MORGAN STANLEY

International Investment Research

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Judith B. Sack

The Twilight Zone

Some days, when I contemplate (or have forced on me) the rate of change in electricity, it seems as if the electric industry has entered some kind of time warp. A "Twilight Zone," if you will — where everything is somehow different. While there is money to be made, new lessons to be learned, and new worlds to conquer, it's somehow in another dimension.

But it is an exciting time: a new world emerging, another one dying, and armies of analysts, bankers, consultants and managements trying to make sense of the change. Trying to envision the utility of the future. Creating the logic, designing the strategies to operate in a world where reality has been distorted.

In this Twilight Zone, with my apologies to Rod Serling, there is more than sight and sense. It truly is imagination that makes the difference. Or, using a more business-like term: intellectual capital. The ability to see a different perspective, the causes and effects, the interrelationships and the endgame.

Surviving in this Twilight Zone will take real skill and real vision. In the old world of electricity, choices were few. One could build or cancel a plant under construction.. Choose nuclear, gas, or coal. Fight the regulators and the environmentalists or go along to get along. But beyond that, one management could do little to distinguish themselves from another.

Not any more. Now the stakes are bigger, and so are the options. A commodity generation business or a multi-utility customer service business? A global or national player, or a niche regional company? And, depending on the starting point (as a tiny vertically integrated company with a large stranded asset, for example), none of the options may be viable. Then what?

I've written a great deal on my view of the future, including the vertical integration of fuel suppliers downstream into generation — the convergence of gas and electricity in the production and supply business. "But what about distribution?" a client asked recently. What will distribution be like in the future?

I've made general comments about multi-utilities and distribution customers as a channel for higher profit margin goods and services, but I've spent less time on distribution than on production and supply. There are a couple of good reasons for that. Distribution, which most observers see as a permanently regulated wires business with an energy services arm, seems mundane. Clients are more interested in generation, where the bulk of competition, assets, and problems currently exist.

But I have to be honest. The second reason is not so noble. It's easier for me to envision and articulate the endgame in production and supply. Describing a competitive wires business and a high-tech, high-profit margin consumer

business is much harder. But I believe that will be the battleground of the future — where management will earn their salaries with creative strategies or end in ignominious defeat.

So what will distribution look like in the next century — three years from now? I personally do not believe that the wires business will remain forever regulated. I know that is the current wisdom, that the network will continue to be a regulated, return-on-investment, low-risk, low-return business.

The current wisdom has several other aspects:

- That services will be available in the unregulated domain (the energy services business) — everything from supplying the commodity to home security.

- That these services will be competitive, and that additional services will have higher profit margins than the basic service.

- That only certain customers will be profitable, those with incomes and usage levels sufficient to pay for more goods and services.

- That the U.K. experience indicates metering for universal retail competition is at worst chaotic and at best unprofitable — the cost of metering can exceed the annual revenue from the provision of supply.

I know all this is the current wisdom, but I don't believe it. As I've already suggested, about this time my ability to articulate why falters, but let me forge ahead.

I think there are two serious problems with this scenario, and several minor ones. The two big ones are technology and a concept I'll call interactive change. The minor ones can generally be lumped in the category of what we don't know about the business.

Before I discuss these problems in more detail, let me first make a few general observations. In thinking about the future of distribution, I started with two basic questions:

- What is the value of a distribution franchise?

- What is the value of a customer?

Good questions, and ones that a creative analyst should be able to answer.

In theory, of course, the value of a customer is the value of the revenue stream he generates, less the costs of producing those revenues. The value of a franchise is the aggregate value of the customers.

In theory, that should be relatively easy to determine. But there are more than a few problems:

- It requires a calculation of revenue per customer. Actual revenue in prior periods is obviously not a problem, nor is actual customers supplied. But no one has any good sense of either the extent to which prices will fall in a competitive environment or the potential erosion of the customer base once customers can choose suppliers freely.

- It requires a calculation of cost to generate those revenues. I continue to believe that one of the real problems facing this industry is just how much it doesn't know about its costs.

- Everyone believes there will be some transition period. However, the length of that transition is debatable (I think it will be shorter rather than longer — that markets always triumph over regulation). And the legality of a defined transition period and the collection of a CTC (the universal transition charge that permits recovery of stranded assets) may yet be challenged.

