Energy Service Companies - The Sky's The Limit!

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ABSTRACT

The term "ESCO" has a different meaning to different people. Increasingly, the term is used in its broadest sense to describe any company providing services related to a customer's energy acquisition and use[1]. Previously, the term ESCO was synonymous with contractors who installed new equipment that was paid for by the energy cost savings that resulted. As a result of competition, restructuring and de-regulation of the electricity and gas sectors, the range of firms offering energy services now includes:

- local utilities using services to retain customers,
- remote utilities offering services to customers outside their franchise as a door opener to future commodity sales,
- local and remote utilities who see services as a more lucrative growth opportunity than commodities or transportation of the commodity,
- facility managers taking advantage of outsourcing trends and using energy management to reduce costs,
- power marketers, power brokers, aggregators combining energy analysis to segment their customers with processes to identify potential conservation and load management opportunities,
- cogeneration developers, and
- agents who help their customers navigate the uncharted waters of the deregulated energy business.

This paper will review the impact of the broader definition of ESCOs with a view toward forecasting future trends in the industry including consideration of the fact that the term, "energy service", may, itself, be too narrow a definition for a successful business or industry.

Introduction

In the 1980's, pressure on utilities to pursue demand side management as an economic alternative to new supply sources was driven by environmental concerns. Regulatory pressures forced utilities to become more interested in the customer's side of the meter. In some cases utilities competed with ESCOs to deliver demand management. In other cases, utilities viewed ESCOs a delivery channel for conservation and load management. When DSM turned a corner in the mid 1990's, there were two schools of thought about the future of ESCOs:

1. without incentives, the industry would die
2. without incentives, the industry would flourish

[1] Firms who provide services to oil and gas exploration and production are also called ESCOs.

Both were correct. Some ESCOs, i.e., those who had developed primarily in response to utility bidding programs which paid on the basis of avoided costs and served geographically limited areas in utility allocated territories, saw their business disappear as they lacked the marketing and business development skills to sell their services competitively. Other ESCOs, who had survived before utility incentives, continued to do so in a post incentive environment. And they enjoyed the credibility that utility programs had given energy management generally and ESCOs in particular. At the same time, increasing utility ownership of energy service companies was increasing the blurring of the two industries.

The Energy Services Value Chain

Figure 1 contains a schematic of the energy services value chain. Both utilities and ESCOs have traditionally occupied a limited position on this "value chain". Utilities delivered energy to customers and ESCOs used energy savings to pay for the installation of higher efficiency equipment in that same customers premises.

