Cybernetics and Systems: An International Journal, 22:425–441, 1991

IS THE U.S. FREE MARKET REALLY FREE (OF GOVERNMENT)?

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The title of this paper may seem a paradox. In the United States, prices for basic utility services (natural gas and electricity and often water) are usually controlled by the government. But why does a free-market economy have economic regulation at all? The answer lies in the politics of government, the economics and technology of industry, and the legal frameworks of both government and economy.

HISTORY AND INSTITUTIONAL FRAMEWORK

The United States of America is aptly named. Following our War of Independence, the several legally independent entities on the mainland of independent British North America affiliated themselves as united states, rather than becoming independent nations. In the federation that resulted, the "national" or federal government was given, by the Constitution, only enumerated powers. The plenary powers of government, which are most of the daily things one presently expects from a government, were left for the states or to the people. The Constitution created some severe separations both within the federal government and between the federal government and the several state governments.

This structure of separate jurisdictions is illustrated by Fig. 1. But structure alone does not explain why and how the system of regulation arose. Figure 2 summarizes the basic reasons: citizen complaints and a basic legal policy to keep markets open. I will illustrate the interaction of these two facts.

Suppose hypothetically that there is a member state of the federal system called "Anomaly." The citizens of Anomaly discover that natural gas for home heating is being sold in Anomaly by only one company (Big Gas or

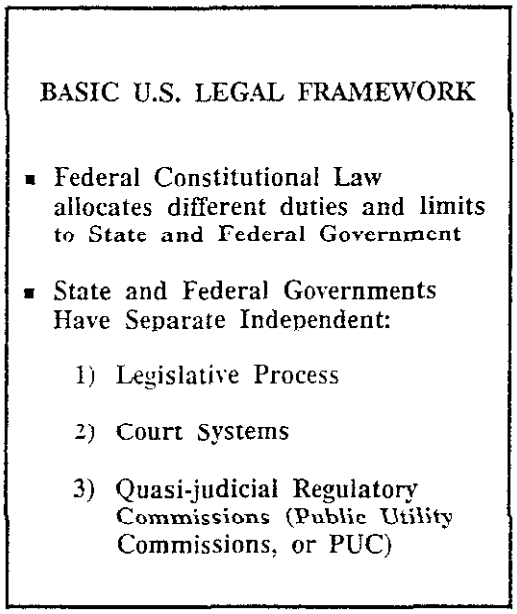

FIGURE 1.

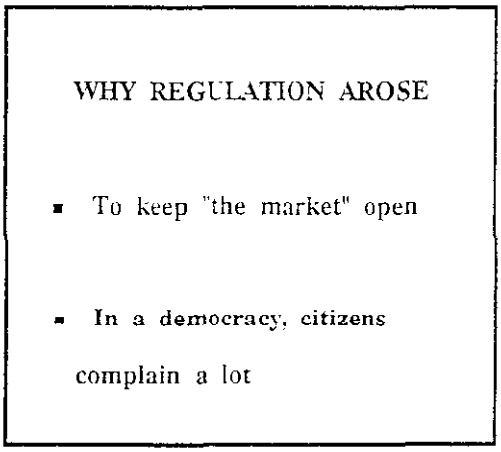

FIGURE 2.

"BG"). One winter the price goes up considerably. The citizens think that BG might have an unfair monopoly. They accuse BG of charging unfair prices. To whom can they complain, about what, and for what remedy? What defense can BG offer and how? As the legal system of the United States has evolved, the answer depends on the precise nature of the complaint and the precise nature of the business arrangements of BG.

In the simplest case, BG does all of its business in Anomaly and has no business connection to any other state in the federation. Then the government of Anomaly is the only entity to which the complaint would be directed. The complaint might be a legal matter filed before the Court of Anomaly, perhaps seeking damages for "unfair profits." But typically BG would be able to show the court that it simply charged its "cost" and had no unfair profits. And anyway, the court finds no *legal* harm; there is only a political complaint.

