risk aversion, and lack of motivation on the part of facility owners are all addressed in one fashion or another by the alternative financing techniques described below.

These three terms -- energy services companies, performance contracting, and third party financing -- are the central concepts of innovative financing for energy efficiency projects and so are introduced here:

- Energy Services Companies (ESCOs) are most often private companies that provide comprehensive energy efficiency or load reduction services to customers that own or operate facilities such as factories and buildings.
- Performance contracting most often refers to the practice of providing energy savings to a customer for a fee, the level of which depends on the amount of energy saved.
- Third party financing (TPF) is the funding of energy savings investments by an outside company, using energy savings to pay for the investment.

The ESCO Industry

Fee-Based Service ESCOs: Some ESCOs grew out of businesses providing engineering services for a fee. Most of these consulting engineers specialized in performing detailed energy audits of clients' buildings, proposing designs for new energy systems, and suggesting improvements to operating practices. Over time, some firms altered their business strategy to respond to the concerns and needs of risk-averse and cash-strapped customers. Thus, they moved from consulting to project development. By assuming higher levels of risk, they hoped to garner substantially higher returns for their efforts. The crux of this change lay in the companies' willingness and ability to back their designs with performance guarantees, as well as to secure financing for projects based on the savings these projects were guaranteed to produce.

Manufacturers of Building Controls: Control systems are designed to regulate energy-using equipment in buildings and factories. Building control manufacturers responded to the rise in energy prices by offering control systems specifically designed to reduce their customers' energy bills. In the early 1980s these companies took the additional step of establishing energy service divisions to develop performance-based projects centered around their controls systems. Like the consulting engineers, these manufacturers extended their traditional lines of business to assume the risks associated with project development. Today, the performance contracting divisions of these firms develop comprehensive projects that include the full range of available energy conservation measures (ECMs). The competitive pressures they face, like those exerted upon all ESCOs, sometimes lead these business units to install a competitor's control system as part of the project. In essence, performance contracting has become for them a line of business driven by its own market imperatives and pursued without significant regard for the parent company's traditional lines of business.

Utility-created ESCOs: A number of ESCOs formed in response to the growth of utility DSM programs, whether started by the utilities themselves or by private investors. Some industry experts are quick to point out that America's utilities were not centrally responsible for the establishment and growth of the ESCO industry. Indeed, utility-created ESCOs are rare. To the extent that utilities have directly entered the ESCO business, they have usually done so by acquiring control of existing companies. As a general rule, the majority of third party financing historically took place in the commercial and industrial sectors, with surprisingly little activity in the public sector.

The unconventional nature of ESCOs and third party financing acted as a major barrier to public sector application of the technique. The reason for this is that public sector procurement rules and procedures hindered public sector application of TPF in both Europe and the United States. This situation is rapidly changing. Public sector reforms are finally opening the door for ESCOs in this market. As a result, the long-term prospects for public sector TPF opportunities are substantial.

Industry Size

There is no firm data on the actual size of the ESCO industry. This is partly because the industry is composed almost entirely of privately-held companies and large public firms which do not report financial results of their efficiency divisions separately. A U.S. Department of Energy funded study estimates that the total installed cost of projects constructed in the United States in 1992 was \$500 million. This figure has been corroborated by industry participants, who indicate that this figure is still a valid estimate of the annual size of the market. To date, the installed cost of all projects implemented by ESCOs in the United States is about \$2.3 billion. Hundreds of companies compete in the market, although the vast majority of business is handled by fewer than 30 companies.

Besides North America, Europe is the other region with significant third party financing activity (third party financing is the common name for performance contracting in most of Europe). The market in Europe is less well developed than in the United States, with significant third party financing activity taking place in only a few European countries.

In the United Kingdom, where performance contracting is called Contract Energy Management (CEM), CEM has enjoyed healthy growth of around 20 percent per year, with market penetration usually estimated at less than 20 percent of the market. (BP Energy estimates that the potential size of the Contract Energy Management market in the United Kingdom is about 9 billion pounds, or US\$14 billion. In their view, less than one percent of the market has been penetrated by ESCOs). There are now about 20 active ESCOs with a total turnover about \$300-500 million per year. Fast domestic growth and low market penetration in the U.K. market have caused U.K. ESCOs to focus on their own domestic market, acting as a deterrent to ventures outside of their own borders. Many of the ESCOs in the United Kingdom are currently backed by large energy supply companies, an increasingly common trend in most countries.

Spain has at least six ESCOs, operating mostly in the industrial sector. The Government's energy efficiency agency IDAE was involved in 132 projects between 1988 and 1992 with a total investment of \$165 million. The attachment to this report also shows ESCOs in Australia, Belgium, Czech Republic, France, Germany, India, Luxembourg, Poland, Portugal, Netherlands, Switzerland and Thailand. Undoubtedly, there are others that the report misses.

So far most ESCOs have tended to remain in their own markets, and few have ventured outside their own countries. U.S. ESCOs have executed some foreign operations, but historically they have had limited experience abroad. As of the date of this report, only a few U.S. and European ESCOs have actively pursued the potentially huge performance contracting market in developing countries.

How Third Party Financing Projects Work

Background: The Project Cycle

An investment in an energy efficiency project is like any other capital investment. Consequently, a customer or firm will follow its normal capital investment evaluation process when considering an investment in energy efficiency. In a normal project cycle, the company will go through a number of typical activities. The company will first assess the relative importance and costs of energy as a share of its total costs, and its impact on profitability. Then, an assessment of potential efficiency activities will be made. Energy audits are very important at this stage and, before a final decision is made, the assessment will include an "investment grade" audit to better identify energy efficiency measures to be implemented.

These measures will be costed out, their rates of return estimated, and, if an investment meets the company's investment criteria, a decision will be made as to how to finance and implement the investment.

Why would a company use an outside energy services company? ESCOs offer the following advantages:

- Technical assessment and project implementation by independent experts;
- An option for financing for the project without the firm compromising its own capital, thus leaving capital available for other priorities;
- Immediate reduction of energy costs and, in many cases, additional production advantages;
- Ownership of the equipment at the end of the operation, without any initial capital outlay.

Project implementation typically entails the following steps:

- Project agreement, in which the basic contracts are signed, outlining the steps to be carried out, and risks and responsibilities of each party to the agreement;
- Engineering design, in which the technical design of the project is specified according to the results of the investment grade energy audit conducted earlier. Bid packages are prepared to solicit bids from subcontractors who will construct the project;
- Construction, in which the ESCO supervises installation of the efficiency measures, often by subcontractors who perform under standard construction agreements, generally on a fixed fee basis;
- Project acceptance, in which the customer confirms and accepts the measures that have been installed;
- Maintenance and monitoring, in which extensive monitoring of energy savings is often used to determine level of payment.

What is an Energy Services Company?

Definitions of energy service companies, performance contracting, and third party financing are usually not precise, and the terms are applied to a fairly broad range of activities. The following definitions reflect most of this range.

