

# Engaging the small commercial sector: new approaches for solving market barriers

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## Abstract

This paper examines how effectively working with students and contractors can engage small commercial businesses in energy efficiency measures. Small commercial businesses are an underserved and hard-to-reach market for energy efficiency services. Yet, this sector comprises a significant percentage of all businesses and aggregate energy usage. Two main barriers to doing an energy retrofit in small businesses include getting the business to agree to participate and getting them to implement suggested measures. Student outreach addresses the first, and using a mechanical or electrical contractor as an ESCO is a great way to address the second.

The Awareness for Community Energy (ACE) Program is currently being offered throughout the United States. ACE employs high school and college students as interns and trains them in small business energy auditing. The business more readily accepts the marketing of energy services by a student, since it is seen as an opportunity to contribute to a student's educational experience. In one case, ACE program participants audited over 150 small businesses in a three-month period.

Electrical and mechanical contractors are prime candidates to both disseminate information on energy efficiency and carry out the necessary retrofits. The owners of most energy using facilities already have trusted mechanical/electrical service contractors. By diffusing ESCO concepts amongst existing service contractors, there is a far greater chance of upgrading the energy efficiency throughout the

small business sector. Such diffusion activities will involve training and awareness programs for contractors, as well as encouragement of financial institutions to develop supportive financing products.

## Introduction

Small businesses are an underserved and hard to reach market for energy efficiency services. This is primarily due to the time they have to spend in understanding the benefits of energy services, but also because the people they typically rely on for information about energy-using technologies are local contractors who don't normally understand the benefits of energy efficiency. This paper explores innovative approaches for working with small businesses, both in gaining their interest in energy services, and in utilizing local contractors to educate small business owners, and implement energy efficiency in the buildings.

The term *small business* used in this paper refers to the micro (which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total is not specified) and small enterprises (which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed 7 million Euro).

There is tremendous potential in targeting the small business market for energy efficiency. In the United States small businesses constitute 99.7% (or 23.7 million) of all businesses, and employ 50% of the private work force (U.S. SBA, 2004). Given how much of the US's economy is dependent on small business, it is no wonder that energy efficiency programs have targeted them as a sector for dramatically affecting our energy economy. According to Jerry Lawson, the

Environmental Protection Agency's Energy Star Program Director, "If all American small businesses cut their energy costs by 30 percent, more than \$15 billion a year would go straight to their bottom line" (Worsham, 1998).

In Europe, small business constitute 99.1% of all businesses and employ 54.9% of the private work force in the industry sector, while in the service sector small business constitute 99.9% of all businesses and employ 69.1% of the private work force (Guerrero, 2004).

### **SURMOUNTING ENERGY EFFICIENCY EDUCATION BARRIERS**

In order to truly transform the market for energy efficiency services, the small business sector needs a lot more focus than it has had in the past. As there are many barriers in working with this sector, most energy services providers tend to focus on sectors that are more accessible. This paper will introduce strategies found to be successful in addressing barriers to reaching small businesses with energy efficiency services.

The authors have discovered that students make excellent ambassadors for energy efficiency education. Student enthusiasm for energy efficiency and for helping their community is contagious, and it helps to surmount the initial disinterest of the small business in energy efficiency matters. Students have been able to get many businesses to participate in energy audits, thereby overcoming a barrier to efficiency education.

An example of a program that has used students successfully is Strategic Energy Innovation's ACE (Awareness for Community Energy) Program, which is currently being offered in several locations in the United States. ACE employs high school and college students as interns and trains them in energy auditing small businesses. The business more readily accept the marketing of energy services by a student, as the collaboration can be viewed as an opportunity to contribute to the student's education while also maintaining an active presence in the local community. In return, small business owners receive valuable information about their facility's potential savings with energy efficiency.

In addition to using students for marketing and outreach, the use of electrical and mechanical contractors has been found to be a successful method in getting the small business to implement the measures suggested as a result of the audit.

