Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

by

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Executive Summary

For small business and residential customers the promise of deregulation is an empty one. There will be winners, of course. Those with good reason to expect to be winners have lobbied hard for deregulation. If we measure society's good by either the "economic efficiency" of the economist or by the well-being of the average small business or residential customer, however, deregulation will leave society worse off. This is not because producers of electricity prefer one kind of customer to another, but because, to be profitable, producers ***must*** discriminate. Essentially they will charge each type of customer a different price, based not on cost but on "what the traffic will bear."

For small business and residential customers the promise of deregulation is an empty one.

Rigorous economic analysis, including a branch of game theory called "the theory of the core," reveals that, rather than textbook competition driving prices down to ever-lower costs and providing low-cost electricity to all, what will unfold is price discrimination, redlining of customers, and, ultimately, producer cooperation and/or collusion to frustrate competition.

This report looks at how the market for electricity will unfold as deregulation goes forward. This paper shows that economic efficiency will not and cannot result from an unregulated electric power industry. It shows, furthermore, that such a market cannot provide rates that will be "just, reasonable, and non-discriminatory" as is now required in the statutes or regulations of most states.

Competition

Competition is not a goal but a means to an end. Economists extol competition because it will deliver "economic efficiency." The average person, in contrast, desires competition for one or both of two reasons: first, to get a lower price for a good or service, and, second, out of a belief that equity, fairness, and prevention of exploitation by a monopolist or oligopolist results from competition.

Competition can bring benefits to consumers, as the struggle for market share leads to price cuts. Some industries, though, behave differently than textbooks predict. Despite numerous hearings and investigations in many states and at federal agencies, serious and careful economic analysis has not yet been laid out with respect to how deregulated electric markets will behave. The economic testimony put forward has been mainly at the level of cliché. Well-known economists have extolled the market as better than regulation, but with little more depth than found in a high school textbook. More rigorous analysis, however, exposes the dangers of blithely accepting clichés about "the market."

Product And Cost Characteristics Of Electric Power

The standard theory of competition fails in industries where the product sold is an undifferentiated commodity, and, separately, where production requires large fixed investment, or "overhead costs." Electric power has both characteristics. Because of the product and cost characteristics of electric power, severe price discrimination is certain to occur in deregulated electric power, and small business and residential customers will be the targets.

Agricultural Commodities

Economic forces in undifferentiated commodity businesses require coordinated control of output. In agriculture, acreage and other controls on wheat and corn and milk served a coordinating function for 60 years. Congress, attempting a form of deregulation of agriculture in 1996, passed the "Freedom to Farm Act," hoping that "the market" would work in agriculture. By the summer of 1999 a farm crisis emerged and farm-state Democrats asked for $10 billion in aid, with a number of other proposals, ranging from $9 billion asked by the American Farm Bureau Federation and $17 billion asked by the National Farmers Union, to deal with the problem. "We're looking at a three-year period where it is going to be difficult to raise a

crop and recover your costs," said Rep. Earl Pomeroy, a North Dakota Democrat who supports expansion of the land-idling program.[1]

Overhead Costs

An additional problem faces industries with large overhead costs, one that drives them to price discrimination. To spread overhead costs over large quantities of sales, so as to keep prices within reason, high-capacity operation is required. To achieve high capacity, low prices to attract sales are necessary. But if all sales are made at low prices, profits shrink and disappear. Sales cannot be made below cost while profits are made up on the volume! The solution is price discrimination, with some sales made at high prices — "what the traffic will bear" — and others at lower prices to achieve volume.

Airlines deal with the overhead-cost problem by charging passengers wildly different fares to try to have planes leave the gate with every seat full. Electric power producers must also price discriminate, and for the same reason — to spread overhead costs over high volume. The industrial customers will get bargains, power priced below average cost, but small customers will be forced to pay much more than average cost.

Many economists seem to believe that all customers will get a single (low) price if competition flourishes. (Some assume marginal cost pricing!) They focus on the market-power concern, believing that eliminating market power will result in textbook competition and simultaneously keep profits reasonable and prices nondiscriminatory. Price discrimination cannot be eliminated, however, by eliminating market power. Even if there are many vendors, price discrimination is required by the cost structure of the industry. Though tight oligopoly may keep random price wars from breaking out, oligopolists faced with large overhead costs must still discriminate among their customers. In short, "competition" as a means of social control over abuses cannot work in electric power. Public control or public ownership is required.

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[1] *The Wall Street Journal*, July 26, 1999.

Why Deregulate?

Although many economists have recommended deregulation as a way to get economic efficiency, the discourse has been carried out at a shallow level. Looking a little deeper makes clear that — even in the analysis of some prominent proponents of deregulation — deregulation cannot deliver economic efficiency. The section on economic theory later lays this out, but a short quote from a game theorist looking at antitrust anticipates the conclusion:

> *A broader and more practical result is that there is no competitive equilibrium in an industry characterized by quite plausible cost and demand conditions. … By extension, the importance of this line of reasoning for antitrust is that* ***it becomes unrealistic to expect competitive behavior in certain markets because firms could not behave competitively even if they wanted to***. [2] [emphasis added]

A group of economists clustered around Lester Telser of the University of Chicago has developed "the theory of the core." They conclude that "cooperation" is necessary for economic efficiency under the cost conditions of electric power.

The difference between cooperation and collusion is hard to detect as far as the impact on customers is concerned. Without public ownership or control they have the same effect.

> *To be charged with "collusion" sounds rather bad. Besides suggesting legal sanctions, it connotes a severe moral opprobrium. But the word can be replaced with an equivalent and the opprobrious connotation disappears. Call it "cooperation" and the frown of the moralist gives place to an approving nod. …*
>
> *The former has acquired a derogatory, the latter a commendatory connotation in everyday language as well as in the law. In the economics of competitive behavior the differences tend to disappear because the effects of "collusive" and "cooperative" conduct on the part of competitors may be*

[2] George Bittlingmayer, "Decreasing Average Cost and Competition: A New Look At The Addyston Pipe Case," *Journal of Law and Economics*, Vol. XXV, October, 1982, p. 202.

> *the same. If competitors "cooperate" in pricing their products, they engage in "collusion."* [3]

Discriminatory pricing at the airlines is called "Yield Management." Business fliers, traveling on short notice, are price gouged. Leisure travelers pick up bargain fares, sometimes even below the cost of serving them. Seats unsold at the last minute, "distressed merchandise," are now being dumped on the Internet to bring in something more than the cost of peanuts. Something is better than nothing. It is better to lose some of your money on sales you make than to lose all of it by not making the sale. Common examples of following this rule abound, and detailed descriptions of the practice in higher education and the airlines are given later.

It is critical to understand that price discrimination is ***necessary*** for airline profitability, as it will be for deregulated electricity. In contrast with airline pricing, which gouges (mostly) business fliers, discrimination in deregulated electricity will hit the smaller, more vulnerable customers.

The largest electric customers will have options, such as fuel switching, self-generation, and relocation, and will be offered low prices to lock them in as customers. Those with fewer options — small business and residential customers — will be charged higher prices. Within the small-business market and among residential customers, further discrimination will take place. Emulating the airlines, which try to price each seat to yield the maximum revenue, sellers of electricity will charge the highest price they can obtain from each customer. Within this group, those willing to buy a bundle of products from the same vendor may get a better deal on electricity than those who do not, without regard to its cost of production.

The Cost Of Acquiring Customers

The main thrust of this paper is on structural characteristics of electric power, but it is useful to note that, in addition, marketing

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[3] Fritz Machlup, *The Basing-Point System*, Blakiston Company, Philadelphia, 1949, p. 34.

costs will also preclude small customers from getting prices as low as large ones do. The section of the paper that follows economic theory and its examples argues that selling bundles of products will be the path to profits. The reason is that the cost of acquiring customers cannot be recovered unless the customer is large or buys a bundle of products besides electricity. This does not mean that a small customer is not profitable, but rather is costly to "acquire." Vendors quickly abandoned the California market as this became clear. Estimates of the cost of acquiring a customer have ranged as high as $600.

Some Simple Arithmetic

A simple arithmetical example shows how marketing costs will lead to discrimination. Assume a marketing expenditure of $100 to acquire a residential customer. This is probably low for a residential customer and is surely low for commercial and larger accounts.

Take three customers, one using 300 kilowatthours (kWh) per month, a second using 1,000 kWh / month, and the third with usage of 10,000 kWh / month. We want to consider how long the payback period of the marketing expense will be under two assumptions of the net price above the cost of production. Assume that the margin is 1 mill per kWh and, alternatively, 1 cent per kWh. For the sale of the electricity, the assumption of a margin of 1 cent is surely high. An assumption of 1 mill seems closer to actual margins. William Marcus has asserted that 1 to 2 mills amounts to a marketer's entire profit margin.[4] These two values — 1 mill and 1 cent — will serve as brackets for our calculations:

		300 kWh/month	1,000 kWh/month	10,000 kWh/month
Monthly cash flow	at 1 mill	$0.30	$1.00	$10.00
Annual cash flow	at 1 mill	$3.60	$12.00	$120.00
Monthly cash flow	at 1 cent	$3.00	$10.00	$100.00
Annual cash flow	at 1 cent	$36.00	$120.00	$1200.00
Years to recover marketing outlay	at 1 mill	27.8	8.3	0.8
	at 1 cent	2.8	0.8	0.1

[4] William Marcus, *JBS Energy*, April 23, 1998.

The table shows the calculations, as follows: Selling 300 kWh / month at a margin of 1 mill produces $0.30 / month and $3.60 per year. Selling the same 300 kWh at a margin of 1 cent produces a marginal cash flow of $36.00 / year.

With these assumptions, recovering the marketing cost from a 300 kWh / month customer would take 27.8 years if the margin were 1 mill, and almost three years if the margin were 1 cent.

Next, look at the 1,000 kWh a month customer. A customer using 1,000 kWh / month is larger than the typical residential customer. Looking at the table under the 1,000 kWh / month customer, we see that at 1 mill the recovery time for a marketing outlay of $100 is 8.3 years, and at 1 cent the recovery time is almost a year. If the acquisition costs were substantially more than $100, the recovery period would be even longer. No profits would be earned before the second year, even with the assumption of a margin of 1 cent per kilowatthour. The marketing expenditures are made up-front and carrying costs are not included in this simple calculation, so that profits would be about zero in the first year, even for a customer this large. Marketers, furthermore, will need to make continual outlays to retain customers, perhaps $50 per year. Adding in those costs, the timetable for profitability stretches out even further. If the customer switches during or at the end of the first year, profits may never materialize.

Using the figures in the table for the 10,000 kWh / month customer, we see that the proposition becomes more attractive. The expectation of profits becomes more reasonable as customers get larger.

Against this background two conclusions seem apparent. For selling only kilowatthours, marketing will be targeted at the very largest residential customers, if any, and at industrial and large commercial accounts. For selling a bundle of products to residential customers of whatever size, marketing will be targeted at the more affluent, those with the discretionary income to purchase a bundle of products in addition to electricity.

There are three lessons here. First, from the figures in our calculations, residential customers buying only kilowatthours are not a promising market at all. Second, targeted marketing, aimed at

acquiring only the very largest residential customers, is more likely to be pursued. And third, selling bundles of products to a single customer may be, in the end, the only route to profits.

Discrimination among residential customers will have two dimensions. The first dimension is usage, with targeted marketing selecting only the very largest customers. The second dimension is affluence, where those with the disposable income to buy a bundle of offerings are the target. Keep in mind, furthermore, that selecting some customers means ignoring or deliberately avoiding the rest, an issue discussed later under "Electronic Redlining."

It is important here to be clear here that, though the problem of marketing costs can be addressed, after a fashion, by legislation or rulemaking that deals with creating new "default suppliers," the deeper problem of cost structure will remain. For that, a structural solution — beyond simply breaking up a default supplier's stranglehold on customers — is required. Marketing costs are a significant problem, but the deeper problem comes from the cost structure of the industry.

Regulation's Main Benefit Has Been Its Constraint On Price Discrimination

Regulation is generally thought to be about controlling monopoly profits, but a more important function of regulation is preventing "undue price discrimination." Price discrimination exists under regulation, of course, with different customer classes charged different prices for a kilowatthour of electricity, but the discrimination is based, ostensibly at least, on cost differences. Without regulation, no test of a cost basis will exist.

Railroad regulation was actually spawned in the late 1800s by the demand by some customers for control of price discrimination, combined with the railroads' own need for outside control of "cutthroat competition." Gabriel Kolko makes a convincing case that federal railroad regulation came out of a demand by customers who were discriminated against, in alliance with the railroads themselves.[5]

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[5] Gabriel Kolko, *Railroads and Regulation*, Princeton University Press, 1965.

Rockefeller's Standard Oil was getting low rates, plus rebates, and rival oil companies joined with the railroads themselves to push legislation. The railroads embraced regulation because they were unable to self-enforce price agreements, and wanted the government to police the cheating among themselves on what were then legal price pools.

Electric power companies under the leadership of Samuel Insull later embraced exclusive territories under the supervision of regulators so that "cutthroat competition" would not break out to bankrupt them. The regulators' most important function over the years became control over price discrimination within the service areas. With a protected territory, a utility favors industrial customers as a way to raise growth in sales and earnings and, hence, its value on the stock market.[6] Regulation's main benefit is to constrain discrimination, which is not to say that under regulation undue price discrimination was perfectly or even well controlled.

Exclusive territories did successfully preclude the cutthroat competition among electric utilities that had plagued the early railroads. But it seems clear that even deregulated power production will be protected from uncourtly price wars by the emergence of tight oligopoly. Deregulation of the airlines did at first lead to price wars that bankrupted many carriers, some more than once. Very helpful in ending the price wars has been consolidation through mergers and alliances, leaving very few players to compete or cooperate as the case may be. As shown later, the airlines have found a way to "cooperate" on pricing, followed by steady price increases. But price discrimination remains severe.

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[6] See the work of Myron Gordon, who shows how share prices depend on the rate of growth of earnings. Myron J. Gordon, *The Investment, Financing and Valuation of the Corporation*, Richard D. Irwin, Homewood, Illinois, 1962. See also Robin Marris, "Recent Developments in Theory of the Growth of The Firm," Mimeo, 1967, and "Prepared Direct Testimony of Eugene P. Coyle," Investigation No. 91-08-002, California Public Utilities Commission, May 7, 1993.

Privacy

Individual privacy, or the lack of it, is a serious social concern. The information necessary for effective price discrimination and electronic redlining among customers will come from the giant data bases now available to vendors. Sophisticated "data mining" techniques are now used to sort through information already stored in the data banks. This will be used to select customers for attractive bundles of products, including low-priced electricity. The information mountain within which our private lives reside will be the basis of discriminatory price offers.

Draft electric deregulation bills seek to limit the use to which information about electric consumption is sold for other purposes — but the real problem is the other way around. It is the information about private lives, already commercially available, that will be used to discriminate among electric customers. Public control over the essential service of electricity remains necessary for "just, reasonable, and non-discriminatory rates."

Structural Solutions: Public Power And Public Aggregation

The final section of the paper briefly describes structures which can protect customers from undue discrimination. Scott Ridley correctly stresses that lists of principles cannot deliver equity without a structure in place that deals with fundamental industry characteristics. Two structures that can deliver, public power and public aggregation, are briefly described at the end of the paper.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 1

Introduction

To earn profits, companies in an industry with the cost and product characteristics of electric power must discriminate among customers. In short, this is because large fixed costs need to be spread over a large volume of sales, but achieving high volume through uniformly low prices leaves total costs not covered. The solution is to charge some customers more than average costs while reaching the necessary volume by selling to others at less than average cost. The economic theory section below shows this unequivocally.

This report also shows that the targets of discrimination will be small business and residential customers. Rather than benefiting from market forces in electricity, small business and residential customers will be forced to subsidize large customers.

To earn profits, companies in an industry with the cost and product characteristics of electric power must discriminate among customers.

The focus of this report is price discrimination, redlining, and the potential for price fixing in electric power. In our economy discounts are often offered for bulk buying. The cost justification offered (if not proven) for the lower price is that large volume buyers are cheaper to serve. For electric power, however, this report shows that unjustified price discrimination will take place. A key part of this discrimination will be a new form of redlining, which we will call “Electronic Redlining.”

In addition to the structural problem of the cost of production, high marketing costs will also cause discrimination, with the small customer harmed by not-so-benign neglect.

Surprisingly, the issue of price discrimination has not been aired in the discussion of deregulation. Economists seem to have assumed that “the market” will protect consumers. This report shows that will not — cannot — work. Given that the vendors of electricity will discriminate, how can the longstanding policy and laws of the several states to have “just, reasonable, and non-discriminatory rates” be preserved? Public control, through effective regulation, public ownership, or public aggregation is required to produce “just, reasonable, and non-discriminatory rates.”

Competition is the hallmark of the U. S. economy, and the belief is widely held that its emphasis on efficiency drives forward prosperity and growth. There are certain industries, however, that have characteristics where competition does not play its textbook role. Electric power is one such industry. This report addresses at some length two characteristics in particular: first, where the product sold is an undifferentiated commodity, like corn or soybeans, and, second, where production requires large fixed investment, or "overhead costs." To be profitable, industries with either of these characteristics must find ways to discriminate among their customers or to cooperate or collude illegally to set prices, or to do both. Kilowatthours *per se* are undifferentiated at the customer's meter, and power production requires large, upfront investment, so electric power has the two characteristics that thwart profitability in simple competition. Tight oligopoly, which is where the industry is clearly headed, is characterized by the absence of price competition, the result of a recognition of common interest in avoiding price cuts.

"Market power" has been addressed, but in a way that ignores cost structure, and the discussion has headed down the dead-end street of a search for the "quantity theory of competition."

In 1999 a new record for fines in an antitrust case — $725 million — was set when the world's two biggest vitamin makers, Roche and Rhone-Poulenc, agreed to pay to settle charges in a massive price-fixing conspiracy. The chief executive at Roche, paying $500 million of the fine, said at a news conference:

> *You will understand that this was not part of our responsibility. It is certainly not easy to understand the reasons for the actions of employees who in secrecy organized a conspiracy of this kind.* [7]

Years before, in his book about the electrical equipment pricing conspiracy, John Herling wrote: "… certain companies appeared to have a predilection for violating antitrust laws."[8]

In fact, however, it is easy to understand the behavior. The conspirators are not sociopaths or born criminals, nor do they have a predilection for crime. Rather, they simply tried to cope with the business they

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[7] Quoted in *The New York Times*, June 10, 1999, p. C1.

[8] John Herling, *The Great Price Conspiracy*, Robert B. Luce, Inc., Washington, 1962. The context of Herling's conclusion is provided later in the section on economic theory.

were in. The economic theory section of this report provides the background for understanding why these actions occurred. Acceptable profits without collusion were hard to achieve. A gentleman convicted in the notorious electrical equipment case, in an industry struggling with excess capacity and large overhead costs, understood the point:

> *No one attending the gatherings was so stupid he didn't know the meetings were in violation of the law. But it is the only way a business can be run. It is free enterprise.* [9]

The vitamin conspiracy is simply the new record-holder in terms of the dollar amount of the fines. New records have been occurring frequently since Archer-Daniels-Midland (ADM), also in a commodity conspiracy, agreed to pay $100 million in 1996. Two officials of ADM were each sentenced in July, 1999, to two years of incarceration.