Energy Services Companies (ESCOs) are most often private companies that provide energy efficiency or load reduction services to customers that own or operate facilities such as factories and buildings. The range of services ESCOs can provide include:

- Feasibility analyses
- Structuring of a paid-from-savings program
- Obtaining or arranging financing
- Engineering design
- Construction management

- Purchase and installation of equipment
- Project management
- Project guarantees
- Monitoring of project performance
- Maintenance of efficiency measures
- Training
- Administrative services

An ESCO project is performance-based when its compensation is tied to the amount of energy actually saved. For this reason, ESCOs are fundamentally different from consulting engineers specializing in efficiency improvements, who are typically paid a fee for their advice rather than being paid for the results their recommendations may yield. The consulting engineer takes no risk while the ESCOs compensation is entirely at risk—unless they produce results.

An ESCO project is comprehensive when it seeks to achieve energy savings from the widest possible array of cost-effective measures in a given facility. ESCOs are also distinguished from equipment suppliers which only provide single-measure installations (such as lighting contractors). These do not offer performance guarantees and ignore the potential for savings unrelated to the equipment in which they specialize. Some equipment suppliers have established their own ESCOs.

As project developers, ESCOs are responsible for a wide range of functions. They identify, design and finance the project. (The ESCO arranges financing for the project, but does not usually finance it out of its own pocket. Most ESCO projects are financed entirely with debt, which goes onto the balance sheet of the customer, not the ESCO. Project financing using ESCO, or third party equity contributions, is actually quite rare.) ESCOs install and maintain all or most of the equipment involved. They measure and monitor the project's energy savings. Also, and very important, they assume the risk that the project will save the amount of energy guaranteed.

Performance Contracting and Financing

ESCOs use their own working capital for identifying and developing projects. All of the activities that ESCOs conduct for a project are bundled into that project's cost. They then use project financing to construct the project. The ESCO will recoup their working capital spent on the project with funds from the project financing--when, and if, it comes. This makes for a fairly risky and costly project development cycle.

Monitoring and verification are extremely important to performance-based projects. Because the ESCO must perform to be remunerated, ESCOs need to measure the energy savings. These savings should be monitored over the project's life in order for the ESCO to prove to the customer that savings are real and ongoing. Measurement involves ongoing verification of energy savings, often by comparing a customer's energy bills against a baseline. Measurement often involves metering, which is the direct tracking of energy savings according to sanctioned engineering protocols. The advantage and appeal of metering is its accuracy. The purpose of monitoring energy savings is to ensure that those savings continue over time. It also serves to ensure the quality and effectiveness of ongoing maintenance, which is featured in almost every ESCO project. In some cases the ESCO will not perform monitoring, which makes the project less expensive, but this would not be performance contracting.

Performance contracting refers to the practice of providing energy savings to a customer for a fee, the level of which depends on the amount of energy saved.

Compensation for these services is generally paid from the savings resulting from reduced energy consumption. In most cases, compensation is based on demonstrated performance, in terms of energy efficiency improvements or some other performance measure.

While all performance contractors are energy service companies (ESCOs), not all ESCOs are performance contractors. A number of ESCOs work for utilities on a subcontractor basis, installing demand-management and energy efficiency measures prescribed or designed by the utility company. Such companies incur minimal risk or responsibility for the longer-term use and reliability of the energy

savings generated by the measures they install. Nevertheless, fairly common practice in the industry is to use the term ESCO and performance contractor interchangeably.

Performance contracting is defined by the following key attributes:

- Performance contracting offers turnkey services, including feasibility analysis, design, engineering, construction management, installation, operation, maintenance, and financing;
- Performance contractors are compensated based on measured results;
- Most of the technical, financial, and operational risks are borne by the performance contractor.

Third party financing (TPF) is the funding of energy saving investments by an outside company, using energy savings to pay for the investment. The main actor in third party financing is an energy service company. However, the ESCO usually will not finance the project out of its own equity. Rather, the ESCO will obtain funding for the investment from a third party, such as a bank or leasing company.

Third party financing was developed to help companies (the customer) to finance efficiency investments. The advantage is that the customer does not have to put any cash out to finance the initial investment. It merely has to make payments to the performance contractor. The concept of third party financing always includes technical advice. Therefore, the customer does not have to be concerned about technical matters, because it relies on the ESCO for this expertise.

A company may finance a project in one of three fundamental ways: self-financing, debt-financing, or third party financing. An ESCO may use its own funds to finance the investment, which should ultimately be self-financing. Debt financing involves the company's taking out loans to finance the project, in which case they must make interest payments. In third party financing, the customer makes payments to the performance contractor, based on the savings from the project. In principle, it should be off-balance sheet financing. In practice, the customer usually has to sign the lease or loan agreement. Payments on the loan are made out of the energy savings.

What are the different types of ESCO projects?

1. In a guaranteed savings project, the customer finances the design and installation of the efficiency measures by borrowing the funds from a third party (usually a commercial bank) or by leasing the equipment. Financing is typically arranged by the ESCO. Let us be clear: in a project structured around guaranteed savings the customer borrows the money—not the ESCO. The ESCO has no contractual relationship with the bank financing the project. It is the customer who has duty of repayment on the loan.

The ESCO assumes project performance risk under this project structure. It guarantees that energy savings will meet agreed- upon minimums, usually enough to cover debt service. If minimums are not met, the ESCO pays the customer the difference. If minimums are exceeded, the customer agrees to pay the ESCO an agreed upon percentage of the savings. Thus, the ESCO is providing a guarantee of performance to the customer. The customer is willing to assume the debt, or lease payment, because of the guarantee that the savings will exceed the debt payments.

The advantage of the guaranteed savings approach is that a third party financier assesses and bears the customer's credit risk. Financial institutions, such as banks, are better equipped to handle this risk than the ESCO. This approach also keeps the ESCO's balance sheet free of project debt (which has advantages for the ESCO).

Guaranteed savings contracts are the most common type of contract used in the United States.

2. Shared savings contracts are those in which the ESCO finances the project, either from its own funds or by borrowing from a third party. Thus the ESCO takes on not only the performance risk, but also the risk associated with the customer's creditworthiness. Savings percentages paid to the ESCO are higher than in guaranteed savings contracts, in which the ESCO assumes only the performance risk.

Shared savings contracts are useful when the customer does not want to, or cannot, use borrowing capacity. For example, many subsidiaries of large companies do not generally secure debt independently. For them, shared savings is a useful approach, because the transaction structure ensures that the customer will never pay more than the savings and that the obligation will likely be off the balance sheet.

Hence, this structure guarantees that, absent a breach of contract, the obligation can be retired from current funds. This is not true in the case of guaranteed savings contracts.