Once the small business owner has the retrofit recommendations in hand, a likely next step would be implementation of the measures. Both electrical and mechanical contractors are prime candidates to disseminate information on energy efficiency and carry out the suggested retrofits. In California, this method has been fully explored and supported through public goods funds, under the auspices of the California Public Utilities Commission.

There are not many parts of the world that have these funds available, so in this paper we explore an alternative method of implementing small business energy efficiency projects. This method exhibits successful implementation of efficiency measures based on turning the aforementioned electrical and mechanical contractors into "mini-ESCOs."

By imitating an ESCO (Energy Service Companies) model among existing service contractors, there is a greater

chance of increasing energy efficiency throughout the small business sector. However, the classic ESCO service is usually only provided to large energy users, which spend at least \$500 000 per year on energy. Only such users can have energy retrofit projects large enough to easily absorb the ESCO fees needed to cover the costs of developing a relationship and contract with a new customer. Most small businesses are unable to benefit from ESCOs because of minimum savings criteria. As they have neither the internal expertise nor financing to spot and implement energy efficiency measures, they rarely participate in an energy saving retrofit.

Most small businesses already have trusted mechanical/electrical service contractors who know their facilities well. Though these contractors are usually small, they can become "mini-ESCOs" for the small business sector. There is already an ongoing working relationship between small contractors and their small business customers. As a result, the small contractors do not incur any costs to build credibility with their client. They do not have to provide formal savings guarantees to convince customers of their capabilities or willingness to stand behind their services. Both contractor and small business know that the larger ongoing relationship could easily be broken if the small business feels it is not getting what it expected, and small contractors are particularly sensitive to maintaining good customer relations. Therefore, complex contracts are not needed to cover contingencies of savings being at less than a guaranteed level. The ongoing small business/small contractor relationship for other services can be the foundation for an "ESCO-type" sale of incremental energy efficiency products and services, without the overhead of building a new relationship with a new ESCO.

### **Barriers to Implementation of Energy Efficiency Services**

The two main barriers that exist in getting small businesses to become more energy efficient 1) Accessing the already overwhelmed small business owner with information that has seemingly little to do with his/her core business, and 2) Educating her/him enough on the benefits so s/he will agree to take on an initial financial and management hardship to implement retrofit suggestions made as a result of the audit.

These barriers may exist for a number of reasons.

1. *Access:* Small businesses typically have few employees, and cannot afford to spare an employee time to visit with an auditor or implementation service provider. These few employees often do many different tasks that would normally be completed by a larger number of people, and cannot take time away from their work to discuss the audit, or to manage an energy retrofit. In addition, both the small business owner and his/her employees lack the initial interest in talking with people about energy services.
2. *Time:* Small business owners and their employees work long hours and have little time to spend on educating themselves on the benefits of energy efficiency.
3. *Trust:* Small businesses are more likely to be wary of visitors who may be selling wares, as they are strapped for

time or resources, and may view visitors as a hindrance to continuing the small businesses core business. This makes it difficult to gain their interest and inform them about the benefits of an energy audit or retrofit.

4. *Money*: Small businesses are often cash poor, and barely have funds to do routine maintenance of their building, let alone pay for an energy audit or expensive retrofit. Even if an auditor surveys a small business and creates an implementation plan, it would be difficult for a business to front money for a retrofit. Small businesses operate under tight budgets and often cannot spare outside expenses that are not absolutely necessary, which makes the initially higher cost of energy efficiency retrofits and technologies cost prohibitive for them.

## US SOLUTIONS TO ADDRESS THE BARRIERS

### 1. Establishing a successful energy efficiency outreach program

Strategic Energy Innovations (SEI), a non-profit organization based in the United States, was created to support low-income or hard to reach customers with energy efficiency, and has produced a number of programs that serve to bridge the gaps created by these barriers. Through trial and error, SEI has discovered a valuable model to successfully reach small businesses by using students as ambassadors of energy efficiency education.