- On the positive side, no one knows the amount of revenue that may come from new services. Indeed, just what products and services are (a) possible; (b) likely to receive high acceptance by the market; and (c) capable of being provided by the stub utility distribution company are all unknown.

- In addition, this is the industry that didn't believe in price elasticity and still doesn't know how to price or market its product. Knowledge of customer preferences, market clearing prices, and realistic profit margins will determine value in a distribution franchise.

As an analogy: a telephone directory services product available across most of the U.S. allows a user to have a requested number dialed automatically for an extra charge. The charge is high and highly variable depending on the service provider. Usually I am more than willing to pay for

convenience, but even I refuse to ante up the 50 cents my local service company charges for this service — which I can't believe could cost more than a few cents, if not a few mills, to provide. Poor pricing policy is one symptom of a utility mentality, yet the telephones have been open to competition much longer than the electrics.

So the standard methods for valuing either a customer or a franchise fall sadly short for the electric distribution business. But this is just the beginning of the problem. I believe that those who are trying to develop winning strategies for the disaggregated, market-oriented electricity/utility services business suffer from a lack of imagination.

Envisioning the End Game

In trying to envision the distribution endgame, I think those who survive to look back on the process will be shocked by the effects of two major trends that are being essentially ignored in the current debate — technology and the interaction of forces and events that will change the business beyond recognition.

Technology

First, technology. Just as in the case of generation, I believe substantial changes in technology are being ignored or underestimated in distribution. Ten years ago, it was nearly impossible to even discuss rationally with a utility person the possibility that IPPs were a valid entrant into the generation business. (I remember once speaking to a group of senior management from the US electric industry and nearly being pelted off the podium when I suggested that IPPs could produce cheaper, more reliable power more efficiently than the regulated monopoly.)

Several levels of denial had to be broken, among them:

- *IPPs actually had the expertise to build and operate a generating plant.* Many utility executives argued that the system would fail if IPPs were allowed to build plant — that the reliability could only be assured if the vertically integrated monopoly was the only player allowed to generate, transmit and distribute power to the people.

- *IPPs were more than just a financial house of cards.* The original industry doctrine held that IPPs could produce power more cheaply only because their financing structure was more highly leveraged. On the infamous level playing field — with equal leverage — the industry held that a vertically integrated, regulated monopoly would be even cheaper than an IPP.

- *IPPs could actually produce the operating efficiencies that they claimed.* After all, utilities knew that good engineering practices required downtime and maintenance, so plant could not operate at availabilities claimed by the IPPs. Back-up services would raise the cost, and utilities would unfairly be left as supplier of last resort.

- And perhaps most important, *proper incentives wonderfully concentrate engineering ingenuity and business strategy.* When one is playing with his own or shareholder money and one's job is on the line, much more will be accomplished than when risks are borne and penalties paid by customers.

I think the same recognition needs to be applied to distribution. The impact of new technology in distribution will be immense. This technology is borne of the same parents that spawned advances in generating plant (heat rate efficiencies that increased from 10,000 BTU to 6,500 BTU, for example) so that smaller, more economic gas turbines undercut ever larger coal and nuclear plant — similar to the revolution in telecommunications. Unfortunately, the technology about to be unleashed in distribution has been largely ignored.

I am not a technology expert — I'm not even a technology freak — but I do have a few foggy notions of how it might all unfold.

First, today's paradigm holds that the wires and pipes business will forever be a regulated monopoly. (I remember just a few short years ago when the same was said about generation.) But many of the conditions that spawned competition in generation exist, to some extent, in distribution.

Distributed Generation — The Electric Equivalent of Cellular

In generation, barriers began to fall when self-generation became economically viable. A function of, among other things, technology advances, it reversed the economies of scale that fostered centralized power generation and instead

gave leverage to large industrial customers who could generate cheaper power on their own premises.

In distribution, a technology known as distributed generation is becoming economical at smaller sizes: this means that leverage will extend beyond large customers as lower-usage customers will also able to bypass the wires business.

Just as in cellular, this holds the promise (or more aptly, the challenge) of completely restructuring the wires business. In developing countries where building the wiring infrastructure for a communications system is a vast undertaking — a function of a poor-quality current system and the lack of universal service — cellular has already proved to be economically preferable to a wires-based phone system. I believe the same will hold true in electricity.