Shared savings contracts are also useful for the customer, because they are regarded as new equity, and often are not required to meet internal investment criteria. For example, if the internal hurdle rate of the target company is 25 percent and the expected annual percentage rate (APR) of a shared savings contract is 15 percent, the shared savings contract may be viewed as a bargain since it is much less expensive than internal funds. By contrast, a guaranteed savings approach would likely not be acceptable for this project. Shared savings contracts generally provide the user with the operations and maintenance responsibilities if he wishes.

3. Pay from savings contracts are a subcategory of guaranteed savings contracts, but instead of fixed payments for the customer to repay the loan, the payment schedule depends on the level of savings. The more the savings, the quicker the repayment.

Pay from savings contracts are generally less risky than guaranteed savings projects. (They have roughly the same risk profile for the customer as shared savings contracts). An attractive feature of this structure is its "open book" approach. This is one reason it has been popular in situations where cost-based construction is prominent (such as in the public sector).

4. Chauffage contracts provide a structure in which end-uses themselves are sold. For example, a contractor might offer lighting from a specified fixture type on a dollars-per-hundred-hours-of-usage basis. These contracts are different from others discussed above in two respects. First, these contracts are typically very long (twenty to thirty years) and the contractor provides all associated maintenance and operations support during the contract. Chauffage contracts are useful when the customer wishes to outsource facility services and investment.

What financing tools are commonly used?

Debt and lease financing are the most common instruments used to finance performance-based efficiency projects in the United States. It may surprise some readers, but ESCO equity is not typically used to finance projects. Furthermore, the debt is usually assumed by the customer. Debt financing is used because of a number of significant advantages -- both to the customer and the ESCO -- over equity investments in projects.

In performance contracting, the customer assumes that it will not have to devote any equity to the project. Indeed, to require the customer to contribute capital to the project would undermine the very premise of performance contracting, and would diminish the fundamental characteristic which makes performance contracting attractive to customers (the premise that they don't have to invest any initial capital in the project). By definition, performance contracting implies that the ESCO is offering a project that will pay for itself.

Alternatively, the ESCO may apply its equity to the projects that it executes. However, this is disadvantageous to the ESCO, because it forces it to assume credit risk for the project. In addition, with an equity contribution, the ESCO's capital is tied up in the project. Finally, the cash flows from performance contracts are sufficient to cover the loan payments from debt-financing, thereby obviating the need for equity contributions. Most ESCO projects in the United States are therefore structured as guaranteed savings contracts, which are financed by either long-term commercial loans or with leases assumed by the customer.

Debt: Debt is the most common financing instrument, primarily because it lowers financing costs. Debt lowers financing costs because the average customer's cost of capital is lower than the average leasing company's or ESCO's. Of course, the cost associated with non-recourse project financing by a third party is highest of all. (Non-recourse means that project loans are secured only by the project's assets. Non-recourse financing entails more risk, and therefore demands higher interest rates). Most ESCO projects are financed by debt which the customer has borrowed from a bank or other lending institution. The principal disadvantage of debt is that it appears on the customer's balance sheet, which affects its ability to borrow for activities directly related to its business.

Leases: Leases are similar to debt financing. ESCOs frequently use guaranteed leases, which are analogous to debt-based guaranteed savings projects. Several common forms of lease are worth mentioning: capital leases, operating leases, and municipal leases.

In a *capital lease*, the customer essentially owns the equipment. At the end of the lease, they have the option of purchasing the equipment. They simply make regular payments to the lessor, usually a leasing company. Capital leases appear on the customer's balance sheet as both an asset and a liability. In the United States, the customer may depreciate the equipment and take advantage of the associated tax benefits. It is worth noting that some countries have restrictions on leasing, or do not permit it at all, thereby eliminating this option for some projects overseas.

Operating leases have the advantage of shifting risk from the customer to the leasing firm. However, this makes them more expensive for the customer. In an operating lease, neither the leased assets nor the lease obligations appear on the balance sheet of the customer. The leasing company retains ownership of the equipment. At the end of the lease, the customer has the option to take title to the equipment, based on fair market value of the equipment, rather than at a price stipulated in the lease. The lessor thus risks having to reclaim and dispose of the equipment. The equipment eligible for these types of leases is limited, due to this constraint.

Municipal leases are commonly employed to finance projects in schools, hospitals and other facilities operated by state and local governments. Municipal leases are available only to entities that can take advantage of tax exempt financing. As the most common type of lease, they are used extensively in the growing municipal market. Municipal leases can be either capital or operating leases, but their distinguishing feature is their low cost, a consequence of their favorable tax treatment. Municipal leases are typically used for smaller projects, with an installed cost of under \$1.2 million. Bonds are employed to finance more costly projects (because they become cost effective for larger projects).

ESCO Financing: In ESCO financing, the ESCO typically borrows the money to finance the project. By borrowing directly from the financing institution, the ESCO becomes fully responsible for repayment. Under this financing scheme, projects have a shared savings structure. The advantage to the customer is that it is free of repayment obligations. In turn, however, the customer has to pay the ESCO a larger share of energy savings.

It is the project revenue stream that permits ESCO financing (which makes it similar to non-recourse project financing). The financing institution may either assume the rights to the energy savings payments as collateral, or they may take a security interest in the project equipment.

ESCO financing is risky, requiring higher returns, because the ESCO assumes not only the project performance risk, but also the underlying customer credit risk. If the customer goes out of business, the revenue stream from the project will stop, putting the ESCO at risk. In addition, an ESCO can only finance a limited number of these types of projects, because every new project causes its debt-to-equity ratio to decline. At some point, financial institutions will cease to lend to the ESCO due to its high debt ratio. Lenders tend to require a variety of credit enhancements for this type of financing, such as bonding or insurance.

ESCO financing is not only expensive, it is a formidable marketing challenge. These projects require very high shared savings payments to be justified. This makes the savings less attractive to the customer. As a consequence, ESCOs tend to prefer to structure their projects under customer-financed guaranteed savings contracts.

Innovative Financing and Performance Contracting in Developing Countries

In the developing world, many of the barriers to energy efficiency investments are the same as in the industrialized world, but the problem of inefficiency is even worse, which makes the need for innovative solutions even greater. The World Bank estimates that the power needs of developing countries will surpass 50,000 MW per year over the next decade. The need for the development of such large amounts of electric power capacity has raised concerns about the ability to finance such development. Improved efficiency is a way to meet some of these capacity needs, as well as a way to address the adverse environmental effects of rising energy production and use. Experience over the last decade in the implementation of a wide range of energy-efficiency programs in North America, Western Europe, and Australia, and many studies of the technical and economic potential for energy efficiency in developing countries have demonstrated that energy efficiency can be significantly less expensive than the construction of new energy facilities. Energy efficiency reduces energy consumption and, therefore, the energy costs to facility owners. As an added benefit, efficiency projects reduce the environmental damage caused by the production, conversion, transportation, and utilization of energy.