The discussion of electric deregulation has not, so far, focused on price discrimination and cooperation or on collusion in setting prices. "Market power" has been addressed, but in a way that ignores cost structure, and the discussion has headed down the dead-end street of a search for the "quantity theory of competition." This is surprising, for the need for discrimination and cooperation is actually widely acknowledged, even by proponents of deregulation. Acknowledgment comes from respected academicians like Lester Telser of the University of Chicago, from prominent economists like Baumol, Joskow and Kahn, and from a leading antitrust attorney like Ray S. Bolze. At an American Bar Association meeting on antitrust issues in the changing electric power industry Bolze asserted that: "This is an industry where some cooperation is essential to efficient operation."[10]

"This is an industry where some cooperation is essential to efficient operation."

— Ray Bolze

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[9] F. F. Loock, president, general manager, and sales manager of the Allen-Bradley Company, quoted in John G. Fuller, *The Gentlemen Conspirators*, Grove Press, New York, 1962, paper, p. 14. Loock pled guilty and was fined $7,500 in 1961. The case is discussed more fully in the section on economic theory.

[10] In "Overview of Key Antitrust Issues: Predatory and Strategic Behavior," *Power Struggle: Antitrust and the Changing Rules of Electric Utility Competition*, Chicago, 1996, American Bar Association, p. 27. The others are discussed in the economic theory section.

Price discrimination is familiar to us but has not been part of the conversation about electric deregulation. Discriminatory pricing is obvious with the airlines. A discriminatory device, "A Saturday night stay is required," has even become part of the language. That arbitrary tariff rule has no cost basis, but as a way to gouge business fliers it is fundamental to airline profits. The airlines cooperate, furthermore, in a way thus far apparently legal, which seems to work to minimize price wars.[11] The airlines avoid cutthroat competition by communicating any fare changes to a central computer, owned by a group of them. Simple cooperation is not enough, however, and price discrimination among customers is also required for profitability. The airlines' sophisticated "yield management" sets prices at what the traffic will bear, while computerized cooperation tries to keep the general price level high enough for profitability.

Some deregulation advocates argue that small consumers, in particular, will benefit from deregulation when excess capacity leads to severe price wars as part of cutthroat competition. That would be only a temporary gain, however, and even this school of thought acknowledges that if producers cooperate to deal with the problem of excess capacity, consumers will not benefit from price wars.

Others argue that consumers will benefit even — or especially — if producers do get together and agree on the "correct" amount of capacity. That argument is laid out in the section that explores economic theory. The idea is partly that all will benefit if they do not have to support idle excess capacity. But even the economists and antitrust attorneys who make that argument seem to concede that some public oversight — *i.e.*, regulation or supervision by a court[12] is required to separate cooperation for the public interest from collusion against the public.

The expectation and timing of cooperation or collusion on prices, though discussed, is not assessed here. It is beyond our scope to

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[11] See the section below on pricing that reports on the airlines' centralized computer system, called ATPCO (Airline Tariff Publishing Company), for posting prices.

[12] *E.g.*, through "the rule of reason."

report on the wave of mergers already taking place and expected to continue. When “cooperation” among the survivors is achieved, however, price discrimination will still remain necessary for them to be profitable.

Strong assertions about price discrimination and its targets deserve strong support and a remedy. The strong support is provided here. The remedy is public control, with public ownership or public aggregation the most promising forms.

This report begins with a section on the economics of industries that share two characteristics with electric power. Don’t be put off by the idea of reading economics, for only one equation appears. Next are sections on universities (yes) and on airlines, which provide extended examples of price discrimination. That sets the stage for what follows about electric power. Price discrimination and electronic redlining are described, along with privacy issues that will be important in executing corporate strategies. The final section describes how the market will appear to small customers under deregulation.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 2

Economic Theory

This section begins by reviewing the familiar economic argument for the benefits of competition. Next there is a discussion of why textbook competition in electric power cannot occur. That is followed by a brief showing that economists — including economists supporting deregulation — do recognize that the standard arguments fail for industries like electric power. In the next section, research from a modern branch of game theory, the "theory of the core," is discussed.

The "theory of the core" shows why competition cannot protect the customers of electric power suppliers. It is prefigured here by this statement:

> *A broader and more practical result is that there is no competitive equilibrium in an industry characterized by quite plausible cost and demand conditions. All we need for this conclusion is falling long-run average cost, stochastic demand, and some cost associated with having idle plants. An implication of these largely negative results concerning competition is that some noncompetitive, cooperative solution to market allocation is necessary. By extension, the importance of this line of reasoning for antitrust is that* ***it becomes unrealistic to expect competitive behavior in certain markets because firms could not behave competitively even if they wanted to***. [13] [emphasis added]

The Economic Theory Behind The Drive For Deregulation

It is useful to begin with a brief review of how "competition" is supposed to deliver benefits to customers. A paper supporting electric deregulation by three prominent economists, William Baumol, Paul Joskow, and Alfred Kahn, lists as their first "central conclusion" that:

> *Properly structured, competition in the supply of generation services can be a better guarantor of efficient performance*

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[13] George Bittlingmayer, "Decreasing Average Cost and Competition: A New Look At The Addyston Pipe Case," *Journal of Law and Economics*, Vol. XXV, October, 1982, p. 202.

> *than is regulated monopoly. Efficiency improvements should be the primary goals [sic] of policy reform.* [14]

In the paper funded by the private power companies' national trade association, the Edison Electric Institute, Baumol, Joskow, and Kahn make an argument for moving from regulation to competition, based on economic theory. They assert that:

> *Regulators, legislators and providers have become increasingly receptive to the idea of relying on competition to improve the industry's performance. They have been influenced in important measure by mounting evidence from other regulated industries that wherever effective competition is feasible, it can yield lower costs and a wider range of consumer choices than traditional cost-of-service regulation.* [15]

Note that Baumol *et al.* assert that there might be lower costs, but they say nothing about lower prices. There is a difference, and the goal of a profit-oriented business is to keep prices as far above costs as possible. Profits are, after all, the difference between costs and prices.

Economic efficiency is the overriding objective of micro-economists. Get the prices right, achieve economic efficiency, and you have done the best for the world. Let political scientists and sociologists take care of the rest.

The economist's goal is to have customers buy just what they want, given the price in the market, and, at the same time, have the vendors sell just what will maximize their profits, given the price. These individual decisions supposedly result in three things: consumer benefits are maximized, profits are maximized, and society's resources are best utilized. This happy result comes about,

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[14] "The Challenge For Federal and State Regulators: Transition from Regulation to Efficient Competition in Electric Power," William J. Baumol, Paul L. Joskow, Alfred E. Kahn, December 9, 1994, Appendix A, p. 3. Paper submitted to the Federal Energy Regulatory Commission in Docket No. RM 95-8-000 *et al.*, December 4, 1994.

[15] The authors don't provide any "mounting evidence" or citations for the assertion. The experience with telecommunications and airlines now suggests to many regulators and legislators that the evidence runs the other way.

the theory says, through competition. The lowest cost producers grab market share by selling profitably at low cost. Others must follow prices down in order to sell at all, and eventually prices are driven down to marginal cost. This is the theoretical basis for deregulating electric generation.

Having prices equal to marginal cost is the *sine qua non* for economists. And price ***will be*** equal to marginal cost under competition, it is claimed, if we simply deregulate electric power. (We shall see that there is no basis for this claim.) The U. S. Department of Energy (DOE)'s Energy Information Administration in advocating deregulation on behalf of the Clinton Administration asserted that prices will be set at marginal cost in a deregulated future:

> *If fully competitive electricity markets develop, prices will* ***not*** *be set to* ***average*** *costs. … With prices set to marginal costs, the market will clear; all suppliers willing to provide power and all consumers willing to purchase power at the market price will be doing so.* [16] [emphasis added]

…the economist's justification for deregulation, that price will equal marginal cost and that efficiency will result, is wrong.

But price will not and cannot equal marginal cost in electric power. Thus, the economist's justification for deregulation, that price will equal marginal cost and that efficiency will result, is wrong.

Will competition drive prices to marginal cost? Consideration of how firms selling a commodity behave will provide one response. Consideration of how firms with large overhead costs behave will provide a second response. Each of these two — commodity product and large overhead costs — have led in the past to illegal pricing behavior. Price fixing and price discrimination are found in industries where the product is an undifferentiated commodity, and separately, in industries where fixed or overhead costs are large. Price discrimination, if not illegal price fixing, is ***required*** for profitability in such industries.

Electric power generation, remarkably, has both these attributes — a product that is an undifferentiated commodity and also high

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[16] *Electricity Prices in a Competitive Environment: Marginal Cost Pricing of Generation Services and Financial Status of Electric Utilities*, Energy Information Administration, DOE/EIA-0614, August, 1997, p. 11.

Electricity's commodity characteristics and large overhead costs are two reasons why competition cannot deliver consumer benefits.

overhead or fixed costs. Either of these attributes leads us to the expectation of failure of competition. Finding both together assures us that textbook competition will not appear in this industry.

Electricity's commodity characteristics and large overhead costs are two reasons why competition cannot deliver consumer benefits.

Our first step will be to review some history, first of commodity pricing, and, second, of pricing of products produced under conditions of overhead cost.

A Business Without Profits — Selling Undifferentiated Commodities

A century of history, discussed later, shows that selling an undifferentiated commodity is not the path to profits. Nobody wants to be in an undifferentiated commodity business. Farmers understand better than most that when they produce a bumper crop, prices crash, as has happened recently with hogs. Farmers selling commodities, often held up as a good example of how the market works, have either been driven to the wall by excess production, or are dependent on one or another of a series of agricultural laws for control of production and for price supports. In the summer of 1999 hog farmers' hopes for profits were pinned on the U. S. Department of Agriculture (USDA) dumping pork in Russia.[17]

In contrast with farmers, manufacturers and corporate vendors of undifferentiated commodities have found ways within the law to cooperate to keep prices up, or failing that, colluding outside the law to fix prices.

Cooperation And Collusion — A Long History In Commodities

Cooperating or colluding to fix prices recurs repeatedly in industries with undifferentiated commodity products. Examples

[17] See "Hog Futures Sag on Concerns of Mounting Supply," *The Wall Street Journal*, July 14, 1999.

of price cooperation or collusion from these industries abound. We report first from a commodity industry, where Professor Fritz Machlup cites an example where sealed bids identical to six decimal places were submitted:

> *On April 23, 1936 officers of the United States Engineering Office of Tucumcari, New Mexico, opened the sealed envelopes containing price bids for the delivery of 6,000 barrels of cement. Eleven firms had submitted their bids and every one of them named a price of $3.286854 per barrel.* [18]

The cooperation on prices which led to identical bids was facilitated through the "Basing Point System" — legal at the time of the cement bids just noted, but found illegal by the U. S. Supreme Court in 1948. The Basing-Point System was complicated with many permutations, but in its simplest form it amounted to this. An industry selected a particular plant as the physical basing-point and agreed on a selling price. Then suppliers adjusted freight charges from the basing-point to the customer, depending on whether their own production was located closer to or further from the customer. Thus, all suppliers charged the same price and added identical delivery charges. The price was identical even though the cost of production might vary, and the cost of shipping likely would vary, between suppliers.[19]

Machlup shows that, from the 1890s forward, industries like cement, steel, and corn products needed to cooperate on prices in order to be profitable, and found successive ways to do so, as each innovation in price cooperation was put outside the pale. The vitamin-pricing conspiracy mentioned in the Introduction, together with Machlup's research, shows over a century of legal problems with the sale of

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[18] Fritz Machlup, *The Basing-Point System*, Blakiston Company, Philadelphia, 1949, p. 2. Machlup's cite is to *Federal Trade Commission v. The Cement Institute, et al.*, 333 U. S. 683 (1948), 68 S. Ct. 793, 809.

[19] Agreeing on meeting a price sounds vaguely illegal, but vendors meeting announced price increases often justify the action in the news media as "competition."

undifferentiated commodities. These vitamins, of course, are industrial inputs, not the little bottles at the neighborhood drug store.[20]

No one wants to be in an undifferentiated commodity business.

No one wants to be in an undifferentiated commodity business. There's no money in such a business unless you cooperate to set prices, as the Basing-Point System facilitated for cement. The corn products industry also used the Basing-Point System to set prices, and the industry had skirted antitrust for decades before.[21] Corn products' long history in that regard is described by Fritz Machlup, later President of the American Economic Association:

> *… this industry deserves a place in an historical account of the basing-point system. Its chief claim to fame is the valor and determination with which it has kept up its brave fight against the law of the land. It fought one bout after another against the United States; no sooner had it lost one than it renewed its persistent efforts to beat the antitrust laws.* [22]

Although corn products have changed over the years since Machlup wrote, the persistence of the industry's involvement with the antitrust laws has not. Machlup traced the history of the industry from competition in 1890 through a wave of mergers and then pricing via trade associations until the U. S. Supreme Court decided, in 1945, in favor of the Federal Trade Commission (FTC) in condemning all discriminatory pricing practices, including those inherent in the basing-point system and others.[23]

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[20] The U. S. Department of Justice said about the crime: "The conspiracy lasted from January 1990 into February 1999 and affected the vitamins most commonly used as nutritional supplements or to enrich human food and animal feed — vitamins A, B2, B5, C, E, and Beta Carotene. Vitamin premixes, which are used to enrich breakfast cereals and numerous other processed foods, were also affected by the conspiracy." DOJ *Press Release*, May 20, 1999.

[21] See Machlup, *Op. Cit.,* for the decades-long history of corn products until mid-century.

[22] Fritz Machlup, *The Basing-Point System,* p. 83.

[23] Although Machlup considered the corn products industry less important in the overall economy than others he discussed in his book, he devotes eight pages to reviewing its antitrust history. See pp. 83-90.

The corn products antitrust case of the 1990s set a record for the dollar amount of fines. The price fixing for lysine, citric acid, and corn syrup by a number of producers, including Archer-Daniels-Midland (ADM) and others, resulted in ADM alone paying a then-record fine of $100 million. In April, 1998, another new record for a single fine was set when UCAR International, Inc., a manufacturer of graphite electrodes: "… agreed to plead guilty to criminal price fixing and pay the largest fine in U. S. history, $110 million."[24]

In an undifferentiated commodity business, price is driven down to where profits are unattractive. As a result, commodity vendors attempt to dress their product in various disguises, to establish brand names, to add logos or other distinguishing marks to avoid selling merely a commodity. The commodity environment has led to mergers and then, when concentration is high enough, to various schemes to share markets — schemes either illegal when embraced or declared illegal upon review by the Federal Trade Commission or other agency. Survival in an undifferentiated commodity business without merger or collusion requires product differentiation and market segmentation, *i.e.*, discrimination, strategies more fully described in the section on those topics.

Large Overhead Costs — Another Blow To Competition

A second way in which the textbook version of competition does not apply for producers or deliver benefits for all consumers is under a cost structure where fixed or overhead costs are a large part of the total.

The cost structure of electric power is heavily weighted toward overhead costs. Large upfront investment is required before sales can take place, and the annual charges related to the investment must be covered whether sales occur or not. Depreciation, capital cost, and even fuel bought under long-term contracts are costs that

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[24] *The Wall Street Journal* report on the case concluded with the sentence "Steel mini-mill operators, the largest users of the electrodes, have said they noticed a rise in prices, but were unaware of any cartel." *The Wall Street Journal*, April 8, 1998.

continue whether sales are made or not. Fixed cost puts pressure on the owners to operate the plants at high capacity factors, so that the annual costs can be spread over a high volume. There is a virtuous circularity to this. With high volume, the per-unit share of the overhead costs is low, and the product can be priced low enough to attract sales that will result in a high capacity factor.

The problem is to attract the high sales volume without pricing below the average cost of production — *i.e.*, without pricing at a loss. The solution, widely practiced over the years by a variety of industries, is to discriminate among customers.[25] The strategy was developed by the railroads over a century ago. Charge some customers high prices, much higher than average cost, and achieve high volume by offering other customers lower prices.

Selling some output below cost (*i.e.*, below average cost) adds to profit if the price makes even a small contribution beyond the out-of-pocket cost. This is the logic of selling in an industry with overhead cost. It is familiar in our everyday lives, with airline tickets perhaps the most obvious example. Discriminatory pricing is widespread through our economy. Hotels now practice "yield management," sometimes offering rooms at bargain rates, but only in restricted volume, with numbers changing on a daily basis. In fact, only those selling an undifferentiated product sell at a single price. Farming is the familiar example, but farming has seen acreage controls and price supports for 60 years. Agricultural subsidies underscore the difficulty of being profitable while selling an undifferentiated commodity.

Agricultural subsidies underscore the difficulty of being profitable while selling an undifferentiated commodity.

Selling a part of output below average cost has been, furthermore, a common practice in the electric power industry. Some industrial tariff sales even today under regulation seem clearly lower than full cost of service. Off-system sales under regulation were frequently made for just slightly more than the fuel cost.[26]

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[25] A lengthy exposition is given later with respect to universities and airlines.

[26] Sales between utilities were priced at "split savings." The difference between the running costs (system lambda) of the two systems is calculated and the price set half way between them. The selling system

U. S. DOE's Energy Information Administration and others have forecasted large consumer benefits resting on marginal cost pricing. The promise of benefits to consumers when prices are driven to marginal cost will not materialize because that cannot be profitable. Selling at marginal cost when there are substantial overhead costs leads to bankruptcy. It is not possible to make a profit while pricing at marginal cost in such an industry.

Selling at marginal cost when there are substantial overhead costs leads to bankruptcy.

Selling all output at a single profitable price, *i.e.*, at average cost or higher, is also not feasible. The full price might be so high as to discourage sales. If sales were not large enough to fully employ the capacity of the plant, or to come close to that, then total costs would not be covered. The solution, long understood and employed by electric utilities, is price discrimination and cross-subsidization. Utilities and other like industries struggle mightily to avoid pricing at marginal cost.

Even if the vendors are few in number and reach an accommodation to charge more than marginal cost (that is, to charge enough so that total costs are covered), price discrimination will be required to avoid redundant capacity and low rates of return on investment. It will be argued that collusion in an industry with many firms is hard to achieve and even harder to perpetuate. But over time, failure of prices to cover total costs leads to mergers and high concentration. And since there will be a ***need*** for concentration, there ***will be*** concentration.[27] Mergers will proceed until collusion/cooperation can be effected. The airlines provide an example of cooperation discussed more fully later. They seem to have reached pricing détente through posting prices through a common computer. Upstart carriers are now tolerated if taking only small bits of the market or are hammered if more of a threat.

[footnote continued from previous page]

thus got its fuel cost plus half the difference between the two running costs as a contribution to overhead.

[27] Arthur Burns, the Alan Greenspan of the 1960s, makes this point. See *The Decline of Competition*, McGraw-Hill, New York, 1936.

The combination of large overhead costs and excess capacity needs mergers, cooperation or collusion for profitability. Consider the electrical equipment (not electric power) industry. In February, 1960, the U. S. Department of Justice named 44 electrical manufacturers and 28 individuals as conspiring to fix prices.[28] There were subsequent indictments and, in early 1961, 29 companies were convicted and fined. Many individual executives were fined and given suspended sentences, and seven executives actually served time. The prosecution was triggered by the revelation of identical bids in a newsletter.

