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Energy, Resources, Materials: **Electric Power**

Tools

Research in Brief

What power consumers want

Most customers are satisfied with the reliability of their electric service. So why are power distributors still making huge infrastructure investments?

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Few would question the wisdom of electric-power distributors that invest in projects to reduce the duration of the power outages their customers suffer. Recent research, however, suggests that residential customers already find their service quite reliable. If this sentiment proves widespread, distributors may be able to reduce their total network investment while making other service improvements.

Distributors regularly undertake massive and costly projects to improve the reliability of their systems: moving cables underground for protection from the weather, rearranging network architectures so that each outage affects fewer households, and increasing the capacity of transformers (which dilute power from the grid for domestic use) to cope more successfully with peak demand. In many countries, regulators require dis-tributors to meet set targets for permissible power outages and impose hefty fines for those failing to do so. Even without such rules, many distributors, believing that fewer, shorter power outages must be their customers' top priority, invest heavily in reliability programs. Over the past five years, for example, an Asian power company launched an extensive reliability effort, costing hundreds of millions of euros, to reduce the length of its annual service interruptions per customer from less than five minutes to less than two, thereby making itself more reliable than any other distributor we know. Of course, highly reliable service truly is a priority for business customers and for residential customers who suffer long power cuts because of high winds or downed power lines; the people of Barcelona, for instance, won't soon forget the many hours without electricity they endured in late December 2001. But it is doubtful that residential consumers who have reliable service—those in most developed markets and in some advanced emerging ones—want (or would be willing to pay for) service improvements of any type.

Our recent survey of one electricity distributor's customers, for instance, showed them to be largely content with their service and almost oblivious of service interruptions. More than half didn't know the total length of the outages experienced during the previous year—approximately two-and-a-half hours on average—and more than 80 percent of the remainder significantly underestimated their duration. In a comparison of two regions, one with much more reliable service than the other, the responses of customers in each showed that they had nearly identical perceptions of the reliability of their electrical supply (Exhibit 1). Finally, two-thirds of all survey respondents from Region A said that they would accept two hours of outages annually—even though they currently suffered, on average, only 70 minutes. This easygoing attitude may seem surprising, but the average consumer is asleep one-third of the day and not at home for another third. Moreover, although power may be interrupted, on average, for two hours a year, many customers suffer no outages at all. Research conducted in the United Kingdom in 1999 showed that its domestic consumers were even less bothered by the reliability of their electricity supply: 95 percent were satisfied with it and two-thirds thought that electricity companies shouldn't make additional investments to improve it.[1]

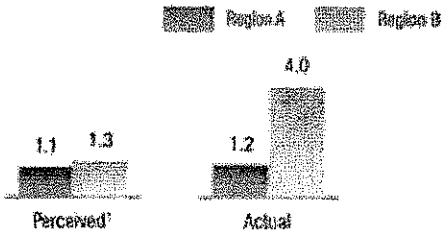
In any case, such investments may have little effect. When we analyzed the experience of distributors in several countries, we found no clear correlation between the amounts spent to improve the reliability of distribution networks and the duration of the power cuts in each region, even when the regions compared had similar terrains and climates (Exhibit 2). There are three reasons for these variations. First, some distributors are more efficient than others and can make themselves more reliable at lower cost. Second, returns on reliability investments (measured in minutes of improved reliability per euro spent) necessarily diminish beyond a certain threshold, which most distributors have already passed. Last, more than half of all power interruptions are beyond a distributor's control; they can occur because of constraints on generating capacity, outages in the transport network, or excavations by gas and water utilities, to cite a few examples. More investment in distribution networks can't solve these three problems.

So distributors should take the time to find out what people genuinely value. Companies with a good track record may find that

EXHIBIT 1

Contented customers

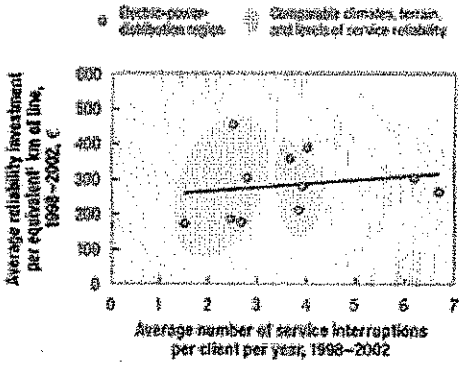
Durations of power cuts by region, 2001, hours



[1]136 customers responded to this question.
Source: McKinsey 2002 electricity consumer survey

EXHIBIT 2

Reliability investments bring unreliable results



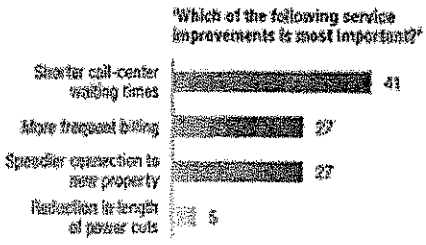
[1]Adjusted to account for different asset mixes—for example, percentage of line underground vs. percentage exposed, number of substations.

their customers, like those in the survey, would prefer more frequent and accurate billing, shorter call-center waiting times, or speedier connections for new properties (Exhibit 3)—improvements that would be relatively cheap to implement. If distributors can show that consumers actually want these cheaper improvements instead of the more expensive ones needed to improve the reliability of service, regulators might relax their present tough standards. Since these standards are usually reconsidered every two or three years, the distributors should undertake market research and draft their proposals in time to influence the next round.

EXHIBIT 3

What do customers really want?

Percentage of respondents (*n* = 177)



Source: McKinsey 2002 electricity consumer survey

Meanwhile, distributors should analyze the root causes of their power cuts and rigorously evaluate any potential investments to improve the reliability of their networks. Two Central European distributors, for example, after rigorously reevaluating the reliability improvements they had intended to make, succeeded in reducing the planned cost by 20 percent while achieving their original targets. Many distributors will certainly find that redesigning their maintenance procedures—for example, by fielding additional emergency repair crews—could reduce the duration of their power outages a good deal more cheaply than could the usual large infrastructure investments.

About the Authors
Richard Hunter is a consultant and Ronen Melnik is an associate principal in McKinsey's Tel Aviv office; **Leonardo Senni** is an associate principal in the Milan office.

Notes

1The data come from an MORI poll—Quality of Supply, Attitudes of Business and Domestic Electricity Customers—conducted from January to March 1999 for the Office for Electricity Regulation (OFFER), which regulated the electricity industry in Great Britain at the time.