Despite the benefits, many energy consumers are reluctant to invest their own funds in energy-efficiency improvements. Barriers to customer investments in energy efficiency include lack of knowledge about, or experience with, appropriate efficiency technologies, limited availability of capital, lack of motivation, the need for rapid payback on investments, management priorities, and transaction costs related to identification and installation of energy-efficient equipment.

Utilities in developing countries have also been slow to implement efficiency measures, often because of limited experience or capability in energy-efficiency implementation. Moreover, senior executives tend to see themselves as being in the business of producing and supplying energy. Efficiency activities run counter to their training and their perceived interests. They generate more revenues by selling more power, not less. As a result, utilities have traditionally exhibited little interest in efficiency activities. It should be pointed out that their attitude is not so different than what existed in U.S. utilities 15 years ago. Their inability to build enough capacity to meet demand should raise their interest in the advantages and potential for energy savings.

The existence of barriers to efficiency among the two principal electric power constituencies has created an opportunity for energy service companies because performance contracting is a way to overcome these barriers. Energy service companies offer a vehicle for implementing energy efficiency options quickly, efficiently, and cost effectively. Alternative financing mechanisms evolve because they address the barriers to project financing.

In recent years, American ESCOs have begun to actively explore markets outside the United States. Nevertheless, there are only a handful of companies actively engaged in international project development. These companies have either pursued or implemented projects in a limited number of countries, including Ireland, the United Kingdom, Portugal, Saudi Arabia, Thailand, India, the Philippines, Mexico, Costa Rica, Russia, and Eastern Europe (Czech Republic, Slovakia, Hungary, and Poland). Most of these firms pursue project opportunities very selectively due to the costs and risks associated with project development. Only a few companies have made international markets a cornerstone of their business strategy.

As indicated in many studies, there is enormous technical potential for improved energy efficiency in the developing world. Project developers have consistently encountered antiquated technology and huge demand for third party- financed capital improvements. Consumers in some regions, such as Russia and Eastern Europe, have also experienced sharp increases in energy prices, which have raised awareness about the importance of efficiency, something they never worried about before. As a consequence, there is growing interest in the potential for energy efficiency and in project implementation by ESCOs.

However, there are numerous hurdles to project development in the third world, newly industrialized countries, and in emerging market economies. Artificially low energy prices in many countries desensitize consumers to energy usage and costs. For most firms, energy constitutes only a small portion of their total costs, making energy use a relatively low priority. In industrial firms and other businesses, energy efficiency initiatives must compete for capital with other investment opportunities.

Project development is inhibited by other barriers too, such as the locals' unfamiliarity with performance contracting, ambiguous laws, shifting and uncertain government policies, adverse economic conditions, high or chronic inflation, punitive import duties on required equipment, or restrictions on capital repatriation. Added together, these factors make new project development a difficult task.

Even if one can overcome all these barriers, there is still the question of financing—perhaps the main barrier to ESCO projects in developing countries. In most developing markets, neither local banks nor multilateral lending institutions are able to finance performance-based energy efficiency projects.

Local banks offer loans at exorbitant interest rates, if they have any capital to lend at all. Many banks are thinly capitalized, which makes them conservative about their lending practices. If they do offer loans, the repayment period tends to be too short for energy savings projects, which require seven to fifteen years on average. There is also the problem of lack of familiarity with performance contracting. The banks' loan officers often lack the experience necessary to evaluate loans for energy efficiency projects backed by performance guarantees. Finally, the weak credit histories of prospective customers often makes them poor candidates for loans.

The problem with the multilateral development banks (MDBs) is that performance-based energy efficiency projects tend to be too small, falling short of the MDBs' size limits for project loans. In addition, performance-based efficiency projects do not qualify under existing bank guidelines as infrastructure projects. Furthermore, most multilateral lending is restricted to sovereign governments, thereby eliminating private sector projects from this source of capital.

The long-term potential of performance contracting in the developing world continues to occupy a nascent stage in the energy industry. Although our research shows that the experience to date is still limited, we expect that the hurdles to energy efficiency project development will be overcome with time and experience. More and more projects will be developed, and these will spur the development of the entire industry. We expect that in another couple of years, we will be able to point to a growing list of operating projects around the world, as well as to a growing universe of energy service companies.

Bibliography

A Review of the ESCO Industry in the United States. Tom Dreessen, Energy Performance Systems; and Richard Cudahy, The World Bank.

Feasibility Study on Introduction of Energy Services Companies in India. Dilip R. Limaye, C. Lyons, S. Balakrishnan, R. Roberts, SRC International.

ESCOs in Developing Countries: Lessons from Experience in India. Dilip R. Limaye, SRC International, (INTESCO), and S. Balakrishnan.

The Role of ESCOs in Promoting Energy Efficiency and Environmental Protection in Developing Countries. Dilip Limaye, S. Balakrishnan, and Chester Lyons, SRC International.

Performance Contracting: International Overview. Dilip R. Limaye, Lance Hoch, and S. Balakrishnan, SRC International; USAID and Industrial Bank of India.

Investing in Energy Efficiency: The Role of Third Party Financing. Conference Proceedings, October 1993, International Energy Agency, Organization for Economic Cooperation and Development, European Commission.

Third Party Financing in the EC. Derek Fee, European Commission.

TPF Model Contracts -- The Key to the TPF Process. Andrew Warren, Association for the Conservation of Energy.

The Role of the Utility in Third Party Financing. Kieran Finucane, Electricity Supply Board, Ireland.

How Can Existing Channels of Community Action Be Used to Promote TPF? G. Molina, European Commission.

Improving Power System Efficiency in the Developing Countries through Performance Contracting. Philip Yates, The World Bank.

Financing Options for Energy Technologies. Proceedings of the Thermie Workshop. June 1993.

Critical Success Factors for Energy Efficiency: Programs and Agencies, Report to the ODA and the World Bank.

Proceedings from the Workshop on Financing Energy Technology. European Commission. May 1994.

Appendix: Excerpts from WEEA Database of Energy Services Companies

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Target Market: USA, US Federal Agencies

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Target Market: USA, US Federal Agencies
Technology: Lighting

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Existing Market: United Kingdom
Target Market: United Kingdom
Technology: All
Market Sector: Contract energy management and contract CHP

Numerous clients include Ford, Nestle, others

Provides energy supplies & services; management, O&M; construction; finance; quality assurance; safety; environment

Note: BP reports that UK CEM market growing by 15% annually; estimated at 9 billion pounds, less than 1% penetrated by ESCOs

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CES/Way International, Inc.