SEI's Awareness for Community Energy (ACE) Program has proven to be extremely successful in its four years of existence, reaching over 200 small businesses. The ACE program trains high school students to become energy auditors. The students actively market their energy auditing services to small businesses within their community. Once they have the small business' commitment, the student will perform an audit of the small business, primarily targeting lighting and HVAC systems. They then create a report documenting their findings and recommendations for energy efficiency retrofits. The student's services are also extended to helping the small business find rebates and major discounts on retrofit items.

An added benefit of the ACE approach is that by using students, the workforce of energy professional grows, and students gain valuable job-readiness skills like marketing, sales and energy auditing through their participation in the ACE program. In fact, 90% of students participating in this program have stated they will seek a career within the environmental or energy field.

The following steps were taken in the creation of the ACE program.

#### Hire and train students.

College students are solicited for internships through job postings at local community colleges, universities and at Internet job posting boards. Students with some background in energy conservation and spreadsheet skills are preferable, but equally important is a student's social manner and outgoingness, since this will influence how successful they are in marketing the program to small businesses.

Local high school students are solicited through a variety of means. Often, the high school or regional office of education that has oversight over several high schools has a career development office. We have also had success in going directly to different high school teachers and either having them talk with specific students, or giving presentations to different classes.

After students are selected, they are trained in several areas including identifying lighting and HVAC technologies; energy efficient lighting technologies; marketing strategies targeted to small businesses; calculating energy efficiencies (both in kWh and cost savings), and report writing on energy efficiency technologies and financing.

#### Produce marketing materials for the program and develop specific talking points for the student auditors.

Marketing of energy efficiency services to small businesses need to be done well so that the energy auditor is permitted by the owner to perform an audit. Through the ACE program, we developed several marketing strategies to readily gain the interest of a small business. First, we created a single panel brochure and business cards for the student auditor, which served to establish the student's legitimacy and which could be left with the owner, so that if the owner was not available, s/he could follow up via phone. We also compiled a list of area small businesses that had previously been audited, so that students could promote this with neighboring enterprises. We also collected letters of endorsement from local political officers and local business organizations to demonstrate the business community's commitment to energy efficiency. In terms of the student's appearance, we made professional looking shirts with the words, "Community Energy Intern" on them. This helped to make it obvious to customers within a store that was being audited, that the person making notes on the clipboard was an energy auditor and not a government inspector.

We developed several talking points for the students to give to the small businesses. However, the students reported that the magic phrase most successfully used to gain small business interest was, "I'm an intern learning about my community's energy usage through a publicly-funded program. Could you help me out on this project?" As mentioned above, this type of introduction presented an opportunity for the storeowner to help the student in an educational exercise, and it also made it clear that there was nothing for sale, and that in fact, the services being offered were already publicly funded. Additional talking points that the student told the small business included discussing the energy saving, heat reduction and longer lifetime of T8s versus T12 lighting; the minimal amount of time it would take to conduct the audit, and they offered an invitation for the business owner to accompany them on the audit.

We also borrowed tips from the field of social marketing which has shown that the more animated an auditor is about an audit, the more likely others will be interested in conducting one. Social marketing also tells us that people display more powerful reactions to losses than to gains, so energy and money losses were framed accordingly in the student's talking points.

Students make cold calls to businesses to engage them in energy audits

Rather than sign small businesses up for audits via telephone, students went door-to-door in their community's business sector and solicited interest for audits and conducted them immediately on-site if there was interest. Students were told to approach enterprises during slow times during the day for an owner to increase their chances of success.

Students conduct the audit and prepare a report based on their findings. The students return to the small business to give them a copy of the report and make recommendations for retrofitting.

The student conducts an energy audit of the facility, primarily focusing on lighting and HVAC technologies. The student records the data on worksheets and enters the data back in the office into spreadsheets that assist her/him in calculating energy consumption and efficiencies. The student prepares and delivers a detailed report to the business that describes its estimated annual energy consumption and associated cost, the energy and cost savings if a retrofit was conducted, financial incentives available, and the names and addresses of local contractors (electricians) and stores that perform energy efficiency retrofits or which sale energy efficient technologies.

