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DEREGULATORY TAKINGS AND BREACH OF THE REGULATORY CONTRACT

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Over the past century, as the regulatory state steadily expanded its reach, courts frequently addressed claims that regulatory actions amounted to an unconstitutional taking. Recently, however, legislation in the telecommunications and electric power industries have brought deregulatory concerns to the fore.

In this landmark Article, Mr. Sidak and Professor Spulber present the first detailed analysis of the interaction between the Takings Clause, deregulation, network pricing, and contract law. In the typical case of regulated industries, firms and their investors agree to bear considerable "incumbent burdens" in exchange for a regulated rate of return. Sidak and Spulber first demonstrate that this arrangement represents a regulatory contract and find that recent deregulatory measures constitute breach. The authors then argue that, whether or not a regulatory contract in fact exists, recent mandatory unbundling in the electric power industry and open-access regulation in the telecommunications field effectuate a taking without just compensation. Finally, relying on concepts such as investment-backed expectations and the efficient component-pricing rule, the authors not only demonstrate that damages would be equivalent under either contract or takings theory, but also warn that governments could face enormous liability for their deregulatory measures.

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INTRODUCTION

Since 1791 the Takings Clause of the Fifth Amendment has commanded: “[N]or shall private property be taken for public use, without just compensation.”¹ The sweeping deregulation of public utilities being proposed and implemented at the state and federal levels promises to bring the benefits of competition to markets for electric power and telecommunications. Those benefits include improvements in operating efficiencies, competitive prices, efficient investment decisions, technological innovation, and product variety. The benefits of competition, however, do not include forced transfers of income from utility shareholders to their customers and competitors as a result of asymmetries in regulation. Asymmetric regulation can only serve to impede competition and impair the financial health of public utilities. As regulators dismantle entry barriers and other regulatory restrictions, they must honor their past commitments and avoid actions that threaten to confiscate or destroy the property of utility investors on an unprecedented scale.

In this Article, we examine regulatory commitments and the potential for the deregulation of regulated network industries to cause massive takings to occur. We connect that analysis to what has, until now, been regarded as principally a technical problem in economic theory and regulatory practice: the design of efficient access pricing in those industries so that, in the new competitive environment, a public utility will have an opportunity to achieve for its investors the expected earnings associated with the former regulatory regime under which the utility made (and regulators approved as prudent) enormous investments in long-lived facilities and other specialized assets to serve its customers. We weave together here the separate threads of access-pricing theory, takings jurisprudence, and the transactions-costs analysis of voluntary exchange. The resulting fabric will help to

¹ U.S. Const. amend. V.

inform an emerging body of analysis in law and economics that might be termed the jurisprudence of network industries.

The prototypical takings case involves a physical invasion of land. It arises, for example, when the state needs a piece of private land to build a highway and commences a condemnation proceeding that results in the payment of compensation. The dramatic growth of the regulatory state, however, produced another class of takings case—the regulatory taking—in which the owner of private property is not forced to sell it to the government pursuant to a condemnation action, but rather is allowed to keep his property subject to significant constraints concerning its use issued in the name of the state's police power.² In 1922, Justice Holmes planted the seed for that legal theory when he observed in *Pennsylvania Coal Co. v. Mahon*³ that a state law making it “commercially impracticable to mine certain coal” on one's property had “very nearly the same effect for constitutional purposes as appropriating or destroying it.”⁴ By 1992, the Supreme Court considered in *Lucas v. South Carolina Coastal Council*⁵ whether environmental regulations that prevent a landowner from building homes on his beachfront parcel so diminished the value of the property as to constitute an uncompensated confiscation.

The prohibition against uncompensated takings descended from the Magna Charta.⁶ Not surprisingly, concern over regulatory takings is therefore a legal phenomenon not unique to the United States, but rather one that is manifest in other English-speaking nations that impose limitations on the state's ability to make uncompensated confiscations of property.⁷ Moreover, the significance of takings cases involving factual situations other than the physical invasion of prop-

² See *Yee v. City of Escondido*, 503 U.S. 519, 522 (1992); William A. Fischel, *Regulatory Takings: Law, Economics, and Politics* (1995).

