

## BRIDGING THE GAP: THE ROLE OF INDUSTRY CONSULTANTS

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### ABSTRACT

Despite their good intentions, many utility programs designed to promote demand-side management or improved energy efficiency in industry have achieved varying degrees of success. To a large extent, this results from the very different perspectives that utilities and industrials have on many business issues. For example, utilities tend to think "energy conservation" while industrials think "cost reduction" - even though cost reduction can sometimes be accompanied by increased energy consumption.

The EPRI Partnership for Industrial Competitiveness (EPIC) is a unique program that recognizes the difference in perspective and addresses it by utilizing the services of **industry consultants** to bridge the gap. This infuses the program with a level of credibility that utilities often find difficult to achieve with their industrial customers. Consequently, EPIC has achieved broad support throughout both the utility and industrial communities. Most importantly, its Mission Statement is one that industrials can relate to: its goal is to improve competitiveness by addressing issues of efficiency, environment and productivity.

Industry consultants provide utilities with the opportunity to examine issues from the point of view of their industrial customers. This, in turn, gives the industrial a secure feeling that the solution to his problem will not be of the "let's start with a blank sheet of paper" variety. It avoids much of the skepticism that has characterized many utility initiatives in the past and provides common ground for developing programs that provide long term benefits on both sides of the meter.

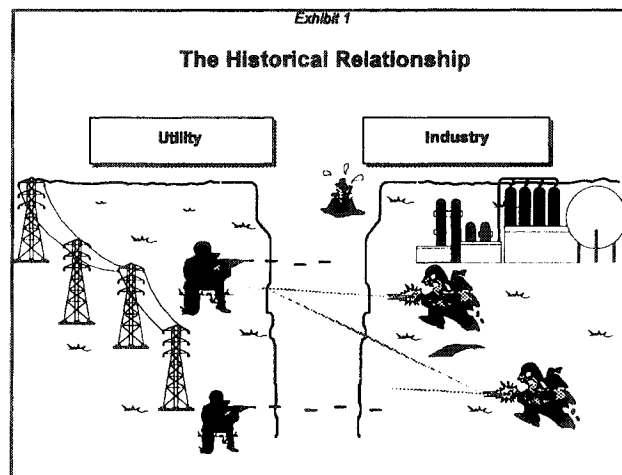
### INDUSTRY AND UTILITIES – ENEMIES?

Despite some apparent similarities, the utility and industrial worlds are quite different. Issues such as capital intensity, environmental constraints and energy cost sensitivity provide some common ground, but the fact that the utility business is a regulated monopoly stands in stark contrast to the competitive marketplace that most of industry participates in. It is difficult for most industries to relate to a business in which an excess of supply relative to demand results in higher prices!

Consequently, utilities and industrials tend to have quite different perspectives on many business issues. It is frequently said that they "speak different languages". In fact, some people consider the relationship to be adversarial (see Exhibit 1). In this context, utilities are normally viewed as the "bad guys" earning fixed rates of return by charging prices that are too high, and industrial plants are viewed as secret, impenetrable fortresses that usually consume huge quantities of power and are always whining about high rates.

### EPIC - BUILDING THE BRIDGE

The EPIC program seeks to create a common ground between the two sides by taking account of their different priorities and objectives and creating a mechanism to address them simultaneously. This effort to build bridges (Exhibit 2) requires the ability to "speak both languages" in



a credible manner. This issue of **credibility** is of vital importance. From the perspective of the industrial, the utility has very little, if any, knowledge of his process, plant, needs and constraints (nor should the utility have this - it's not the utility's business). As a result, virtually any initiative that goes beyond offering more efficient lights and motors will be viewed with skepticism -- unless the utility can demonstrate its credibility to participate in a more substantive dialogue. That's where industry consultants come in.