Deborah S. DeFiore
5308 Ashbrook
P.O. Box 36430
Houston TX 77081
USA

Telephone: 713-666-3541
Fax: 713-666-8455
Existing Market: USA
Target Market: USA, US Federal Agencies
Technology: All
Market Sector: All market sectors

Project Minimum: \$500K Maximum: None

Offices in Houston, New York, Salt Lake City

Have completed hundreds of projects

Michael D. Leach, Chairman and CEO

Central Hudson Enterprises Corporation

Floyd R. Dooris
110 Main Street
Poughkeepsie NY 12601
USA

Existing Market: USA
Target Market: USA, US Federal Agencies

Co-Energy Group

David J. Wagner
725 Arizona Avenue, Suite 206
Santa Monica CA 90401
USA

Telephone: 310-395-6767
Fax: 310-395-7477
Existing Market: USA
Target Market: USA, GUAM, US Federal Agencies
Technology: All
Market Sector: Focus on federal government

Project Minimum: \$500K Maximum: None
Offices in Santa Monica, CA; Sacramento, CA; Honolulu, HI; and Leesville, LA
Have completed 35 projects
Alternate contacts: Tom Mitchell, Robert Freeman

Cofreth RUC

Mike Carr
The Broadway, Great Central Road
NG18 2RL Mansfield
United Kingdom
Telephone: 44-1623-650-202
Fax: 44-1623-420-199
Existing Market: United Kingdom
Target Market: United Kingdom

Commercial Engineering Corporation

Eshwar Noojibail, President
2890 Dundee Road
Northbrook IL 60062
USA
Telephone: 708-205-1112
Fax: 708-205-1119
Existing Market: USA
Target Market: USA

Conogen, Inc.

Anthony Dibenedetto, President
350 Fairfield Avenue
Bridgeport CT 06604
USA
Telephone: 203-335-0266
Fax: 203-335-2490
Existing Market: USA
Target Market: USA, US Federal Agencies
Technology: All

Conserve-A-Watt Lighting, Inc.

Bernie Cowser, Vice President
720 Vallejo
Denver CO 80204
USA
Telephone: 303-629-0066
Fax: 303-893-3315
Existing Market: USA
Target Market: USA, US Federal Agencies

Control Solutions

Richard D. Housh, CEM, President
1770 Mason Morrow Road
Lebanon OH 45036-9298
USA
Telephone: 513-398-9800
Fax: 513-398-9048
Existing Market: USA
Target Market: USA, US Federal Agencies

D-Base Communications

DBA Energy Controls and Concepts
Stephen T. Guthrie, President
1758 Orange Tree Lane
Redlands CA 92734
USA
Telephone: 909-335-1699
Fax: 909-335-5715

Existing Market: USA
Target Market: USA, US Federal Agencies

E+I (Subsidiary of the TPF Group)

Boulevard Frere-Orban, 35
B-4000 Liege
Belgium
Telephone: 32-41-53-51-05
Fax: 32-41-53-51-05
Existing Market: Belgium
Target Market: Belgium
Technology: Design and consultancy of industrial projects
Market Sector: Rational use of energy; electricity cogeneration; energy recuperation and feedback; improvement of industrial processes; steam cleaners; fumes and gas treatment units; industrial sludge treatment; industrial water control

ECONOLER DEVELOPMENT

Avenue de Haveskercke, 46
B-1190 Brussels
Belgium
Telephone: 32-2-370-19-62
Fax: 32-2-370-19-11
Existing Market: Europe
Target Market: Europe
Description: Third Party Financing of projects through its subsidiaries
Subsidiaries: Econoler Belgium; Econoler France; Econoler Spain; Econoler Portugal

EPS CR

Ivo Slovatinek
Rubesova 10
120 00 Prague 2
Czech Republic
Telephone: 42-2-6702-1521
Fax: 42-2-6702-1520
Existing Market: Czech Republic
Target Market: Czech Republic

Has signed the first two performance contracting projects in the CR: Bulovka Teaching Hospital--Prague (heating modernization) \$2.3M; Jilemnice District Hospital--Bohemia (heating modernization) \$700K

ESCO (Poland)

Krzysztof Fidala, President
Al. Kosciuszki 80/82
90-437
Lodz
Poland
Telephone: 36-57-51
Fax: 37-24-41
Existing Market: Poland
Target Market: Poland
Technology:
Market Sector: Industrial plants and housing cooperatives in Poland
Negotiates with heat and power suppliers on behalf of industry and housing cooperatives to lower heating costs
Projects include: Ministry of National Education -- energy management of four schools in Poland; Polish Army Headquarters -- energy management and modernization

EUA Citizens Conservation Services Inc.

Stephen J. Morgan, President
Boot Mills South, C/O EUA COGENEX CORP.
100 Foot of John Street
Lowell MA 01852-119
USA
Telephone: 508-656-3598
Fax: 508-656-3539
Existing Market: USA

Target Market: USA
Technology:
Market Sector: Residential, public housing, nursing homes, government
Offices in Lowell, MA; Springfield, MA; San Francisco, CA
35 projects completed
Project Minimum: \$100K Maximum: \$50M

EUA Cogenex Corporation

Arthur P. Lennon, Vice President
Boott Mills South
100 Foot of John Street
Lowell MA 01852
USA
Telephone: 508-441-0090
Fax: 508-441-9299
Existing Market: USA, Canada
Target Market: USA, Canada, Latin America
Technology: Offer most technologies and services
Market Sector: Commercial, industrial, government, institutional
Project Minimum: \$100K; Maximum: \$20M
Has 16 offices
Offer self-financing
Over 1100 projects completed

Ecolim (Subsidiary of the TPF Group)

Avenue Van Volxem, 380-386
B-1060 Brussels
Belgium
Telephone: 32-2-534-82-82
Fax: 32-2-534-69-32
Existing Market: Belgium, Europe
Target Market: Belgium, Europe
Technology:
Market Sector: Maintenance Sector
ECOLIM is a joint venture with LIMPENS & CIE S.A.
Offer technical management, operation, supervision, maintenance, design production, and conversion of heat generation, HVAC, electrical, sanitary, plumbing, acoustic, and pollution control equipment

Econoler Belgium (Subsidiary of the TPF Group)

Christophe Gilain
Avenue de Haveskercke, 46
1190 Bruxelles
Belgium
Telephone: 32-2-370-1920
Fax: 32-2-370-1911
Existing Market: Belgium
Target Market: Belgium
Technology:
Market Sector: Industrial firms and authorities; energy efficiency; cogeneration and water treatment
Many projects in Belgium including motor upgrades, boiler improvements, heating projects, building renovation, industrial upgrades
Subsidiaries: include SOFASS and SECOGEN

Econoler France (Subsidiary of the TPF Group)

Mr. Pecoux
Parc Saint-Christophe
Pole Edison 5
F-95861 Cergy Pontoise Cedex
France
Telephone: 33-1-34-22-61-47
Fax: 33-1-34-22-54-79
Existing Market: France
Target Market: France
Technology:
Market Sector: Commercial, industrial, institutional
Projects include upgrade of sports facilities, heating plant upgrades, and installation of natural gas heating systems

Econoler Portugal (Subsidiary of the TPF Group)

Mr. Gonzaga
Rua Guerra Junqueiro, 495 S/I
P-4100 Porto
Portugal
Telephone: 35-1-2-600-95-16
Fax: 35-1-2-600-95-19
Existing Market: Portugal
Target Market: Portugal
Technology: Cogeneration projects
Focusing on fast growing demand for electricity in Portugal
Projects include two cogeneration projects for industrial firms

Econoler Spain (Subsidiary of the TPF Group)

Mr. Cuadrado
San Andres, 56,7c
15003 La Coruna
Spain
Telephone: 34-81-22-06-27
Fax: 34-81-22-57-44
Existing Market: Spain
Target Market: Spain
Technology: Electric power
Various projects including the 5,000 kW Ponte Linares hydro power station and the La Onza Power Station

Energy Investment, Inc.