³ 260 U.S. 393 (1922).

⁴ *Id.* at 414.

⁵ 505 U.S. 1003 (1992).

⁶ Justice Strong wrote in *Transportation Co. v. Chicago*, 99 U.S. 635 (1879), that prior decisions “were made in view of Magna Charta and the restriction to be found in the constitution of every State, that private property shall not be taken for public use without just compensation being made.” *Id.* at 642; see also William B. Stoebuck, *A General Theory of Eminent Domain*, 47 Wash. L. Rev. 553, 563 (1972). On the philosophical foundations of the Takings Clause, see Richard A. Epstein, *Takings: Private Property and the Power of Eminent Domain* 3-31 (1985).

⁷ Other English-speaking nations have constitutional or common law protections against uncompensated confiscation of property, although those protections do not correspond precisely to the Takings Clause in the U.S. Constitution. E.g., Austl. Const. § 51(xxxi) (granting Parliament power to make laws concerning “[t]he acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws”); *Mutual Pools & Staff Pty. Ltd. v. Commonwealth*, F.C., 179 C.L.R. 155 (Austl. 1994); *British Columbia Elec. Ry. v. Public Utils. Comm'n of B.C.*,

erty is certain to grow. For the time being, the Supreme Court punctuates its takings cases with the quaint reminder from its 1978 decision in *Penn Central Transportation Co. v. New York City*⁸ that “[a] ‘taking’ may more readily be found when the interference with property can be characterized as a physical invasion by government, than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good.”⁹ The Court will surely let go of that security blanket before long. As William Fischel has observed, “legal ‘property’ is not a clod of earth but a bundle of legal entitlements.”¹⁰ As value in the economy arises to a greater relative extent from intellectual property and information-based assets than from land, legal analogies to physical invasion of real property will cease to shed light on the controversies at hand.

Courts will soon face a third genre of takings cases that will make the analysis of regulatory takings seem simplistic by comparison. Regulatory change is precipitating the competitive transformation of network industries served by public utilities long presumed to be natural monopolies and subjected to extensive price regulation. The takings issue arises because those utilities assumed obligations to serve in return for the regulator’s assurance that the utilities would have the opportunity to earn a competitive return on invested capital, along with the compensation for the full cost of providing service.¹¹ Regulators protect the utility’s opportunity to earn a competitive return by controlling entry into its market, restrict the maximum earnings of the utility through rate setting, and establish service requirements through universal service, carrier of last resort, and other rules. That arrangement, known as the *regulatory contract*, enabled the regulators to reconcile their ceilings on the earnings of utilities with the requirement that, in terms of actuarially expected value, prospective investors be offered a competitive rate of return on their investments.¹² The regulator was thus said to have entered into a bargain with the public utility: In return for assuming an obligation to serve and charging not more than “just and reasonable” prices on a nondiscriminatory basis,

25 D.L.R.2d 689, 696 (Can. 1960) (determining “fair and reasonable rate of return”); *Consett Iron Co. v. Clavering Trustees*, [1935] 2 K.B. 42, 51-56 (U.K.).

⁸ 438 U.S. 104 (1978).

⁹ See, e.g., *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 426 (1982) (quoting *Penn Central*, 438 U.S. at 124).

¹⁰ Fischel, *supra* note 2, at 2.

¹¹ See generally Paul W. MacAvoy, Daniel F. Spulber & Bruce E. Stangle, *Is Competitive Entry Free? Bypass and Partial Deregulation in Natural Gas Markets*, 6 *Yale J. on Reg.* 209 (1989).