EPIC starts off with a Mission Statement that industrials can relate to: its goal is to improve competitiveness. To accomplish this, EPIC focuses on three specific areas (Exhibit 3):

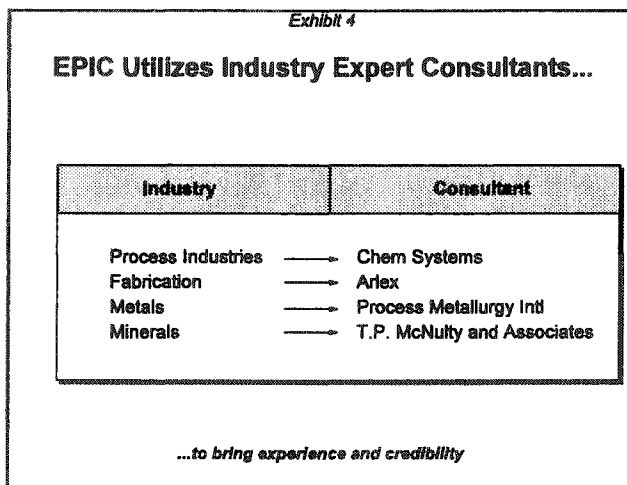
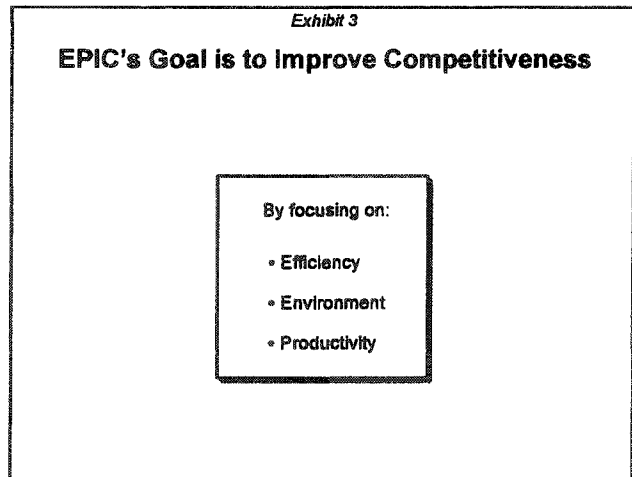
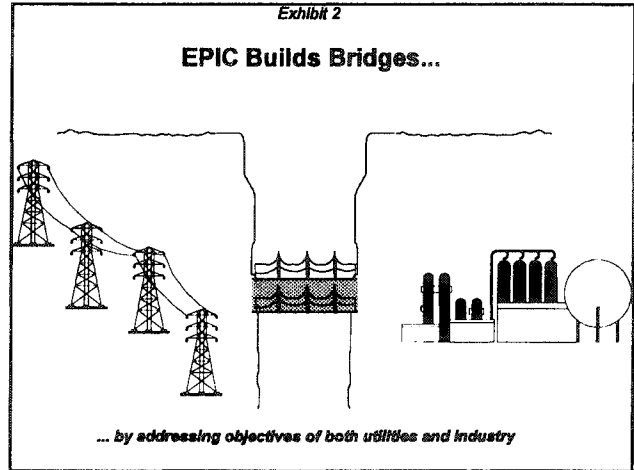
- efficiency
- environment
- productivity

The focus here is on **operations**. EPIC does not pretend to be all things to all people. It does not offer improved accounting methods, or address labor relations, or reduce the costs of health care. It does, however, concentrate on three areas that are critically important to the long term survival of industrial companies.

The industry consultants that have participated in EPIC since its inception (Exhibit 4) bring experience and credibility to the program. These include Chem Systems in the process industries, Arlex in fabrication industries, Process Metallurgy International in metals, and T.P. McNulty and Associates in minerals. Other consultants have been brought in as required when even more specialized expertise is required. The reason for using experienced industry consultants is to give the industrial a secure feeling that the solution to his problem will not be of the "let's start with a blank sheet of paper" variety. When IBM, or Exxon, or General Motors retain consultants to address their business problems, they retain consultants that have both expertise and experience in the issue at hand. EPIC takes the same approach, i.e., utilizing consultants with "real world" background, who are frequently retained directly by industrial firms.

#### HAMMERS AND NAILS

If you examine many of the "customer-focused initiatives" of utilities (and of EPRI), you will find that they are well-intentioned but often fall short of achieving meaningful success. This is due, in part, to the pitfalls shown in Exhibit 5. I have had many utility representatives ask me, "Can you describe some successes you have had in demand-side management, or electrotechnology implementation, in industry X, so that we can duplicate them with all our other customers in the



same industry?". Talk about solutions looking for problems! This is what I've heard referred to as the "hammer syndrome": when all you have is a hammer, everything looks like a nail!

