Organizational Strategies For Global ESCOs

Michael Bobker
Program Manager
Goldman Copeland Associates

Deregulation of the utility industry is changing companies once limited to protected local service into global competitors. Independent "ESCOs" (energy service companies), which provide energy efficiency programs and performance contracting, are being integrated to offer "customer value" and "business solutions" in the new battles for market share. But these battles do not change the fact that energy markets are mature in the US and other developed countries. Growth in energy demand is to be found primarily in developing countries. Competition will therefore be inexorably drawn to global markets.

Power players have been entering developing markets primarily by participation in generating assets, either as a state-owned sector is privatized or as new plant is contracted. As these markets mature into increasing competition, energy services will again emerge as part of customer strategy: seeking direct relationships with desirable customers and creating new, on-site sources of revenue. Need for new capital equipment will drive interest in programs which provide plant improvements, especially if capital costs can be reduced by innovative financing. With the availability of incentives for climate change abatement, the joint implementation of energy efficiency can be a leading edge of capital investment intended to establish long-term customer relations.

On this basis we can project that ESCO services will grow globally. The next question is "how best to structure and manage services on a global basis, including alliances in local markets?" Understanding the energy efficiency process as a business transaction can provide insight into the answer.

CHARACTERIZING THE ENERGY EFFICIENCY TRANSACTION

Energy efficiency activity is, for purposes of this article, defined as altering structures, operations, and/or processes to produce reductions in energy use. Potential impacts of conservation are typically estimated at 5-15% by simple operations and maintenance ("O&M") procedures at minimal cost, increasing to 30-50% with cost-effective capital investment. Such reductions are not "magical"—that is, not achieved by any single technical fix. Rather conservation requires a large number of separate actions, affecting many different systems, and using many technologies and products—which makes comprehensive projects painstaking to plan and execute.[1] Areas typically addressed include process control and modification, building systems and equipment, and fleet management. Yet while the technology applications are multitudinous—lighting, motors, heating, ventilating, air-conditioning, refrigeration, controls, insulation, combustion, heat transfer, waste heat recovery, on-site power production—the structure of the activity-process and associated transaction, which is what is of interest to us here, is standard. The activity-process can be described by a **throughput diagram**:

INPUT	→ PROCESS	→ OUTPUT
- physical plant and processes	- site/process assessment	- reduced energy use
- technical knowledge	- feasibility analysis	- avoided cost
- market-available equipment	- financing	
- investment capital	- project design & installation	
	- operation and monitoring	

The throughput break-down suggests key characteristics of energy efficiency as a business activity:

(1) Service-industry

*Output is a non-tangible, albeit quantifiable, reduction in a factor of production and avoidance of operating cost; new equipment is usually part of the process, providing customer initial motivation, opportunity, mechanism, and tangible focus for conservation effort.

*Direct interface with customer throughout the transformation process; in contrast to manufacturing, engineers are up-front with customers; customer's immediate and on-going judgment of the service provider's professionalism is key.

(2) Knowledge-based

*Engineering intensive, requiring wide knowledge of technology/product applications; broad, integrative knowledge and industry relations rather than narrowly focused technology or product R&D.

*Each site a customized package of technologies, selected as appropriate from low tech (e.g., weatherstrip) to moderately high tech (computerized controls, mini-powerplants).

*Each project sale/financing based upon customized technical analysis projecting economic performance: high dependence on repetitive engineering estimates, economic analyses, and application/design engineering.

(3) Low Entry Barriers, High Competition

*No manufacturing process, relatively small capital investment; many steps/phases can be sub-contracted.

*Knowledge is not protectable: limited opportunity for rents; competitive advantage from aggressive, entrepreneurial opportunity seeking (external) and process improvement (internal).

(4) Long-Term Revenue Stream and Performance Risk

*The transaction is a long-term relationship, lasting 5-10 years, throughout which energy saving outputs must be demonstrably maintained; if equipment/systems are operated improperly target savings probably will not be achieved.

*Agreements must make key assumptions about future facility operations and energy prices.

*Customer's tangible end-products are not affected; poor operation and energy-savings results may be overlooked where the customer does not have strong control at this interface between operations and cost-accounting; special cost-accounting mechanisms are necessary.