¹² Another name given that arrangement is the *regulatory compact*. Throughout this Article, we treat the regulatory contract and the regulatory compact as synonymous.

the utility was guaranteed a franchise protected by entry regulation and the opportunity to earn income sufficient to recover, and to earn a competitive rate of return on, its invested capital.

When the state maintains regulatory obligations while it simultaneously eases entry restrictions, existing utilities encounter costly competitive disadvantages, known as *incumbent burdens*.¹³ Regulators typically require public utilities to provide universal service at a fixed price, regardless of the true cost of service; to act as the carrier of last resort; or to employ production processes mandated by regulators that do not lead to minimization of cost but serve other social objectives, such as use of renewable but more costly fuels. In addition, regulation denies the public utility the pricing flexibility of the entrant, which places the utility at a competitive disadvantage. New entrants into regulated markets, of course, first target those customers whom regulators require the regulated firm to charge prices exceeding cost so that other customers may be charged prices below cost. Furthermore, new entrants may be allowed to avoid regulations that thwart the use of the least-cost production technology and in that sense may be more efficient producers than the incumbent public utility. As a consequence, when the state removes entry regulation, it will jeopardize the financial solvency of the public utility unless it simultaneously allows the utility to "rebalance" its rate structure to eliminate the implicit subsidies and unless the costs of incumbent burdens are either shared by all firms in the market or explicitly reimbursed by some third party.

In reality, however, federal regulatory agencies and state public utility commissions (PUCs)—which are subject to the Takings Clause through the Due Process Clause of the Fourteenth Amendment¹⁴—are allowing entry into regulated network industries before rates are rebalanced and the financing of special-service obligations is accomplished more efficiently and equitably. In the electricity industry,

¹³ The term *incumbent burdens* was introduced in MacAvoy, Spulber & Stangle, *supra* note 11, at 210, 224-31, in their analysis of partial deregulation of natural gas transmission. Justice Breyer has made the analogous argument with respect to the asymmetric regulation of AT&T following the breakup of the Bell System. See Stephen G. Breyer, *Antitrust, Deregulation, and the Newly Liberated Marketplace*, 75 Cal. L. Rev. 1005, 1022-24 (1987). See generally Paul W. MacAvoy, *The Failure of Antitrust and Regulation to Establish Competition in Long-Distance Telephone Services* (1996).

¹⁴ U.S. Const. amend. XIV, § 1; *Nollan v. California Coastal Comm'n*, 483 U.S. 825, 827 (1987); *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 122 (1978); *Chicago, B. & Q.R.R. Co. v. Chicago*, 166 U.S. 226, 238-39 (1897). In addition, 26 states have constitutional provisions that are stronger than the Takings Clause in that they expressly require compensation for private property "damaged" by state action (as opposed to being confiscated). See Fischel, *supra* note 2, at 87; William B. Stoebuck, *The Property Right of Access Versus the Power of Eminent Domain*, 47 Tex. L. Rev. 733, 733-34 (1969).

Congress has stimulated entry by passing the Energy Policy Act of 1992,¹⁵ which amended section 211 of the Federal Power Act¹⁶ to empower the Federal Energy Regulatory Commission to order vertically integrated electric utilities to deliver competitively generated power over their transmission lines to wholesale customers, a process known as wholesale wheeling.¹⁷ Meanwhile, regulators in California and other states have announced plans to allow the same type of transmission to retail customers, known as retail wheeling of power.¹⁸

In local telephony, even before enactment of the Telecommunications Act of 1996¹⁹ a number of states had removed all statutory entry barriers into local exchange service and toll service within a local access and transport area (LATA).²⁰ Furthermore, several states have ordered local exchange carriers (LECs) to provide interexchange carriers 1+ dialing parity for intraLATA toll calls; customers will then "presubscribe" to such service in the same manner that they subscribe to AT&T, MCI, or Sprint for long-distance calls that cross LATA boundaries.²¹ Presubscription for intraLATA toll services makes entrants more effective providers of such services, but at the same time that policy will reduce for the LEC one of its most significant revenue streams making a positive contribution to the firm's overall profitability. Other proceedings in the United States and abroad propose to require interconnection to the LEC's network or unbundled access to the LEC's basic service elements, such as

¹⁵ Pub. L. No. 102-486, 106 Stat. 2776 (1992).