> *The TVA weekly newsletter, dated for release on Wednesday, May 13, 1959, reported that seven sealed bids for conductor cable had come in at an identical $198,438.24.* [29]

Identical bids for conductor cable, down to the odd 24 cents, manufactured by different companies in factories at different locations raised the question of collusion. Investigation and prosecution revealed that collusion on prices, not only for cable but for transformers, turbine-generators, switchgear, steam condensers, meters and many other products had gone on for a long time.

Two books, *The Gentlemen Conspirators* and *The Great Price Conspiracy*, relate the story of what was then the greatest antitrust conspiracy in American history. The price-fixing and allocation of market share came to be known in the press as the "Phases of the Moon" case after the formula used by the conspirators to determine which company would make the low bid on a particular job.

John Herling noted that:

> *The records of the Antitrust Division indicate that certain companies appeared to have a predilection for violating antitrust laws.* ***

> *** *In December, 1961, the Justice Department sought a court order to make the General Electric Company subject to unlimited fines if it ever tried to fix prices or violated any other requirement of the antitrust laws. This order would*

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[28] Herling, *Op. Cit.*, p. 68.

[29] John G. Fuller, *The Gentlemen Conspirators*, Grove Press, New York, 1962, paper, p. 10.

> *cover everything GE manufactures, not only the heavy electrical equipment where they were already found guilty of price fixing and bid rigging. The department listed 39 antitrust actions against GE, 36 of them since 1941. These included 29 convictions, seven consent decrees, and three "adverse findings" of the Federal Trade Commission. To the Justice Department this indicated "General Electric's proclivity for persistent and frequent involvement in antitrust violations" in all branches of industrial production. Westinghouse could show almost as cluttered a record in antitrust violations.* [30]

Herling's conclusion in reporting this record was "… that certain companies appeared to have a predilection for violating antitrust laws."[31]

The conclusion that "certain companies" have a predilection for violating the antitrust laws, a conclusion that echoes the idea that certain nationalities or ethnic groups are predisposed to crime, is not satisfactory. We need to look for the conditions that ***cause*** behavior. In the case of the electrical equipment makers the cost structure of the industry explains the urge to cooperate and collude.

An industry's cost structure is critical in evaluating the potential for competition. Electric power will not be competitive.

Deregulated electric generation will combine an undifferentiated commodity business with a cost structure heavily weighted to fixed costs. As a result, price discrimination and antitrust problems will abound.

Cost Structure Is Critical

An industry's cost structure is critical in evaluating the potential for competition. Electric power will not be competitive.

The key diagram in a student's first college course in micro-economics is "the U-shaped cost curve of the representative firm." That diagram and U-shaped cost curve continues to be the basis of the analysis of business behavior through graduate school in economics. It is also the

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[30] John Herling, *The Great Price Conspiracy*, Robert T. Luce, Inc., Washington, 1962, p. 320, and footnote, p. 320.

[31] Herling, *Op. Cit.*, p. 320.

heart of the Energy Information Administration's analysis of electric power deregulation, and of the economists advocating deregulation. The introduction to this section on economic theory opened with a quote from an economist working in core theory. The core theorists show that under the cost conditions of electric power generation, competitive behavior will not emerge. It is useful to provide here more of that statement:

> *The most startling result to emerge from work in this area is that, barring only a few special cases, there is no competitive equilibrium in an industry composed of independently operated plants with identical, U-shaped average costs curves. The cost conditions are, of course, those from the textbook case of the Viner industry, but I think many if not most economists are surprised that this ineluctable result concerning equilibrium is contained in the most familiar of models. A broader and more practical result is that there is no competitive equilibrium in an industry characterized by quite plausible cost and demand conditions. All we need for this conclusion is falling long-run average cost, stochastic demand, and some cost associated with having idle plants. An implication of these largely negative results concerning competition is that some noncompetitive, cooperative solution to market allocation is necessary. By extension, the importance of this line of reasoning for antitrust is that* ***it becomes unrealistic to expect competitive behavior in certain markets because firms could not behave competitively even if they wanted to***. [32] [emphasis added]

Interestingly, John Maynard Keynes listed a very similar set of "complications" in the 1920s in two lectures. Noting, like Bittlingmayer, the cost and demand conditions under which competition does not — cannot — emerge, Keynes goes further, to explain how economists move from simplifying assumptions

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[32] George Bittlingmayer, "Decreasing Average Cost and Competition: A New Look At The Addyston Pipe Case," *Journal of Law and Economics*, Vol. XXV, October, 1982, p. 202.

to abandonment of the actual facts, and to conclude that their model is what reality is.[33]

Against the bold background of assertions that "competition" does not work as the textbooks lay out, this discussion proceeds with early recognition that cost structure dominates behavior. The economists addressing the issue early made their arguments in prose, though no less rigorously than those using mathematical symbols. We will get to the symbols later.

John Maurice Clark explicitly undertook the investigation of the implications of cost structure in his *Studies in the Economics of Overhead Costs*.[34] Clark was attempting to break from the static economics that erroneously tells us today that "competition" will result in economic efficiency. His book:

> *… studies the discrepancies between supply and demand; indeed the whole subject of the book might be defined as a study of discrepancies between ever fluctuating demand and a relatively inelastic fund of productive capacity, resulting in wastes of partial idleness, and many other economic disturbances.* ***Unused capacity is its central theme.*** [35]
> [emphasis added]

Clark, a prominent University of Chicago economist of his day, describes the gradual discovery of overhead costs — by businessmen and economists alike. Businessmen have remembered, while most economists have either not considered or have forgotten them.

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[33] J. M. Keynes, "The End of Laissez-Faire" in *The Collected Writings of John Maynard Keynes*, Vol. 9, ESSAYS IN PERSUASION, London, The Macmillan Press, 1972. Quoted in "Was Keynes a Corporatist? Keynes's Radical Views on Industrial Policy and Macro Policy in the 1920s," James Crotty, *Journal of Economic Issues*, Vol. XXXIII, No. 3, September, 1999.

[34] John Maurice Clark, *Studies in the Economics of Overhead Costs*, Chicago, University of Chicago Press, 1923.

[35] Clark, *Op. Cit.*, p. ix.

Clark wrote:

> ***7. OVERHEAD COSTS ON RAILROADS***
>
> *However, this fact did not have its full effect until the largest mechanical unit of all — the railroad — had reached maturity and had had its transforming effect on industry, making possible the fullest development of mechanical production in other lines by enabling the output of mammoth plants to find a market. There resulted the struggle for world-markets, cut-throat competition, discrimination, the modern forms of the business cycle, and the growth of monopoly. But it was the railroad itself that first brought the notion of overhead costs into real prominence with economists. When railroads were new, their rates were commonly uniform, or nearly so, based on weight and distance, and were uniformly high. Soon it was discovered that additional traffic could be carried at little or no additional cost and that reduced rates, if confined to classes of traffic not already moving, would increase the net earnings of the company. Thus classification was born and the foundations were laid for cheaper railroad carriage than would ever have been possible without discrimination.*
>
> *Along with it or after it, however, came many other less innocuous types of discrimination, often without rhyme or reason, and harmful even to the roads that used them. Rate wars and receiverships followed. Shippers at local points saw goods hauled past them to junctions beyond at lower rates than they paid for their shorter hauls, and with simple logic reason that if the lower through rate was adequate, the higher local rate was obviously extortionate. Under pressure of contending interests, with the need of justifying practices against attack, the theory underlying discrimination became vocal and explicit, and the world learned that railroads were different from other industries because such a large part of their costs were "constant" or independent of traffic.*
>
> *Thus the world of economic thought was made aware of a fact, which is older than railroads, older than economic science and, far from being a peculiarity of one business or a group of highly capitalistic businesses, is universal. From the present point of view the thing that seems more in need of explanation is why economists should have thought that other industries were different from railroads or why they should have thought that they had explained the prices of single goods*

by showing that they tended, under competition, to cover the expenses of production.

So far as railroads were concerned, the chief use made of the notion of overhead costs was to justify discrimination as a general practice, on the ground that added traffic was not responsible for those costs which did not increase as traffic increased, and that in any case it was impossible to determine the proper share of costs traceable to one shipment or one unit of business. … The upshot was that the makers of rates were assumed to know their own interests, and while it was clear that no one in or out of the railroad business knew the "variable cost" of any given class of traffic, it was assumed that the facts of cost justified wide discriminations, and the practice of "charging what the traffic will bear" was given the benefit of the doubt so far as cost was concerned. The question of distinguishing fair from unfair discrimination was left to be argued on other grounds.

8. OVERHEAD COSTS IN OTHER INDUSTRIES

It soon became evident that railroads were not the only industry using large fixed capital and subject to the "peculiarities" of constant and variable costs. It also became evident that discrimination was not the only untoward result of such a condition. Rate wars on the railroads often abolished the regular classifications and brought all rates to a level far below cost. Large companies, railroad and industrial, failed, were re-organized, and continued in business, often more formidable competitors than before. It became evident that economic law did not insure prices that would yield "normal" returns on invested capital, because the capital could not get out if it wanted to, and so had to take whatever it could get. The business cycle had become a recognized part of the order of things, with its recurring periods of excess producing capacity, during which active competition tended to lower prices until even efficient concerns could make little or no return on their investment. "Cut-throat competition" was seen to be a natural thing, and it was seen to be equally natural that business should adopt protective measures, whether combinations, pools, gentlemen's agreements, or a mere sentiment against "spoiling the market." [36]

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[36] Clark, *Op. Cit.*, p. 11. Clark's footnotes omitted.

Clark makes a number of points that bear emphasis. The first of these is that price discrimination was common, leading to greater utilization of capacity, increased earnings, and more service for the public at cheaper rates than would have been possible without discrimination.

"…the chief use made of the notion of overhead costs was to justify discrimination as a general practice …."

— J.M. Clark

Clark goes on to note, however, that "rate wars and receiverships followed." "So far as railroads were concerned," Clark says, "the chief use made of the notion of overhead costs was to justify discrimination as a general practice …."

And, finally, Clark notes how natural it was "… that business should adopt protective measures, whether combinations, pools, gentlemen's agreements, or a mere sentiment against 'spoiling the market.'"[37]

J. M. Clark quotes A. T. Hadley, another economist making actual observations of behavior. Hadley's language of 1896 is dated, but his analysis is as modern as the unregulated airline industry:

> *Each producer can extend his output with a gain, rather than a loss in economy. If he can increase his sales, there will be only a slight increase — perhaps none at all — in the expense for wages and materials, and a decided decrease in the share of the charges on fixed capital which each unit of product must pay. There is no fixed standard of cost which we can treat as the normal price; for the cost per unit of product depends on the quantity sold, falling as sales increase.*
>
> *The price which will induce new competitors to enter the field is also much higher than that which will lead old ones to withdraw. No concern will quit competition as long as it can pay an appreciable part of its interest charges. It is better to lose part of your interest on every piece of goods you sell than to lose the whole of it on every piece you do not sell. As long as the price received more than covers the expense of wages and materials , each of the old factories will continue to compete. Even if it changes ownership by foreclosure it will remain in*

[37] Note, as well, that one of his examples of railroad price discrimination of perhaps a century ago — "Shippers at local points saw goods hauled past them to junctions beyond at lower rates than they paid for their shorter hauls, and with simple logic reason that if the lower through rate was adequate, the higher local rate was obviously extortionate" — is an airline pricing scheme today!

> *operation. But, on the other hand, no new competitor will be called into being unless the price is high enough to afford a liberal profit, after paying interest, maintenance, and other charges on fixed capital invested under modern methods. Thus prices, instead of constantly tending to gravitate toward an equitable figure, oscillate between two extremes. The rate of production, at figures which give a fair profit, is usually either much larger than the rate of consumption, or much smaller. In the former case, prices are unremunerative and unjust to the producer; in the latter case, they are oppressive to the consumer. The average price resulting from such fluctuations may perhaps be a fair one; but the wide changes of price are disastrous to all parties concerned.*
>
> *… In some cases the industrial units which are necessary for proper utilization of labor have become so large as to produce actual monopoly. … Even in cases where the necessity for concentrated management is not quite so marked, … the competition of different concerns always involves a loss, from the need of maintaining too many selling agencies, the expense of unnecessary advertising, and the lack of proper utilization of fixed capital.* [38]

It is instructive to discuss some of Hadley's points to illustrate both the damage from price discrimination and environmental damage we may expect from unregulated power generation.

- ***Each producer can extend his output with a gain, rather than a loss in economy. If he can increase his sales, there will be only a slight increase — perhaps none at all — in the expense for wages and materials, and a decided decrease in the share of the charges on fixed capital which each unit of product must pay.***

Hadley's point, in today's electricity terminology, is that running a plant at a high capacity factor is crucial to high profits.

- ***The price which will induce new competitors to enter the field is also much higher than that which will lead old ones to withdraw.***

Two observations based on Hadley's remark: one, old plants will continue to run, even after bankruptcy, so that problems of excess

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[38] A. T. Hadley, *Economics*, New York: G. P. Putnam's Sons, 1896, pp. 151-154, quoted in Clark, *Op. Cit.*, p. 12.

capacity will persist in electric power for a long time, as they did in the airline industry. There will be attendant promotional and discriminatory prices, and the environmental damage associated with that pricing. The second point is that a high expected return on investment will be required to bring forth new investment. That high return may make consumers, or at least some consumers, much worse off in a deregulated world.[39]

- ***It is better to lose part of your interest on every piece of goods you sell than to lose the whole of it on every piece you do not sell.***

The lesson here can be drawn from the airline industry. Once an airliner leaves the gate, an empty seat produces no revenue. After covering the out-of-pocket cost of peanuts and soft drinks, revenue remaining goes right to the bottom line. Hence, it is better to sell tickets at almost any price if the sale fills an empty seat. This is the foundation of new billion-dollar companies like Priceline.com and others selling "distressed inventory" on the Internet.

- ***The rate of production, at figures which give a fair profit, is usually either much larger than the rate of consumption, or much smaller. In the former case, prices are unremunerative and unjust to the producer; in the latter case, they are oppressive to the consumer. The average price resulting from such fluctuations may perhaps be a fair one; but the wide changes of price are disastrous to all parties concerned.***

Here Hadley makes the point that the economist's equilibrium will not exist in electric power, a point emphasized by Louis Dreyfus, Enron, and others as they offer derivatives to protect customers from expected price fluctuations.

Recent Recognition Of The Issue Of Cost Conditions

Distinguished economists have long recognized the implications of the peculiar cost structure of an industry. In fact, the most prominent economists of each generation have seen that under conditions of large overhead costs, "competition" does ***not*** deliver economic efficiency. From Alfred Marshall, the father of today's

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[39] This point is elaborated later in the discussion of risk.

"neo-classical" school of economics, down to today, this insight is acknowledged by the mass of economists who then go on to make contrary assumptions and to prescribe policy that cannot work.

Already noted is the position in favor of competition held by Baumol, Joskow, and Kahn, three of the most prominent of the economists in the discourse on deregulation. But in an astonishing contradiction that they seem not to notice, they also argue that in an industry like electric generation, prices ***cannot*** be set at marginal cost — and thus "competition" will not work in such an industry. It is worth quoting an entire page of their work to show how deeply this confusion reaches. A single page has the following text and footnote:

> ***A. THE PROPER GOAL IS ENHANCED EFFICIENCY***
>
> *The case for competition, to which we subscribe as a general principle, is that it is a better guarantor of efficient performance than regulated monopoly —with efficiency defined in terms of the costs as well as the quality and variety of service options presented to consumers.*
>
> *There are two ways in which the historic arrangement of franchised monopoly subject to traditional regulation tends to produce less efficient results. First, because of its inherent cost-plus character, it tends to provide inadequate incentives and inadequate pressures to minimize costs. Second, government price regulation has a strong inherent tendency to promote allocative inefficiency by setting prices — both prices overall and the structure of prices to different categories of users — at levels that do not reflect or come as close as possible to reflecting marginal costs as they would be reflected in competitive markets.* [8] *(We refer to the consequent inefficiency as "allocative" because the prices consumers pay, by failing to reflect the costs society incurs by producing somewhat more of the mispriced services or that it would save by producing somewhat less, induces …)*
>
> [8] *Standard economic analysis demonstrates that efficiency requires the price of each service sold by a firm to equal its marginal cost, provided that the firm's services or other products are produced under conditions of diminishing or constant returns to scale. That is because the marginal cost of a unit of service is, by definition, the cost caused by the*

process of supplying that unit of service. Consequently, if its price is set equal to marginal cost, consumers are said to be given "the right signal." That is, they pay an amount for the service that it costs the economy to supply it. Consequently, the consumer is not lured by a price below cost to use the product wastefully, and is not deterred from appropriate use of that service by an excessive price.

However, where the supply of some product entails a large fixed cost or entails substantial scale economies for some other reason, as may well be true of the cost of transmission, then a fundamental problem arises for the setting of prices at marginal cost. In these circumstances, such prices will bring the firm total revenues that are inadequate to cover its total costs. ***The reason is most easily seen in the case where fixed costs are present****. There, a price set at marginal cost makes no contribution to coverage of fixed cost because, by definition, the supply of a unit of output causes no addition to fixed cost. In such a case, to prevent insolvency of the firm, prices must deviate from marginal costs. Economists have derived a formula for the (second-best) efficient prices in these circumstances; those are referred to as* ***Ramsey Prices*** *(after their discoverer).*

Henceforth, whenever we refer to prices set at marginal costs in this paper, we will mean either what that term literally implies or, instead, we will be referring to Ramsey prices, whichever is appropriate under the circumstances in question at that point in the discussion. [40,41] [emphasis added]

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[40] Baumol, *et al., Op. Cit.*, p. 19.

[41] As a quick aside, Ramsey pricing enjoys amazing acceptance among economists as a so-called "second-best" approach to setting prices equal to marginal cost. Ramsey pricing is difficult to distinguish from simple textbook monopoly pricing, where the profit-maximizing rule is to squeeze each customer for the maximum revenue possible. Recent work by Ron Baiman of Roosevelt University, "Why 'Second Best' Ramsey Pricing Doesn't Maximize Static Social Welfare: A Simple Progressive Social Pricing Theory," forthcoming, shows that Ramsey pricing minimizes, rather than maximizes, social welfare.

The point here is that Baumol, *et al*. recommend competitive pricing for generation at the top of the page and then agree in the footnote that it cannot be used in an industry with generation's cost structure.[42] It should be noted, moreover, that Ramsey pricing is, *per se*, discriminatory pricing.

[42] They put their example in terms of transmission rather than generation, but the overhead cost problem is the same in both.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 3

Overhead Costs Through The Lens Of Game Theory: The Work Of Lester Telser

A modern branch of economics using Game Theory offers a rich explanation of pricing in an industry with the cost characteristics of electric generation. An economist from the University of Chicago, Lester G. Telser, followed by other scholars, has explored, through the lens of Game Theory, the impact of cost conditions on behavior.