In developed countries with relatively modern infrastructure and universal service, it may appear that electricity distribution must be forever a regulated wires business. But the technology designed to penetrate rapidly growing emerging markets like China and India will soon be transmitted to other markets where it can be cost-justified.

Utilities facing large stranded assets that believe they will be able to impose a sizeable "competitive" transition charge on their distribution customers for the next 5 or 10 years may find this next dimension a bit too close for comfort.

The costs of distributed generation may be high relative to an existing wires-based system, but cost is often not the most important issue, as demonstrated by the increasing use of cellular phones. Cell phones created a new service — unrestricted communications — which became an important competitor to the local wires monopoly. The same happened with IPPs in generation, and I believe the same will happen in distribution.

For me, the mantra that distribution will be separated into a wires-based monopoly and a competitive energy services business is a constricted view. Rather, I believe the lines between them will first blur and then disappear, as various energy services will require technology more advanced than the wires business currently has installed.

As a simple example, the metering technology required to support real-time pricing and other competitive new products and services may not be economical (or in the best interests of the wires-based monopoly), but a Competitive Energy Provider (CEP) may view the technology as a loss leader if it locks in the sale of the service (again, the analogy to the early — and even the current — cellphone business is apt).

Another example would be services that do not yet exist. Take the concept of remote appliance control — where you call home and turn on the furnace (air conditioning) on a cold winter's (hot summer's) day. The technology to penetrate that presumably higher-profit-margin and completely untapped market may well be more sophisticated than what is available today, a hybrid of the wires and the energy services business.

As these and other new products and services become available, the monopoly distribution business could come under attack as profitable niche markets are carved out of the core business — again, just like what happened in generation, telephones, airlines, and virtually every other market where a real monopoly has been eliminated.

The Interactive Process

The way technology becomes available and how niche markets are created will be important to the future structure of the distribution business. I believe it will be an interactive process— by which I mean that each action will create another action, making it is very difficult to envision the end-game.

Looking back, it will probably all seem like a logical process similar to what happened in the computer business — the mainframe evolved into the PC, leading to the Internet and now to network computing through a TV (all within the span of 20 years, by the way). Each was a logical step from the previous one, but envisioning the Internet even five years ago would have been an impossible stretch for all but a few visionaries.

I believe the phases in the growth of the distribution business will be similar. A fragmented business will emerge where intellectual capital will create new approaches, new products, new services and incentives to operate differently. Simple things like new billing procedures (beginning to be recognized as distinct from the distribution function) could provide a competitive edge; so could more complicated processes like new techniques to maintain or upgrade the networks (again, just beginning to be recognized as sepa-

rate from the wires business), providing cheaper (or more efficient or more reliable or higher quality) service.

As each of these functions is stripped away from the core business, what is left? If network maintenance is gone, along with billing, and if system control is part of the transmission or system operator function, is there really a monopoly distribution business? For me, the answer is no. In ten years, more or less, I believe all aspects of electricity will be competitive. It may take longer for all parts of all customer classes to experience the benefits (or problems) that are entailed. But I think it will take less than ten years for management and shareholders to experience the problems (or benefits) that will arise from such a dramatic restructuring.

Problems and Benefits

Unfortunately for the now-regulated monopolies, I think they will encounter more problems than benefits. But there will be many opportunities for those starting out without the baggage of the existing distribution system (outdated management information systems, less than state-of-the-art billing systems, employees and processes that are not customer-oriented, and managements with very little information on the costs and profitability of various business segments). Starting fresh, without the preconceived ideas that imbue the current regulated monopolies, can be an enormous advantage.

For example, the current paradigm in the regulated monopoly holds reliability to be all important. And it may be. But what reliability means to the customer may be different than what it is to most utility guys. Customers don't know if a power failure is caused by generation deficiency, transmission shortage or distribution failure. But they do know they have to reset the clocks in the micro, VCR, and a half-dozen other inconveniences. Sometime soon, some creative type at a power marketer or the next iteration of a competitive wires company will offer a technology (maybe even as a loss leader) to reset those clocks, as part of a package including power supply and high-tech wires to support other products and services. The customer may well experience this as improved reliability.

This underscores one of the biggest problems and opportunities in distribution, and a reason for the success of competitive generation — the ability to recognize and implement new technology, unburdened by the drag of older, undepreciated technology that must be written off if not recovered. New generations of wires-based technology that provide more capability and more products and services than current distribution equipment will be a real challenge for the regulated distribution monopoly. I expect the same cream-skimming that first plagued and then sunk generation into its currently "financially challenged" state.