¹⁶ 16 U.S.C. §§ 791-828c (1994).

¹⁷ *Id.* § 824j(a); see also Inquiry Concerning the Commission's Pricing Policy for Transmission Services Provided Public Utilities Under the Federal Power Act; Policy Statement, 59 Fed. Reg. 55,031 (1994); William J. Baumol & J. Gregory Sidak, *Transmission Pricing and Stranded Costs in the Electric Power Industry* 12-16 (1995).

¹⁸ Proposed Policies Governing Restructuring California's Electric Services Industry and Reforming Regulation, 166 Pub. Util. Rep. 4th (PUR) 1, 33 (Cal. Pub. Utils. Comm'n 1995) [hereinafter *Restructuring California's Electric Services Industry*]; Benjamin A. Holden, California Regulators Approve Plan to Deregulate Market for Power by '98, Wall St. J., Dec. 21, 1995, at A2.

¹⁹ Pub. L. No. 104-104, 110 Stat. 56 (1996).

²⁰ See, e.g., Ingo Vogelsang & Bridger M. Mitchell, *Telecommunications Competition: The Last Ten Miles* (forthcoming 1996).

²¹ See, e.g., MCI Telecommunications Corp. v. Pacific Bell, Nos. 94-12-032, 95-01-009, 1995 Cal. PUC LEXIS 458, at *32-*34 (Cal. Pub. Utils. Comm'n May 10, 1995); In re Investigation into IntraLATA Presubscription, No. 930330-TP, 1995 Fla. PUC LEXIS 1046, at *1 (Fla. Pub. Serv. Comm'n July 31, 1995); Re IntraLATA Presubscription, 160 Pub. Util. Rep. 4th (PUR) 41 (Fla. Pub. Serv. Comm'n 1995); In re MCI Telecommunications Corp., 160 Pub. Util. Rep. 4th (PUR) 19 (Mich. Pub. Serv. Comm'n 1995); Re City Signal, Inc., 159 Pub. Util. Rep. 4th (PUR) 532 (Mich. Pub. Serv. Comm'n 1995); In re A Complaint and Petition for an Order Requiring IntraLATA Equal Access in the Exchs. of Ameritech Wis., No. 6720-TI-111, 1995 Wisc. PUC LEXIS 24, at *1-*6 (Pub. Serv. Comm'n of Wis. July 25, 1995).

switches, customer loops, data bases, and network software used to produce "enhanced services" such as call waiting and call forwarding.²² Early experience from New Zealand²³ and from state proceedings in Ohio and Illinois²⁴ suggests that such proceedings will be contentious, because the access charge that is ultimately set has the potential to subsidize entry and penalize incumbency, or vice versa. In two 1995 decisions, regulators in California and Washington summarily rejected the argument that a "bill and keep" system of reciprocal compensation between interconnected local telephone companies amounted to a taking of the incumbent's property because the volume of calls in its direction grossly outnumbered those originating on its system and terminating on the entrant's.²⁵

When the incumbent firm has cast interconnection as a physical invasion of property, the takings argument has received greater attention. In 1994, the U.S. Court of Appeals for the District of Columbia Circuit overturned a Federal Communications Commission rule, as exceeding the agency's authority, that ordered unbundling of the local loop and physical or virtual co-location of competitors' transmission