The suspicious citizens of Anomaly thus turn to their legislature. In the latter half of the nineteenth century, suspicious complaints such as these by citizens against railroads led the state governments of the United States to create state regulatory commissions, typically called The Railroad Commission or a like name.[1] These commissions were given "quasi-judicial" powers. That is, they were given the power of a legislature to conduct investigations, but subject to the legal protections afforded private parties in courts of law. They were also given the powers of the legislature to make public policy on matters of complaint by citizens, subject to the ability of the real legislature to pass laws that change the policies reached by the commission. These early commissions evolved into the present-day public utility commissions (as they are typically named) in 49 of the 50 United States.[2] The results of these actions are summarized in Fig. 3, which shows the typical assumptions about ownership of public utilities and the powers of regulators.

A large body of case law and of technical practice evolved to govern the

[1]The U.S. Supreme Court case that affirmed the right of a state government to regulate private property that is "affected with a public interest" was *Munn v. Illinois* (1877). This case was a dispute over the ability of the state of Illinois to regulate prices of a private grain elevator (grain storage device). Railroads were more important early in regulation; today neither railroad prices nor grain elevator prices are extensively regulated. Competition, as well as technological and cultural change, has eliminated the actual or perceived "natural monopoly" of each. Thus the political demands to regulate also decreased.

[2]Only Nebraska has no state public utility commission. Each state has its own legislation and case law that determines the duties and operations of the particular state's regulators.

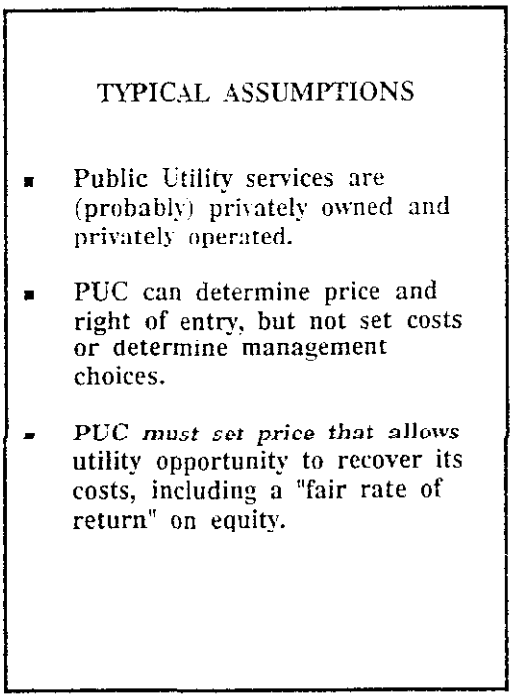

FIGURE 3.

actions of these public utility commissions (PUCs).[3] State statutes and case law now commonly assume, or require, the following: that the public utility itself is (probably) privately owned; that the PUC can decide whether a utility may enter a particular territory or offer a particular service; that the PUC can, and likely will, determine the price that the utility can charge; and that the PUC must set a price that allows the utility to have at least an opportunity to recover its actual costs. The utility, however, is not assured that it will in fact recover its costs, because no one can ensure that the utility

[3]The classical U.S. Supreme Court decisions supporting the present framework of public utility regulation in the United States are *Bluefield Water Works and Improvement Company v. Public Service Commission of the State of Virginia, et al.* 267 U.S. 67 (1923), which held that a utility was entitled an opportunity to earn a fair rate of return on investment in plant "used and useful" in its operations, and *Federal Power Commission et al. v. Hope Natural Gas Company* 302 U.S. 591 (1944), which held that establishing "just and reasonable rates" for a regulated utility includes an opportunity for the company to earn a "fair return on equity."

will actually have sales or that its services will not be made obsolete by competition or technical change.[4]

This framework solves the local political questions of regulation only if the entire business of the utility is at the local level within the state. Quite typically, however, the local utility (particularly if it is a natural gas utility or electric utility) buys some or even all of its energy supplies from outside the state. For example, historically, natural gas delivered in Chicago, Illinois was probably originally produced in wells in Texas, New Mexico, Oklahoma, or Kansas. It was then transported by pipeline across any of those states, as well as perhaps Missouri or Iowa, before delivery to Chicago. But because other states are involved, the state of Illinois could have little legal (or political) influence on the activity of the pipeline or the producer.