Telser addresses cost conditions that, when present, make equilibrium (and single) prices very unlikely. We focus on two of these, overhead cost and the need for inventory larger than expected demand — or, for electricity, capacity larger than expected peak, since the product is produced at the instant of demand.[43] We discuss each in turn.

Telser addresses cost conditions that, when present, make equilibrium (and single) prices very unlikely.

Game theory is a mathematical exploration of mutual inter-dependence. A branch of game theory that Telser develops is Core Theory. Telser concludes that the players in the game — producers of electricity, for example — should "cooperate" to reach economic efficiency, *i.e.*, the best solution for society.[44] Telser shows that under the cost conditions of electric power, the neo-classical competitive outcome will not occur. Without "cooperation," a stable equilibrium and efficiency cannot happen. Core theory is mathematical, but Telser's conclusions are fully consonant with the prose descriptions provided by John M. Clark and by Hadley's work of a century ago.

Telser notes that:

> *Competition is a means to an end, not an end in itself. In my view a proper end is an efficient equilibrium. In such an equilibrium changes are not possible that would make someone better off without making at least one other person worse off. Were this not true it would show that the original situation was inefficient. Therefore, the problem is to learn when*

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[43] Abigail McWilliams notes that Telser identifies six characteristics that result in the "pathology" of having no competitive equilibrium. McWilliams, "Rethinking Horizontal Market Restrictions: In Defense of Cooperation in Empty Core Markets," *Quarterly Review of Economics and Business*, Vol. 30, No. 3, Autumn, 1990, p. 4.

[44] "Non-cooperative" game theory has entered the discussion of electric deregulation, and is discussed below. Telser addresses "non-cooperative" game theory as well.

> *competition can give an efficient equilibrium. A central thesis of my argument is that competition does not always result in an equilibrium. It can lead to chaos.* [45]

Core theory, in exploring the conditions necessary for economic efficiency in an industry with large overhead costs, reaches the same conclusion as we find using common sense. In an industry with large overhead costs, economic efficiency cannot occur in the absence of collusion among producers. Telser situates his work in the mainstream of economics, showing that distinguished economists have reached this same conclusion.

> *As we shall see, competition may require some* ***cooperation*** *in order to obtain efficiency. Some of my analysis stems from theories of very distinguished economists, including Edgeworth, Bohm-Bawerk, Marshall, J. M. Clark and F. H. Knight. I take the argument further than they did, partly because since their time the economy has moved strongly in the directions that support the relevance of my theoretical analysis. These ideas are not fads or idiosyncrasies. They come from the mainstream of economic theory and help us understand the modern economy.* [46] [emphasis added]

"These ideas are not fads or idiosyncrasies. They come from the mainstream of economic theory and help us understand the modern economy."

— Lester Telser

In an earlier book, *Economic Theory and the Core*, Telser put it this way:

> *The mathematical reason for an empty core is that the characteristic functions that represent the situation are unkind.* ["unkind" here is a mathematical term describing a function.] *In order to restore an equilibrium it is necessary to impose restrictions on which coalitions may form. If there are too many coalitions, then in the face of an unkind characteristic function an equilibrium cannot emerge.* ***One may say that there is too much competition,*** *which prevents having a stable outcome. This resembles the conclusions of J. M. Clark in his* Studies in the Economics of Overhead Costs *(1923).* [47] [emphasis added]

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[45] Lester G. Telser, *A Theory of Efficient Cooperation and Competition*, Cambridge University Press, New York, 1987, p. 45.

[46] Lester G. Telser, *Journal of Law and Economics*, 1985, p. 272. Telser repeats this passage in his 1987 book.

[47] Lester G. Telser, *Economic Theory and the Core*, University of Chicago Press, Chicago, 1978. Interestingly enough, in the 1923 J.M. Clark book

Telser's highly mathematical work derives the necessary conditions for the existence of a stable equilibrium. He stresses that the nature of cost conditions is of central importance. When large fixed costs are present, he finds, an equilibrium cannot exist unless "restrictions" are imposed.

> *One of the principal conclusions from these applications of core theory to economics is the central importance of the nature of the cost conditions. Unless the firms in the industry are small and numerous, a neoclassical perfectly competitive equilibrium cannot exist. Specialization, fixed costs, and indivisibilities give a stable equilibrium only with* ***restrictions*** *on which coalitions may form.* [48] [emphasis added]

Telser's restrictions, we shall see, include public ownership or public control if cooperation among producers were to be permitted.

Telser's restrictions, we shall see, include public ownership or public control if cooperation among producers were to be permitted.

Coalitions are subsets of producers who agree in some fashion on the total capacity that society needs and agree on prices to result in efficiency. In other words, cooperation or collusion is required to get the right amount of capacity — neither shortage nor excess — for society's need. In an industry with huge capital requirements relative to revenue, as electric generation is, "competition" in the simple textbook sense cannot work to produce economic efficiency.

Telser notes that when supply conditions enter the picture of competition, they bring complications.

> *The bulk of these complications arise from the fact that costs are lower if producers make commitments in advance of the revenue they expect to receive. … By choosing production methods capable of making complicated articles at low cost, provided the means of production are ready before the appearance of the actual demand, producers become hostage to the vagaries of uncertain future demand.* [49]

[footnote continued from previous page]

cited by Telser is found the 1896 quote from A. T. Hadley, *Economics*, New York: G. P. Putnam's Sons, 1896, pp. 151-154.

[48] Lester G. Telser, *Economic Theory and the Core*, University of Chicago Press, Chicago, 1978, p. 90.

[49] Lester G. Telser, "Cooperation, Competition, and Efficiency," *Journal of Law & Economics*, Vol. XXVIII, May, 1985, p. 276.

A strong believer in economic efficiency, Telser notes nevertheless that under certain conditions of supply, including like those in electric power, "… competition may require some ***cooperation*** in order to obtain efficiency."[50] [emphasis added]

In other words, it is more efficient to plan an electrical power system than to rely on the market to produce the optimal one. Telser's conclusion can be interpreted as support for regulation or for public power as a way of devising the appropriate terms between customers and suppliers. Absent such control, or unless producer cooperation (now illegal) were to be permitted, economic efficiency cannot occur in electric power, regardless of measures to curb market power.

Absent such control, … economic efficiency cannot occur in electric power, regardless of measures to curb market power.

A separate issue for electric power, the question of how to have the right amount of capacity in place for customers whose demand fluctuates seasonally and diurnally, is also explored by Telser.[51] To make his next point, he works through a complicated example about the correct amount of inventory to satisfy customer demand and at the same time result in a profitable business. The example is germane for electricity, which cannot be economically stored. Telser writes:

> *Thus with marginal inventory cost a constant and equal to the price as required by the condition for optimality of the inventory level* [for electricity substitute optimal capacity in MW], *expected receipts would be less than the total cost of the inventory. The single price fails to generate enough revenue to cover the total cost. … Explicit agreement between the suppliers and their customers on the inventory level, the price per unit, and a provision for sharing the difference between expected receipts and total cost in the form of long-term contracts could give a mutually acceptable arrangement among all of the parties that would be efficient.* [52]

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[50] *Ibid*., p. 272.

[51] This is distinct from the problem of having an equilibrium amount of capacity over time. Even with the "correct" amount of total capacity, the seasonal or diurnal swings create a conflict between buyers and sellers.

[52] *Ibid*., p. 284.

In working through the mathematics of his example, Telser shows that:

> *… it is optimal to have more stocks on hand than are expected to be sold. Since the optimal level of inventories is where*
>
> $$(b + t)[1 - F(y_0)] = \P C(y_0)/\P y, \qquad (7)$$
>
> *it follows that (b + t) > the marginal cost at the optimal y. Although this formulation describes the necessary condition that must be satisfied in order to obtain the optimal level of stocks, it leaves open the question of the nature of the arrangements that are capable of achieving the optimum.*
>
> *The point is this. There is no adversary relation between customers and their suppliers. There is a gain they can share. The expected value of this gain is the difference between the expected benefit and the cost. … It is as if the customers owned the stores and the managers of the stores were their agents. Even so, there would remain the problem of devising appropriate terms between customers and their agent-suppliers so that the latter would choose the optimal inventory level.* [53]

The notion that "… the customers owned the stores and the managers of the stores were their agents" is a description of public power.

A Lawyer's Reply To The Argument For Allowing Horizontal Agreements

Many of the economists following Telser advocate relaxing or repealing antitrust laws to make collusion legal in such industries. Letting producers agree on prices and total capacity is, of course, now illegal. They aim at getting the "efficient" amount of capacity through "cooperation," and would then expect innovation to be driven by rivalry between competitors. Some of these economists come from what is called the Public Choice theory school, libertarian in policy proposals. They are trying to reconcile the problem of the behavior of firms with large overhead costs with the repeal of antitrust laws. They recognize that with large overhead costs the capacity in place is going to fluctuate severely around the optimum. There will be either too much capacity, leading to price

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[53] *Ibid.*, p. 280.

wars, or too little, leading to price spikes. That is not ***efficient***. They would recommend that the competitors cooperate, that is, collude, legally, so as to build the "correct" amount of capacity.

John Shepard Wiley, Jr., Professor of Law at the UCLA School of Law, writing in 1987, defended the enforcement of antitrust law against the core theorists.

He begins:

> *Economists have kicked antitrust law around a lot in the last couple of decades but one thing has seemed clear: at least they have agreed that antitrust should outlaw per se horizontal agreements that explicitly and exclusively fix prices or restrain output. Recently, however, some economists have challenged even this remnant of doctrinal tradition. Using a part of game theory known as core theory, these economists suggest that horizontal agreements among competitors to restrain output sometimes can be essential for productive efficiency. One commentator rightly remarks that this work "strike[s] at the root of orthodox antitrust doctrine, even of the economic kind." Professor Lester Telser of the University of Chicago Department of Economics is the most prominent advocate of core theory.* [54] [Footnotes omitted]

Wiley does not dispute the rigor of the analysis offered by Telser, *et al.* He does defend the antitrust laws, and asserts that policy makers should ignore the "good idea" of core theory. He says:

> ***II The Core: A Good Idea for Policymakers To Ignore***
>
> ***A. Quotas That Work Will Be Pretty Scary***
>
> *Telser's quotas aim to improve productive efficiency, but in practice they necessarily empower industry to inflict on consumers the cartel costs of overly restricted output, unnecessarily high prices, and, possibly, dampened innovation. To avoid these losses, Telser's proposal would require that judges do what they always have refused to do: use antitrust law to regulate industry as if it were a public*

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[54] John Shepard Wiley, Jr., "Antitrust and Core Theory," *The University of Chicago Law Review*, Spring, 1987, p. 556.

> *utility. There is every reason to respect this traditional judicial reluctance.* [55]

With respect to electricity, however, it is not evident that the economists supporting core-theory ideas, and specifically Telser, would recommend allowing power producers to cooperate unsupervised. On the contrary, Telser himself asserts that constraints on the "cooperators" — amounting to public utility regulation — would be necessary to result in economic efficiency:

> *These constraints assume a variety of shapes in the real world. The state may intervene either by outright ownership of the plants or by regulation of the activities of the single firm supplying the output from its plants. Sometimes the state intervenes by acting on behalf of the buyers, or the buyers may form their own coalition to act in concert. In contrast to the cases where the core is nonvoid for a wide range of firm-size distributions, in this case with decreasing average cost at the plant level, few alternatives are compatible with an equilibrium. Under these cost conditions we may say there is either a natural monopoly or a natural monopsony.* [56]

"Under these cost conditions we may say there is either a natural monopoly or a natural monopsony."

— Lester Telser

Wiley addressed in 1987 an empirical issue of whether cost conditions of industry are such that "cooperation" is necessary in the real world to reach efficiency. He says: "… moreover, core acolytes have not demonstrated that the expense is warranted; they have yet to show that a problem of even modest dimensions plagues modern industry."[57]

Holman Jenkins, a man of the real world, disagrees. Jenkins expressed a different view in his column, "Business World," in the *Wall Street Journal*. His description of modern industry is one of rampant "cooperation," which he believes should be legal. In

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[55] "Antitrust and Core Theory," *Op. Cit.,* p. 569.

[56] *Economic Theory and the Core, Op. Cit.,* p. 65.

[57] Wiley, *Op. Cit.,* p. 569.

connection with the trial for price fixing of Archer Daniels Midland executives taking place in Chicago, Jenkins wrote:

> ***While We're at It, Let's Put the Law on Trial***
>
> *Hide your children and put your hands over the dog's ears. Our assumption since day one was that Archer Daniels Midland executives were in that hotel room to hear and be heard on the subject of ADM's entry into the Lysine market. Now that their trial is taking up the time of a Chicago jury, we can add the unsurprising revelation that their Japanese and Korean competitors were already huddling to talk pricing. Big deal.*
>
> *The law might do something useful by allowing such meetings to take place as long as they take place publicly. What the Justice Department finds so nefarious when done in secret might then appear not so different from what happens when trade groups get together in hotel ballrooms to discuss business trends.*
>
> *To imagine that information is not getting exchanged, and acted on, is bizarre though the law* ***stipulates*** *that companies must be bizarre. As the Lysine conspiracy was revealed,* The Economist *magazine got itself in a panic and concluded that such price fixing must be pervasive because it's so hard to get caught.*
>
> *Douglas Ginsburg, antitrust chief in the Bush administration, fell into the same logical crack. He was seized with the impression that such conspiracies were everywhere and Justice would be lucky to catch one in 10. Joel Klein, his Clintonite counterpart, has taken a running jump at the same bottomless sandpit and now has 25 grand juries looking into various industries.*
>
> *ADM's bad luck was to get caught.* [58]

"To imagine that information is not getting exchanged, and acted on, is bizarre…."

— Holman Jenkins

"ADM's bad luck was to get caught."

— Holman Jenkins

We conclude this long excursion into economic theory with further remarks from George Bittlingmayer, the "core theory" economist with whose bold statement the previous section began:

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[58] "Business World," *The Wall Street Journal*, August 5, 1998.

> *These observations suggest that explicit cartelization, tacit collusion, and horizontal merger can be viewed, in many instances, as the noncompetitive arrangements that the firms in an industry* ***must necessarily adopt***. [59] [emphasis added]

Studying And Trying To Control Market Power Is A Sideshow

One final implication of this discussion of industry behavior under conditions of overhead cost is that the exploration of market power is a sideshow. Regardless of how few or many the vendors are, given the characteristics of electric power, price discrimination and cooperation or collusion is an inevitable requirement for efficiency.

An Industry Where "Cooperation" Is Legal

Curiously enough, there is an industry with legal antitrust exemptions that permit "cooperation" among rivals. It is ocean shipping. William Sjostrom has investigated ocean shipping in light of core theory. Sjostrom tests whether the ocean shipping conferences are cartels or a means to cope with an empty core. He notes that economists have argued that the practices of shipping conferences are consistent with cartel behavior, but sees difficulties with that argument. He concludes that:

> *The results, although certainly not definitive, offer further evidence for the proposition that market arrangements that appear to be cartels may be attempts to solve the problem of an empty core.* [60]

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[59] George Bittlingmayer, "Decreasing Average Cost and Competition: A New Look At The Addyston Pipe Case," *Journal of Law and Economics*, Vol. XXV, October, 1982, p. 203.

[60] William Sjostrom, "Collusion in Ocean Shipping: A Test of Monopoly and Empty Core Models," *Journal of Political Economy*, 1989, Vol. 97, No. 5, p. 1177. Professor Sjostrom very generously introduced me to much of the core theory literature.

The American Bar Association's Hypothetical And The "Rule Of Reason"

A hypothetical case to test whether "cooperation" will stand up to antitrust law was argued at an American Bar Association meeting in Chicago in 1996. The hypothetical looks at a situation where a utility and an independent power producer (IPP) agree to a joint venture, rather than each building a power plant, where a market exists for only one new plant. In other words, they "cooperate" not to build competing plants. The case was argued before an invited federal judge, with a surprising result:

> *The deal raises serious questions about the legality of agreeing not to compete and dividing markets. "Believe it or not," said Bolze, "what we (bar seminar attenders) came out with was that the decision would rely on the rule of reason and not treat the question as a per se violation (illegal on the face of it) and there's a good chance you could win this thing," Bolze predicted.* [61]

"Uneconomic By-Pass Rates"

The "Rule of Reason," or at least some sort of reasoning, has been used under regulation to head off the construction of "unneeded" power plants. To facilitate "cooperation" between an entity threatening to build a power plant and a utility, the "uneconomic by-pass rate" was invented.

If an industrial customer, say, could present a credible threat of leaving the utility by building its own plant, it could bargain with the utility and the regulators for a lower rate to induce it not to build. The idea justifying such a special deal was that the "correct" amount of capacity having been somehow determined, it was better to permit "cooperation" between the utility and the customer so that "incorrect" capacity could be headed off. This was an attempt to

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[61] Ray Bolze is the attorney cited earlier. Conclusion of a moot court at "Overview of Key Antitrust Issues: Predatory and Strategic Behavior," *Power Struggle: Antitrust and the Changing Rules of Electric Utility Competition,* Chicago, 1996, American Bar Association. Reported in *PMA OnLine Magazine,* October, 1998.

reach the economist's nirvana of economic efficiency by imposing a regulator's judgment on the decision.

The American Bar Association's hypothetical, which used the "rule of reason" to permit negotiations and "cooperation" between what would have otherwise been competitors, substitutes a judge's regulation for a commission's, but conforms, in the end, to Telser's analysis that society will be better off if "cooperation" is permitted. But, of course, this is "cooperation" overseen by a public agent, and we are left with the conclusion that the market does not result in economic efficiency in this kind of industry.

Conclusions From Economic Theory And Economic History

The review of sophisticated theory and of pricing behavior running for more than a century results in the conclusion that price discrimination and cooperation, if not collusion, will be necessary for profitable and efficient operation in electric power. At the same time, such cooperation cannot be permitted without public control or ownership.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 4

Current Price Discrimination Tells The Story: Colleges And Universities

This section and the next have two examples of industries pricing in discriminating ways, driven by the cost structure they face. The industries are airlines and colleges and universities. Price discrimination is not just a choice, but rather a survival tool for both airlines and universities.

We take up the college and university example first. College and university price discrimination is more interesting because it reveals the problem without two distractions: the question of whether or not deregulation is good or bad, and the social perspective that price discrimination is evil, rather than rational, behavior. Price setting at some colleges and universities has become severely discriminating, and some schools might not survive without it.

Public awareness of university price discrimination seems slight, perhaps because discounted prices at colleges are called "Student Aid."

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Public awareness of university price discrimination seems slight, perhaps because discounted prices at colleges are called "Student Aid." It is well known, in contrast, that the airlines price in severely discriminating ways.

The economic theory just explored is that of a profit-maximizing business, but it is the cost structure that drives discrimination. The case of colleges and universities is even more interesting than the more familiar airlines. Colleges and universities, like the airlines, employ sophisticated yield management tools, not to maximize profits but rather to ensure survival. Universities have large fixed costs, buildings and mortgages, and faculty salaries that must be paid whether a classroom is packed or seats are empty.

