

The Potential ESCO Market: Over \$320 Billion

Larry B. Barrett, President
Barrett Consulting Associates, Inc.

Even though energy service companies (ESCOs) have around for well over a decade in the U.S., substantial investment opportunity remains. This article presents one approach to estimating this potential.

Energy service companies have traditionally been defined as "...a company engaged in developing, installing and financing comprehensive, performance-based projects, typically 7-15 years in duration, centered around improving the energy efficiency of facilities owned or operated by customers." (Richard D. Cudahy and Thomas K. Dressen, *A Review of the ESCO Industry in the United States*, prepared for the World Bank, undated draft, p 12.)

This rather specific definition has been corrupted by many to include other activities such as energy marketing and brokering or operations and maintenance of customer facilities for power generation, cogeneration, and electric distribution. "Energy services providers" should be the preferred terminology for those engaged in energy marketing and brokering at the retail level. Energy producers and distributors are more proper terms for companies providing those functions.

For purposes of this analysis, the cited definition of ESCOs is used. Furthermore, the focus is on the investment potential in commercial and industrial facilities, the traditional ESCO market.

NATIONAL ENERGY MARKET AND ENERGY SAVINGS

The annual energy bill in the U.S. for commercial and industrial customers is about \$132 billion. Electricity is the largest component at

\$114 billion annually. This is based on data from the Energy Information Agency of the U.S. Department of Energy. Natural gas adds another \$18 billion for commercial and industrial uses, other than utility power plant sales, according to the American Gas Association.

The energy savings potential out of the \$132 billion per year in annual bills remains high despite years of conservation programs sponsored by government agencies and utilities. Estimates of energy savings potential cover a wide range. EPRI, formerly the Electric Power Research Institute, estimated potential energy savings of between 27% and 44%. The Rocky Mountain Institute estimated energy savings as high as 75%. The U.S. Office of Technology Assessment developed an estimate of 33% technical energy savings potential for commercial and industrial buildings. (U.S. Office of Technology Assessment, *Energy Efficiency: Challenge and Opportunities*, 1993, pp. 63-67.)

The energy savings potential may be conservatively estimated at the low end of the range or 30%. This recognizes that much conservation potential has been achieved since the studies were performed. However, new cost-effective technologies continue to be introduced and more may be expected.

If the energy savings potential is about 30%, the \$132 billion in energy bills for commercial and industrial facilities can be reduced by about \$40 billion per year.

U.S. TECHNICAL INVESTMENT POTENTIAL

The maximum technical potential "...is a measure of the most energy that could be saved if all possible efficiency improvements were made with the most efficient technologies adopted in all new and existing applications, i.e., 100 percent penetration reached" (Ibid p. 64). This would translated into about \$40 billion per year in energy bill savings for the commercial and industrial sectors.

The cost-effective potential "... is an estimate of the energy savings that could be obtained if efficient technologies are installed in new and replacement applications whenever they are cost-effective." (Ibid.) The cost-effective potential is less than the technical potential since economic criteria are more constraining.

Obviously not all the technical potential has been realized as facility managers and others have not invested in all the possible

opportunities. Facility managers typically judge projects on the basis of paybacks. Some measures like lighting retrofits have relatively short paybacks. Other measures like space conditioning investments can have quite long paybacks. A few measures can have quite large paybacks from an energy-efficiency perspective such as roof upgrades, but must be undertaken for other reasons such as old age and high maintenance.

Paybacks for individual measures can therefore range from less than one year to over 20 years. Projects undertaken by ESCOs and facility managers to improve energy efficiency and upgrade buildings often combine measures with short paybacks and long paybacks to justify an acceptable project.

Facility managers and ESCOs frequently find projects are cost-effective with paybacks of about four years. The technical potential has been shown at about twice the cost-effective potential. This suggests technical investment potential may be estimated using a payback of about eight years on the technical energy savings potential.

Based on a simple payback of eight years, the \$40 billion of annual energy bill savings translates into a total technical investment potential of \$320 billion. The technical investment potential is substantially higher than the cost effective potential because many projects must be undertaken for reasons other than pure economics. In fact, ESCO sales reps are finding that energy efficiency is often subordinate or secondary to other important customer needs. Customers have needs for improved comfort, greater productivity, more secure environments for employees and customers, and better appearance for merchandise and people. These needs can justify investments in energy efficiency technology beyond the levels based only on cost-effectiveness.

ESCO MARKET

Not all energy investments are undertaken within one year and neither are they undertaken by ESCOs. It is estimated that 10% of the \$320 billion technical investment potential is realized in any year for a total investment potential of about \$32 billion per year. It is further estimated that ESCOs account for between 5% and 10% of these investments. Then the annual market for ESCOs ranges from about \$1.5 billion to over \$3 billion annually. Certainly with the growth of ESCOs in recent years the market has expanded and is quite significant. Yet as may be

seen from the estimate of technical investment potential much opportunity remains in general and for ESCOs in particular.

ABOUT THE AUTHOR

Larry B. Barrett is president of Barrett Consulting Associates, Inc., Colorado Springs, Colorado, and consults on planning, implementing, marketing and evaluating programs for energy efficiency. He consults with utilities, research institutes, government agencies, and energy management businesses.

Prior to establishing his consulting practice in 1989, Mr. Barrett served for more than 10 years as the manager of energy management programs for the Potomac Electric Power Company. Experience with the utility and since has encompassed residential, commercial, and industrial programs for energy efficiency and marketing including energy service companies.

Mr. Barrett is active in the Association of Energy Engineers, the Association of Energy Services Professionals, and the Association of Professional Energy Managers.

P.O. Box 60429, Colorado Springs, CO 80960; 719-634-4468; Fax 6830; LBBarrett@aol.com