Eventually, the federal government therefore also evolved legal structures. These are based on the allocated duties of the federal government in interstate commerce. Interstate economic regulation first dealt with railroad matters, just as did the states.[5] But all businesses within the United States now operate within the general legal framework that monopolization, attempts to monopolize, or actions tending toward monopoly are prohibited by this federal antitrust body of law or by similar state legislation.

In 1920 the U.S. Congress established the Federal Power Commission, initially to deal with water generation of electricity.[6] But the Federal Power Commission quickly evolved (by further legislation) into a federal responsibility for all wholesale sales of electricity and all interstate transmission of electricity. In 1938 the Congress added that the Federal Power Commission would also have responsibility for interstate prices for sales for resale of natural gas and for transportation rates charged by interstate natural gas

[4]The U.S. Supreme Court in its decision in *Market Street Railway v. Railroad Commission* 324 U.S. 548 (1945) made clear that the *Hope* decision of 1944 (see footnote 3) does not protect a company made obsolete by competition. The Court found that a regulatory commission is not required to "insure values or restore values that have been lost by the operation of economic forces."

[5]There is an extensive body of federal economic regulatory legislation. The commonly cited first major law was the Act to Regulate Commerce, of 1887. This established the federal equivalent of the state railroad commission, now called the Interstate Commerce Commission. Subsequently, in the Sherman Act of 1890, the Clayton Act of 1914, and the Federal Trade Commission Act of 1914, the U.S. Congress established a general framework for regulation of acts of monopolization by private entities. These acts, their subsequent amendments, and the very large body of case law resulting are collectively known as "antitrust law."

[6]By the Federal Power Act of 1920.

pipelines.[7] In 1978 additional refinements were added to these powers and the name of the agency was changed to the Federal Energy Regulatory Commission.[8] Thus, in the United States the states regulate the local direct sale or retail prices of energy utilities, while the federal government may regulate price for wholesale sales and for long distance energy transmission.

ECONOMIC FRAMEWORK

The political and legal framework just described determines some, but not all, of the mechanics of economic regulation of public utilities in the United States. The essential institutional presumptions cited are that the public utility is privately owned and operated, that the price for utility services offered and conditions of entry for new services are set by the public regulator, and that the prices are set in some relationship to costs of the company.

Nonetheless, direct price regulation in a free economy, even in a free economy with antitrust (antimonopoly) legislation, is puzzling. Is there any technical or economic reason for such regulation?[9] There is, in fact, a reason commonly given for when public regulation of price might be either technically or economically desirable. This is when a condition known as "natural monopoly" exists.

Natural monopoly is a condition defined by the technology of the industry in question. Consider first the definition of monopoly: it is a case in which there is only one seller of a good to a particular market. In the cartoon world, any monopolist is an evil character. In the real world, monopoly can arise for any of several reasons:

1. Pernicious behavior by an overly greedy company; but in the United States, the antitrust laws are designed to control this kind of activity.
2. Exclusive grant by a government that has the authority to prohibit entry.

[7]By the Natural Gas Act of 1938.

[8]By the Public Utility Regulatory Policies Act of 1978 effecting electric regulation, by the Natural Gas Policy Act of 1978 effecting natural gas regulation, and by the Department of Energy Organization Act of 1978 placing the former Federal Power Commission in the new Department of Energy under the new name of Federal Energy Regulatory Commission.

[9]In a paper to this session in 1988, I addressed a related question: what should a regulator do if the politics of the state requires that regulation be imposed, but the regulators know that they cannot set prices any better than markets can set prices? The answer given in that paper was: the honest regulator should act to permit entry whenever possible, and then let the market act as best it can with the least further interference by the regulator.