University price discrimination does not flow from any favoritism for one kind of customer over another. The problem faced is this. If all the costs were totaled up, and then divided by the total capacity, the average cost per pupil could be determined. If tuition, room and board were then set at that average cost, not enough students would enroll to fill the seats. In order to operate at capacity, *i.e.*, to attract customers, some seats must be discounted. But discounted seats are, by definition, sold at less than average cost. Thus, some seats must be priced at more-than-average cost so that total revenue will at least equal total cost. The inexorable logic of this accounting has led universities to keep raising tuition, to extract all that can be extracted from those willing to pay

full tuition, and then to fill the seats with discounted pricing. To repeat, discounted prices are called "student aid."

The airlines favor leisure travelers because it is the business fliers who can be exploited, not because the airlines collectively like families traveling on vacation. Universities favor those who might not enroll without a discounted ticket, and exploit those who can and will pay higher-than-average cost.

Colleges and universities are nonprofit, so price discrimination here does not carry the stigma of an exploiting monopoly. As we will see, some university administrators wrestle with the ethics of the "yield management" upon which they have embarked, but in the end, the need to keep the institution solvent demands price discrimination. As in the cases and theory cited earlier, the cost structure of this industry drives behavior. The behavior we focus on here is price discrimination.

Colleges and universities are nonprofit, so price discrimination here does not carry the stigma of an exploiting monopoly.

Like an airliner leaving the gate with an empty seat, no revenue is generated by an empty seat in a college classroom — all through the semester. Colleges need to fill the seats. Similarly, an unrented dorm room provides no revenue while the associated costs are almost as high as if it were full. The cost structure for the physical plant of a college is similar to any business. The interest on the debt remains the same, and maintenance and heating and cooling bills are not much affected whether the enrollment is high or low. Faculty salaries go on for the year whether students come or not.[62] A university's costs are largely fixed, including labor costs to a great extent. Given a cost structure heavily weighted towards overhead costs, economic theory shows that certain price behavior must follow. Let's examine the price behavior.

The Wall Street Journal reported in 1994 that "… the mature industry of higher education faces such over capacity that even prestigious schools are discounting their sticker prices to fill classes."[63] The

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[62] This is not to say that universities cannot eliminate faculty, of course, nor to ignore that they have replaced full-time faculty with cheaper part-timers. Classes can be canceled. But if a class is offered, the salary of the professor will be paid whether the enrollment is 10 or 200 students.

[63] *The Wall Street Journal*, October 10, 1994, p. B1.

article goes on to quote a visiting professor at Harvard University, Dr. David W. Breneman: "When the chips are down, the No. 1 thing is bringing in a class, and these days that means discounting." Breneman approves the discounting. *The Journal's* article goes on:

> *But Harvard's Dr. Breneman argues that rather than complaining about discounting as a soaring expense, colleges should consider it a rational way "**to extract the maximum revenue possible from every customer**." He figures that perhaps only two dozen richly endowed, highly selective schools — the Stanfords, Swathmores and Harvards — actually lose potential revenue when they help needy students because they could easily fill up with qualified applicants. As for the rest, he says, if they didn't discount, they would have empty seats.* [64] [emphasis added]

Dr. Breneman recommends here for colleges the pricing behavior of what economists call "a discriminating monopolist" — the same as Baumol, Joskow, and Kahn recommend as a way of coping with the problem of overhead costs. As we argue throughout, for an industry with overhead costs, price discrimination is necessary.

Dr. Breneman recommends here for colleges the pricing behavior of what economists call "a discriminating monopolist" — the same as Baumol, Joskow, and Kahn recommend as a way of coping with the problem of overhead costs.

The same *Journal* article reports on a university's calculation on the gain from price discrimination. The University of Rochester found that if it cut student aid (*i.e.*, reduced its discounts) by $1 million it would reduce revenues by $1.6 million. It was better off discounting. Remember Hadley's rule. It is better to lose part of your money on what you sell than to lose all of it on what you don't sell.

A *New York Times* story by Peter Passell in 1997 once again brought out the pricing being used by higher education. Tulane's Dean of Admissions crafted a pricing plan that sharply increased both enrollment and tuition without lowering the quality of entering freshmen. "Just because this isn't a business, doesn't mean you shouldn't use good business principles," said Dean Richard Whiteside. The story featured a young woman who received a $10,000 discount, which brought Tulane's price in line with competitors. A pricing consultant quoted in the article echoed

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[64] *Ibid.* Dr. Breneman is now Dean of the Curry School of Education at the University of Virginia.

Hadley's analysis from the 1890s: "Yet even the discounted tuition she is paying more than covers Tulane's cost of educating an extra freshman. 'You need to charge what your market will bear….'"[65]

The arithmetic of the Tulane strategy is worth recounting:

> *In 1995, Tulane's entire merit-based scholarship budget was spent on 111 full-tuition scholarships. And the yield from those scholarships was very high. But relatively few applicants who just missed the cut for these generous merit grants — and thus received no aid offer at all — came to Tulane. So last year, Dean Whiteside reduced the number of full-tuition scholarships from 111 to 50 and offered $10,000 discounts (a bit less than half of tuition) to 600 of the most qualified applicants from the pool of 6,400 high school seniors admitted.*
>
> *More than half of the 600 enrolled. The loss of a handful of elite students who turned down the $10,000 offer but might have jumped at $20,000 was more than offset by the enrollment of larger numbers of still-excellent freshmen with combined S.A.T. scores above 1,350. And while merit-aid outlays went up, so did total tuition income because the class size swelled by 98 students.* [66]

It is clear, as well, that families aware of the discrimination that goes on in higher education will do better than those who are not:

> *… a growing number of parents seem convinced that the kind of tactics used when shopping for a car or a house have become appropriate for financial aid.* [67]

…only those who know the game will be able to negotiate, while those who do not will pay more.

Unfortunately, as will happen in electricity, only those who know the game will be able to negotiate, while those who do not will pay more. Both an economist and a university financial aid administrator attest:

> *Families with a kind of savvy, and resources like a fax machine, can get themselves through the system more easily*

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65 *The New York Times,* April 22, 1997.

66 *The New York Times,* April 22, 1997.

67 "In Paying College Costs, Parents Discover They Can Negotiate About Financial Aid," *The Wall Street Journal,* April 16, 1997.

> *than, say, a disadvantaged family from New Mexico…. Athletes are always quite active.* [68]

> *If a particular customer happens to know the market well, he will generally get lower prices than one who does not, because he will get the full benefit of such competition as exists. Other customers will be more in the position of purchasers dealing with a monopoly.* [69]

Like airlines and other industries mentioned earlier, the universities have not been free of antitrust enforcement.

> *From 1958 to 1991, the Ivy League colleges, often joined by 15 other leading institutions, met four times a year to design common financial aid policies and compare financial aid packages for 10,000 students accepted by more than one institution. When two or more colleges planned to offer different packages to the same student, they would agree on a compromise amount.*
>
> *College officials defended these meetings as necessary to insure that a limited pool of financial aid dollars went to the greatest number of needy students. But the Justice Department started an investigation in 1989 on the ground that it was price fixing, and in 1991 the Ivy League agreed in a consent decree to stop sharing financial aid information.* [70]

Time Magazine's cover story, "How Colleges Are Gouging: A special investigation into why tuition has soared,"[71] went deeper into a description of the Justice Department's investigation of what was called "The Overlap Group." *Time's* investigation focused more on the ***level*** of prices than on discrimination. In discussing lock-step price increases, *Time* concluded that "Conspiracy may have played a role." Keith Leffler, a University of Washington antitrust economist who testified for the government, was quoted by *Time* as saying

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[68] Donald Betterton, Princeton University's director of financial aid, quoted in *The New York Times,* April 5, 1996.

[69] John M. Clark, *Op. Cit.,* p. 4.

[70] *The New York Times,* April 5, 1996.

[71] "How Colleges Are Gouging: A Special Investigation Into Why Tuition Has Soared," *Time,* March 17, 1997.

"There's no doubt [Overlap] artificially inflated tuition prices."[72] *Time's* investigation of the path of tuition seems to conclude that prices have gone up faster than costs in higher education.

The airlines, we will see, employ sophisticated "yield management" tools to maximize their revenue. Some universities are not far behind in sophistication. It is instructive to review just how the universities are discriminating between customers, as a preview of what lies ahead for electric buyers.

An April, 1996, *Wall Street Journal* article offers a detailed description of discriminatory pricing and methods used to develop the various strategies employed. Discounts are based (among other things) on a student's "price sensitivity" or price elasticity in economic jargon. The econometric models described by the *Journal* take into account such factors as whether a student has made a campus visit or applied for early admission. Larger discounts are offered to applicants planning to major in one subject rather than another.

> *… some schools then factor in dozens of variables that affect a student's propensity to attend the college once he or she is accepted. … Factors can include a student's home state, ethnic background and area of study, and who initiated the first contact with the school. …*
>
> *Carnegie Mellon also takes an aggressive approach toward its competition. After admitted students receive their financial-aid offers in the spring, they are invited to fax the school any better offers they receive from other colleges.* [73]

Yield management does not preclude overall price adjustments. *The New York Times* reported at the start of 1996 that many colleges were beginning to cut tuition. Many parents and students are able to discern a difference in value between one school and another, so some colleges were beginning to lose students with high sticker prices, even with generous "student aid." *The Times* noted that

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[72] *Time, Ibid.*

[73] *The Wall Street Journal,* April 1, 1996. The practice continues. *The San Francisco Examiner,* June 21, 1998, reprinted a story from *The New York Times* that described Harvard matching an offer from Rice University.

"Most of the schools that have announced price cuts have been small, regional colleges and universities looking for an advantage in increasingly competitive markets."[74]

Higher education has an additional consideration in pricing its product. The colleges want to be, and perhaps more important, to be perceived to be "selective." In other words, colleges want to attract well-qualified students, with high Scholastic Aptitude Test (SAT) scores. Being "selective" makes the college's product more attractive to the discerning buyer, and thus attracts more students able to pay the full, or at least more of the full, tuition price.

Although *The Times* headline asserted that many colleges were cutting tuition, the story went on to note that on average, prices were actually rising about six percent, and the "cut" was really in the rate of increase, not the average price itself. This is not to say that there were not actual price cuts. Some noted by *The Times* were sharp, reaching 30 percent and more.

The same article in *The Times* described a price cut by a selective school, the University of Rochester, which cut the price by $5,000 for in-state students and the children of alumni.[75] The price cut applied only to a targeted slice of the market, and resulted in a gain in total tuition revenue.

> *Cutting tuition can be part of a smart marketing plan that need not bring in any less revenue. …*
>
> *"We had a $15,000 price differential with the State University of New York and students were voting with their feet and going to SUNY," said Jim Scannell, vice president for enrollments, placement, alumni relations and development. "Families always realized the value here, but at $15,000 difference they voted no. At $10,000, we were much more competitive."*

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[74] *The New York Times,* January 24, 1996.

[75] Notice that the price cut itself was discriminatory, aimed at a target market. Only in-state students were qualified for the rival's lower prices.

> *He said applications rose 21 percent from in-state students and 25 percent from the children of alumni, and the university was able to be more selective. …*
>
> *As a result, the tuition reduction proved to be "slightly budget positive," bringing in $150,000 more than in the previous year, Mr. Scannell said.*

More of the "student aid" is being directed to higher income students.

There is an equity dimension to price discrimination in higher education. More of the "student aid" is being directed to higher income students. It is not the purpose here to explore the ramifications for higher education and society. But it is worth pointing out that colleges and universities, in structuring their menu of prices to maximize their own revenues, are shifting money between income classes. The lesson is that the same thing will occur in electricity. The lower your income, the more you may pay for a kilowatthour.

We conclude this discussion of pricing in higher education by noting that the sophisticated practitioners themselves realize that, with large overhead costs, price discrimination is not an option but required behavior. Dr. Elliott, enrollment vice president of Carnegie Mellon University, who wrote a doctoral thesis on maximizing net tuition revenue, is quoted at the end of *The Wall Street Journal's* story: "'Obviously, I don't have enough money to be as generous as I might like to be,' he says. 'I could make it very fair — and be out of business.'"[76]

An earlier *Journal* story started with the line: "At gatherings of college administrators these days, the talk sometimes turns to the unthinkable: fully enrolled schools going broke."[77]

There is some discomfort about discriminatory pricing among college financial aid and admissions officials:

> *Enrollment management of this type violates the "good practice" guidelines of both the National Association of Student Financial Aid Administrators, or Nasfaa, and the National Association of College Admission Counselors, both*

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[76] *The Wall Street Journal,* April 1, 1996, p. 1.

[77] *The Wall Street Journal,* October 10, 1994.

> *groups say. But neither has enforcement power — and Nasfaa says it is considering changing its code so the practice won't be considered unethical anymore.* [78]

These college administrators recognize that charging a uniform price is not a tenable practice. Charging marginal cost is not feasible when overhead costs are significant.

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[78] *The Wall Street Journal,* April 1, 1996, p. 1.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 5

Current Price Discrimination Tells The Story: The Airlines

The behavior of the airlines can contribute to understanding the future of deregulated electricity. There are four lessons:

- Prices are extremely discriminatory.
- Airfares since deregulation have risen sharply, faster than the Consumer Price Index (CPI) and faster than regulated electric prices in the same index.
- Oligopolistic pricing among the majors dominates the industry.
- Predatory pricing, particularly at "fortress hubs," is common.

Airline Price Discrimination

"A Saturday night stay is required"

The first lesson, about discriminatory pricing, is the focus here. For airlines the fixed costs of owning elaborate communications and computer systems and fleets of aircraft that cost tens and hundreds of millions of dollars each are huge. Because of large fixed costs, as explained earlier, price discrimination is required for profitability in the airline industry. Under deregulation there is no public input controlling undue discrimination and, as a result, one group, business fliers, pay much more than average cost.

If airlines priced all tickets at a single level high enough to cover average costs, the leisure market would shrink and the percentage of seats filled would drop significantly. With planes flying half empty or worse, profits would drop, perhaps to zero or below. The airlines must charge some customers (business fliers) more than average costs to generate revenue, and then fill the seats by charging others less than average cost. As the airlines have developed experience and competence at it, price discrimination increases:

> *The latest edition of the American Express Business Airfare Index reveals that during the first quarter of this year, the typical business fare ran almost four times higher than the lowest discount fare. Just three years ago, typical business fares were only two-and-a-half times higher than lowest discount fares during the first quarter of 1996.* [79]

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[79] American Express, *Press Release*, May 18, 1999.

In the airline industry the promotional prices flow to the little customer, with the business flier being gouged.

> *In January, [1996] the major domestic airlines received 33 cents per passenger per mile for full-fare tickets — more than twice what they get for discounted tickets, according to industry data. In other words, airlines sometimes lose money on their leisure travelers and make money on their business travelers.* [80]

Of course the airlines are not "losing money" on their leisure travelers in the sense that profits go down when they sell such a ticket. They are getting something more than running costs and hence are ***more*** profitable because they sell these tickets at a discounted price.

The airlines face large overhead costs, but the marginal cost of carrying an additional passenger on a particular flight is, almost literally, peanuts. Most of the revenue from the sale of a deeply discounted leisure ticket flows directly to profits. To put it plainly, prices are not based on cost but on what the market will bear. The promise for electricity that prices for all will be driven lower, *i.e.*, to cost, by competition is shown by the airline experience to be a lie.

The airlines would be less profitable, and perhaps not profitable at all, if not allowed to discriminate. Simply outlawing "A Saturday night stay is required" would change airline profits dramatically. In an excerpt of his book about the industry, Thomas Petzinger writes of four lessons the airlines need to learn. Number four is "The Airlines Must Quit Gouging Their Most Important Customers." But, of course, they cannot.[81]

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[80] *The Wall Street Journal,* March 29, 1996.

[81] "Four Lessons Our Airlines Need to Learn," *The Wall Street Journal*, November 6, 1995. Excerpted from *Hard Landing*, Times Business, New York, 1995.

Yield Management

The airlines have developed a very sophisticated pricing regime called "yield management."[82] Its essence is the same as the railroads' old practice of "charging what the traffic will bear." Its practice, however, is far from simple price setting.

IBM ran a full page ad in 1996 praising its own know-how in data mining while promoting American Airline's use of the Internet to sell tickets:

> *All it took was data American already had. And IBM's know-how to make that corporate data securely available to the world. So, now unsold inventory can become a new source of profit. AAmazing.* [83]

United Airlines also embraced IBM by using "Big Blue," the chess prodigy computer that defeated the human world champion in the last go-round of such events.

By mining data on the histories of specific flights, including walk-up traffic for flights between city pairs on particular days, cancellations, no-shows, advance bookings a month ahead, three weeks ahead, one week ahead, and so on, the airline can offer or alternatively show as "sold out" space for use of frequent-flier tickets, senior discount tickets, or leisure fares. And it can revise the "sold-out" for different categories as sales information comes in, day by day. Space that is "sold out" one day may be available the next, as "Big Blue" calculates and recalculates the odds on a "walk-up" customer buying a seat for the particular flight.

Holding back seats from sale, despite demand for them at advertised prices, enables the airlines to have seats for last minute "walk-up" customers willing to pay full fare. The sale of seats at advertised advance purchase fares is sometimes stopped well before the flight is fully booked if the computer history predicts that walk-up traffic

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[82] Yield management is now widely copied in other industries, including, for example, hotels.

[83] Advertisement in *The Wall Street Journal*, December 16, 1996, p. B5.

willing to pay a higher price is likely to show up. Flights are sometimes deliberately overbooked based on predictions that no-shows will occur. Occasionally, the seats are more than fully sold at the time of departure and some passengers are bumped. The usual compensation to bumped passengers is small, the revenue from their tickets is collected on a later flight, and the plane departs with 100 percent of the seats filled.

The industry advertises cheap seats, but when full-fare tickets can be sold instead, the number of cheap seats is rationed and the ration changes continually. The number of cheap seats available is not disclosed to the public in the ads, partly because the number fluctuates day by day and partly because the "buzz" about the sales would be diminished if the public knew how limited the offers were. When capacity factors are high, airlines move the deadlines for advance fares to longer periods. From three days to seven, from seven to fourteen, from fourteen to twenty-one.

Tools For Discrimination

The most familiar and obvious discriminatory tools include:

The Requirement Of A Saturday Night Stay

This simple tariff proviso is critical for airline profits. It is based not on cost, but rather on the airlines' critical need to exclude business fliers from using promotional fares. Business fliers contribute much more to revenue than they occupy seats, contributing close to 60 percent of industry revenue but accounting for only 40 percent of all passengers.[84] Business fliers, especially those traveling often, are unwilling to stay away from home and family over the weekend, and the airlines take advantage of that to deny leisure fares to business fliers even if they are able to book weeks ahead.

Consider what would happen if this requirement alone were eliminated. Those business fliers with reasonable control over their schedules could respond to offers of lower fares. The fall in revenue would directly affect the bottom line, dropping profits. To make up the

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[84] *The Wall Street Journal*, January 21, 1999.

shortfall in revenue, the airlines would be faced with raising all fares, including the promotional ones that attract leisure and spontaneous travel. The volume of that travel would decline with the higher prices, and capacity factors would drop. Over time, in response, airlines would need to shrink the size of their fleets to match the smaller volume of travel. Much depends on price discrimination.[85]

Non-Refundable Tickets

This provision is also targeted at excluding from low fares the business flier who requires flexibility in scheduling and rescheduling trips and destinations.