## 2. Using Effective Marketing & Outreach Strategies once the program is established

This program is successful for the following reasons:

1. *Access:* Several studies have shown that small businesses are much more likely to contribute both time and money to their local community than any other sector (NFIB, 2003). By working under this premise, rather than marketing a free energy audit to the small business, the ACE program markets the small businesses' participation in a high school education program. As a result, the small business is much more likely to participate.
2. *Time:* The student can assist the small business owner by bringing the information to them. They try to minimize the impact on the owner, by going door-to-door, and doing the audit on a drop-in basis, or by making an appointment, whatever fits the owner's schedule. The reports are also easy to read, with the pertinent information highlighted, and focused on low and no cost measures the owner can implement her/himself.
3. *Trust:* Students make great energy ambassadors. As the small business owner understands that the student is participating in an education project, and therefore not selling a particular product or service, they are more likely to listen to the results of the audit. In addition, students present the information in an easy to understand format, and with enthusiasm for the broader environmental benefits of energy savings programs.
4. *Money:* The ACE program is funded through outside organizations (e.g. community foundations or a local energy agency), so although the student is being paid for their time, the audit and resulting report is free for the

small business. In addition, the program costs are low compared with traditional marketing costs when working with small businesses; most of the cost of an audit is in people-time, and a student's hourly rate is much less than that of a professional. As the information gathered for the audit is not usually overly complex (small business buildings rarely have complex systems), a student can readily learn the technical information necessary to complete the audit.

While effective, the ACE program results in a positive learning experience for the students, as well.

A valuable result from this marketing and outreach approach is in workforce development. A key component of the ACE program is the mentoring aspect. Not only does SEI staff spend time in training the student, we also hire a college intern to more closely mentor the student, and who preferably has a pending degree in the energy management industry.

The student also benefits tremendously from the job readiness training that conducting small business energy audits offers. S/he leaves with an ability to market services to business, perform energy efficiency services, calculate energy savings, and prepare professional reports. The ACE program was able to easily engage students to help them understand energy efficiency concepts, and in return, they teach those difficult concepts to small businesses.

## 3. Offering an Effective Implementation Strategy

Once marketing and outreach has successfully engaged the small business, there needs to be a link to an acceptable implementation strategy in order to ensure the small business participates in an energy efficiency retrofit program. An audit provides information on such a strategy to the small business, which the small business owner can then pass on to its local contractor, but as there are still several steps the small business owner needs to take, the audit may be left untouched.

One effective implementation strategy would be to partner the ACE program with a more broadly supported small business implementation program. SEI partnered with the firm Small Business Energy Alliance (SBEA) to do follow-up retrofit services with all the businesses that the students had visited. SBEA, a private energy services firm, had public goods funding through the California Public Utilities Commission, a state agency, to subsidize retrofit installation and technologies by up to 70% of their cost. This meant that a small business owner was presented with energy services for only 30% of the market rate cost, thereby making the energy retrofits highly affordable. Each small business that the student initially audited had the owner sign an access agreement that enabled SBEA to return to the business to conduct a more detailed audit. Armed with the preliminary audit results from the students, SBEA would enter a business and inform the owner of the range of energy and cost savings that the lightening retrofits would produce. They then would conduct a thorough audit of the HVAC system and insulation service. With the aid of a laptop and by the

end of the audit, the experienced auditor would be able to inform the business of specific retrofit recommendations and costs. Several of the businesses that the students approached went through with retrofits. This model has therefore been proven to be extremely successful in securing the commitment of businesses to conduct retrofits.

While this strategy would effectively overcome difficulties in a small business's access to financing, there are few places around the globe that have access to public goods funds that could support such a program. For places without such access, we suggest that using a "mini-ESCO" model would be an effective implementation strategy.

#### **A EUROPEAN SOLUTION TO ADDRESS EFFICIENCY EDUCATION BARRIERS – THE CREATION OF THE MINI-ESCO**

A second model for promoting the implementation of energy efficiency retrofits in small businesses follows the ESCO model. ESCOs pair professional and local contractors to follow behind the energy audit with low (or zero) cost retrofitting for the small businesses.