The state and federal regulatory commissions of the United States often have this power. Similar grants may also be given as a matter of public policy, such as use of patents or copyrights (a limited-term exclusive right to use or license) to encourage invention or other creativity.[10]

3. Competition by a company that is so good at its job that other sellers voluntarily leave the field because they cannot meet its price for a similar good. In the United States, this is an allowed result as long as illegal means are not used to reach or maintain it.[11]
4. The technology of production is such that whichever seller happens to be biggest (and is at least reasonably competent) will also beat all others because of economy of scale in the production process.

Condition 4 is an example of natural monopoly. Natural monopoly is the technical term used to describe a production process in which the following equivalent conditions exist: the average cost of producing additional units continues to fall over the entire range of relevant output; the economy of scale of production is so great that one seller can sell to the entire market at a lower cost of production than can more than one seller; a single producer owns a technology which enables that producer to expand output to any increment in the market, at a lower price than any other (smaller) producer or seller could provide.

It is often believed that the basic utility services, or major features of those services, are natural monopolies because of their technology. For example, electricity can often be generated much more cheaply on a per-kilowatt-hour basis (marginal cost of production basis per unit of output) in plants consisting of larger boilers and larger generators than by use of many more but smaller plants. Similarly, if a pipeline can be made larger in diameter (and kept relatively full), then the cost is cheaper per unit of flow. This tends to make interstate pipelines and local delivery distribution pipelines apparent natural monopolies in their attached territories. Thus, for markets up to the size of cities and often to the size of larger regions, a single producer of electricity or single distributor of natural gas might become a monopolist simply because of the economy of scale in the production process.

[10]Copyrights and patents derive by acts of the U.S. Congress, and follow from direct grant of the U.S. Constitution to permit limited term exclusive rights. The bodies of patent and copyright law, as well as somewhat related state law on trade secrets, are too complex to review here.

[11]In particular, the antitrust laws do *not* prohibit the existence of monopoly as such; they only regulate the kind of behavior that is considered legal in the normal operation of business.

Natural monopoly, as such, is not "illegal." Just the reverse, if a true technical condition of natural monopoly exists, then situation 3 above would also likely result. Prosecution under antitrust laws (e.g., treating any condition 3 outcome as a condition 1 illegality) would actually be harmful to the public: if an antimonopoly prosecution were successful against a natural monopoly, the result might be artificial creation of two (or more) entities when one alone should yield a lower price and more efficient use of resources.

Thus, a rationale often given for why (the political result of) utility regulation exists in the United States is that utilities are natural monopolies. By this theory, the defined purpose of the regulator would be to keep the price of the utility as low as the technology of production would permit, thus giving the public all of the benefits of the natural monopoly. (However, the regulator includes the amount of a reasonable return on the investment of the owner of the utility as a normal cost of operation; otherwise no holder of capital would ever build the plant in the first place.)

The question of whether a condition of natural monopoly actually exists is the essential subject matter of evidence when a commission acts under situation 2. If a state or federal regulatory commission has the power to create exclusive territories, then obviously, the existence (or nonexistence) of a technical condition of natural monopoly would be an essential fact to determine before allowing such a grant.[12] This general framework for economic regulation in the United States is summarized in Fig. 4

DISCUSSION

The foregoing text gives the basic institutional and economic facts of economic regulation of public utility services in the United States today. How well does this system work? The answer, of course, depends on one's measure of performance. Many people have questioned this performance, and many changes are being considered or have recently been implemented.

By a pure economic measure, the well-being of the regulated company,

[12]There is similarly an extensive body of law which says, in effect, that an entity subject to regulation by a state or federal regulatory commission may be exempt from the antitrust laws for its regulated actions; however, the commission *itself* must apply the policies of those laws in the conduct of its certificate and price actions. Nonetheless, antitrust suits have been carried out even against regulated entities, sometimes even by other such entities.

