

Consulting Insights

Energy

The New Role of Rebates in Energy Efficiency Programs



Rebates have long been used in the United States to promote energy efficiency through traditional demand-side management programs. However, as we move into a deregulated energy economy, the role of rebates is being re-evaluated. In many markets, the goal is not simply to increase the sales of energy-efficient products in the current program year, but also to establish

sustained market share of these products over time (a market transformation), even after rebates are discontinued. This new emphasis on sustained market impacts leads to a new methodology in designing and implementing successful rebate programs.

Rebates can play an important role in market transformation, essentially acting as a catalyst to jump-start sales and overcome initial market barriers. However, rebates also have drawbacks that can actually inhibit market transformation. In particular, rebates can interfere with market signals between customers and suppliers, so that markets respond sluggishly. Consumers may lack knowledge of appropriate prices for rebated items (such as compact fluorescent light bulbs). Additionally, manufacturers do not receive important feedback about how their products should be improved or prices reduced to gain market acceptance.

One important problem that programs have is setting rebate amounts at the right level. Either rebate levels are too high and the program is oversubscribed, or they are too low, and only those already committed to the purchase receive rebates. To solve this problem and to reduce negative market impacts, ICF Consulting proposes a bidding process to assist in setting rebate levels and product

quantities that are matched with market characteristics. In short, manufacturers would bid on rebate levels in an auction process similar to the U.S. Treasury-bill auctions. For several possible rebate levels, manufacturers would commit to sell a bid number of units. For example, in a refrigerator rebate program, manufacturers might bid on sales commitments at per unit rebates of \$200, \$150, \$100, and \$50. Based on the total bids across several manufacturers, the program could set a single “market-clearing” rebate level and the corresponding number of units to be sold by each manufacturer. This new bidding process would ensure the optimal allocation to maximize total sales for the existing program budget. Since the rebates operate on the margin, they would minimize negative market impacts caused by inappropriate rebate levels.

This framework is based on the review of markets and incentives in energy efficiency market transformation programs around the country.

Environment

Managing the Complexity of Children’s Environmental Health Issues

A grassroots movement within the United States in recent years has raised awareness of environmental health risks to children. Resulting legislation has significantly increased the requirements to the public and private sector for children’s risk assessment-related activities.




Implementing these various mandates can be very difficult, however. For example, even though the reported rates for various children’s health outcomes have risen (see chart, below), it is unclear how much these increases are due to environmental exposures, better detection/reporting, or even increasingly older parents. Clearly, though, the world is a very different place today—children are

exposed to chemicals and infectious diseases that did not exist (or rarely did so) in the environment several years ago. Also, as a common tenet of pediatric medicine states, children are not “little adults,” but rather are profoundly different from adults because of their developing neurological, immunological, digestive, and other bodily systems; their greater air, liquid, and food intake per unit body weight; and their hand and object mouthing and related behaviors.

Many of the differences between children and adults (and between various subgroups of children) are explored in an ICF Consulting study conducted for the U.S. Environmental Protection Agency, *“Risk of Waterborne Infectious Disease in Children with Normally Developing Immune Systems.”* This study, presented at the Society for Risk Analysis annual meeting in December 2000, reports that several key waterborne infectious agents—cryptosporidiosis, *E. coli* infection, salmonellosis, and shigellosis—affect children at about 2 to 30 times the rate of adults (depending on the disease, age group, and reporting year).

The study found a plethora of both host and exposure factors that may contribute to these higher rates, as well as to a likely greater severity of subsequent morbidity and mortality. A child’s naturally immature immune system is perhaps the most important factor in terms of susceptibility to infectious disease. Other important factors identified were the normally immature gastrointestinal tract and other systems of children, child-associated behaviors (e.g., mouthing), and inherent exposure-related physiological factors (e.g., a higher water ingestion per unit

body weight compared to adults). Extremes within these factors constitute subpopulations of children with even higher risk.

In the future, ICF Consulting plans to examine the key factors in more detail, prioritize the factors in terms of magnitude of effect, and identify and characterize the many interrelationships that likely exist among the factors. Despite the work that still needs to be done there clearly are several susceptibility factors that are known now to significantly affect disease rates and outcomes in children. These factors are now being used by regulators for the development of water quality standards and interventions. 

Information Technology

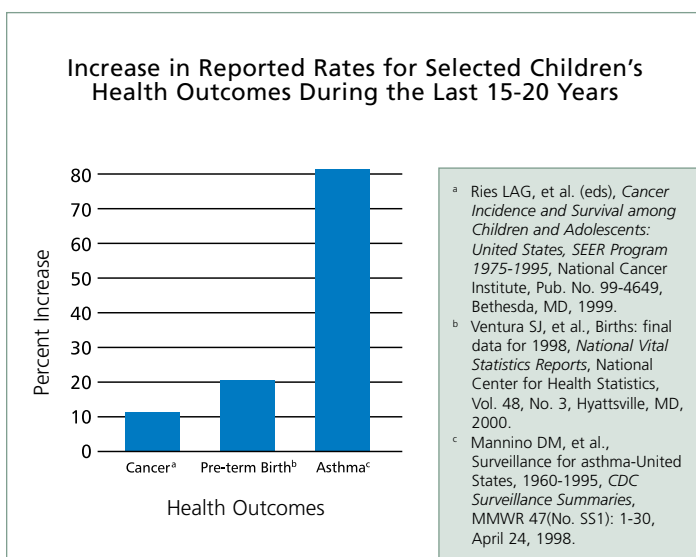
Environmental E-Business— Helping to Manage Costs

Information technology and environmental management have converged and created a new dimension—environmental e-business. This new application of technology is quickly becoming the perfect support system to meet the challenges faced by environmental, health, and safety professionals as they interact with the business community and the natural environment.

Environmental e-business can manifest itself in several ways. Typically, intranets deliver business information, permits, applications, and best practices while the Internet extends company boundaries and promotes community outreach. Ideally, environmental e-business leverages these networks to share critical environmental program information across organizations.

As the demands for reporting and transparency have increased, the need for more comprehensive reporting systems has also risen. Meeting complex regulatory reporting and environmental compliance requirements is a tremendous cost of doing business. Federal, state, and local guidelines often conflict, making it even more difficult for companies to manage compliance. Collecting and communicating these diverse sets of information has become an integral part of environmental management.

To maximize their efforts, organizations should use a goal-oriented approach to address environmental strategies and support technologies.





The market is currently overwhelmed with software that can be costly, confusing, and often difficult to implement. Hundreds of environmental software products were available last year to help professionals cope with the information overload. Recent projections estimate that the market for environmental management information systems will grow to \$13 billion by 2003. Due to the influx of technologies, many organizations are subject to technology-driven solutions and, as a result, lose money and their focus.

To maximize their efforts, organizations should use a goal-oriented approach to address environmental strategies and support technologies. The best solutions often require a multi-disciplinary attitude and organizations should ensure that consideration is given to environmental man-

agement and policy, compliance management, auditing, and GIS capabilities as well as multiple IT platforms.

ICF Consulting presents a unique approach to environmental e-business by customizing a proprietary template for an organization's specific and goal-oriented needs. This technology provides a very collaborative, Web-enabled atmosphere for managers to design, manage, deploy, and evaluate their environmental programs. For one such client, ICF Consulting prototyped an environmental compliance knowledge management system that allowed employees to access mission critical information over the Internet. This Web-based system in particular is unique because of the environmental information gap it bridges between diverse stakeholders, including employees, managers, and regulators. 