Rebecca Delamotte, Vice President
One Winthrop Square
Boston MA 02110-1209
USA
Telephone: 617-482-8228
Fax: 617-482-3784
Existing Market: USA
Target Market: USA, US Federal Agencies

Energy Masters Corporation

Donald O. Smith, CEO
9101 West 110th Street
Suite 200
Overland Park Kansas 66210
USA
Telephone: 913-469-5454
Fax: 913-469-5343
Existing Market: USA
Target Market: India, Canada, Mexico, All South America, Hong Kong, West Europe, USA, US
Federal Agencies
Technology: All
Market Sector: Commercial, industrial, government, institutional
Project Minimum: \$100K Maximum: \$20M

Energy Performance Services, Inc.

Thomas K. Dreessen, CEO
300 Stevens Drive, Suite 135
Philadelphia PA 19113
USA
Telephone: 610-278-6633
Fax: 610-278-7255
Existing Market: USA, Czech Republic, Canada
Target Market: USA, Global

Technology: All
Market Sector: Commercial, industrial, government, institutional
Project Minimum: \$1M Maximum: \$25M
Offices in Omaha, NE; Philadelphia, PA; Washington, DC; Montreal, Canada; Czech Republic

Energy Wise Lighting

Peter Greenberg
215 12th Street, N.E.
Washington DC 20002
USA
Telephone: 202-547-3499
Fax: 202-547-3499
Existing Market: USA
Target Market: USA, US Federal Agencies

Enersave, Inc.

Dennis Wilson, President
355 Lexington Avenue
19th Floor
New York NY 10017
USA
Telephone: 212-661-9494
Fax: 212-661-9189
Existing Market: USA
Target Market: USA, US Federal Agencies

Entergy Systems and Services Inc.

John L. Bosch, Vice President
4740 Shelby Drive
Suite 105
Memphis TN 38118
USA
Telephone: 800-477-7274
Fax: 901-367-2873
Existing Market: USA
Target Market: USA, US Federal Agencies
Technology: All

Escolux

Jurgen Steinhauser
59, Avenue Pasteur B.P. 521
2015 Luxembourg
Luxembourg
Telephone: 352-22-54-74-1
Fax: 352-22-54-77
Existing Market: Luxembourg
Target Market: Luxembourg

European Association for Third Party Financing

Henri Goffin
Rue Rossendael 125
1190 Brussels
Belgium
Telephone: 32-2-370-18-48
Fax: 32-2-370-18-48
Target Market: Association: does not do projects

FMS Lighting Management Systems

William K. Kelly, Jr., President
323 Commerce Park Drive
P.O. Box 10162
Jackson MS 39286-0162
USA
Telephone: 601-362-1533
Fax: 601-981-7507
Existing Market: USA
Target Market: USA, US Federal Agencies

Ferreira Service Inc.

Alan Pong
2566 Barrington Court
Hayward CA 94545
USA
Telephone: 510-783-9330
Fax: 510-783-3375
Existing Market: USA
Target Market: USA, US Federal Agencies

Financial Energy Management Inc.

James C. Crossman, President
1625 Downing
Denver CO 80218
USA
Telephone: 303-832-1920
Fax: 303-831-8221
Existing Market: USA
Target Market: USA, US Federal Agencies
Technology: All

First Energy

Cristine Mercy
Energy House, Riversway Business Village
Navigation Way
PR2 2YP Preston
United Kingdom
Telephone: 44-1827-312-136
Fax: 44-1942-272-925
Existing Market: United Kingdom
Target Market: United Kingdom

GE Motors & Industrial Systems, General Electric Company

Thomas E. Ringwood, Contract Administrator, South Atlantic
2101 Executive Drive, #60
Hampton VA 23666
USA
Telephone: 804-827-4539
Fax: 804-827-4552
Existing Market: USA
Target Market: USA, US Federal Agencies

Geocal (Subsidiary of the TPF Group)

Avenue de Haveskercke, 46

B-1190 Brussels

Belgium

Telephone: 32-2-370-19-10

Fax: 32-2-370-19-11

Existing Market: Belgium

Target Market: Belgium

Performs study, design, consultancy, and site engineering; energy management; energy plant maintenance management; and major renovation

Griffin Energy Management Ltd.

Mr. Carter

Norfolk House 3 _ Laurance Rountney Hill

EC4R OBP London

United Kingdom

Telephone: 44-1-171-260-7323

Existing Market: United Kingdom

Target Market: United Kingdom

HEC, Inc.

Thomas Philbin, President

24 Prime Parkway

Natick MA 01760

USA

Telephone: 508-653-0456

Fax: 508-653-0266

Existing Market: USA, US Federal Agencies, Canada

Target Market: Hungary, Poland, Romania, Yugoslavia, Bulgaria, Albania, Germany, Japan, China, Korea, Thailand, Malaysia, Philippines

Market Sector: Commercial, industrial, government, and institutional

Conducted energy audits of four Hungarian hospitals and the Saudi Consolidated Electric Company, Jeddah, Saudi Arabia

No active overseas projects

Harris Energy Systems

Francis X. Reilly, Jr., President

66 Long Warf

Boston MA 02110

USA

Telephone: 617-723-1700

Fax: 617-723-6856

Existing Market: USA

Target Market: USA, US Federal Agencies

Highland Energy Group

Tom Stoner, President

2970 Wilderness Place

Suite 110

Boulder CO 80301

USA

Telephone: 303-786-9310

Fax: 303-786-8033

Existing Market: USA

Target Market: USA, US Federal Agencies

Technology: All

Honeywell Inc.