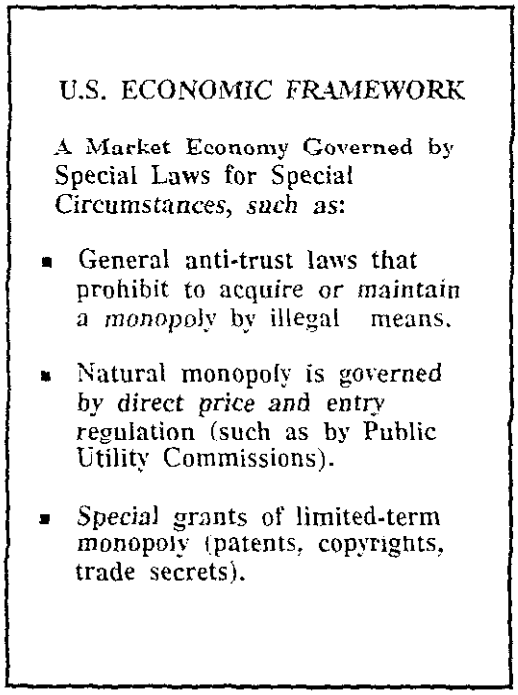

FIGURE 4.

the system historically worked well. Regulated public utilities were reputed to be generally profitable, with fairly stable capital-share prices. Thus, they were "safe" investments for owners of capital. Of course, the same economic result could occur under any of several conditions: (1) the regulators are acting perfectly and allowing only "fair" returns while limiting exclusive territories; or (2) the regulators grant such broad exclusive territories that innovation stops or seriously slows: or (3) perhaps the regulators do not know how to compute costs anyway and so are easily fooled by the companies (or badly state the price structures).

The consequences of the second condition are quite serious. For example, if a grant of exclusive territory is so large that innovation stops within it, then the natural monopoly technology becomes obsolete relative to other territories in which innovation continues. However, the local monopoly (no longer natural) caused by government regulation remains. The holder of the monopoly may be profitable, but only because of the exclusive grant, not the technology. The overall efficiency of the territory has greatly decreased relative to the territories outside. In broad terms, this may be what happened to

the telephone industry in the United States and what eventually led to the breakup of the national monopoly on telephone services in the United States. These problems are summarized in Fig. 5.

Another error may be that the regulator simply does not know how to set prices, which leads to inefficiencies by poor pricing. For example, in the natural gas industry in the United States, domestic prices to producers were long set by federal regulation at more or less the cost of the cheapest production, with no reference to the value of the product or to diversity of costs.[13] This led, eventually, to a condition of chronic shortage. This shortage was corrected by equally poor pricing legislation that assumed the market would absorb any amount of natural gas even at very high prices.[14] This, in turn,

[13]In a classic case, *Phillips Petroleum Company v. Wisconsin (1954)*, the U.S. Supreme Court found that the Natural Gas Act required the Federal Power Commission to regulate the price of natural gas produced at the wellhead, as well as the transportation rate.

[14]The effect of the Natural Gas Policy Act of 1978 was to repeal (in part) the consequences of the *Phillips* decision.

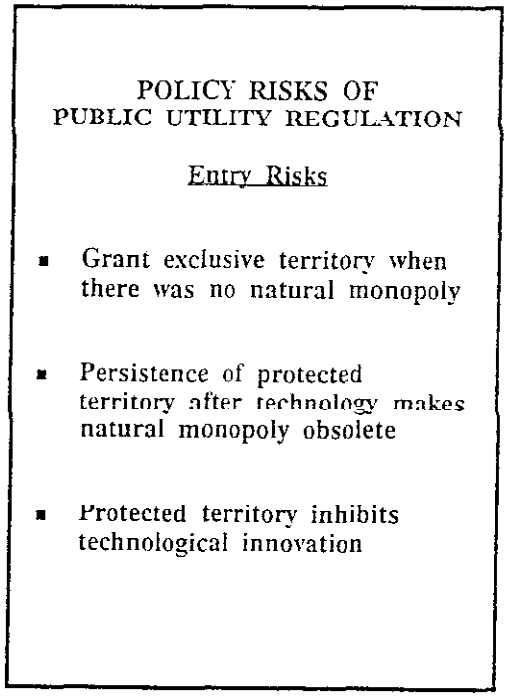

FIGURE 5.