The simple fact is, every facility is different. It is true that some degree of "technology transfer" is appropriate, even desirable. But this must be managed carefully and with consideration for the subtleties. Even similar plants often have different constraints and different needs. This situation is often overlooked by those who are not sufficiently familiar or involved with the industry. It is a common, but important pitfall.

**A SUCCESS STORY**

Things are often best illustrated by example. That frequently becomes difficult in the industrial world because of confidentiality concerns, however, one way around that is to use an old example. The one I have in mind relates to the air separation industry (SIC code 2813). Air separation is an extremely electricity-intensive process that produces oxygen, nitrogen and other industrial gases, in gaseous or liquid form, from air. Electric power probably accounts for about 70 percent of the operating cost in these plants, which are quite capital-intensive. In fact, because the raw material (air) for industrial gas production is free, electricity is frequently referred to as the raw material in this process.

In 1986, Union Carbide (now Praxair) operated an air separation plant in Pittsburg, California, in Pacific Gas & Electric's service territory (see Exhibit 6). This plant represented about 12 MW of load, with a load factor well in excess of 90 percent. With the California market for industrial gases expanding rapidly at that time (e.g., nitrogen for semiconductor chip manufacture), Carbide was interested in expanding its production capability in the state and was seeking the lowest cost power available to do so. In fact, they were considering not only expanding, but relocating their existing facility. Recognizing that less expensive electricity was available elsewhere, PG&E was anxious to retain this large customer. At the time, PG&E had recently developed its Process Management (PM) program, which rewarded customers with \$200/kW for each kilowatt of demand shifted to off-peak periods or added during off-peak periods. PG&E retained Chem Systems to work with Union Carbide to devise a strategy that would reduce its overall cost of electric power, thereby allowing the utility to retain this important customer. The strategy ultimately implemented involved adding an additional liquefaction train to be operated during off-peak hours. This resulted in a net addition of 9 MW of off-peak load, which was eligible for an incentive payment at the rate of \$200/kW. Some further details are available in PG&E's annual report for 1986. The important elements that made this deal work, however, were the following:

- a utility company that was willing to be flexible in order to meet its customer's needs and which recognized, at an early stage, that an industry consultant known to the customer was needed to achieve success;
- a consulting organization with an understanding of the customer's strategic objectives as well as the technical and commercial aspects of his operations;
- a customer that was motivated to reduce his costs.

*Exhibit 5*

**Industry Consultants Help Avoid Common Pitfalls**

- Solutions looking for problems
- The "Hammer Syndrome"
- Narrow perspectives

*Similar (or even identical) plants often have different constraints and different needs*

*Exhibit 6*

**Example: PG&E/Union Carbide**

Industry:	Industrial Gases (SIC 2813)
Customer Size:	12 MW
Load Shift:	9 MW
Utility Incentive:	\$200/KW

*Result: Customer retained under 10 year contract*

**SIMILAR SITUATIONS, DIFFERENT RESULTS**

It is logical to ask, why don't all utilities pursue similar arrangements with other facilities in the same industry. The answer is that even though the production processes are similar (often identical), there are other factors that affect decision-making in the industrial world. Exhibit 7 illustrates an example where another utility was not able to achieve the same success as PG&E. Although the economics were similar in both cases, with apparently favorable returns on investment in both cases, this customer chose not to pursue the same option because it was not consistent with their strategic plan which, unlike Carbide, did not call for volume growth in industrial gases. In simple terms, if we think of capital as a scarce resource, this company was choosing to put their available capital resources elsewhere.

*Exhibit 7*

**Different Companies, Different Results**

	<b>PG&amp;E</b>	<b>BGE</b>
Industry	Industrial gases	Industrial gases
Cust. size	12 MW	Very large
Primary products	Liquids	Liquids
Market characteristics	Growing	Growing
Company strategy	Increase market share	Strengthen customer linkages
Tactics	Add capacity	Customer service
Option ROI	<3 years	<3 years
Result	Approval	Denial

This is sometimes a difficult point for people to understand. Just because a particular investment appears to have a favorable ROI does not mean that all companies will implement it. I believe economists tend to call this behavior irrational. However, it is very common and in some cases relates more to culture than economics. DuPont comes to mind as a very successful company that has not embraced cogeneration the way many others in the chemical industry have. In my opinion, this is a matter of corporate culture. DuPont likes to go for the homeruns. They like to make investments where the expected returns are 20 percent. Returns of 10-12 percent are for utility companies to make. Consequently, DuPont is not a major player in cogeneration. In fact, it was big news that DuPont commissioned a major benchmarking assessment of its utility assets a few years ago, largely because the culture has always been oriented towards other things.