For managements and shareholders, these will be great challenges. Size will be important — a large customer base to spread the costs of the new technology will be an advantage. Faster depreciation of the wires will create higher cash flows but subpar earnings growth and more "dividend restructuring." Either low payout ratios (good) or asset securitizations with resultant high cash flows to reinvest in new technology (even better) will help in the transition to the future. But companies with high payout ratios (bad) or small companies without full recovery of stranded assets (even worse) may discover the Darwinian theory of evolution is painful indeed.

Subsidiary Issues — What We Don't Know

Throughout this process, we are beginning to recognize that we don't know very much about the electricity industry and that what we thought we knew is, in many cases, no longer true. In generation and transmission, at least some of the issues are being analyzed and new competitors are providing an education in costs and profits. But distribution is still completely uncharted territory.

We certainly don't know what the customer wants. We don't know what he'll pay for what he does want. We don't know what the product options are. What it costs to provide service now. What it will cost to provide service under the new rules — i.e., what marketing costs may be to keep old customers and what the costs and rates of turnover may be in new customers. Analysis of the income statement would usually be helpful in understanding this, but under current industry accounting conventions, I'm not sure such an analysis would really be useful.

We don't know the value of a customer — his profitability, individually or as a class. Yet power marketing is the game everyone wants to play, which implies that energy services to commercial and larger customer groups are expected to be most profitable. Most everyone appears to have written

off the generic residential customer as unprofitable. Yet in both airlines and phones, the individual customer has been a real battleground. From calling programs for "Friends and Family" to low family fares for vacation destinations, small customers are the focus of huge, expensive ad campaigns. Perhaps the core residential customer is worth a second look.

It's not surprising that the current regulated distribution monopolies focus on power marketing and commercial and industrial categories — they need to keep the value of current assets from disintegrating. Essentially, a power marketing approach says that the value will be in the supply business (an assumption I'm not willing to make). For those with huge unrecovered generating assets, that may make sense, at least until upcoming asset sales provide real-time market data on what generation is worth and what people are willing to pay for it.

So that bring me back full circle to the value of a customer — what is it? Earlier, I discussed some theoretical ways to answer the question and some of the problems with them. Let me now take an easier approach, based on real market values.

If we assume that the market sets realistic values, then M&A transactions to date provide a starting point. But some transactions (in the U.S. and Spain, for example) have included vertically integrated companies, so generating assets must be adjusted out. In Australia, the U.K. and much of Latin America, transactions — whether through privatization of government-owned assets or hostile or friendly bids by investor-owned companies — have involved pure distribution assets. These numbers, shown in the table, provide some very interesting insights.

Distribution Acquisitions Worldwide

Region	Price Paid per Customer	Dates
Australia	$3,000–$5,000	1996
UK	$950–$1,500*	1994-1997
Latin America	$200–$1,000	1992-1996

Source: Morgan Stanley **Excluding National Grid*

First, the wide variation implies uncertainty about the value of a customer. Second, the numbers per customer include the value of both wires and supply, at least for the next few years, until supply is fully competitive in markets such as the UK. Third, changes over time and by market have some interesting implications.

It is beyond the scope of this piece to investigate other data that may explain some of this variation. But some obvious candidates come to mind. The profitability of different regulatory structures (RPI-x incentive versus rate-of-return cap), inherent underlying growth rates, other regional issues like the windfall profits tax in the U.K., the state of the wires equipment, the need for new investment and new build-out in rapidly growing countries, cash flow potential, and earned ROE's are just a few.

But even in the early stages of the game, several interesting questions fall out of this thought process:

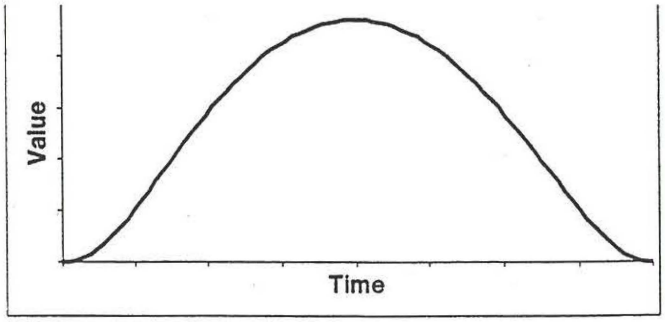
- Are current ROE's on distribution too low, given the uncertainties about the future of this business.