Distressed Inventory

Some airlines, Delta the most prominent, have made deals with Priceline.com to let unsold seats be auctioned at even lower prices than their own fare offerings. These are seats that the yield management systems project as being unsold even with the regular promotional prices:

> *Priceline operates on a come-all principle of ticket buying, while Delta has built many protections of its own business into its pact with Priceline. Delta maintains total control over what seats it provides and it can block the addition of new airlines to Priceline. To protect the integrity of its fare structure, Delta is providing Priceline only with "distressed inventory," seats that would otherwise fly empty. Delta has about 100,000 empty seats a day, according to Warren Jenson, Delta's chief financial officer. …*
>
> *Delta's Mr. Jenson says he and others at the airline wrestled initially with the question of whether they could adequately "fence off" high-priced seats from Priceline to avoid cannibalizing Delta's own high-margin business.*
>
> *They decided, as Priceline itself asserts, that Priceline is utterly unappealing to business travelers because of uncertainty over*

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[85] The value of an airline on the stock market depends importantly on its expected growth. Airline shares would drop sharply if the industry's growth slowed or stopped. That, in turn, would raise the cost of capital, adding to the distress. Discriminatory pricing is critical.

> *travel times and routes. Bidders aren't sure their ticket prices will be accepted or which carrier they'll fly on. Then they might have to take connecting service or fly at undesirable times. After a bid is accepted, the tickets can't be changed, even for a fee. Priceline sells about 40,000 tickets a week on average, about 35% of which are on Delta.*
>
> *Delta says it began offering a small volume of tickets and is gradually adding more as it becomes comfortable with the arrangement. A new revenue-management system, which currently is being installed, should help refine data on which seats are expendable.* [86]

Corporate Customers Fight Back — Increasing Price Stratification

Passengers do fight back. Some passengers find a way to minimize the discrimination against themselves, but that increases, rather than decreases, the striation of fares. Defense mechanisms include:

Corporations Make Deals

Larger businesses, with travel managers, have been able to obtain lower-priced tickets by guaranteeing to an airline or airlines a certain volume of traffic. This adds to the stratification of ticket prices by having small business fliers and some corporate fliers paying the published fare while others fly more cheaply under the volume agreement. Discounts range from five to 50 percent.

Other Reactions

Other reactions include starting new, corporate-owned airlines, and guaranteeing revenue to small airlines in return for new flights. Although these can help specific corporate customers, usually very large ones, business fares rise nevertheless, once again increasing the tiers of discrimination.

There are lessons here about the customer's reaction to price discrimination. First, within the class discriminated against —

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[86] "Delta's Big Stake in Priceline.com Presents a Challenge," *The Wall Street Journal*, June 14, 1999, p. C1.

business fliers, for the most part — the largest corporate customers, with travel offices and sufficient volume to make side deals, get lower fares than the small-business person making only an occasional spontaneous trip. And, regardless of size, although related to it, customers with more information and awareness of the tricks do better than those without it.

Issues Beyond Discrimination

Oligopolistic Pricing Among The Majors Dominates The Industry

In 1997 the percent of revenue-passenger-miles served by the top six airlines was over 81 percent. The top three airlines alone had around 55 percent of the market.[87] Paul S. Dempsey shows that for the first seven or eight years after deregulation the share of the top three lines was 40 percent or less, with a striking increase thereafter.[88] The early years of airline deregulation were marked by excess capacity and rapid entry of new companies, facilitated by the cheap availability of aircraft. Aircraft were cheap because of the excess capacity and because of the frequent bankruptcies of other carriers. Major airlines like Continental, TWA, Eastern, previously solid smaller ones like Braniff, and a host of newcomers went bankrupt, some more than once.

In 1997 the percent of revenue-passenger-miles served by the top six airlines was over 81 percent. The top three airlines alone had around 55 percent of the market.

It took a few years — and economic growth — before the excess capacity was reduced, for the airlines to rationalize capacity, to work out an oligopolistic détente, and to find an apparently legal way to cooperate on prices to eliminate "cutthroat competition." Capacity did not leave the industry rapidly, despite numerous bankruptcies, because it was better to operate even with cutthroat pricing if the fares covered operating expenses plus a little more, however small, as a contribution to overhead costs.

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87 Calculated from industry data.

88 Paul S. Dempsey, "The Bitter Fruits of Airline Deregulation," *The Wall Street Journal*, April 8, 1993.

It is worth repeating a bit from Hadley's book of 1898:

> *No concern will quit competition as long as it can pay an appreciable part of its interest charges. It is better to lose part of your interest on every piece of goods you sell than to lose the whole of it on every piece you do not sell.* [89]

The old text accurately describes the pricing behavior in the early years of airline deregulation. The pricing behavior and the bankruptcies — bankruptcies without capacity leaving the industry —all of this airline behavior was predicted 100 years ago, in a book written before Orville and Wilbur Wright first flew. It is a lesson for electric power.

The airlines "cooperate" with a central computer system for posting and signaling on prices. *The Wall Street Journal* reported this on the front page, under the subhead "Technology, Obscure Science Make It Easy For Airlines To Manipulate Pricing:"

> *Competitive pressures aren't likely to drive business fares down, thanks to Airline Tariff Publishing Co. … ATPCO is owned by a group of 24 international airlines, including the seven largest U. S. carriers.*
>
> *ATPCO says its two mainframe computers create a perfect marketplace, akin to a gas-station owner being able to watch prices his competitor posts across the street.* [90]

Harry Trebing has written extensively on the prospect of tight oligopoly in electric power.[91] Sadly, the airline experience predicts it. The rapid pace of mergers of electric power providers, and of the consolidation of gas plus electric providers, is setting the stage for price "cooperation."

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[89] Hadley, *Op. Cit.*

[90] *The Wall Street Journal*, November 3, 1997.

[91] See, for example, Harry M. Trebing, "Achieving Coordination in Public Utility Industries: A Critique of Troublesome Options," *Journal of Economic Issues*, Vol. XXX, No. 2, June, 1996, and "Adopting Regulation to Tight Oligopoly," NRRI, *Quarterly Bulletin*, Vol. 17, No. 1.

Airline Prices Have Risen Sharply

It is useful to add some remarks on airline prices — which in fact have been going up quite sharply in past years, in contrast with the widespread belief that they have been going down. The reality has been obscured by the wonderful bargains available to some. Vacation travelers and others able to meet discriminatory hurdles like staying over a Saturday night have benefited. But business fliers and others needing to fly on short notice pay higher prices than before.

Precisely stating how much fares have risen is problematic because of the variety of fares, restrictions, and side deals in the industry. That same problem will be faced in electric power, where it will be impossible to track what the retail price of electricity is. Prices are tracked by different entities in different ways. *The Wall Street Journal* has a travel index in which it tracks two categories of fares, business and leisure, over 20 routes. At the end of 1995 the *Journal* reported that business fares had risen during the year by 43 percent.[92] A year later, the *Journal* said that airfares had risen 19 percent over the year before, "on average."[93] American Express, using a different slice of the market, reported that business fares were 24 percent higher in the first half of 1997 compared with 1996, while *The Wall Street Journal* asserted that business fares for the full year jumped an average of 20 percent.[94] The fare increases continue, with business fares up a further 11 percent in the first six months of 1998.[95]

Airfares In The Consumer Price Index

It is also instructive to compare the path of airfares, the cost of electricity, and the Consumer Price Index (CPI) since 1970, shown below in **FIGURE 1**. The Bureau of Labor Statistics, which reports on

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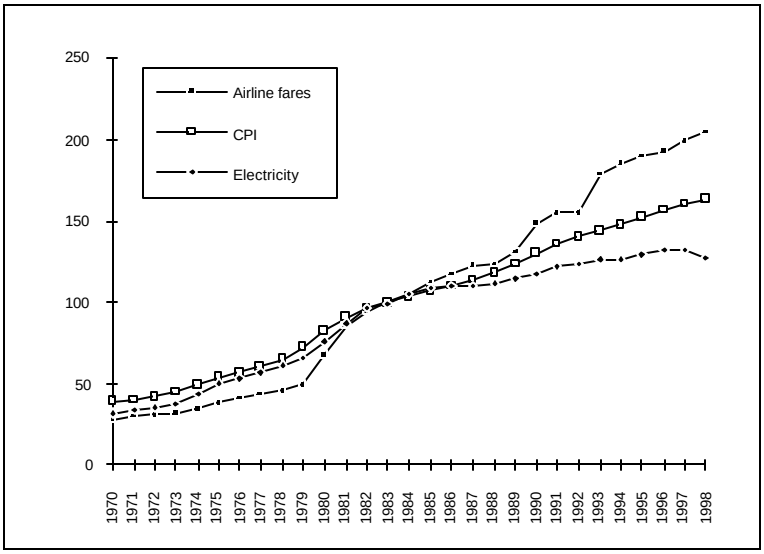
92 *The Wall Street Journal*, December 29, 1995.

93 *The Wall Street Journal*, December 29, 1995.

94 American Express reports on the "Typical Business Fare" that is lower than the completely unrestricted "Full Coach." Cited in *The New York Times*, August 6, 1997. The full-year figure appeared in *The Wall Street Journal*, December 3, 1997.

95 *The Wall Street Journal*, June 19, 1998.

Figure 1



Sources: **Bureau of Labor Statistics for Airline Fares, Consumer Price Index, and Electricity. CPI-U in each case.**

subsets of the CPI, tracks airline fares, and adjusts, as it does for all products, on improvements or decreases in quality.

In spite of the widespread belief that deregulation has driven airfares down, and that regulation has failed in electric power, the Bureau of Labor Statistics series show clearly that airfares have risen much faster than the Consumer Price Index and that the price of electricity has risen more slowly than the CPI for more than a decade.

Predatory Pricing, Particularly At "Fortress Hubs," Is Common

Fortress Hubs keep prices up, and the fortresses are defended by predatory pricing versus newcomers. The U. S. Department of Transportation has attempted to address this, and the U. S. Department of Justice has reviewed predatory pricing on the part of major carriers against start-ups and other small carriers. The airlines strongly deny predatory pricing, arguing that they are merely vigorously competing, and that such competition brings consumer benefits. It is outside our scope here to attempt to explore the question. The assertion of predatory pricing seems in conflict with the claim of pricing détente, but Machlup addressed that issue generically earlier:

> *It may seem that oppressive and collusive business practices are the very opposite of each other. If a large firm competes relentlessly and is getting the better of its small competitors, its tactics are often called oppressive. If it relaxes its competitive*

> *vigor and tries to get along with the competitors, its tactics are regarded as collusive. Thus, is there not a dilemma between too much competition and too little? How is it then logically possible to find a system oppressive and collusive, too competitive and too little competitive, at the same time?*
>
> *There is, in fact, no real contradiction between oppressive and collusive practices. Oppressive practices may be used to eliminate competition either by forcing the competitor into a merger or by forcing him to consent to participate in a collusive system.* [96]

It is outside the scope of this report to pass judgment on the success or failure of airline deregulation. Nor is it the subject here to address industry profits, numbers of bankruptcies, seat-size, meal quality, and so on. The issue to be addressed for our concern is of price discrimination and the lessons of that for understanding the future of electric power.

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[96] Fritz Machlup, *The Basing-Point System*, The Blakiston Company, Philadelphia, 1949, p. 32, fn. 1.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 6

The Small-Customer Electricity Market Under Deregulation

This section describes how marketing to small business and residential customers is likely to unfold under deregulation, driven by the economics of the industry. Customers will be segmented and each segment offered a different bundle of products and wildly different prices for electricity. "Segmenting customers for higher profits" is already an expensive course offered by the conference and seminar industry.

A major impediment to any competition is that the incumbent utilities "own the customer."

A major impediment to any competition is that the incumbent utilities "own the customer." Customers, seeing little advantage in switching from the incumbent to a new supplier, are said to be ruled by inertia. More importantly, the form of deregulation adopted in, for example, California, established the incumbent utility as the "default supplier."[97] Unless the customer takes a positive step to escape, the customer defaults, *i.e.*, is "owned" by the incumbent utility. Deregulation that leaves the customer in the hands of the incumbent utility eliminates any prospect of gain for the most vulnerable customers. Insurgents will make a marketing effort to take some customers away from the incumbent, but that effort will be carefully targeted. Low-income customers, frugal customers of any income, and low-use business customers will not only not be solicited but will be positively avoided. The incumbent, moreover, given the ownership of customers without marketing cost, will nevertheless segment the customers so that, again, low-income and frugal customers will be discriminated against.

The general outline of future marketing is becoming clear. To overcome inertia or the legislation that delivers customers to a default supplier free of cost, marketing campaigns are required to acquire customers. This marketing is very expensive, with estimates ranging as high as $600 for each electric account successfully acquired. To justify this expense with expectations of profits, the marketing will be highly selective and narrowly targeted. To put it another way, the marketing and product offerings will be aimed at

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[97] California went even beyond that to take the deliberate action of making the most promising challenge to incumbents illegal, *de facto*. Other states, notably Massachusetts and Ohio, have done better.

specific segments of customers, those whose usage and affluence lead to the expectation of profits.

Acquiring a new retail electric customer is very expensive. The "cost to acquire" — of whatever dollar amount — is the total marketing expenditure divided by the number of customers acquired as a result of the campaign. For a television advertising campaign, *i.e.*, "broadcast" in the wider sense of that word, the residential customers acquired will not be all small or all large, but rather can be expected to be the average-usage customer. Spending large dollar amounts to sell only kilowatthours to the average-usage residential customer is unlikely to result in profits.

Profits will not come from selling a customer 300 kWh or even 1,000 kWh a month, but rather in selling a bundle of products to that customer. Spending $100 to $600 on marketing to acquire a customer is predicated not on the small margin per kilowatthour, regardless of how many kilowatthours the customer uses, but on "owning the customer" and on selling not just electricity but rather a bundle of products. The path to deregulated profits is through bundling low or no-margin electrons with other, highly profitable, goods and services.

Bundling And Unbundling

Deregulation's proponents, especially insurgents with the goal of taking customers from the utility, push for unbundling to offer "choice" to customers. In the real world, in contrast, both new entrants and incumbent utilities are busily bundling or planning to bundle many more products with the electricity.[98]

Unbundling is proposed on the grounds that customers will have the choice of any vendor in the market: electrons from the cheapest supplier, delivery from the wires company, metering from a third, meter reading from a fourth, billing from a fifth supplier, etc. Customers, it is argued, should be able to put together the package

[98] The current wave of telecom mergers is partly motivated by the prospect of rebundling local and long distance, along with wireless and cable.

of these in any way they want, rather than having to buy them bundled from one company. The billing function would sum the charges for all the services, mail a statement, receive the payment, and distribute the proceeds to the myriad of suppliers.

Control of the billing envelope, with its monthly entrée to the home at the customer's own expense, is actually the most promising path to profits. Think of all the glossy advertisements that come each month with credit card and other bills, offering additional attractive things to purchase.

Confusing and inefficient as it sounds (and is), unbundling is stressed by both new electric suppliers and some consumer advocates in the hope of breaking the stranglehold that incumbent utilities have on customers. The hope is to lower the cost of customer acquisition and let a competitive market be born.[99]

In the conversation about deregulation, and in the analysis put forward by its proponents, it is either stated or implied that all customers will be purchasing at the (new) lowest price. We have already seen, however, that selling an undifferentiated commodity on the basis of price leads to low or no profits, to price fixing, or to product differentiation and market segmentation to escape the commodity world. Recent analysis addressing marketing of product on the Internet sheds light:

> *A truism of marketing is that if you treat price as the most important thing, so will the customer — and a price sensitive customer is the opposite of a loyal one. The idea of trying to create brand loyalty to a web site by promising the "lowest prices" is self-defeating since you have nothing to hold the customer when somebody else offers a lower "lowest" price.* [100]

It makes no sense to spend marketing dollars, however few or many, to attract customers on price alone, nor on selling electricity alone. The profits will be in products sold along with electricity. Because the value of the company on the stock market will depend on the growth of

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[99] There are better ways to open the market. See the section below, which discusses "Community Choice," municipal utilities, and co-ops.

[100] Holman Jenkins, in *The Wall Street Journal,* June 9, 1999.

sales and profits, marketing will also be aimed at selling a continually growing bundle of products. Marketing must therefore be aimed at those customers able to expand their purchases of discretionary products, *i.e.*, those with substantial discretionary income.

The quantity of electricity a customer buys will not be increased by a sales pitch. For residential customers, usage depends on the stock of appliances already owned, which changes only slowly, and for reasons only tangentially related to the price of electricity. Buying more kilowatthours comes not from leaving the lights on all day because electricity is cheap, nor on washing clothes repeatedly because a vendor offers a good deal on electrons, but rather on additions to the stock of electricity-using devices that the customer owns. Marketing will not raise the customer's use from 500 kWh / month to 700 kWh / month, nor from 2,000 to 3,000. Marketing will focus on adding products, not more kilowatthours, to what the customer purchases from the vendor.

A recent book, *Permission Marketing*, by Seth Godin, was cited in *The Wall Street Journal*.

> *But Mr. Godin argues that once an advertiser has the consumer hooked, there's a next step to the process. Instead of pouring resources into growing market share, Mr. Godin argues, a business should try to sell as much product as it can to existing customers. …*
>
> *"The true value of any one customer is a function of the customer's future purchases, across all the product lines, brands and services offered by you," he argues.* [101]

The path to success in electricity lies in focusing on those customers who hold the promise of multiple future purchases, of all types. The data bases and sophisticated data mining available to marketers, to be described shortly, can identify and target prospects. Electricity marketing under deregulation will be driven to segment customers and to discriminate among the segments.

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[101] "A New Model," *The Wall Street Journal*, special section on "E-Commerce," p. R26, July 12, 1999. *Permission Marketing* was published in May, 1999, by Simon & Schuster.

The smallest customers must be ignored by the market, leaving only two outcomes:

- One, the default provider, *i.e.*, the incumbent utility, keeps customers without a marketing expense. This enormous advantage will leave only large customers up for grabs.
- The second possible outcome, and a much better one for the small customer, is through public ownership or public aggregation, *e.g.*, through Community Choice. Where legislation or other deregulation permits Community Choice, as in Massachusetts, customers are acquired, or rather join each other in a community of users, unless they choose not to join. Under Community Choice (as under the default provider model) there are no acquisition costs, and small and less affluent users and, in particular, small businesses can be served as well as large and wealthy customers.[102]

Pricing Electricity In A Deregulated World

Broadly speaking, two nonexclusive pricing strategies will unfold.

- Product differentiation and discrimination among customers. This will include "electronic redlining."
- Collusion or cooperation between producers so that cutthroat competition does not break out. A full discussion is beyond the scope of this report, but recent events in other industries are interesting.

In a story headlined "Rolls-Royce Urges Closer Cooperation For Big Three Aero-Engine Concerns," the CEO of Rolls-Royce PLC was quite forthright in calling for carving up the dwindling market for giant aircraft engines. Although there are only three companies sharing the large engine business, it appears that they need to cooperate, rather than compete, to be profitable. *The Wall Street Journal* reported that:

> *Rolls-Royce, General Electric Co. of Fairfield, Conn., and Pratt & Whitney, a unit of United Technologies Corp., Hartford, Conn., already have entered numerous collaborations as the*

[102] It is this that California outlawed.