²² See, e.g., *In re Alternative Regulatory Frameworks for Local Exch. Carriers*, Decision No. 95-08-022, 1995 Cal. PUC LEXIS 628 (Cal. Pub. Utils. Comm'n Aug. 11, 1995); *Re Competition for Local Exch. Serv.*, 163 Pub. Util. Rep. 4th (PUR) 155 (Cal. Pub. Utils. Comm'n 1995); *In re Commission's Own Motion to Establish Permanent Interconnection Arrangements Between Basic Local Exch. Serv. Providers*, No. U-10860, 1995 Mich. PSC 226, at *11-*12 (Mich. Pub. Serv. Comm'n Sept. 21, 1995); *Re City Signal, Inc.*, 164 Pub. Util. Rep. 4th (PUR) 166 (Mich. Pub. Serv. Comm'n 1995); Alexander Arena of the Telecommunications Authority of Hong Kong, Statement No. 6 Regarding Interconnection Configurations and Basic Underlying Principles, Interconnection and Related Competition Issues (June 3, 1995); Alexander Arena of the Telecommunications Authority of Hong Kong, Statement No. 7 Regarding Carrier-to-Carrier Charging Principles, Interconnection and Related Competition Issues (June 10, 1995); Alexander Arena, Telecommunications Authority of Hong Kong, Statement No. 8 Regarding Points of Interconnection, Interconnection and Related Competition Issues (June 10, 1995). See generally Alexander C. Larson, *Reforming Telecommunications Policy in Response to Entry into Local Exchange Markets*, 18 *Hastings Comm. & Ent. L.J.* 1 (1995); Alexander C. Larson, William E. Kovacic & Douglas R. Mudd, *Competitive Access Issues and Telecommunications Regulatory Policy*, 20 *J. Contemp. L.* 419 (1994).

²³ See *Telecom Corp. of N.Z. Ltd. v. Clear Communications Ltd.*, [1995] 1 N.Z.L.R. 385 (P.C. 1994); see also William J. Baumol & J. Gregory Sidak, *The Pricing of Inputs Sold to Competitors: Rejoinder and Epilogue*, 12 *Yale J. on Reg.* 177 (1995) (discussing New Zealand interconnection litigation).

²⁴ See Thomas E. Weber, *AT&T Accuses Ameritech of Charging Unfair Prices to Resell Local Services*, *Wall St. J.*, Dec. 26, 1995, at B2 (pricing of resale of basic service elements in Illinois); Thomas E. Weber, *Time Warner Seeks Mediation in Talks with Ameritech*, *Wall St. J.*, Dec. 27, 1995, at 17 (cable-television company asking Ohio regulators to mediate interconnection pricing).

²⁵ *Washington Utils. & Transp. Comm'n v. U S West Communications, Inc.*, Nos. UT-941464, -941465, -950146, -950265, 1995 Wash. UTC LEXIS 47, at *21-*22, *71-*80 (Wash. Utils. & Transp. Comm'n Oct. 31, 1995); *Re Competition for Local Exchange Service*, 165 Pub. Util. Rep. 4th (PUR) 127, 134 (Cal. Pub. Utils. Comm'n 1995).

equipment on the premises of the incumbent local exchange carrier.²⁶ In 1995, the Oregon Supreme Court held that the state public utility commission violated the Takings Clause of the U.S. Constitution when it ordered co-location on LEC premises of enhanced-service providers as part of the commission's policy on open network architecture.²⁷ Generally, however, state PUCs have dismissed the possibility that their policies of interconnection or unbundling may violate the Takings Clause.²⁸ The Telecommunications Act of 1996²⁹ includes numerous instances of mandatory unbundling, many of which will surely prompt takings challenges if, as seems inescapable, they entail either physical invasion of facilities or demands from entrants for the incumbent regulated firm to offer such access at uncompensatory prices, whether or not such access is deemed to be a physical invasion.