Most significantly, the throughput analysis shows that conducting an efficiency project transforms the operation of physical features into quantified information. **The knowledge-based service transmutes the underlying physical processes into structured information about future value.** Avoided energy cost is stripped away from the physical process where it is achieved. Quantified on a futures basis, it is made accessible for finance. In this way ESCO's become "market-makers."

ORGANIZATIONAL FORM FOR GLOBAL MARKETS

Characterization of the energy services process usually emphasizes the customized nature of the technical services. This suggests that issues of local responsiveness are paramount to the conduct of the business. The congruent organizational structure is, in the language of multi-national business management, "**multi-domestic**."

In this model, the multi-national corporation is a conglomerate of local firms, each operating on a relatively independent basis. Skills may be transferred via training and support to the local venture. On-going support might be provided in accessing and dealing with equipment suppliers as well as in engineering calculation and design. Material acquisition arrangements could provide trade finance advantages and hedging opportunities.

But the ultimate goal for the local venture is profitable self-sufficiency. Even project finance can be fully domestic if local capital resources allow. The local partner gains the prestige of an international alliance, new skills, resources, and opportunities with only limited impact on operational autonomy. Benefit to the firm at the center, comes at the consolidation of financial statements. Risk for "home" is in local's performance and in foreign exchange at annual accounting consolidation, project risk is only indirect.

Equity interest in the local partner is almost certainly necessary since the "technology" is a set of skills, not something readily covered by license and royalty payments. Non-equity alliances based on project revenue sharing might be effective for technology transfer but would seem condemned to short lives.

The multi-domestic version misses important characteristics of the process. While the customer site is unique and the physical services rendered must be fully responsive to local needs, the derived energy calculation, and associated financial futures, are abstract information. Charting the energy services process against the two axes of "need for local responsiveness" and "global potential" reveals that in fact there is significant scope for part of the process to be handled non-locally, gaining global efficiency, even in what at first blush would seem to be a local-transaction dominated service.

← **Need for Local Responsiveness** →

High	* sales, knowledge of customers * surveying * installation & construction * service response "LOCAL DOMINANT"	* data collection & analysis * proposal development * design engineering * construction management "TECHNOLOGY TRANSFER"
Low		*engineering knowledge management * QC & due diligence project review * capital allocation * performance monitoring "CENTER DOMINANT"
	Low Global	Potential High

Local activities focus on direct customer relations and site specific services, training for re-orientation to the new kind of service package. The locus of skills transfer is in the engineering phase, where site information is analyzed to abstract energy performance and to design technology applications. On-going, project-focused interaction between center, where technology knowledge is strongest, and local, where customer knowledge resides, greatly abets skill transfer while developing optimal energy packages consistent with customer requirements and site opportunities.

As a global network grows, a local venture may develop particular design, application, and/or analysis skills which the center can direct to support other locales. Keeping certain activities as "core dominant" clarifies responsibility and leverages (rather than transfers and delegates) core competence. Standardized analytical methods assure that consistent quality engineering analysis is applied, without re-creating the wheel in each locale and greatly expediting fiduciary due diligence in project finance.

Reducing transaction cost and time is perhaps the key competitive advantage for maintaining leadership. Centralized capital resources can endow financing advantage in high interest rate markets; centralized decision-making enables allocation on a comparative basis across regions, an important assurance to capital sources.

This structure fits the description of a global (or transnational) network which, as described by Bartlett and Ghoshal,

> recognizes the importance of flexible and responsive country level operations... and provides for linking and coordinating these operations to retain competitive effectiveness and economic efficiency... The resulting need for intensive organization-wide coordination and shared decision-making implies that this is a much more sophisticated and subtle approach to MNC management (Bartlett and Ghoshal p.14).

Rather than seeking a partner to develop and execute local projects, the business proposition becomes **finding a local firm to join a global team.** Compared to relatively autonomous local operations under a multi-domestic arrangement, the core of "center" is more directly involved in on-going operations, project teams may include specialists from many different global offices, there is more communication around specific projects. Risks and rewards shift from subsidiary returns-to-equity to individual project performance obtained by joint effort. The nature of the center-local relationship and agreements must change accordingly with the adoption of this (more "global" or "transnational") form.

ESCO CORE COMPETENCE

It is not exceedingly difficult to save some money or to unprofitably invest in customers' plants for the sake of "building relationships."

But to do so systematically and profitably on a repetitive basis requires specific core competencies. Excellence in these areas is what will differentiate one service provider from another. The ability and infrastructure to develop, facilitate, and assure such excellence is what the corporate center has to offer the local markets.