- If the optimal number of customers in the distribution company of the future is really north of 5 million (see our report dated March 18, 1997, *A Second Look At Convergence*), what will be the shape of the value curve for customers over time?

- Why haven't more gas LDCs been merged?

I don't have answers, but some thoughts come to mind. To the first point, low current ROE's on distribution mesh with the accepted paradigm — that the wires business as a regulated monopoly should have a regulated (read: low) ROE. The supply business may provide higher returns, but no one yet knows its potential profitability. This simply means that new valuation tools are necessary, a point to which I'll return in a moment.

Projected Value of Customer Over Time



To the second point, it seems to me that a bell curve will describe the value of the customer over time. As the end-game becomes clearer, the value of access to customers will increase — but only to a point. As M&A activity continues, the more valuable franchises (the larger ones, the ones with higher per capita income, the higher-profit-margin residential, etc., will be the first to be acquired. Over time, the acquirers (or, as Kit Konolige calls them, the carnivores) will achieve critical mass. The less attractive characteristics of the remaining wallflowers (Kit's herbivores) will become obvious. Perhaps most important, as the carnivores satiate their appetites, the value of an incremental customer declines. So over time, the value curve will fall off sharply. The trick will be to accurately judge the inflection point and be gone before it occurs.

To the third point, the gas LDCs generally sell at higher multiples than the broad group of most likely carnivores; they are relatively small (and don't fall in the category of defining transactions); they are still heavily regulated; and they don't have the same penetration as electricity and telephone do of their local market. In addition, their acquirers fall into two categories. Those in the midstream and upstream gas business don't see the value in a customer franchise (and don't understand the impact that gas-fired distributed generation may have on the value of an LDC franchise). And those in other distribution businesses are not yet sure of the real value of convergence. I think both of these views will change over the next few years.

So What Does It Mean?

How does the investor make money out of all this? I believe the first requirement will be to revise the tools of valuation for the business. As Kit Konolige argues, this industry needs to be valued on cash flow. Not earnings and not dividends, book value or yield. This will require a lot of work, as the cash flows first must be determined — not an easy task. Then, determining the reinvestment rate, the stability of the flows, and the value of existing assets will all be necessary. Furthermore, different management skills will be necessary to operate in this new world, and investors must begin to pay for that expertise.

Will the majority of the companies known as utilities today find their way out of the Twilight Zone? To mix my sci-fi metaphors, do they have what it takes "to go boldly where no man has gone before?" Do they (or the analysts and investors who currently own them) have the skills and imagination to do so?

To be able to envision the future under such different conditions is not a skill often paired with those needed for success in today's utility world. I remember when Enron reviewed its organization 10 years after deregulation of the gas business and calculated that of the 80-odd managers in the executive ranks in 1984, only nine, if my memory serves me, were still there 10 years later.

I think the electrics will find the path harder that the gas companies did. The electrics in much of the world have been vertically integrated companies, while at least in some regions, the gas business was already vertically disaggregated before the restructuring began. The financial problems — the disconnect between the book and market values of the assets — are greater for electricity companies. The financial strength, at least in terms of dividend payouts and equity ratios, is less. And, in my experience, management is more risk averse. (The LDCs have had to compete against oil and electricity, for example. The electrics have no such advantage and may have the disadvantage of being unable to imagine a competitive world for either transmission or distribution.)

For the shareholder, this provides both great risk and great opportunity. Our U.S.-based electric and gas analysts have just published a report entitled *The New Integrated Energy Industry* that forecasts 10% earnings growth for select companies over the next several years — as carnivores forage, herbivores diet, and both recapture and redeploy capital. But in addition to the carnivores and herbivores identified by Kit, there may be a third group lurking in the weeds — the inedibles that will find no one to want them.

Over the next few years, as companies recapture capital through securitization and accelerated depreciation, there will be great opportunities in the redeployment of that capital into other higher-growth situations. For those that can go boldly where no one has gone before, there will be an exciting, profitable future. There will be those that fail. Others will achieve growth rates beyond their wildest dreams. But that is as it should be. In the death and destruction of any great enterprise there are those that benefit and those that do not. The difference between them, in this electric Twilight Zone, will be their imagination.