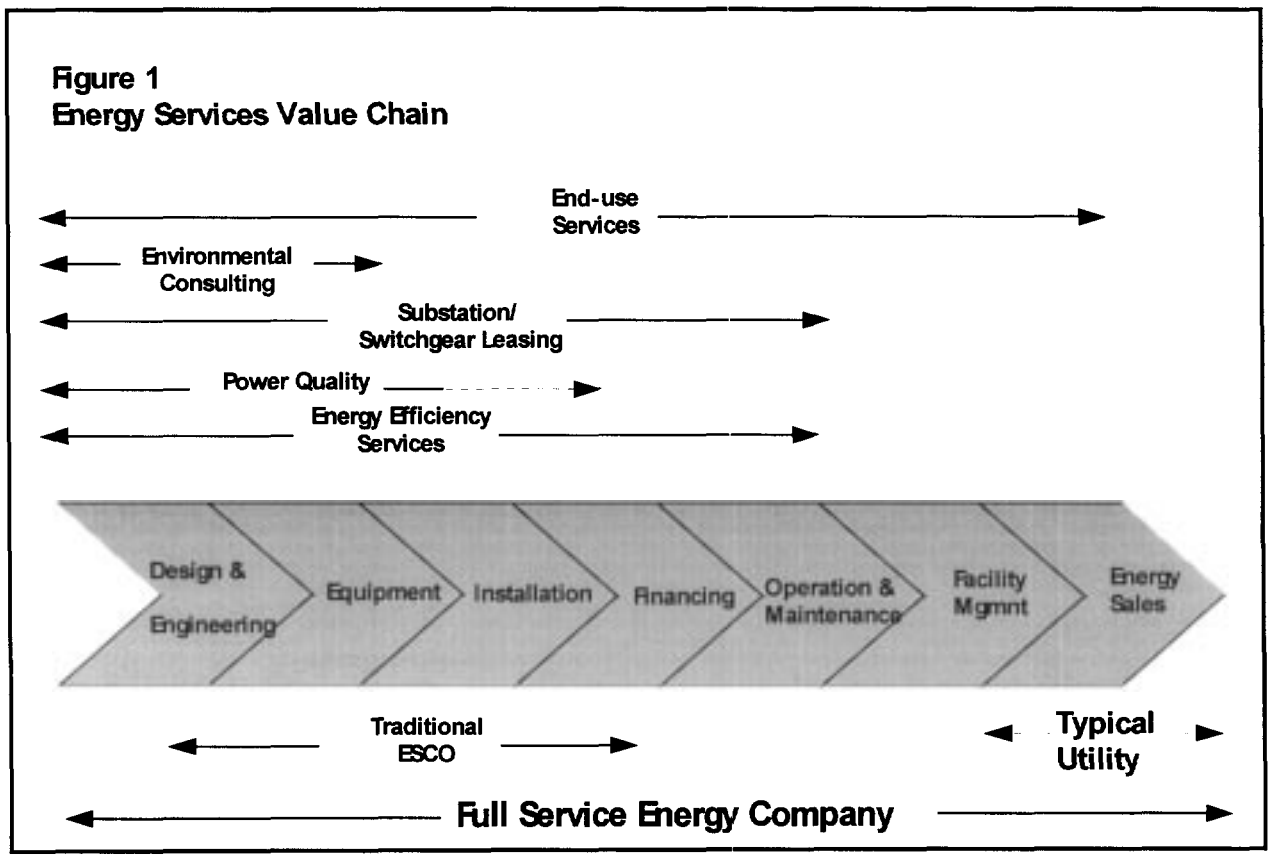

Figure 1- Energy Services Value Chain[2]

[2] Thanks to Ken Camera for the diagram.

Competition And Convergence. The life and death of DSM was only a drop in the bucket compared to the impact of competition and restructuring on the evolution of energy services. Competition and convergence are fundamentally changing the energy and energy services market place. In addition, the de-integration of energy supply functions is giving even more impetus to the growth of energy services encompassing a wider range of fuels and related services. This, in turn, is resulting in more energy efficiency projects, not as stand alone projects, but as part of overall energy management strategies.

While some contended that commodization and competition (i.e., lower prices) in the electricity industry would further reduce the interest and motivation for energy efficiency, this has not been the case. The need for customers to make explicit choices about energy supply and use, not just once, but as an essential element of business/operating strategies which are updated frequently, provides a more hospitable context for energy conservation, energy efficiency, load management, fuel switching, dual fuel applications, load and billing analysis as well as stimulate the entrants of new service providers.

Technology and ideology are the "chicken and egg" of the global trend to electricity restructuring. Ideology is driving towards competition and privatization Technology is allowing the ideology to be applied to the energy market. Technology is transforming electric power production drastically altering the traditional economies of scale of centralized electricity generation mega-projects which sustained traditional textbook economic theory about the role and regulation of monopolies.

Technology has also changed the traditional market positioning of gas and electricity as competitive goods to that of substitutable goods. While some economies of scale persist, gas delivered to a customer's "gate" can be used directly as a fuel or converted to electricity on site. Many players in the gas sector are, independently or with partners, getting into the electricity business.

Technology is no longer a constraint on business decisions about who supplies whom and who adds value to which link in the energy supply chain. "Inside the fence cogeneration" used to be an anomaly from the usual utility - customer relationship in North America. The "fence" is now more likely to be a series of movable partitions with a variety of potential players, partnerships and arrangements evolving over time.

Ironically, the trend toward convergence in the energy sector is also increasing, not decreasing, customer choices. Whether having more and more choices is a blessing or a curse remains to be seen. In the past, customers often considered energy, and especially electricity, as "no-option option" or a fixed cost rather than a variable cost. Such a view contributed to an attitude that not much (or nothing more) could be done about utility bills, i.e., through conservation.

Restructuring and convergence add to the potential number of players and the complexity of options for structuring ownership, operations and interrelationships of the various functions in the electricity supply industry.

Re-Inventing Energy Service Companies. Industry changes are leading to re-examination and re-definition of the mission and business philosophy of energy service companies: utilities are becoming service companies and energy service companies are becoming agents, brokers or marketers of the commodity.

The traditional perspective of the utility as a regulated monopoly has already been challenged in many countries and new approaches for restructuring are being put in place at an unprecedented rate. To survive and succeed in the new competitive market, utilities will have to develop an overall corporate strategy to improve both effectiveness and efficiency within an overall framework focusing on customers. Restructuring has typically emphasized anticipated improvements in utility performance, lower prices and elimination of cross subsidization among rate classes.

Experience from restructured markets shows that competitive markets force utilities to face new cost pressures and increased risk. Utilities typically respond by reorganizing, downsizing, shortening their planning horizons and assessing their positions relative to competitive threats. Competition also leads to new market entrants such as brokers and traders, and customers often exercise their freedom of choice by switching suppliers. In competitive markets, customer decisions are influenced by a number of factors in addition to price. Understanding these factors and their impact on customers' decisions, therefore, becomes critical to survival.