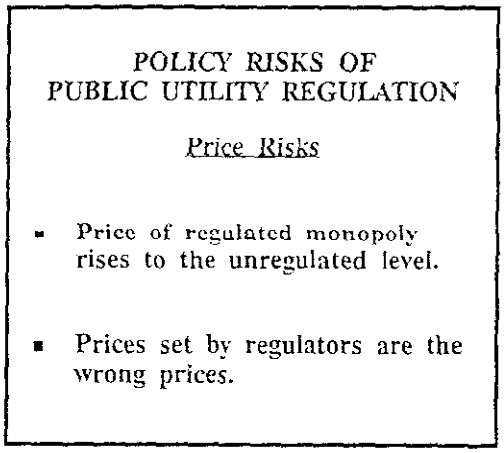

FIGURE 6.

led to a phase of "deregulation" of producer prices and to some changes in the controls on interstate transmission prices.[15] But the tensions among those who seek to use regulation to drive price up and those who would use it to drive price down (for their respective political or business purposes) remains. These problems are illustrated by Fig. 6.

There may be a lesson in these examples: even if natural monopoly exists with regard to the technology of service delivery, price regulation or grants of exclusive territory may not deliver the benefits of natural monopoly to the public. In contrast, if true natural monopoly exists technologically, this may result in an actual monopoly even without a regulator to grant exclusive rights. The existence of a (naturally) monopolized market may spur technological invention to improve on even the natural-monopoly technology.

CONCLUDING NOTES

In a 1975 doctoral thesis, Umpleby argued that "If politics is defined as the regulatory apparatus of a social system, then clearly the marketplace is a political arena, since it is a major regulator of the system for distributing

[15]Federal Energy Regulatory Commission Order No. 380 in 1983, No. 436 in 1985, and No. 500 in 1987 were all calculated to permit more extensive competition in the natural gas industry.

goods and services."[16] This paper does not define politics so broadly. Nonetheless, it has shown a relationship between political action (through legislation) and both technology and economic analysis. Even where technological or economic analysis may support regulation at a point in time, institutional inertia can unduly prolong economic controls.

Figure 7 shows two cases in which these institutional limits are encountered. The more difficult cases are those in which the regulator's purposes are not clearly defined. In the public utility industry in the United States, this is often the case. The legislative mandate to the regulator may be no more specific than to set "just and reasonable rates." Even if there is no clearly "good" economic policy to pursue, law may require the regulator to act. The regulator therefore acts more from some notion of equity than from a clearly expressed economic policy.

This raises the issue of whether direct regulation of price or of entry to an industry should be practiced in the first place. It is by no means certain that regulation is desirable even where natural monopoly exists technologically, given the difficulty of removing obsolete institutions. In the United States, the balance is continually shifting.

DISCUSSION OF BALLONOFF'S PRESENTATION

Umpleby: If U.S. public utility commissions decide "only" price and right of entry, what prevents the commissions from amassing great uncontrolled political power?

Ballonoff: There are several devices that prevent this. One is that the actions of the commissions are always subject to review by the courts, if appealed to the courts. Also, the actions of the commissions are usually themselves governed by legal or court processes. Thus, the applicant utility presents testimony by experts that what it wants is right, the staff of the commission presents its own experts on what might be good or bad about the utility's proposal and proposes alternatives, and any other affected person (company, association, industry, individual, etc.) can also present a technical case with experts and/or legal briefs. The commission must then demonstrate that it gave reasoned review to all of this evidence.

But this device itself can be fairly weak—for example, the commis-

[16]S. A. Umpleby, Some applications of cybernetics to social systems, Ph.D. Thesis, University of Illinois, 1975.

