Distributed Generation and Resources

Does Anyone Outside the DG Business Care? and If They Do Care, Do They Understand?

Leonard S. Hyman, CFA
Senior Industry Advisor
Salomon Smith Barney

EPRI has forecast "at least 20 GW of distributed resources... for installation in the United States during the coming decade..."[1] or about 20% of the total.

***McGraw-Hill's World Energy,* "The Official Publication" of the 17th World Energy Congress, seems to have no mention of distributed resources, although one writer commented that "You might build many smaller plants faster, but you must build many of them—and in the end, the time saving may be minimal and the cost higher."[2]**

The Energy Information Ad-

ministration projects a 0.7 GW increase in customer owned on-site capacity from 1998 to 2020, and adding in fuel cells brings the number up to 0.9 GW.[3]

At the same time, the market value of the stocks of only four companies in the distributed generation arena approximated $16 billion at the end of August,[4] or about 5% of the value of the electric utility stocks in the S&P 500 average. That market valuation, probably, implies net income for the four of $1-2 billion within 5-10 years, which probably implies sales of at least $5-10 billion.

At $1,000/kW, those four companies would sell 5-10 GW/year, equivalent to one-third to half the generating capacity added each year in the United States. Add to that what the other manufacturers could produce. Something does not add up. Obviously, the stock market expects more from distributed resources than do the experts.

Or does it?

SOURCES OF INFORMATION

Academics believe that the stock market values companies based on a long-term assessment of prospects. Wall Streeters, on the other hand, seem to think in terms of three-month segments of time. Academics examine broad financial market indicators. Wall Streeters specialize, so those events that do not take place within their purview might just as well not take place.

When investigating a new phenomenon, academics search the literature (which encompasses more than looking up the topic on a Bloomberg terminal). Wall Streeters will call the investor relations executives of the companies that they follow (not of the company that produced the phenomenon which they do not follow).

The IR representative will repeat, the company line, which is, "We don't think that this will have much effect on our business for a long time," or "We can do the same thing, at a lower cost, right now, anyway," or "We don't think there's much of a market for that product."

Of course, some Wall Streeters will not buy the company line, but they might conclude that the new phenomenon will not affect the value of their investments within the time frame in which they operate.

SUDDEN INTEREST IN DISTRIBUTED RESOURCES

Within the past year, Wall Streeters have taken note of distributed resources. Caterpillar executives might argue that Wall Streeters should have taken notice years ago. But electric utility analysts do not follow Caterpillar, and machinery analysts do not give advice to utility investors.

Honeywell and Capstone have had microturbines under development for years, with no attempt to keep their efforts secret. Fuel cells have been poised to enter the commercial market for decades. Furthermore, EPRI's *Roadmap* predicted that distributed generation would achieve cost competitiveness within this decade.[6]

Why has distributed generation (and distributed resources when including reliability devices) suddenly captured the attention of Wall Street? Choose from one of these five reasons:

1. Supply shortages, made evident in the summer of 1998-2000, will force customers to install their own generators or load management devices.

2. Firms that require super-quality power have grown rapidly in importance and, since they cannot get what they want from the utility, they will turn to distributed resources.

3. The transmission grid and the local distribution networks have become less reliable, so consumers will seek off-grid solutions.

4. The introduction of time-of-use pricing will incent customers to go off grid at peaks, but doing so without interrupting their businesses will require distributed resources.

5. Wall Streeters anticipate billions of dollars of new financings in the near future, as distributed resources firms raise capital in order to launch commercial scale activities.

If you have chosen reasons 1-4, you still think like an engineer. Wall Streeters pay attention when they see immediate action ahead.

THE SUM OF THE PARTS

Yes, Wall Street's analysts have begun to comb through the investments in distributed resources made by utility companies, seeking out those "hidden gems" that could boost the values of the utility stocks. New industry investments can produce greater value than the entire old utility, as Williams Companies and Montana Power have demonstrated.

Some utilities had invested in distributed resources, but how could anyone value those investments when no public market existed for those types of stocks? Now, a number of distributed resource and new energy technology companies have gone public. More will do so. Analysts, investors and company executives have benchmarks, now. They have something exciting to talk about.

But, beyond the hype, do Wall Streeters really understand distributed resources? The EIA, for instance projects electricity sales growth through both 2005 and 2010 of roughly 2% per year.[7] During this time, the market will become more competitive, which should reduce margins. But, Wall Street predicts that the average electric company will produce annual earnings per share growth of 6%.