#### **The Traditional ESCO**

An Energy Service Company (ESCO) provides a valuable service for facility owners and the environment by finding and implementing self-financed energy savings opportunities that replace energy waste and emissions. ESCOs are useful to owners who may not understand their energy bills, don't believe they have any wastage, don't understand how they can save energy or how to design retrofits, don't know how to raise finances without debt, or don't appreciate the role of operational monitoring in controlling energy costs.

ESCOs receive payment for their services based on the performance of their equipment and services implemented. An ESCO provides performance and savings guarantees, and their compensation is tied directly to the energy savings achieved. Therefore, an ESCO risks payment on the performance of equipment and services implemented. Some ESCOs finance projects, recovering their investment cost from the resulting savings.

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
- Purchase of fuel and electricity
- Monitoring and verifications of the savings results
- Project financing

As mentioned above, traditional ESCO services are usually provided to large energy users, those spending at least

\$500 000 per year on energy. Therefore, only large energy users can have energy projects large enough to easily absorb the fees charged by an ESCO to cover their costs of developing their project. Small businesses cannot benefit from an ESCO because they neither have the internal expertise nor financing to spot and implement energy efficiency measures, including working with an ESCO.

#### **A New ESCO Model for Small Businesses**

Though ESCOs are important catalysts in their market niche, a large part of most nations' energy savings potential is usually contained within small businesses who have little ability to make energy savings. However, there is hope of bringing energy efficiency to the many small corners of an economy by *diffusing ESCO concepts* amongst all existing small contractors serving the small business sector.

Most small businesses already have trusted mechanical/electrical service contractors who know their facilities well. These firms provide preventive maintenance, breakdown repairs and sometimes small capital upgrades. Though these contractors are usually small, they can become "*mini-ESCOs*" for the SB sector. There is already an ongoing working relationship between small contractors and their SB customers. As a result, the small contractors do not incur any costs to build credibility with their client. They do not have to provide formal savings guarantees to convince customers of their capabilities or willingness to stand behind their services. Both contractor and SB know that the larger ongoing relationship could easily be broken if the SB feels it is not getting what it expected. Small contractors are particularly sensitive to maintaining good customer relations. Therefore complex contracts are not needed to cover contingencies of savings being less than a guaranteed level. The ongoing SB/small contractor relationship for other services can be the foundation for an "ESCO-type" sale of incremental energy efficiency products and services, without the overhead of building a new relationship with a new ESCO.

#### **Small Contractor Needs**

To begin behaving as mini-ESCOs, there are four areas where small contractors typically need development and help:

1. **Selling Energy Efficiency:** Small contractors need to recognize that, by becoming a "mini-ESCO," they can profit from selling more products or services to their existing clients.
2. **Financing Energy Efficiency:** Small contractors will need to learn how to represent and work with financing the efficiency needs of small businesses. Ideally, the energy efficiency financial products for small businesses will be packaged so that there is minimal effort involved for the small contractor. The contractors should be aware of finding ways to handle the credit risks of small energy users.
3. **Savings Prediction Techniques:** Small contractors will need to learn how to make a prediction of savings simple to perform and easy for the customer to understand. Though equipment suppliers may provide information about typical potential savings from their product, few

situations are 'typical.' Small contractors need to understand possible areas of savings prediction error and be able to evaluate how much precision is needed for each customer.

4. Post-retrofit Savings Demonstration: If a small business ever desires verification of their results, the small contractors should be versed in simplified savings measurement techniques. They may also need to know procedures to manage any new performance risks they might undertake.

#### Turning Small Contractors Into "Mini-ESCOs"

Successful integration of ESCO-type techniques into the business methods of small contractors, i.e. making them mini-ESCOs, will require training and support. Unfortunately, the natural tendency of a small contractor is to continue with its successful business model. Only competitive forces are likely to move a contractor to try something new.