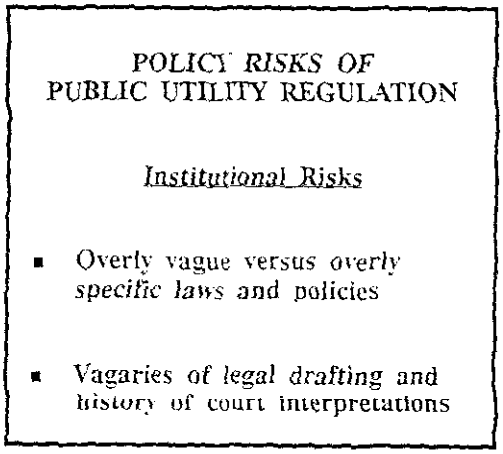

FIGURE 7.

sion might take long periods to decide issues, leading to obvious possibilities for abuse. Also, the courts might take a long time to review appeals. Thus, in most states (but not in the federal commissions) there is a legal limit to how long the commission can take to act on major issues, once a filing has been made. Usually this period is something less than a year—11 months in Illinois, 8 months in Kansas, and 5 months in Texas, for example. Also, typically, if the commission fails to act in the legal time, then the applicant utility by law is entitled to institute whatever it was asking to do.

This system tends to have problems. For example, at the state level the utility company often appears to have an advantage, because in the limited time available only the utility would be able to make a good presentation of the relevant information. At the federal level, with no time limits and a more abstract application of power, the federal commission itself often appears to have the advantage gained by administrative delay.

Some people see the public utility regulatory system as a means of regulating conflict. I usually look on it as a means of economic control, and as such it does not work very well. But as a means of regulating political conflict in an important arena, it works very well. This system undoubtedly is better than having continual civil conflict over local utility prices. The more likely alternative then would be many court cases about local utilities, or political fights over municipal control of utilities. Just such a political debate is taking place today between municipal

groups and private distribution companies over control of local distribution of natural gas in the state of Nebraska, the only state that has no state public utility commission. Nebraska long ago resolved the political debate over electric power by creating predominantly municipal entities to distribute electric power, rather than private ones. Although many municipal electric distributors exist in the United States, statewide municipal electric distribution is still rather unique.

Espejo: How has the natural gas industry changed in recent years?

Ballonoff: The natural gas industry in the United States has undergone a high degree of restructuring over the last decade, leading to a much more competitive industry. Historically, the distribution of natural gas from the wellhead to the ultimate user was regarded as a natural monopoly because of the economies of scale in the engineering characteristics of a pipeline. As a result of this presumption, another monopoly was created among the owners of the pipeline: the organizational monopoly over when and how to operate the pipeline. This actual monopoly existed for two reasons: The utility commissions typically granted pipeline companies or local distribution companies monopolies over specific territories, subject to price control of the regulator. But this arrangement had the effect of also granting the owner of the pipes monopoly control over all of the information related to which producers had gas available, what prices they were willing to sell gas for, and where customers were located.

It is the breakdown of this organizational monopoly that may have caused the need to restructure our concept of how to control the engineering monopoly. With the development of modern electronic communication systems and the data-handling abilities of electronic computers, it has become very much cheaper for individuals and organizations other than pipeline companies or local distributors to find out about the overall supply and demand in the gas market. Almost literally, anyone with a telephone and a computer (and, realistically, some financial assets) could go into business as a natural gas marketer. A fair number of businesses have done more or less that in the United States. Also, the reduction of the cost of obtaining price information from producers also led many end users simply to bypass the traditional distribution methods and contract directly with producers.

Thus, a quite viable interpretation of the recent reorganization in regulations governing U.S. pipelines at the interstate level is that it is the political result of all the changes in what information is available and to

whom. New information technologies led to changes in business activities that required changes in regulatory arrangements. These changes can best be understood through a cybernetic view of economic activity.

Espejo: Your description is very clear. Apparently, there are certain weaknesses in these structures that are a result of regulation. In your capacity as a consultant, are you concerned with the improvement of these structures? Are you concerned, for instance, with making regulation more effective?