Five Year Earnings per Share Growth Projections[8] (Electric, Electric and Gas, and Electric Generating)

Projected Annual Growth		*% of Sample*
≥10%		16
8-9.9		13
6-7.9		25
4-5.9		16
< 4		5
	Total	100

Now for the problem. If distributed generation (or distributed resources) takes hold in the marketplace, it will eat into the growth and market share of the incumbent suppliers. Yet, Wall Street already projects growth in excess of market growth for the bulk of the participants in the market. To put it simply, the sum of the projected market shares will exceed the size of the market.

Existing utilities do not control the distributed resources industry. Wall Streeters see great value in distributed resources which, presumably, means that they expect distributed resources firms to garner a significant part of the energy market, possibly the most profitable, noncommodity part, presumably leaving less of a slow growing pie to the incumbents. But, despite this the average incumbent will grow faster than the market. **Do you get the feeling that people are spending too much time in Lake Woebegon, "where all the women are strong, the men are good looking, and all the children are above average"?**

BUSINESS MODEL

Think back, now, to the telecommunications revolution. AT&T and successors gave away the semiconductor, did not see the advantage of digital over analog switching and thought that only traveling salesmen would use cellular phones. They did not understand why anyone would attempt to duplicate or compete with the local infrastructure.

And, of course, they knew that nobody in his right mind would build a communications network based on packet switching. The telephone incumbents, I believe, viewed the new services as equivalents of the old services delivered through a different device. They thought that the old equipment could deliver those services that the telephone companies knew that customers wanted on a cost-effective basis. The new devices, in reality, delivered radically different services that supplemented or replaced the old services.

As an example, wireless telephony does not simply carry calls that the customer would have made if a public telephone had been nearby, but also calls that the customer would not have made at all, without wireless as carrier. (That extra call, incidentally, benefits the wireline carrier that carries it to its destination. Distributed resources might not add to the revenue of the electric network, but it could increase the revenue of the natural gas supplier.)

Distributed resources can cut the customer's tie to the electric network, at the extreme, and it surely will reduce the customer's dependency on that network. It will create conflicts between the electric utility and customer. (Go back to power quality or reliability. Would the utility deliberately lower reliability or power quality on the grid in order to encourage the customer to take unregulated, high margin power quality services from a utility's affiliate? Watch that accusation fly at regulatory hearings. They will debate it on a cost of service basis.)

"CANNIBALIZE?"

Management consultants tell firms to cannibalize their own product lines before the competitor takes the business. Utilities, however, would rather cry about stranded costs than field new lines of cannibalistic services. Thus, most likely, someone else will bring in the new line of distributed services. That would explain why Wall Street has such high hopes for the new firms, but not why it expects above average growth from the average utility company.

All business planners have to think about the strengths and weaknesses of their and their competitors' products and about overall demand for the products. But, in this sector, they have to think about what regulators will do, and, too, about how competitors versed in regulation rather than competition, will react. They will have to deal with the engineers of entrenched monopolists, trained to espouse the public good as they see it, rather than the wishes of consumers. (Study AT&T's history to find examples of such thought processes.)

At the same time, regulators can be the innovators' best friends. They may push the utility to connect the new devices. They may force the utility or the consumer to subsidize the new services. On the other hand, they may decide that the customer does not want the new services, without asking the customer. Or they may decide that adding on the new services add to the bills of the customers who do not want the new services.

(Never fight with regulators over the allocation of costs. They always win.)

PLUSSES

Consider, however, the positive ways that regulators can help. For one, they could encourage real time pricing, so that customers see the bills, and want to take action to avoid them. They could set local distribution tariffs in a way that encourages distributed resources, and reflects the benefits and savings such resources bring to the network.[9] And they can encourage pro-competitive connection policies.

MINUSES

Consider, too, the negative ways that regulators can help the distributed generation/resources business. At present, despite all the talk about the virtues of the marketplace from the mouths of regulators, you know that they remain uncomfortable with the notion of letting go. As a result, they have, successfully, tied the transmission system in knots and elevated congestion pricing to the key function of the network.

That, of course, leaves significant markets in either the hands of market dominating generators or in a state of continual worry about reliability. They have, in addition, signed on to rate freezes that will incentivize utilities not to make reliability improvements, which will encourage entrepreneurs and customers to take action, on their own.

Most seriously, though, they have encouraged the notion that the network should not participate in the market, that is, it should not make decisions that might favor one market player over another, or might favor the network's interests over those of a market player. Obviously, if the network improves a line, it might open up opportunities for an outside player, but in doing so, it creates profits for the transmission line as well, at the expense of the entrepreneur who hopes to build a generating station in the poorly served area, or at the expense of the distributed resource that might have served the area.