David Olson
Honeywell Plaza
P.O. Box 524
Minneapolis MN 55440-0524
USA
Telephone: 612-951-1000
Fax: 612-951-3446
Existing Market: Global
Target Market: Global, USA, US Federal Agencies
Technology: All
Market Sector: All market sectors
Project Minimum: \$5,000 Maximum: None
87 Offices
Conducted hundreds of projects

IDAE

Passo de Castellana, 95 Planta 21
28046 Madrid
Spain
Telephone: 34-1-556-84-15
Fax: 34-1-555-13-89
Existing Market: Spain
Target Market: Spain, Portugal

INENCO Group

Chris Abson
Vulcan House - Orchard Road
FY81ZZ Lytham St. Anne
United Kingdom
Telephone: 22-1253-728-951
Fax: 44-1253-713-392
Existing Market: United Kingdom
Target Market: United Kingdom

INTESCO Bhoruka Limited (Joint venture of INTESCO and the Bhoruka Power Corporation)

Mr. S. Subramanian, Chief Executive
48, Lavelle road
Bangalore - 560 001
India
Telephone: 91-80-221-9692/93/94
Fax: 91-80-221-0605
Existing Market: India
Target Market: India
Projects: 1) Bhoruka Steel's Karnataka mini-mill (first performance contract in India);
COST \$265,000; FINANCING--80% from Industrial Development Bank of India (INFUSE PROGRAM)
20% INTESCO equity;
This is a shared savings contract. 2) Bombay Dyeing and Manufacturing Company; retrofit of 3
compressed air systems; COST \$270,000;

INTESCO CZ (Subsidiary of INTESCO GLOBAL)

Petr Knizek, Roman Cizek, Acting Director
Pocernicka 96
108 03 Praha 10
Czech Republic
Telephone: 42-2-6702-1521
Fax: 42-2-6702-1520

Existing Market: Czech Republic: No operating projects as of June 30, 1995
Target Market: Czech Republic
Market Sector: Industrial, commercial, institutional and residential
Projects under development: 1) Small hydro 2) Street Lighting 3) Lighting Dispatch System
Intesco CZ has recruited 30 performance partners that collaborate on project implementation, or co-invest with Intesco CZ
Project Minimum:\$100K Maximum: None
Note: CZ industrial market estimated at \$3.2B

INTESCO-Pacific Pty. Ltd. (Joint venture of INTESCO and Pacific Pty. Ltd)

Lance Hoch, Acting Director
Level 20, 114 William St.
Melbourne
Victoria
3000

Australia
Telephone: 613-670-0720
Fax: 613-670-0718
Existing Market: Australia
Target Market: Australia
No extant projects as of 9/95

Iberese

Javier Rubio
Mayor, 31-1, Izquierda
48930 Las Arenas (Viscaya)
Spain
Telephone: 34-94-463-55-66
Fax: 34-94-463-52-89
Existing Market: Spain
Target Market: Spain

IllumElex Corporation

R. Harold Chappell
2925 Huntleigh Drive
Raleigh NC 27604
USA
Existing Market: USA
Target Market: USA, US Federal Agencies
Technology: Lighting technologies

Industrial Solar Technology Corporation

Randy C. Gee, Vice President
4420 McIntyre Street
Golden CO 80403
USA
Telephone: 303-279-8108
Fax: 303-279-8107
Existing Market: USA
Target Market: USA, US Federal Agencies

International Energy Services Company (INTESCO)

Dilip Limaye, President
111 Presidential Blvd., Suite 127
Bala Cynwyd PA 19004-1008
USA
Telephone: 610-667-2160
Fax: 610-667-5593

Existing Market: Global
Target Market: Global
Technology: All
Market Sector: All
Project Minimum: \$200K Maximum: None
Subsidiaries in Czech Republic (Intesco-CZ), India (Intesco--Bhoruka, Australia (Intesco-- Pacific Party)
Over 40 projects completed
INTESCO aggressively pursues international business

Johnson Control Systems Ltd.

John Glisson
Convex House, Rnadalls Research Park
Rnadalls Park, Leatherhead
Surrey KT22-7TS
United Kingdom
Telephone: 44-1372-376111
Fax: 44-1372-376823
Existing Market: United Kingdom
Target Market: United Kingdom
Technology: All
Market Sector: All
Performance Contracting
Energy and Operations

Johnson Controls Automation Systems B.V.

Boudewijn Sonderen
Avelingen 5, P.O. Box 356
4200 AJ Gorinchem
Netherlands
Telephone: 31-1830-67600
Fax: 31-1830-36579
Existing Market: Netherlands
Target Market: Netherlands
Performance Contracting
Energy and Operations Savings

Johnson Controls Inc.

Terry W. Hoffmann
507 E. Michigan Street
Milwaukee WI 53202
USA
Telephone: 414-274-4698
Fax: 414-274-4065
Existing Market: Global
Target Market: Global: see survey for areas of special focus
Technology: All technologies (not limited to its own equipment)
Market Sector: Markets: commercial, industrial, government, institutional, DSM
Has 190 offices; completed 400 performance contracts
Has overseas operating subsidiaries in Germany (performance contracting available in all major German cities), Belgium, Netherlands, United Kingdom
Offers various types of financing arrangements

Johnson Controls, Inc., Defense Systems Group

Daniel Frister, Government Project Manager
9550 Ridgehave Court
San Diego CA 92123-1681
USA

Telephone: 619-560-8033
Fax: 619-560-0709
Existing Market: USA
Target Market: USA, US Federal Agencies

Johnson Controls, Inc. Regelungstechnik GmbH

Ulrich Moehl
Westendhof 8
D-4300 Essen 1
Germany
Telephone: 49-201-240-0
Fax: 49-201-240-351
Existing Market: Germany
Target Market: Germany
Offers performance contracting in all major German cities

Johnson Controls, S.A./N.V.

Rick Verheyden
Leestsesteenweg 132
2800 Mechelen
Belgium
Telephone: 32-3-440-8289
Fax: 32-3-440-3418
Existing Market: Belgium
Target Market: Belgium
Performance Contracting
Energy and Operations Savings

Landis & Gyr Building Controls Switzerland

Peter Garforth
CH-6301
Zug
Switzerland
Telephone: 414-224-1124
Fax:
Existing Market: Europe
Target Market: Europe

Landis & Gyr Powers, Inc.

Dan Greco, Sr. Marketing Manager
1000 Deerfield Parkway
Buffalo Grove IL 60089-4513
USA
Telephone: 708-215-1000
Fax: 708-215-1093
Existing Market: USA, Canada, Europe
Target Market: USA, Canada, Europe
Market Sector: Commercial, industrial, government, institutional
Project Minimum: \$25,000 Maximum: None
Has offices in 65 cities in US and Canada
Has conducted over 200 projects
Not restricted to using its own products

Lanikai Lighting Inc.

William M. Gary, President
80 Sand Island Access Road
Suite 200
Honolulu HI 96819 USA

Telephone: 808-847-5888
Fax: 808-842-4989
Existing Market: USA
Target Market: USA, US Federal Agencies

LighTec Inc.

Jay Taylor
1 Mitchell Street
Merrimack NH 03054
USA
Telephone: 603-424-2165
Fax: 603-424-4312
Existing Market: USA
Target Market: USA, US Federal Agencies

Lord & Company, Inc.