The natural rate of diffusion of energy efficiency techniques to small contractors can be accelerated beyond the speed of competitive forces by exposing and explaining the opportunities to small contractors. This "expose and explain" effort involves *exposing* small contractors to examples of the model that show real increase to business volumes, and then training and supporting them.

To get the message onto the radar screens of the owners of small contractors, they should be *confronted* by it in the regular course of business, whether it is through their dealings with their product wholesalers or through their own industry trade associations. There is little point in running special energy management events for industry, since contractors must acknowledge the need before they will make the special effort to attend. General industry energy management conferences or publications usually appeal to too broad an audience to enable focus and attention to each contractor's concern. Instead the business expansion opportunity message needs to be presented in terms very specific to each kind of contractor in forums where they can have their own concerns answered.

Small contractor *training* and support is needed for selling, financing, predicting and demonstrating of energy savings, as described above. Though special products may be needed, such as financial products, generally this training and support process simply involves packaging standard knowledge together for each type of person and communication channel. For example, a lighting contractor's owner needs to hear business strategy messages, while its field people need to know what information is required to predict savings and how to sell clients on energy efficiency additions. The owner meets his peers at the trade association but also has periodic meetings with wholesalers. Each of these channels may be primed to deliver a specific strategic message about business expansion. At the same time the field staff can be equipped to observe lighting level, operating hours and control methods, and given sales literature to persuade a small business representative to implement a lighting retrofit, for example.

#### The Path Forward

Each type of contractor (mechanical, electrical, building fabric) faces different issues in becoming a mini-ESCO. So programs to accelerate diffusion of ESCO methods require customised attention for each sector. However there are some common themes that may be addressed centrally, such as the co-ordination of banks and public bodies in the development of pre-approved energy efficiency loans for small businesses.

The support needs of each type of contractor are not usually clear to the policy makers who wish to accelerate the diffusion of ESCO concepts. Before designing a program to support small contractors, there must be good understanding of contractor size, skills, interests and concerns. Such awareness may require identification and contact with contractors who previously have only been seen as a large homogeneous group. Co-operation with relevant individual trade associations and wholesalers will be vital to designing appropriate support for each type of contractor.

We see this ESCO model as being an excellent program to be funded by public agencies to first gain a better understanding on the marketing players, and then to begin and training and implementation program that would start by piloting it in a small local area, and then growing it based on lessons learned.

#### Conclusion

We have presented two models in this paper that, when paired, will create a low cost, effective, and complete program to help small businesses with energy efficiency.

The first program, ACE, was modeled in the United States and uses students to provide energy audits to small businesses, thus providing education to the students and giving the small business a feeling that they contributed both to the student's education and to their local community. The students in the ACE program can gain the trust of a small business more easily, as well as provide the audit at zero cost to the business.

The second program, using the European ESCO model, pairs energy efficiency professionals and local contractors to follow behind the energy audit with retrofitting services for the small businesses. By pairing ESCO's with local contractors, small businesses can follow the measures suggested through the audit at a much lower cost than most other types of small business energy efficiency programs. These small contractors have the advantage of an ongoing relationship of trust from their current customers, eliminating the typical ESCO's need to sell and prove itself to customers.

In order to accept the concept of becoming a "mini-ESCO," small contractors need to "wake up" to the opportunity of expanding their businesses to include energy efficiency services. They will need energy efficiency training and support services presented on their terms. The diffusion of ESCO-type services to small contractors can be accelerated with the coordination of a national body such as government, utility or broad trade association.

Paired together, these two program models provide solutions to two major barriers preventing small businesses from addressing their energy efficiency issues:

- Gaining the trust and interest of the small business in order to get them to agree to an energy audit.
- Getting the small business to implement the measures suggested as a result of the audit.

A program that pairs both the ACE approach with the “Mini-ESCO” program in order to implement retrofits at a small business will be extremely successful in unlocking the large energy saving potential in small businesses. We strongly recommend that public agencies focus on serving the small businesses in their jurisdictions, by implementing a program that would combine these models.

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