If this attitude prevails, imagine the lawsuits that will follow every act of the network utility, as contending parties bring in dueling expert witnesses to demonstrate why the cost of one alternative is superior to that of the other. In a real market, competitors do not undertake discovery proceedings about costs. They do it if they think it will pay, and they take the consequences if it does not.

Of course their competitors may take the consequences, too, but that's what capitalism is all about. The customer, then, comes out ahead.

From the short-term standpoint of the distributed resource entrepreneur, the regulator should, ideally, order the utility to open its lines to newcomers, and then tie up the utility in red tape. To put it another way, many regulators view the network as monopolistic common carrier that should play a passive role in a dynamic market. Under those circumstances, smart network managements would do absolutely nothing.

Strangely enough, many present network executives, uncomfortable with the hurly-burly of the market, like that role above the fray. But a new breed just coming along seems less interested in acting as a keeper of the sacred flame, and more in going out and getting customers. **Thus, the distributed resources pioneers might want to take advantage of the utility/regulatory molasses establishment in order to move into markets poorly served by the feet-of-clay folk, but not depend on the industry's stasis as *sine que non* for prospering.**

CONCLUSION

The energy market now sends the right price signals. Or, to put it better, it sends the right signals, but the receivers are not yet in place. But they will be, soon. Manufacturers have brought down the costs of distributed resources, and will soon bring into the market a new family of devices that will bring independence and improved reliability to consumers. And a new breed of consumers requires a set of services that the grid might not provide economically. Finally, Wall Street has caught on, and stands ready to finance the distributed revolution. This is it.

So, to quote Publilius Syrus, Rabelais, John Heywood and Cervantes, "Strike while the iron is hot."[10]

References

1. Electric Power Research Institute, Electric Technology Roadmap: Powering Progress, 1999 Summary and Synthesis (Palo Alto: EPRI, July 1999), p. 36.
2. Christopher Bergesen, "Outlook Stable: The Real Market for New Electric Power Plants," McGraw-Hill's World Energy, 1998, P. 53.
3. Energy Information Administration, Annual Energy Outlook 2000: with Projections to 2020 (Washington, DC: EIA, December 1999).
4. Ballard, Capstone, Plug Power and Fuel Cell Energy.
5. DTE Corporation has projected that by 2010, DG sales will reach $13 billion, at $500/kW, and account for "20% of world-wide generation capacity additions." Merrill Lynch, Energy Technology, June 29, 2000, p. 13.

6. EPRI, *op. cit.*, p. 34.
7. EIA, *op., cit.*, reference case, pp. 129-130.
8. Samples of five-year projections July 2000, from Salomon Smith Barney, Merrill Lynch and Value Line. Unweighted composites.
9. Shimon Awerbuch, "Pricing Reform for the Local Disco: Setting Rates That Will Support Distributed Generation," *Public Utilities Fortnightly*, July 1, 2000, pp. 42-53.
10. For those not brought up as blacksmiths, the original reads, "You should hammer your iron when it is glowing hot."

ABOUT THE AUTHOR

Leonard S. Hyman, CFA, is a senior industry advisor to Salomon Smith Barney. Previously he was managing director of Fulcrum International Ltd., as well as an independent consultant specializing in the economics and finances of energy and telecommunications utilities.

From 1978 to 1994, as head of the Utility Research Group and first vice president at Merrill Lynch, he supervised and maintained equity research on foreign and domestic energy and telecommunication utilities. He was a member of privatization teams for offerings of British, Spanish, Mexican, Argentine and Brazilian utilities and consultant for other restructuring studies. Prior to joining Merrill Lynch, he was a partner at a New York Stock Exchange member firm and an officer at Chase Manhattan Bank.

Author of *America's Electric Utilities: Past, Present and Future,* author of *The New Telecommunications Industry: Evolution and Organization* and editor of *The Privatization of Public Utilities,* he has contributed to other books and to professional journals, and is a member of the editorial board of *Cogeneration and Competitive Power Journal*.

For more than a decade, Mr. Hyman was cited by *Institutional Investor* as one of the leading research analysts in his field. He is a Chartered Financial Analyst (CFA). He holds a BA from New York University, where he was elected to Phi Beta Kappa, and an MA in economics from Cornell University, where he majored in industrial organization and minored in Latin American studies.

Salomon Smith Barney, Inc., 388 Greenwich St., New York, NY 10013; 212-816-8508.