(1) Integrated Sales and Engineering Systems, to identify and assess the full range of opportunities, customer needs, applicable technologies and quantify these into economic impacts. On-line applications reference and method manuals provide a basic tool for standardizing procedures. Knowledge management systems and networked communications (including video-conferencing) can make world-class expertise available throughout local markets.

(2) Project Finance, readily available on a near "cookie-cutter" basis, with standard procedures and parameters to simplify and speed the packaging process, **reducing transaction costs**. Whether fully internal or obtained by alliance, financing must identify, obtain and integrate competitive rates and public sector incentives and supports available through various mechanisms and programs.

(3) Construction Management Capability, to implement the wide variety of projects expeditiously and in an orderly manner; the ability to prosecute work is a major customer-relations issue as well as central to cash-flow. Construction can be conducted via local contract/sub-contract alliances, but management of the process must be kept at the core, including relationships with major international equipment suppliers. Developing local professionalism in this area should be a technology transfer and human resources development goal, as it will feedback directly into customer satisfaction, reputation, and local competitive advantage.

(4) Post-Installation Operations and MIS, requiring the technical-operations skills to keep systems operating properly, along with hardware and software for automated data collection and processing to monitor operations and generate billings. As the firm matures through success in (1)-(3), this area increases in importance. Software and the ability to integrate with other customer systems can feedback as an attractive selling feature, especially when combined with energy procurement services.

CONCLUSION

There are both "push" (domestic competition) and "pull" (favorable foreign market development) forces impelling the globalization of energy service activities. Waiting for new markets to develop is a low-risk approach, at the expense of market leadership and early mover rents. But with relatively easy market entry, competition will be well established by the time opportunities are ripe. To gain significant new-market share requires an early presence.

ESCOs are a knowledge-based service industry, and the need for capable local-market presence is obvious. Since much of the required capability is traditional engineering and construction services placed in a new context, a multi-domestic solution with local operating autonomy would seem at first blush to be the appropriate organizational form.

Upon closer analysis, energy performance contracts are based on abstracted futures information best developed and managed on an integrated global basis. Standardization of procedures, continuous process improvement, knowledge-sharing, and inter-office coordination can endow a local competitor with global efficiency advantages. Close interaction and consistent procedures around core competence provide management control, useful in attracting and efficiently allocating project finance, providing still further competitive advantage.

A transnational network strategy is not the cheapest or easiest approach to new market entry. It requires human resources to continuously work across national boundaries, using interactive informatics long-distance sharing of data, skills, and knowledge to create global leadership. It is the organizational architecture for world-class energy services.

Endnotes

1. See DeCamio "Barriers within Firms to Energy Efficient Investments" *Energy Policy* 9/93, where he refers to short time horizons, investment risk aversion, probable invisibility of success to superiors/shareholders, and then cites a review of an Alliance to Save Energy report on energy investment practices in 15 firms: "top corporate management is preoccupied with many other responsibilities and assigns low priority to cost cutting. Also top management feels unable to decentralize or delegate open-ended responsibility for investment in smaller projects, especially since information and

decisions costs for smaller projects are relatively high." M. Ross "Perspectives on Capital Budgeting" *Financial Management* v15 no.4 Winter 1986

References

Bartlett, Christopher and Ghoshal, Sumantra, *Transnational Management*, Irwin Publishers 1992

Ohmae, Kenichi, "The Global Logic of Strategic Alliances," *Harvard Business Review*, March 1989

Bleeke, Joel and Ernst, David, *Collaborating to Compete*, McKinsey & Co., John Wiley 1993

World Bank, *Fuel for Thought, A New Environmental Strategy for the Energy Sector*, draft 2/98

ABOUT THE AUTHOR

Michael Bobker is a program manager at the consulting engineering firm of Goldman Copeland Associates in NYC. GCA specializes in mechanical-electrical infrastructure upgrades for institutional and commercial facilities. For the past three years, Mr. Bobker has concentrated on the conversion of public school boiler plants from coal to natural gas. Prior to joining GCA, Mr. Bobker worked in energy services for over 15 years. He holds graduate degrees in sociology, energy management, and international business.

Mr. Bobker can be reached at GCA; 212-929-0480 or via e-mail, mbobker@juno.com.