> *cost of development continues to skyrocket and budgets come under pressure.*
>
> *To that end, Mr. Rose said he welcomes any moves by Pratt & Whitney and GE to combine their efforts in designing engines for certain aircraft frames. He is also willing to entertain further collaborations for his company. "Most airframes can support two competitors," he said. "But most can't support three." …*
>
> *"In the future I see none of the airframes with more than two [engine] competitors fighting for business," Mr. Rose said. He accepts one of the three having an edge on a specific line of engine, however. "There are going to be areas where one or other of us is more successful, and there are going to be areas where we can compete," he said.* [103]

A speech by American Airlines' CEO on October 5, 1999, illustrates how communication can take place in an industry without actual meetings, though stopping well short of Rolls-Royce's specific urging of cooperation. *The Wall Street Journal* reported that:

> *… Donald J. Carty blasted rival airline chiefs for damaging industry profitability by aggressively boosting capacity this year and then cutting fares to fill empty seats. …*
>
> *The industry has got real profitability problems and will as long as airlines talk about taking market share. … Unless the industry gets more disciplined about capacity out there, its long-term profitability prospects are rather bleak.* [104]

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[103] *The Wall Street Journal*, September 14, 1998.

[104] *The Wall Street Journal*, October 6, 1999. The *Journal* went on to add: "John Hotard, an AMR spokesman, said Mr. Carty's comments weren't and shouldn't be construed as price signaling by an airline. He said a consent decree signed in 1994 by airlines and the U. S. Department of Justice prohibiting price signaling concerned such actions as a specific, quantified price increase on certain routes, on certain types of flights or on certain dates. He said Mr. Carty was explaining broad trends that have affected airlines' results."

Avoiding Competition

Collusion or cooperation is required for stability and "economic efficiency," given electric power's characteristics. Illegal behavior is not a long-run "solution," of course. The strategic path outlined here has several nonexclusive options. First, mergers permit pricing cooperation between former rivals. Within one company talking about prices is legal. Bittlingmayer argues that the passage of the antitrust laws in the 1890s caused "the great merger wave." The mergers made legal what had been outlawed by the new antitrust laws. He says:

> *Perhaps as much as one-half of the U. S. manufacturing capacity took part in mergers during the years 1898 to 1902. These mergers frequently included most of the firms in an industry and often involved firms that had been fixing prices or that had been operated jointly through the legal mechanism of an industrial trust.* [105]

A second option is to persuade the judiciary, up through the Supreme Court, that "the rule of reason" should permit rationalization of the industry for the public good. This would allow, in other words, potential capacity builders to negotiate to provide the "correct" amount of capacity for what the public needs.

A third strand would be a lobbying and public relations campaign to relax the antitrust laws as applied to electric power. The goal would be to make deals about capacity expansion legal "cooperation" rather than illegal "collusion." Note, however, that price discrimination remains required even if producers successfully adjust capacity to avoid price wars.

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[105] "Did Antitrust Policy Cause the Great Merger Wave?", George Bittlingmayer, *Journal of Law and Economics,* University of Chicago, April, 1985.

Marketing

Against this background a look at what marketing will offer is in order.

A Third Strategy — Transform The Product

The goal here would be to transform an undifferentiated commodity into a product that is no longer a commodity. Not magic, but marketing. By creating a brand image or using a trusted corporate name, adding a familiar logo, or claiming to deliver a more attractive product, such as "green power," the customer can be led to distinguish one kilowatthour from another, and to pay more for the "better" kilowatthour. Most of this creates not a better product, but rather the image of one. Costs of marketing drive the price higher without real benefit to the public. Although finding people willing to pay for marketing is heralded as "value added," society is not better off as a result. Such marketing attempts are already unfolding in electric power and will certainly expand in the future.

A serious issue for the public here is that huge corporate size is required for success.

A serious issue for the public here is that huge corporate size is required for success. Deep pockets are necessary for staying power and to provide the budget for a massive marketing effort. The need for very large size for successful marketing adds to the drive for mergers and consolidation already happening for other reasons.

A Fourth Strategy — Bundle The Product With Others

Bundling is the practice of selling a package at a single price, with the electricity included in the package at a lower price than it is offered for stand-alone purchase. These will not be "tied sales" — where you must purchase product B to get product A. Electricity will be available as a stand-alone purchase, but if the customer is willing to take the bundle, it will be offered at a lower price. Bundling electricity with other products or services will be a main way to segment the electric market. To make profits on the bundle of products sold, electricity could be sold at cost, a profitless throw-in to make the bundle an attractive package.

Things Bundled With Electricity

There is a long list of things, already available or soon likely to be, to purchase with electricity. Many will be successfully sold only to the more affluent residential customers, and it is here that redlining will be part of the marketing.

The following is a nonexhaustive list of products bundled with electricity:

- Cable TV;
- Satellite TV;
- Paging;
- Movies on demand;
- Bill payment insurance — where the gas and electric bills are guaranteed if the customer loses a job or becomes disabled;
- Real estate services;
- Appliance warranties;
- Home security (burglar alarm) systems;
- Credit cards;
- Internet access;
- Telephone;
- Cellular phone;
- Computer repair at home;
- Natural gas;
- Buyers clubs — where discounted services and goods are available, including overnight delivery, health benefits, property insurance, etc.;[106]
- Catalog shopping;[107]

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[106] FirstEnergy is offering this as more of a tie-in customer tool than a bundled package.

[107] This is not a bundled offering, but rather a co-branded one designed to strengthen the tie to the customer.

- Retirement annuities;[108]
- Loan programs for energy-related improvements;
- Fixed rates, regardless of fuel price changes;
- Fixed bills, regardless of swings in usage.

Hedging Products — The Most Profitable Part Of Any Bundle

Two offerings, "fixed rates" and "fixed bills," are ways for customers to insure or to hedge against the future. Hedging products promise to be the most profitable future offering tied to electricity.

Hedging products promise to be the most profitable future offering tied to electricity.

The price of electricity will be much more volatile in the future. A consumer budgeting for a monthly electric bill of $60 may be in financial straits if the bill jumps to $150 or $200 for a few months or for a year or two, even though over a span of years bills actually do average $60. Consumers may want the choice of a product that will protect against bill fluctuations, and be willing to pay extra for it. A financial hedge against price fluctuations is a "derivative." It is a derivative because its value will depend, in turn, on the fluctuations in the price of electricity.

Derivatives are financial products likely to be very profitable because the seller will be much more knowledgeable than the buyer. And knowledge is a key to estimating the value of a derivative. Devising the formula to price a derivative won the 1997 Nobel Prize for two economists. Applying the formula requires extensive knowledge of the energy industry, including:

- Today's price of a kilowatthour.
- The expected price of a kilowatthour in the distant year of choice. For this the customer must develop a forecast of the prices of coal and natural gas.

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[108] The Renewable Energy Policy Project (REPP) has a study on an "electrofinance" product, which advocates bundling renewable energy and energy efficiency with retirement annuities and kilowatthours.

- The risk-free rate of return on U. S. Treasuries, which requires knowing the inflation rate that the market expects over the future term of the bonds.
- The customer's assessment of the "normal distribution" for future kilowatthour prices. This will be a bell curve based partly on an estimate of gas and coal prices over the next few years, the market for combined-cycle combustion turbines, an assessment of the manufacturers' market power, etc., etc.
- A guess about the Standard Deviation of prices around the mean (average) future price. (By assuming a "normal distribution," the customer can avoid having to make estimates for the median and the mode.)

Derivatives promise to be most profitable because the vendors have expert knowledge of the fuel market and weather forecasts and are thus better able to set the offering price than the customer is able to evaluate it. Because it is an intangible financial product, there is no need to deliver BTUs in any form. The kWh is simply a vehicle to carry the profitable product.[109]

Customers Will Be Segmented

Against this background it is inescapable that customers will be segmented.

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[109] This is not to say that the marketer could lose big if the forecasts are wrong. This provides one more advantage to a larger versus a smaller vendor, both because losses can be better absorbed and because customer perception of financial strength will be an important element in selling the derivative.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 7

Lack Of Privacy And Data Mining

Capturing a new customer is very expensive, and marketing to small businesses and residential customers becomes very selective. Selectivity, in turn, depends on information about customers. Although data about electricity consumption are important, more important for profitability is information on income and spending habits. Incumbent utilities have and hoard data on electric usage, but information about the rest of the population's behavior is pretty much available to those interested. Because that information will be so important for marketing electricity, this section provides a brief review of how open personal lives are to commercial scrutiny.

Privacy, or the lack of it, is already a significant social concern. The information about each of us already in data bases, reported occasionally in magazines and newspapers, is astonishing. What is new, and changing for the worse day by day, is how useful that information is because of data mining.

A fairly simple sorting of data will be enough to segment the market and discriminate against some. One of the easiest things to learn from public and other sources is whether or not a customer owns his or her dwelling. In marketing electricity, one of the products bundled with electrons, for example, will be energy efficiency. Selling energy efficiency has positive societal impacts, of course, but renters are not likely prospects. Many energy-efficiency devices, for example, insulation or better windows, will stay with the building if the renter moves. This has been and continues to be a long-term problem for energy efficiency, one that has not been solved.

The point here is not that renters will be discriminated against in purchasing energy efficiency, but rather that they will be discriminated against in the price of electricity. Homeowners may be offered cheaper electricity because they will buy the bundle that includes efficiency measures, while renters will not. This is discrimination by failure to include, rather than through exclusion, but the effect is the same: discrimination.

Privacy Protection

Two powerful congressmen, active in the electric deregulation debate, are concerned about privacy. Rep. Joe Barton of Texas, a Republican, and Rep. Edward Markey of Massachusetts, a Democrat, worked together to limit a bank's ability to sell customer information. And Rep. Barton has been quoted as saying he intends to attach privacy provisions in his electric-deregulation bill: "Most people think routine transactions with their bank or electric company ought to be private."[110]

The problem addressed here is the other way around. It is personal data from other sources, used to sell electricity, rather than electricity-purchasing data being used to sell other things, with which the deregulation discussion should be concerned. Certainly Reps. Barton's and Markey's privacy provisions are important, but as noted here, the data cat is already out of the bag.

The Availability Of Data

There is no doubt that the new electricity vendors will know enough about their targets to segment them successfully. The enormous leap recently in computer power, and in data storage and retrieval, means that the complex history of each customer is stored somewhere that will be available to the marketers. A whole industry, called "data mining," has sprung up to extract meaning from the information mountain within which our (non)secrets and financial capability lie. The astonishing data-manipulation capabilities already in use — and constantly expanding — ensure that sorting through the data to segment the market into ever tinier slices is the way of the future.

The marketers' ideal would be to have each customer paying a different price for electricity, the price that would extract the maximum that the particular customer would pay, leaving nothing on the table.

The marketers' ideal would be to have each customer paying a different price for electricity, the price that would extract the maximum that the particular customer would pay, leaving nothing on the table. The information and data-manipulation capability are already in place to segment the market into fairly small slices, leaving the marketers' ideal only barely beyond reach.

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[110] *The Wall Street Journal*, "The Outlook," July 19, 1999, p. 1.

A description of the data available begins the story. Already in the public domain, for each of us, are records from each state's motor vehicle agency. This includes age, medical conditions, address, including addresses that might be unlisted in telephone records. Reverse telephone directories give addresses if the phone number is known. Real estate records are also in the public domain, so that home ownership, including the date and price of purchase, or rental status is public, along with other kinds of licenses like fishing and hunting. A change of address filed with the U. S. Post Office is electronically available — and used by data gatherers. The kind of car driven, magazines read, recreation choices like camping or opera, pet ownership, all are in data bases and available to marketers. Grocery-store shopping cards create a data base revealing what day of the week you shop, and what you buy.

Credit reports supply Social Security numbers and addresses, and credit-card transactions can reveal purchasing patterns, including books read, restaurants patronized, theater preferences, and even medical conditions and histories.

A story headlined "Drug Companies Are Minding Your Business" reports that:

> *Reader's Digest Association … mailed out a survey to its 15 million U. S. subscribers, asking them to disclose medical information about their families. The magazine sorted the responses and created mailing lists of sufferers of diseases and medical conditions. Starting in September, it intends to send the people on each list a disease-specific booklet of upbeat articles … .*
>
> *… it will have about nine million names on file, including 771,000 arthritis sufferers, 679,000 people with high blood pressure, 607,000 with high cholesterol, 406,000 with frequent heartburn, 206,000 with osteoporosis, and 460,000 smokers.* [111]

Calls made to an 800 number capture shopping or other inquiries through Caller I. D. Stored in a data warehouse, it becomes available

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[111] *The Wall Street Journal,* April 17, 1998.

Even rejection for a credit card is information that finds a buyer.

for "data mining."[112] Even rejection for a credit card is information that finds a buyer. Individuals rejected for a credit card may soon find in the mail an offer from a rival card. The offer might require a deposit, give a quite limited line of credit, and carry a very high interest rate. There are two points here. First, the rejection itself would be data to be sold, and, second, even credit risks are desirable if the risk can be quantified and offset with a prospective gain.

Banks Have Been Selling Customer Records

Data from state agencies and credit-reporting services are not the only source of personal information available to marketers. Banks know a lot about depositors' and borrowers' personal lives, and both store and use the data in a sophisticated way. Furthermore, they sell or rent the data to telemarketers.

Right now banks are under fire for selling confidential customer information. They provide the data both for a fee and in some cases get a commission on sales made. In addition, they will directly deduct from a customer's account the charge for what the telemarketer sold — or only claims to have sold! *The Wall Street Journal,* citing John D. Hawke, Jr., the Comptroller of the Currency, described the practice recently:

> *"There's mounting evidence of an increase in banking practices that are at least seamy, if not downright unfair and deceptive — practices that virtually cry out for government scrutiny," John D. Hawke Jr., comptroller of the currency, said in a speech to bank credit officers in San Francisco.*
>
> *Mr. Hawke said he found "particularly objectionable" that some banks provide confidential customer information — including addresses, telephone numbers, Social Security numbers, dates of birth, checking-account information and credit-card numbers — to unaffiliated telemarketing*

[112] Telephone 800 numbers have captured information from callers since before Caller I. D. became available to individuals. And 800 numbers capture the data in spite of blocking on the part of the caller.

> *companies. In return, the banks receive commissions on sales made by the telemarketer.* [113]

The practice goes far beyond depositors' information, unfortunately. The records of customers who have credit cards with banking institutions are also sold on to outside marketers:

> *Several of the nation's largest banks provide some customer information under contract to telemarketing firms. For instance, Citibank, a unit of Citigroup Inc., provides names, addresses, telephone numbers and encrypted account information of credit-card clients to chosen telemarketing companies and receives a share of sales in return, a Citibank spokeswoman said. She added that customers are given many opportunities to opt out.* [114]

Shortly after the U. S. Comptroller of the Currency spoke out, the Attorney General of Minnesota sued the U. S. Bancorp of Minneapolis in federal court over the same practices:

> *Attorney General Michael Hatch contends that the bank broke the federal law when it provided a range of information on its customers to a telemarketing firm and then committed fraud and false advertising when it told customers in account agreements that it would keep such information confidential.* [115]

HMOs And Medical Insurers

The president of Aetna Inc., quoted in *The New York Times* in connection with the proposed purchase of the health-care business of Prudential Insurance, said: "In the future we will use our incredible data base to find out who is going to get sick tomorrow so we can do something about it today."[116]

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[113] "Comptroller Criticizes Banks on Practice Of Giving Telemarketers Customer Data," by Paul Beckett, *The Wall Street Journal*, June 8, 1999.

[114] *The Wall Street Journal*, June 8, 1999.

[115] "Minnesota Attorney General Accuses U. S. Bancorp of Illegal Sales of Data," Joseph B. Cahill, *The Wall Street Journal*, June 10, 1999.

[116] "Economic Scene," *The New York Times*, December 17, 1998.

There can, obviously, be a positive medical use for customer data, but Health Maintenance Organizations (HMOs) are also interested in enrolling a slice of the population that is young and healthy, and enrolling the healthiest slice of each segment of the population. *The New York Times*, for example, reported on a compliance manual issued by June Gibbs Brown, Inspector General of the Department of Health and Human Services:

> *For years, federal officials say, they have heard reports that health maintenance organizations try to recruit healthy elderly people by marketing insurance at sports clubs, dance halls and places inaccessible to the sick and disabled.*
>
> *Ms. Brown said it was inappropriate for H.M.O.'s to "target healthier beneficiaries" — for example by marketing their plans in health clubs or on the upper floors of buildings with no elevators.*
>
> *H.M.O.'s deny that they avoid sick patients. But there is an immense financial incentive for them to do so. The most expensive 5 percent of Medicare beneficiaries cost almost as much as the remaining 95 percent.* [117]

In their marketing, HMOs could, of course, avail themselves of the data gathered by others, such as the Reader's Digest, along with, of course, credit data. Targeting a healthy population through data mining is the equivalent of the "electronic redlining" predicted here for electric power.

The Internet

The advent of the Internet adds another dimension to the loss of privacy. Companies like Amazon.com and Excite@Home, etc. are active in exploiting consumer preferences that they collect in the ordinary course of business. Their aim is to know what book, record, or other product you want before you know it, and then market it

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[117] *The New York Times*, by Robert Pear, "H.M.O.'s Warned on Recruiting Only Fit Medicare Clients," June 11, 1999. Spliced quotation. This ties to the point, reported elsewhere, about banks and other businesses deliberately shrinking the customer population to eliminate the less or not-profitable members.

directly to you.[118] Why, legal authorities have even used this avenue to track a President's book purchases.

The Industry Of Data Mining

Coal and iron mining have been major parts of our economy for generations. Now an entirely new mining industry should be entered into the Commerce Department's Standard Industrial Classification (SIC) system of tracking business activity: Data Mining.

Distinct from simply storing data, data mining has attracted a growing number of companies, including, of course, some of the data gatherers themselves. In fact, the terms "data mining" and "data warehousing" are used interchangeably, though some companies are in only one or the other business.

Roughly 40 years ago a California company, Fair, Isaac, began developing and marketing a mathematical system of credit "scoring." The method took in financial information about a customer and produced a score that provided a way for a financial institution, *e.g.*, a credit card issuer, to make a simplified decision about extending credit, and on what terms, to that customer.

Over time both the system and the products of this kind have become much more sophisticated, and Fair, Isaac and Company uses sophisticated statistical analysis, neural networks, regression splines, and spends a portion of its R&D money researching mathematical and statistical algorithms.

As an example of marketing segmentation, Fair, Isaac has developed a trademarked system, DNA™, which sorts the U. S. population into clusters:

> *Are you a camper or a couch spud? A fan of Pavarotti or Pearl Jam? Married with children or single and loving it? These may not be genetic traits, but they're definitely linked to DNA™ — the groundbreaking "clustering" system developed by Fair, Isaac and Metromail.*

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[118] *The Wall Street Journal*, "The Outlook," July 19, 1999, p. 1.

