Using the Delphi Panel Technique to Estimate Net Effects of Market Transformation Program Designs

Shel Feldman, Shel Feldman Management Consulting, Madison, WI
Robert Cuomo, Boston Edison Company, Boston, MA
Dick Spellman and Scott Albert, GDS Associates, Marietta, GA

Estimation of the "naturally occurring" increase in the market penetration of energy-efficient products and services is one of the key difficulties in determining which market transformation programs are cost-effective, either retrospectively or prospectively. This study explores the use of the Delphi technique as a solution to this problem.

- The Delphi technique offers an explicit, replicable, systematic, and empirical approach.
- It is based on gathering market penetration estimates from a balanced panel of market experts who respond to carefully detailed base case and intervention program scenarios.
- The data collection is iterative, offering panelists an opportunity to modify their estimates after considering the estimates and assumptions of other experts.

This study collected estimates for the penetration, over the 2000-2006 period of two products: resource-efficient clothes washers and premium-efficiency motors.

- The base case for each product assumed no market transformation programs in 2000-2006.
- The moderate intervention scenario and the aggressive intervention scenario for each assumed market transformation programs involving rebates, advertising, and vendor support activities. The scenarios differed in the level of support, the number of years over which support would be offered, and the speed with which the support would be eliminated.

The results provide input needed to estimate the cost-effectiveness of the program designs.

- The base case projections define the naturally occurring change in sales.
- The difference between the market penetration under the intervention scenario selected and the base case constitute the best estimate of the intervention's net market effects.
- The analyst can then readily compute the projected net energy savings attributable to the intervention (e.g., the incremental sales, multiplied by the energy savings attributed to each unit sold) and compare that against the incremental cost of the intervention.

The Delphi technique also elicits important contextual information regarding the assumptions underlying expert forecasts. For example, the outyear estimates of market penetration for resource-efficient clothes washers are heavily dependent upon panel members' expectations about the federal standards due to be decided and promulgated within the next year. Together, the underlying assumptions and the estimates provide extremely valuable information. Moreover, the technique appears to be applicable to a wide range of forecasting situations.