Ballonoff: Yes. Often I am hired as a witness to evaluate a price structure or a cost structure for one side or the other in one of these cases. Also, very frequently, these commissions will look at their own policies. The federal commission, in particular, likes to look at policy. I might be asked to provide an assessment of policy for one side or the other. Also, I work for state commissions, for state governments, in analyzing their policies toward the federal commission. In fact, I have been involved quite a bit with what you might call a reform of the system. The reform was toward less total regulation. For about the last 10 years there has been a revolution in the United States toward less government regulation; at least it is stated that way. What these commissions can actually do is to effect price or right of entry. The revolution has to do with allowing freer right of entry. I have been involved quite a bit in working for the Illinois Commerce Commission, the regulator for the state of Illinois, in creating techniques that will allow the interstate natural gas market to operate more flexibly, essentially by loosening the right of entry. We have adopted techniques from antitrust law—arguments that might show up in an antitrust prosecution. We have used those arguments in a price proceeding with the regulator to show that the pipeline company has restricted markets by its pricing policies. The resolution was that there should be more right to entry.

Espejo: You gave an example of poor adaptation—technology remained old-fashioned. How do you make these companies more adaptive?

Ballonoff: The way to make a company more adaptive is to subject it to risk. That is, permit entry from others. It is a simple solution, but it works.

Kozminski: The risk must be rewarded in monetary terms, which means that the company might raise the price.

Ballonoff: That is an argument that is frequently made by the people who do not want to allow additional entry. They try to argue that there is a natural monopoly.

Kozminski: Show me where that view is wrong.

Ballonoff: Here is how that view can be wrong. In the first place, you could have the situation where the prices are high because the supplier's price to the regulated utility has gone up because the regulatory commission controls the utility company but cannot or does not control supply to that utility. But the regulated distribution monopoly has no incentive to minimize the cost from its suppliers because the regulation permits pass through of supply costs. So, what would happen if I permit entry? It becomes possible that a new entrant with a lower marginal cost comes in. Maybe it is the cost curve of the real natural monopoly. But even so we have a lower price than the regulated price, because this new cost curve is lower than the previously regulated monopolist's costs. As this example shows, even when natural monopoly technology may be present, the price we get without regulation is as good as or better than the price we can get with regulation.

Espejo: You did not comment on the case in which you do not have the chance to open up to competition, as in a natural monopoly. What do you do to improve the regulatory system?

Ballonoff: One of the reasons why you do not have a good chance to open up to competition is that the regulator does not wish to permit it. So one of the things you do is try to change that policy. Many state regulators do not like losing their power. For example, they may advocate competition at the interstate level, but not within the state. When they look at their own utilities, they are afraid of the political risk of opening the market. The typical solution given by a state commission that seeks to improve local utilities without deregulation is "least cost planning rules." A least cost planning rule is a requirement imposed by the state commission that the utility engage in a very integrated planning process. The utility must look not only at how they buy supplies and operate the system but also at how their customers use energy and things the company might do to cause the customers to use less energy, including subsidizing the use of alternative forms of energy. This is very interesting, because an unregulated monopolist who priced services in that form could risk being prosecuted under the antitrust laws for what is called predatory pricing: subsidizing one line of business below cost using revenues from other sources. So, in some ways, these least cost planning rules are not good policy. But, since these rules often arise from mistrust, not technical analysis, I think that inability to do even simple plans is one (paradoxical) reason why the states tend to impose more and more comprehensive

planning requirements. Also, in some states the commission attempts to perform the planning itself. The commission might be granted that right by a state law. Or the commission might assume the authority. For example, using legal authority to control the right of entry, a commission might attach conditions to the right of entry and thus construct the authority to perform planning.

Becker: I agree with what you say. I think there is a way to explain this to the people from Eastern Europe. I think what is interesting for people studying the American economy is that regulation in the United States is good politics and usually very bad economics. But the political side of it is worth looking at, because regulation has been very effective in defusing certain kinds of public hostility and public concern. Neoclassical economic analysts find fault with a lot of this regulation. I think what is valuable to look at is that there are many different kinds of capitalism. There are many different arrangements for regulation. And there are many kinds of markets in the United States because there are very peculiar histories, each with a very typical American solution to the problem. I am not advocating regulatory commissions. What I am suggesting is that the American case demonstrates how a system was developed for defusing the possibility of really serious conflict in markets. It is not an economical way of doing it, but it is a very good political way.

Ballonoff: What I have realized in attending this session is that there is a different way to structure my paper, and that is the way you just described—to look at these regulatory solutions as exercises in conflict resolution.