It is easy to cheer the arrival of competition to industries where it previously has been discouraged or forbidden by law. But the predictable appeal that competition holds for legislators and regulators should not obscure the fact that the transition from regulated monopoly to competition, like the transition from dirty air to clean, is not free. The advent of competition in local telephony and the electric power industry will preclude the recovery, through market-determined prices, of the costs that incumbent burdens entail for public utilities. The potential magnitude of that phenomenon is staggering. Electric utilities alone may face \$200 billion or more in "stranded costs" as a result of the growth of independent power producers and the advent of wholesale and retail wheeling.³⁰ That is a public policy challenge at least as large as the savings and loan cleanup. Not surprisingly, state and federal regulators are already addressing the prob-

²⁶ *Bell Atl. Tel. Cos. v. FCC*, 24 F.3d 1441, 1445 (D.C. Cir. 1994) (noting that FCC's order of physical co-location "directly implicates the Just Compensation Clause of the Fifth Amendment, under which a 'permanent physical occupation authorized by government is a taking without regard to the public interests that it may serve'" (quoting *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 426 (1982))).

²⁷ *GTE Northwest, Inc. v. Public Util. Comm'n*, 900 P.2d 495 (Or. 1995), cert. denied, 116 S. Ct. 1541 (1996).

²⁸ See, e.g., *Intermedia Communications of Fla., Inc.*, No. 921074-TP, 1994 Fla. PUC LEXIS 290, at *8-*9 (Fla. Pub. Serv. Comm'n Mar. 10, 1994).

²⁹ Pub. L. No. 104-104, 110 Stat. 56 (1996).

³⁰ See *Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Notice of Proposed Rulemaking, 59 Fed. Reg. 35,274, 35,278 (1994) (reporting estimates from tens of billions of dollars to \$200 billion); American Bar Ass'n, Annual Report, Section of Public Utility, Communications and Transportation Law 188 (1994) (\$300 billion estimate); NARUC Eyes Stranded Investment Jurisdictional Issues, *Energy Rep.*, Mar. 7, 1994, at 129-30 (reporting \$200 billion to \$300 billion estimate by an investor-owned utility's vice president of corporate strategic planning). See generally Baumol & Sidak, *supra* note 17, at 98-114; William J. Baumol & J. Gregory Sidak, *Stranded Costs*, 18 *Harv. J.L. & Pub. Pol'y* 835, 836 (1995).

lem of stranded-cost recovery in the electric power industry. Critical questions in that policy debate include how stranded costs are defined, how they are measured, and what percentage of such costs shall be borne by the utility's shareholders. Some state PUCs, such as California's, have announced that electric utilities may recover one-hundred percent of nonmitigable stranded costs—through a nonbypassable competition charge, although at a reduced rate of return on investment to reflect the reduced degree of risk that utilities supposedly will face in recovering those costs.³¹ Other state PUCs have advocated shareholder recovery of a lesser percentage. New Hampshire, for example, has proposed that shareholders of franchised electric utilities bear fifty percent of the burden of stranded costs caused by retail wheeling.³²

But in local telephony, where substantial competitive entry is likely to occur before 2000, state and federal regulators are only beginning to address the issue of stranded costs. Indeed, at least one state regulator, the California Public Utilities Commission, has refused to consider testimony on the takings question in its proceedings on competition in local telephony until *after* it has ordered mandatory unbundling by that state's local exchange carriers.³³

In Part I of this Article, we review the basic economic issues associated with deregulation of the network industries served by public utilities, particularly the telecommunications and electric power industries. We consider the effects of deregulation on stranded costs and the consequences of mandatory unbundling and open-access regulation.

In Part II, we show that the regulatory contract represents a meeting of the minds no more ambiguous than typical commercial contracts between private parties. The state cannot credibly assert that it owes no remedy to the utility when the state breaches the regulatory contract while adopting policies that promote competitive entry. We next examine the utility's remedy for the regulator's breach of the regulatory contract, which we show to be the standard remedy for breach of any contract: damages for lost expectations. If a regulator permits entry into a network industry served exclusively by a regu-

³¹ Restructuring California's Electric Services Industry, *supra* note 18, at 10.