Forward looking utilities have identified the business opportunities inherent in the broader view of their market place that an energy services approach delivers. Others have embraced the terminology without really accepting or even understanding the concept. Utilities in North America are examining a wide range of product/services options which are becoming increasingly attractive under new and emerging market conditions. Examples include:

- energy efficient technologies, products and services
- energy performance contracting
- power quality management
- energy management and operations
- facility management and operations
- electrotechnologies
- pollution reduction
- load monitoring services
- electric vehicle leasing
- equipment maintenance and repair services
- communication and information services
- security and alarm services
- equipment repair and warrantees
- energy accounting
- "green" technologies including ground source heat pumps and renewables
- indoor air quality monitoring and remediation
- environmental consulting
- safety consulting
- real time pricing and load management
- new construction, building commissioning

As a result of competition, restructuring and de-regulation of the electricity and gas sectors, the range of firms offering energy services now includes:

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- remote utilities offering services outside their franchise to open doors to future sales
- local and remote utilities who see services as a more lucrative growth opportunity than commodities or transportation of the commodity

- facility managers taking advantage of outsourcing trends and using energy management to reduce costs,
- power marketers, power brokers, aggregators combining energy analysis to segment their customers with processes to identify potential conservation and load management opportunities,
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Increasingly major energy users are reporting significant price related cost savings resulting from unbundling utility products and services, negotiating alternative contract arrangements and/or seeking out alternative suppliers. A sampling of such projects is listed below:

Table 1. Impact of Alternative Energy Service Arrangements

Project	*Annual Savings*
Gas fired generator in supermarket	$95,000
Transformer purchase by university	$160,000
Alternative gas contract for multi-residential building	$23,272
Cogeneration project at college	$900,000

Ontario: The Story Of One Jurisdiction

Gas has been deregulated in Ontario since 1985. In fact, over 70% of the gas consumed in the province is not sold by the gas utilities, of which there are two: Consumers Gas and Union Gas. Both utilities are required to do DSM by the Ontario Energy Board. However, both had previously developed very active service organizations providing financing, equipment sales, equipment rentals, service, authorized dealer and contractor networks. Consumers Gas is the largest retailer of gas appliances in the province through its network of appliance centres. Both companies, or rather their parent companies are pursuing alternative strategies in response to the evolution of the deregulation of gas sales and in anticipation of electric restructuring.

- Union Gas is owned by a Westcoast Energy, a major Vancouver based energy company. It also is a partner with Houston's Coastal Energy in ENGAGE. It is also moving its non pipe related businesses to a new entity Union Energy which will operate across Canada. Union Energy has already purchased some major residential HVAC contractors as well as establishing commercial and industrial energy services.
- Consumers Gas parent company, Interprovincial Pipeline Ltd. has created Consumers First which launched itself with a high profile campaign marketing natural gas in the residential market and preparing for entry into the electricity marketing industry as soon as possible. IPL also purchased Cornwall Electric, a municipally owned electricity utility not served by Ontario Hydro as well as entered the water supply sector. Consumers Gas has not followed Union Gas' lead and has kept many of its service offerings within the utility including expanding their residential service offering to home renovations.

The electricity side is still an unknown. In so far as Ontario Hydro, the 32,000 MW capacity provincially owned mega utility was never actually regulated by the Ontario Energy Board, restructuring will have the unique result of increasing regulation in Ontario. In addition, Ontario Hydro also operated as the "regulator" for the over 300 municipal electric utilities in the province. These, too, will likely face more traditional regulation. While consolidation of municipal electric utilities is not an explicit objective of the provincial government's restructuring agenda, in the past 2 years, the number of municipal electric utilities has dropped to 275 including the amalgamation of six of the largest into Toronto Hydro.

While increasing competition is an explicit objective for the government, how it deals with Ontario Hydro's debt - some $32 billion ($Cdn) guaranteed by the government, can make or break competition in the short term. While a market design committee is working on the structure of the market and legislation was introduce in June, Ontario Hydro is pursuing a strong public relations campaign not to be broken up and sold in pieces arguing that it will have to be big to compete in the US. A further complication is the uncertain status of Ontario Hydro nuclear plants which failed to pass muster in a major assessment in 1997.

Nevertheless, the electric utilities, Ontario Hydro and some progressive municipal utilities are pursuing energy services but no clear winners have yet been identified.