**DIFFERENT PERSPECTIVES**

This gets me back to my point on perspective. The perspective of the industrial is frequently different from the perspective of the utility (Exhibit 8). Utilities think of energy conservation, while industrials think of cost reduction. It doesn't matter if the cost reduction is achieved through consumption of less energy or not. Cost reduction can sometimes involve greater energy consumption. Utilities think in terms of demand-side management, while industry is driven by production targets. Plant managers focus on turning out those 100 tons per day of product irrespective of peak demand, load factor, or similar variables. The same is true for load growth. Utilities may try to promote load growth, through incentives and other programs, but there may be many reasons why industrials cannot grow; environmental constraints are one example.

*Exhibit 8*

**The Industrial Customer's Perspective is Frequently Different From the Utility's**

<b>Utility Concerns</b>	<b>Industry Concerns</b>
Energy conservation	Cost reduction
Demand-side management	Production targets
Load growth	Environmental constraints
Customer retention	Lowest cost sourcing

Industry consultants represent the tool to blend these different perspectives. Not consultants that merely study the industry. Consultants that participate in it.

**TO DEVELOP A SOLUTION, UNDERSTAND THE PROBLEM**

Here's another example of a utility company recognizing its limitations and successfully utilizing an outside consultant as a resource to deal with, in this case, several major customers (Exhibit 9). The utility is Louisiana Power & Light and the industry is chlor-alkali. The production of chlorine and caustic soda is another extremely power-intensive process, actually an electrolytic one. Because the products are commodity chemicals, producers are very cost-conscious; small differences in production costs can translate into major differences in overall costs and profitability, since the volumes of product involved are very large.

In 1987, Chem Systems published a multi-subscriber study on the North American chlor-alkali business, a major portion of which involved development and benchmarking of site-specific production costs at numerous producer sites. Virtually all of the producers subscribed to this study, which showed that large producers who were cogenerating much or all of their own electric power generally enjoyed a cost advantage over those that were purchasing power from external utilities. With this information, producers in Louisiana began thinking more seriously about cogenerating their own power. LP&L got wind of this and took two intelligent and decisive steps: they purchased the multiclient study to get the production cost data and they retained Chem Systems to do some further analysis on the "what ifs" of cogeneration at their customers' sites. The end result of this whole process was much better communication between utility and customers, based on a more comprehensive understanding of the customers' situations by the utility, and a willingness to find a common ground. Those customers, representing several hundred megawatts of demand, are still LP&L's largest customers nearly ten years later.

Getting back to the EPIC program, you can see why EPIC takes a "top down" approach (Exhibit 10). This starts with an understanding of the customer's overall business situation, rather than merely focusing on the energy-related aspects of his business (the traditional utility "bottom up" approach). Take the LP&L case. It would hardly be productive to be approaching those chlor-alkali customers with programs to install more efficient lighting or changing their demand patterns when they were in the process of considering leaving the grid. Just as it would be inappropriate to offer a demand-side management program to a customer whose facility is being closed because it is not in compliance with environmental restrictions, or try to influence a customer to install electrotechnologies when his facility is being phased out because it is non-competitive (unless, of course, the utility initiative will address the real problem). Consultants who work in the industry, who are familiar with the industry and who routinely discuss "issues of the day" with industry participants can be effective in helping utilities focus on the correct areas.

In conclusion, I'd like to remind this audience that industry normally represents the largest class of customers. For electric utilities to be serious about having a customer-focus, there is no better way to do so than to understand the motivations of their largest customers. This cannot be accomplished from the outside looking in. Experienced, industry consultants can bridge the gap.

*Exhibit 9*

**Example of Customer Orientation: LP&L**

Industry:	Chlor-alkali
Load at risk:	Several hundred MW
Tool:	Detailed production costs
Result:	Cogeneration deferral rates

*Chem Systems' multi-client study on chlor-alkali production costs was utilized by all parties*

*Exhibit 10*

**EPIC Approach**

*Top down, rather than bottom up*