Mohan Jacob, Vice President
P.O. Box 2201
Manassas VA 22110
USA
Telephone: 703-368-3530
Fax: 703-368-8026
Existing Market: USA
Target Market: USA, US Federal Agencies

Lorne Steward Plc

Mr. McCloskey
Stewart House - Kenton Road
HA3 9TU Harrow
United Kingdom
Telephone: 44-1181-206-1555
Existing Market: United Kingdom
Target Market: United Kingdom

MANWEB Pic

Helen Foster, Nicola Wilkinson
Sealand Road
CH1 4LR Chester
United Kingdom
Telephone: 44-1224-65-2158
Fax: 44-1244-65-31-54
Existing Market: United Kingdom
Target Market: United Kingdom

Mor-Lite

Huey K. McAlpin, President
10801 75th Street North
Largo, FL 34647
USA
Telephone: 813-541-6170
Fax: 813-545-0083
Existing Market: USA
Target Market: USA, US Federal Agencies

New York Energy Savers Group Inc.

Morris B. Friedlander
P.O. Box 154
Brooklyn NY 11219
USA
Telephone: 718-853-2560
Fax: 718-853-2560
Existing Market: USA
Target Market: USA, US Federal Agencies

Northeast Energy Services, Inc. (NORESKO)

George P. Sakellaris, President
111 Speen Street
Framingham MA 01701
USA
Telephone: 508-875-2252
Fax: 508-875-9921
Existing Market: USA
Target Market: USA, India, Greece, Portugal, South America, Central America
Technology: All
Market Sector: Commercial, industrial, government, institutional
Actively prospecting internationally
Project Minimum: \$100k Maximum: None
Projects: Duburg Power Plant, Kalinga Power & Public Power Int'l 2x250 MW coal fired project, Orissa, India
Alternate contact: John Rizzo, Manager of Performance Contracting

Onsite Energy Corporation

William G. Gang, Vice President
701 Palomar Airport Road
Suite 200
Carlsbad CA 92009
USA
Telephone: 619-931-2400
Fax: 619-931-2405
Existing Market: USA, US Federal Agencies
Target Market: Canada, Mexico, Central America, South America, Caribbean
Technology: All
Market Sector: Commercial, industrial, institutional sectors
Project Minimum: \$100K, Maximum: None
No overseas operating subsidiaries, or operating projects
Natural gas and diesel project in development in Michoacan, Mexico
Has done audits for the Ministry of Water and Power, Pakistan
Has six offices and has completed over 50 projects

Optimizacao Energetica (OPE)

Luis Fernandez
Rua de Xabregas, Lote A-1
Salas 22/25
P-1900 Lisbon
Portugal
Telephone: 351-1-868-6593
Fax: 351-1-858-6592
Existing Market: Portugal
Target Market: Portugal

Planetec Utility Services Company Inc.

Benjamin Brant, President
1153 Evergreen Parkway
Suite M471
Evergreen CO 80439
USA
Telephone: 303-674-1147
Fax: 303-674-0889
Existing Market: USA
Target Market: USA, US Federal Agencies

Power System Solution

Robert H. Graham, Director
9185 Bond
Overland Park KS 66214
USA
Telephone: 913-888-8050
Fax: 913-888-5558
Existing Market: USA
Target Market: USA
Technology: HVAC, lighting, cogen, industrial, motor, power quality
Market Sector: Commercial, industrial, institutional, government, hi-tech
Project Minimum: \$200k Maximum: \$25M

Professional Mechanical Systems Inc.

Earl A. Nagle, President
8525 Grovemont Circle
Gaithersburg MD 20877
USA
Telephone: 301-670-1200
Fax: 301-948-6539
Existing Market: USA
Target Market: USA, US Federal Agencies

Proven Alternatives Inc.

Rod Farrow, Flynn Bucy
1740 Army Street
San Francisco CA 94124 USA
Telephone: 415-285-0800
Fax: 415-285-5805
Target Market: Thailand, India, Philippines, Chile, Brazil, Mexico, Baltics, Viet Nam, Eastern Europe
Overseas operating subsidiary in Thailand

Proven Alternatives International (Overseas operating subsidiary of Proven Alternatives)

Dr. Vichit Punyahotra
Bangkok
Thailand
Telephone: 662-246-8048
Fax: 662-247-5879
Target Market: Thailand

Public Service Conservation Resources Corp.

Arthur Coughlin, President
9 Campus Drive
Parsippany NJ 07054
USA
Telephone: 201-644-4500
Fax: 201-292-9541

Existing Market: USA
Target Market: USA
Technology: HVAC, lighting, industrial, motor replacement
Market Sector: Commercial, industrial, institutional, local government
Has completed over 500 projects

REEP, Inc.

Cosmo Iacavazzi, President
2 Wall Street
Princeton NJ 08540
USA
Telephone: 609-683-5300
Fax: 609-683-9374
Existing Market: USA
Target Market: USA
Technology: HVAC, lighting, buildings, motors
Market Sector: Commercial, industrial, institutional, government, and residential
Project Minimum: \$100k Maximum: None

SECOGEN (Subsidiary of Econoler Belgium)

Boulevard Frere-Orban, 35
B-4000 Liege
Belgium
Telephone: 32-41-53-51-05
Fax: 32-41-53-04-08
Existing Market: Belgium
Target Market: Belgium
Technology: Cogeneration projects
Joint venture with Societe de Financement en matiere energetique

SINAE

Fernando Ferrando Vitales
Edificio MAPFRE - Ctra. N-I, Km.32,5
28750 San Augustin de Guadalix
Spain
Telephone: 34-1-844-71-91
Fax: 34-1-844-7220
Existing Market: Spain
Target Market: Spain

SINERG

Francois Bergere
L'Atrium - Place Abel Gance
92652 Boulogne Billancourt Cedex
France
Telephone: 33-1-34-22-61-47
Fax: 33-1-34-22-54-79
Existing Market: France
Target Market: France

SYCOM Enterprises

Lynn Sutcliffe, President
109 L Corporate Boulevard
South Plainfield NJ 07080
USA
Telephone: 908-755-7733
Fax: 908-755-7215

Existing Market: USA: NJ, CA, WA, MD, VA, DC
Target Market: USA
Technology: HVAC, lighting, industrial, motor, waste heat
Market Sector: Commercial, industrial, institutional, government, and waste water treatment facilities
Project Size: No limits
Has offices in NJ, DC, CA
Has completed over 75 projects

Saarlandische Energie Agentur

Michael Brand
Altenkessler Str. 17
66115 Saarbrücken
Germany
Telephone: 49-681-6972-170
Fax: 49-681-6972-175
Existing Market: Germany
Target Market: Germany

Siebe Environmental Controls (Division of Barber-Colman company)

Bob Noonan
1354 Clifford Avenue
Loves Park IL 61132
USA
Telephone: 815-637-3140
Fax: 815-637-5320
Existing Market: USA
Target Market: USA, US Federal Agencies

Sociedade Termica Portuguesa

Alvaro Brandao Pinto
Av. de Berna, 24-7 Dt.
1000 Lisbon
Portugal
Telephone: 351-1-793-77-18
Fax: 351-1-796-72-84
Existing Market: Portugal
Target Market: Portugal