In the meantime, the traditional Canadian energy service companies, most of whom are based in Toronto and most of whom are **not** owned by utilities, are growing increasingly concerned about the prospect of competition from utility owned energy services firms. In contrast to the late 1980s and early 1990's when utilities like Ontario Hydro facilitated the market for performance contracting offering direct customer incentives as well as financial assistance to the Canadian Association of Energy Service Companies, there is now a fear that utility based ESCOs will give away energy services in return for load retention.

Future Potential

As the utilities and ESCOs continue to redefine themselves and their industry in terms of energy services, they may be missing a much broader opportunity. The concept of energy services must continue to broaden to ultimately include building and facility renewal. As in Canada, institutions and businesses in the United States suffer from aged, inefficient and unreliable energy infrastructures. Facility managers often receive little or not appropriate capital funding for maintaining or upgrading physical plant. Recent research by the Association of Physical Plant Administrators (an organization of post secondary education facilities officers) reports that US colleges are threatened by a backlog of deferred maintenance equating to a $70 billion requirement.

While ESCOs have targeted such facilities for the last two decades, their relatively short term investment focus has largely been in lighting, controls and air side mechanical systems. It remains to be seen if utility based energy service companies, however, are interested in longer term investments and are motivated to help rebuild customer energy systems as high efficient integrated production and consumption systems.

The following example is a case in point. One university was facing the requirement for a $60 million upgrade in its electrical and mechanical systems to meet growing needs and replace aging equipment with no expectation of reduced energy bills. When a utility service arm looked at the same problems from an energy supply investors point of view, rebuilding the university's energy systems into high efficient production, consumption and distribution units would reduce the annual energy bill by $5.4 million at a cost of only $48 million. A model of this type of business arrangement is shown below.[3]

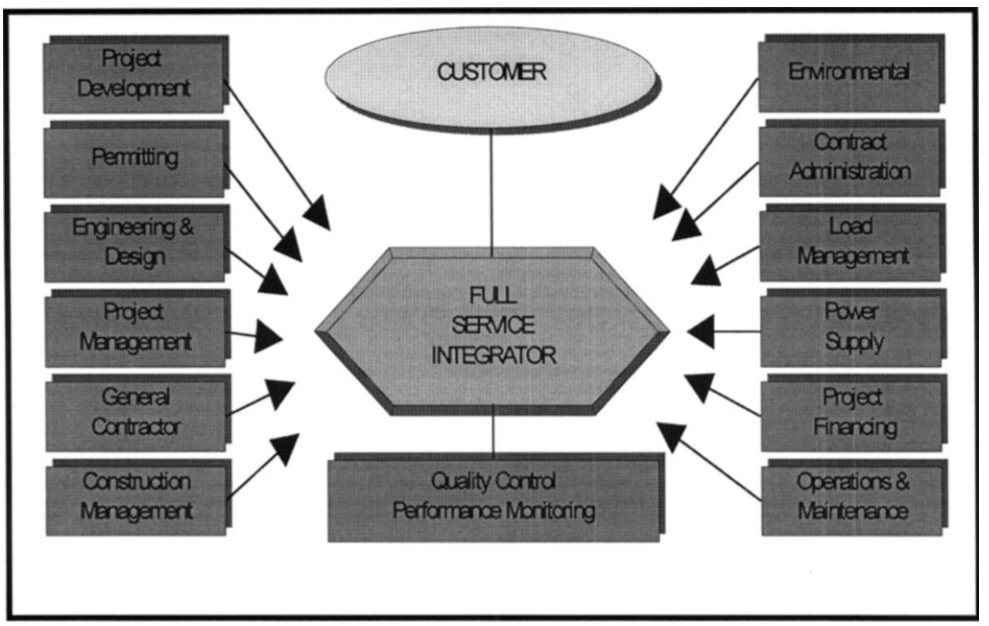

Figure 2 - Full Service Integrators
Source: *Energy Users News*

The benefits for both customers and utilities are summarized below:.

Table 2 - Summary of Benefits

Customer Benefits	Service Company Benefits
No Operating Budget Increase	Equity Partner
No Up Front Capital	Energy and Service Sales
Risk Sharing	Long Term Resource Expertise
Long Term Energy Control	Revenues
Deferred Maintenance Caught Up	Increased Profitability

[3] Energy Users News, 1997

Recent studies of business organizations have pointed out that the most successful and admired companies are characterized by their dedication and commitment to customer service and satisfaction. Therefore, understanding customers' wants and needs and developing approaches to satisfy them will have to be a key driving force in the new competitive market place. To grow and prosper a company must develop and maintain a "sustainable competitive advantage." The most critical element in achieving a competitive advantage is a clear sense of mission focusing on satisfying customers. The degree to which energy services are a part of that competitive advantage for utilities remains to be seen.

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