> *DNA sorts the whole U. S. population by household into 104 clusters with different demographic profiles. Marketers use the information to decide who would most likely drop a stitch over a great new needlecraft catalog and who might rev up over a sports car offer. DNA sorts by household, not ZIP code (the industry standard), so just because your neighbor goes gaga for gardening, you don't have to be bombarded with seed samples. But you just might get notified when that classic toy-train caboose you've always fancied goes on sale.* [119]

Fair, Isaac goes to some length to stress that the impact of its scoring systems and clustering on consumers is fair, and by all accounts it is a stellar company. The point here is to show the sophisticated tools available to segment customers. The issue for deregulated electricity is whether the discrimination is reasonable.

Other companies stress the benefits to the consumer of market segmentation:

> *The number of data warehouses, large and small, using faster computers, the Internet and other networks now exceeds 1,000, a tenfold increase in five years. Only a few – such as Metromail Corp. and R.L. Polk & Co. – have grown as large or powerful as Acxiom. …*
>
> *Data warehousers contend their techniques already have improved customer service by insurance firms, banks and department stores. When a customer calls, a company can "flood" the computer screen with personal information, offering "one-on-one" service, according to Neil Mendelson, director of data warehousing for software firm Oracle Corp.* ***"What we're going for as an industry is 'a segment of one,'"*** *Mendelson said.* [120] [emphasis added]

Not all see the segmentation as benign. For electricity, the scoring system will include not just whether bills are paid on time and the kilowatthours consumed. The scoring system will likely add the prospects for selling other products, both related and unrelated to the provision of electricity. In that case the price of electricity to

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[119] *Annual Report 1995,* Fair Isaac and Company, p. 14.

[120] *The Washington Post,* March 8, 1998, p. A1. This was the first of a three-part series on privacy.

the prospect for a bundle of products might be lower than for one not susceptible to a bundle including insurance against weather and price swings.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 8

Electronic Redlining

Redlining is an abusive practice long employed by financial institutions like banks and insurance companies. It is now more or less against the law, though many believe it still goes on. It takes its name from the way it excluded customers from the normal offerings of a business. On a map, a red line was drawn around a neighborhood that was to be denied the customary offerings of the business. The area might be a neighborhood of ethnic minorities and/or low-income residents in general. Inside the line the residents were considered generally undesirable with respect to creditworthiness or profitability, and so business within that area is or was avoided.

There has been a strong attack on redlining by low-income and minority organizations over the years, denial by accused banks/insurance companies that the practice exists, and legislation from time to time aimed at stopping or preventing it.

An applicant with an address within the redlined area might be refused a loan from a bank on that basis alone, regardless of individual character or financial strength. Redlining of this sort is discriminatory, of course. Loans might still be available from more expensive sources, such as finance companies, pawnshops, and loan sharks. Under electronic redlining, electric service will remain available, even from the very vendors practicing it, but the price will be discriminatory. For electricity, redlining will take a new form. Vendors will avoid marketing to those with low incomes, poor credit and those known, regardless of income or assets, to be frugal. Those considered poor prospects for bundles of products will be avoided. Regardless of the profit margin on each kilowatthour sold, low-volume customers will be considered unattractive.

James Howard, CEO of Northern States Power, spoke of the company's plan to sell both energy and cable TV and high-speed Internet access. But he also foreshadowed the block of customers that are the target market:

> *People today are educated and they have money. If you have 3.5 million customers mostly educated and pretty well off — there are pockets where that's not true — but there are huge*

> *groups that fall into that category. We ought to be able to sell to them.* [121]

We have already seen that the marketing cost of acquiring customers is very high. Mr. Howard here speaks of an incumbent's 3.5 million customers, customers already owned. But it is clear that those not "pretty well off" are not his target. Spending on acquiring a small customer not a prospect for a bundle of products will be avoided.

Why Call It "Electronic Redlining?"

This new form is called "Electronic Redlining" because the sophisticated mathematics and algorithms of data base management and the storehouses of information supporting it would be of no use without the electronic servants that make it possible. The electronics of high-speed data storage and processing is crucial for the retrieval of customer information to be sorted, according to sophisticated mathematical algorithms on lightening-fast computers. Electronic redlining will not exclude customers, as the traditional form of redlining did, but rather will avoid including unwanted customers.

Electronic redlining comes into the picture in this way. Suppose the law requires that any vendor selling kilowatthours must offer the same price per kilowatthour to any customer. Using low-priced kilowatthours to sell the package then is problematical, since a customer can get the low price without buying the bundle. The way to get around this is selective marketing. By target marketing, *i.e.*, promoting the package to the slice of the universe deemed likely to buy the bundle, without at the same time generally announcing it to the universe as a whole, most of the frugal customers can be avoided. They will be redlined by omission.

By framing a query to the data base so that a list of only profitable prospects is returned, marketers can include only those they want, and exclude those they do not want, as customers.

By framing a query to the data base so that a list of only profitable prospects is returned, marketers can include only those they want, and exclude those they do not want, as customers. For example — and this example is a simple one, much less sophisticated than what is both possible and likely — a query such as follows can be asked:

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[121] Interview in *Restructuring Today*, March 29, 1999.

> *Please provide a list of customers owning their own homes, whose dwellings are at least 2,000 square feet, with incomes larger than $xxx, and who purchase "extended warranties" when they buy big ticket items such as appliances.*

The last component in our simple example, asking about purchasers of extended warranties, is to find a segment of risk-averse customers who might be good prospects for insurance against adverse weather swings, spikes in fuel prices, and so on. The financial products that will provide such security, derivatives as well as straight insurance policies, are likely to be the most profitable part of bundles sold. The electricity, if priced alone, is likely to be provided at a low price in the bundle being offered, but the low price will only be available if the bundle is purchased. Those not buying the bundle will pay more per kilowatthour.

Using data mining in this way, to segment the prospects before the sales pitch goes out, will leave segments of customers who will never see the offer, and who will, instead, be offered straight electricity at a higher per unit cost. Those customers have been redlined.

The old ways of defending customers against redlining will not work against Electronic Redlining, although some states have already taken steps to try. Connecticut, for example, has enacted the following as protection, but it does not prevent the sin of omission:

> *No electric supplier … shall refuse to provide electric generation services to, or refuse to negotiate to provide such services to any customer because of age, race, creed, color, national origin, ancestry, sex, marital status, sexual orientation, lawful source of income, disability or familial status. No electric supplier shall decline to provide electric generation services to a customer for the sole reason that the customer is located in an economically distressed geographic area or the customer qualifies for hardship status. … No electric supplier shall terminate or refuse to reinstate electric generation services except in accordance with the provisions of title 16 of the general statutes.* [122]

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[122] Connecticut, *An Act Concerning Electric Restructuring*, Public Act No. 98-28, eff. 4/29/98, §29. I am indebted to Barbara R. Alexander, Consumer Affairs Consultant, for bringing this to my attention.

The redlining problem of the future is not that customers will be excluded, but rather that they will not be included.

Customers And The Internet

One of the stories supporting the promise of low prices for all in the future is the prospect of shopping for power on the Internet. There are flaws in the story, not the least of which is the issue of daily, seasonal, and annual fluctuations in prices. Very few will shop daily or even frequently for the cheapest power. At best, a purchaser might find a vendor offering a low price and sign up for ongoing service over time. Once locked in, competition is reduced.

Note also that the cyberworld leaves out the most vulnerable consumers, those who might be expected to be avoided by marketers on other grounds. Internet access is strongly correlated with income. The U. S. Department of Commerce reports that a digital divide remains between "haves" and "have nots," and that the gap is widening in many cases.

> *… income plays a significant role in the level of access to computers and the Internet. High-income households (earning more than $75,000) are twenty times more likely to have access to the Internet as households at the lowest income levels. …*
>
> *Those in rural areas, across all income levels, are lagging behind households of similar incomes in urban areas and central cities. A low-income household in a rural area has a less than one in thirty chance of having Internet access at home. A rural Black household has less than a one in thirteen chance of having home Internet access.* [123]

There is also a racial divide with respect to Internet access. In the same speech, Larry Irving, Assistant Secretary for Communications and Information, reported that:

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[123] Remarks by Larry Irving, Assistant Secretary for Communications and Information, National Telecommunications and Information Administration, U. S. Department of Commerce, at the National Press Club, Washington, D.C., July 8, 1999.

> *Finally, we not only have a digital divide today; we now also have a "racial ravine." Blacks and Hispanics have significantly less access to the Internet from any location (including work, home, or school) than Whites do just at home. (The data show that 19.0% of Blacks and 16.6% of Hispanics have Internet access from any point, compared to 26.7% of Whites using the Internet at home). If you are Black or Hispanic, your chance of having Internet access at home is less than one in ten. To put it another way, 90 percent of Blacks and Hispanics do not have Internet access at home. Even more troubling, 80 percent of Blacks and Hispanics do not have access to the Internet from any point at any part of any day of their lives.*

To conclude, the promise of the Internet is not to overcome electronic redlining, but perhaps to put the most vulnerable at an even greater disadvantage.

Selective Marketing

Selective marketing is simply targeting the marketing message to customers who will be responsive, and, if responsive, remunerative to serve. In practice this means targeting the marketing to more affluent customers — those with the means to buy a bundle of products, and, separately to larger users within a customer class so as to at least achieve a high volume for the low-margin electricity sales.

As the industry becomes more experienced, marketing will get increasingly selective, targeting demographic, income, and geographic groups in a much more focused way. Rather than the broadcast television ads and mass mailings that were quickly abandoned in California, mailing and phoning to narrowly targeted prospects will be the marketing focus of the future. People with the means (and the assets to protect) and the risk-avoidance mindset to install and pay the monthly charges for a home burglar alarm system will be profitable. They might also be good prospects for the set of financial hedges associated with purchasing energy. The more items added to the bundle the better. This is not to say that a vendor would refuse a nontargeted customer who signed up anyway, though, as we shall see, there are ways to deselect customers who are not profitable.

Companies Do Shed Customers

The Wall Street Journal ran a story in January, 1999, focused on how banks, in particular, are trying to assess the profitability of each customer, and then treating them royally or discouraging their custom in some way. The First Union Corporation has a computer system called "Einstein" that ranks each customer in seconds when they phone for service, so that the representative can treat them as the computer thinks they deserve. The discrimination might be monetary, fees for some and not for others, or it might be in levels of service.

> *After years of casting a wide net to lure as many consumers as possible, banks and many other industries are becoming increasingly selective, limiting their hunt to "profitable" customers and doing away with loss-leaders. Wielding ever-more-powerful computer systems, they are aggressively mining their vast databases to weed out losers, or at least to charge them more, and to target the best customers for pampering.* [124]

The *Journal's* story describes how other industries are raising prices to customers believed to be less profitable, and willingly shedding those who leave as a result. FedEx, after analyzing profitability of large customers, the *Journal* reports, raised prices significantly and was willing to have some leave when they balked at the higher prices. A paging company decided to raise prices to discourage its heavy users who also were paying low fees, and willingly said goodbye to hundreds of thousands of subscribers as a result.

Fidelity Investments, from the mutual-fund industry, is blocking some customers' telephone access to human beings. Those who phone too often are restricted to an automated system, based on criteria the company will not publicly specify, but presumably tied to the size of the account.[125]

Banks in particular are spending hundreds of millions of dollars on systems and consultants to decide which are and which are not profitable customers. They are proceeding on faith, although the

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[124] "Banks and Others Base Their Service On Their Most-Profitable Customers," Rick Brooks, *The Wall Street Journal*, January 7, 1999.

[125] *The Wall Street Journal*, March 26, 1999.

consultants are confident. It is not clear that banks can reliably identify which customers are profitable and which are not. The banks don't aim to get rid of customers, but when they impose new fees on the "less desirable" ones, many do leave. Some competitors, the *Journal* reports, are happily picking up customers the banks have driven away.

For electricity the question of which customers are desirable and which not seems even more difficult to answer. The old wives' tales that passed (and still pass) for cost allocation surely are misleading. Utilities have a very poor understanding of what time of day residential customers of various sizes are on or off the system. The load research inspired by the first and second oil crises, and mandated by the Public Utility Regulatory Policies Act (PURPA), failed to produce statistically sound results for many utilities, perhaps most of the industry. And although "load profiling" seems to be roundly embraced, reliance on it is misplaced. Much litigation over load profiling lies ahead if many customers ever leave their incumbent suppliers.

Price Discrimination, Electronic Redlining, And Price Fixing In Deregulated Electric Power

Section 9

Structural Protection Of Small Customers

Only structural forms can protect consumers. Traditional utility regulation is charged with providing "just, reasonable, and non-discriminatory rates." For states that deregulate, protection against discriminatory rates remains required and will not come from the market. Publicly owned utilities and public aggregation (commonly called Community Choice) can provide that protection. Both bring decisions on rate structure under democratic control.

For states that deregulate, protection against discriminatory rates remains required and will not come from the market.

Structural mitigation measures are necessary to protect small business and residential customers from undue price discrimination.[126] The most promising structures are public power and public aggregation. Lists of principles and rules of fairness cannot do the job.

Public Power

Public power is a familiar term, taken to mean community or state ownership of a local electric utility, in contrast with investor-owned utilities (IOUs).[127] It is to be expected that community ownership would provide "just, reasonable, and non-discriminatory rates." One reason is simply democratic control over rate decisions. A second is that the objective of a public power agency is to provide a service to the community. The objective of a for-profit business, in contrast, is to maximize its value on the stock market, which requires striving for growth in sales and earnings. In striving for growth rates will be structured to attract new customers and to maximize sales to existing customers. The temptation to have small business and residences subsidize more elastic customers is powerful. Treating all segments

[126] Some price discrimination can actually result in lower rates for all customers. It is straightforward to describe how, in a static world, this result can flow from spreading fixed costs over more kilowatthours. In a dynamic world, in contrast, pricing below average cost to some customers to spread fixed costs can result in a less-than-optimal configuration for the system as a whole, while at the same time increasing growth in sales and earnings. The latter is undue discrimination and is driven by the objective of raising the value of the enterprise on the stock exchange. It is outside the scope here to describe this, but it helps to explain the disparity in rate spreads between investor-owned and public power utilities reported below.

[127] There are roughly 2,000 such utilities in the United States.

of customers fairly (and protecting the environment) are undertaken only if share price is thereby enhanced.

Beyond *a priori* reasoning, an econometric comparison of the degree to which price spreads among customer classes vary between public and investor-owned utilities (IOUs) customer classes was carried out by John E. Kwoka, Jr. He found a significant difference in price discrimination, depending on ownership:

> *More varied and intriguing are the results on public ownership, duopoly competition, and popular election of utility commissioners. As shown in column (a), public ownership has a very large and significant effect on the price of residential power relative to IOU prices. The differential, 1.20 cents per kWh, is fully 15.4 percent less than the average residential price from investor-owned utilities. This represents a huge effect of public ownership for residential customers, suggesting perhaps that much of the ownership effect previously detected for average price may be concentrated in this segment.*
>
> *Confirming this, column (b) reveals a price reduction of 0.34 per kWh for commercial users under public ownership, considerably smaller than the advantage for residential users. This effect is nonetheless significant and constitutes a 4.8 percent differential relative to IOU pricing. Clearly, both of these customer classes realize significant price benefits from public ownership.*
>
> *A rather different story holds for industrial users. Their power actually appears to be priced slightly* ***higher*** *under public ownership, though not quite significantly so (t = 1.29). The estimated differential of 0.16 per kWh is 3.1 percent of industrial price from IOUs. In fact, a large and significant price differential to industrial users would be unlikely, given their various alternatives to local-utility power noted above. Perhaps the better interpretation of this result is that industrial power price simply does not differ much by ownership mode.* [128] [emphasis in original]

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[128] John E. Kwoka, Jr., *Power Structure, Ownership, Integration, and Competition in the U. S. Electricity Industry*, Kluwer Academic Publishers, Boston, 1996.

Ensuring the survival of each public power entity is critical, and any deregulation legislation must see to it. Establishing new public power agencies is difficult though possible. For the most part it requires taking over an existing investor-owned utility. Resistance by the latter is likely to be strong, to claim a high value, and to persist for years.

Public Aggregation

More achievable, perhaps, at the turn of the millennium, is public aggregation, or "Community Choice." Public aggregation is the use of local government to arrange the purchase of electricity for businesses and residents within the political jurisdiction. Community Choice is, in effect, the superseding "default provider" for the electric users. As adopted in Massachusetts during that state's deregulation, individual customers within the jurisdiction can "opt out," much as customers elsewhere can leave the incumbent utility to shop for power. The significant difference is that there should be no marketing costs incurred by the local government, in contrast with the very high marketing expenses to sign up customers on an individual basis, described earlier.

Public aggregation occurs when, after a public and democratic process, a local government entity is empowered to act for local customers and to include every business and residential customer within its jurisdiction.

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Public aggregation occurs when, after a public and democratic process, a local government entity is empowered to act for local customers and to include every business and residential customer within its jurisdiction. Local and democratic control is a key element in obviating undue discrimination among customers. There may be additional benefits to the customers from Community Choice. A town or city may get favorable terms from, for example, a merchant plant it selected as the supplier. Financing for construction of merchant plants will be both easier to secure and cheaper if lenders see a contract between the plant and a secure and stable public entity.

Matt Patrick, who with Scott Ridley and others devised and worked to implement Community Choice on Cape Cod, describes some advantages:

> *The community franchise option allows consumers to voluntarily aggregate under the umbrella of their town government to contract for electric service. Under this option, towns may elect to act individually or enter into joint efforts to contract for electric services and supply. Following traditional*

contractual relationships for electric service franchises, the town will not take title to, or liability for, delivery of service. The town will not enter the electric business, or buy and resell electricity. Through the contract it will set the terms and conditions of service by the supplier, including guarantees of firm delivery, directly to the consumer. Individual consumers will not be mandated to accept this service, but will have the choice to opt-out and select their own supplier in the open market, provided that the supplier offers better or equal terms. The Community Franchise offers the consumer distinct advantages:

- *It is nonprofit and provides consumer leverage.*
- *It is nondiscriminatory.*
- *It is subject to open bidding and ethics laws.*
- *It offers transparent pricing.*
- *It offers public accountability and public control.*
- *It is voluntary.*
- *It follows the tradition of communities contracting for basic services and the statutory and Home Rule powers of local government, designed to protect citizens and consumers.* [129]

A structural form that can endure and protect customers against discriminatory rates is essential in any deregulation legislation or rulemaking.

[129] Matt Patrick, Executive Director, The Cape and Islands Self-Reliance Corporation, Waquit, Massachusetts.

About The Author

Dr. Eugene P. Coyle is a consulting economist active in the national debate on restructuring and deregulation of the electric power industry. He has followed regulated industries professionally since 1962, beginning as an analyst on Wall Street with Brown Brothers Harriman & Co. His Ph.D. in Economics from Boston College was awarded in 1969.

Dr. Coyle has testified as an expert witness in federal and state courts and before public utility commissions in 23 states and one U.S. territory. He has participated in several conferences on restructuring and testified at hearings held by the California Public Utilities Commission, the New York Public Service Commission, the Arizona Corporation Commission, the California Legislature's Joint Oversight Committee on Restructuring, and the Utah Legislature's committee considering electric power deregulation. In addition, Dr. Coyle has written on the theory of investment in regulated industries, on cost allocation and rate design, on renewable energy production and green marketing, and done studies on geothermal power for the U.S. Department of Justice and on photovoltaics for the State of California.

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