³² Retail Competition Pilot Program, Order Establishing Final Guidelines and Requesting Compliance Filings, No. DR 95-250, Order No. 22,033, at 13 (N.H. Pub. Utils. Comm'n Feb. 28, 1996) (on file with authors).

³³ Administrative Law Judge's Ruling Clarifying the Scope of Phase II Testimony, Order Instituting Rulemaking on the Commission's Own Motion into Competition for Local Exchange Service, R.95-04-043, Order Instituting an Investigation on the Commission's Own Motion into Competition for Local Exchange Service, I.95-04-044, at 5-7 (Cal. Pub. Utils. Comm'n Oct. 5, 1995) (on file with authors).

lated public utility while leaving the utility's incumbent burdens in place, the regulator will have confiscated the wealth of the utility's shareholders. The regulator will have denied those shareholders the benefit of their bargain with the regulator—that is, their expectation under the regulatory contract. As a matter of economic theory, that remedy will always equal or exceed the amount of the public utility's stranded costs. If the regulator fails to introduce a mechanism by which the public utility can recover its stranded costs, the regulator will have denied the utility the ability to maintain financial solvency.³⁴

We further analyze the public utility's duty to mitigate damages for breach of that contract. We examine whether the regulator would have a plausible defense to breach of contract on a theory of either mistake or impossibility, and we show what the measure of restitution to the regulated utility would be if a court were to set aside the regulatory contract on such a theory. Finally, if the relationship between the state and public utility is deemed *not* to be a contract, but rather at most a gratuitous or donative promise made to the utility by the state, we examine the legal and economic arguments for the utility's recovery of its cost of detrimental reliance, which turns out to be an amount no less than its stranded costs, under the common law doctrine of promissory estoppel.³⁵

In Part III, we consider property protections for investment in public utilities. Even if one refuses to recognize that the regulatory contract is enforceable as a matter of contract law, the abnegation of that relationship between the regulator and the public utility (whatever legal name one chooses to attach to it) effects a taking of private property for public use—namely, the promotion of competition in a regulated industry—without just compensation. In that case, however, it is not an expanding regulatory state that has worked the taking, but a receding one. For that reason, we call that form of confiscation of private property a *deregulatory taking*.³⁶

³⁴ See, e.g., Agis Salpukas, *New York State Utility Seeks Sweeping Changes*, N.Y. Times, Oct. 7, 1995, at 35; Fred Vogelstein, *Electric Utility Bond Holders Face More Risk*, Wall St. J., Nov. 24, 1995, at C1 (reporting that Niagara Mohawk Power, with \$4.2 billion in debt outstanding, is considering declaring bankruptcy).

³⁵ Just as there is a regulatory contract, so also is it conceivable that the state could commit regulatory *torts*, such as trespass, interference with contractual or prospective economic advantage, and fraud. To keep the scope of this Article manageable, however, we confine our analysis to theories of contract and property.

³⁶ A deregulatory taking is thus an important example of the compensable transformation of economic institutions that William Fischel describes:

Just compensation is a means of smoothing out transformations in the economy, whether they be for internal improvements or for institutional change. The Takings Clause serves both as a check to excessive public enthusiasm (since money must be paid) and as a facilitator (since property must be

We show that, under three separate lines of Supreme Court cases, the appropriate measure of damages for a deregulatory taking is the public utility's expectation of its forgone net benefit *if the state were to abide by the regulatory contract*.³⁷ As a matter of economic theory, that amount cannot be less than the opportunity cost of the utility's property under the state's continued adherence to the regulatory contract. That result holds whether one casts a deregulatory taking as a physical invasion of property, as a confiscatory setting of public utility rates, or as a noninvasive regulatory taking. Indeed, we show that the reasoning in the major decisions on regulatory takings applies with greater force to deregulatory takings in regulated industries than it does to the typical case of land-use or environmental restrictions imposed on real property. In particular, regulatory takings cases stress the "investment-backed expectations" of the private property owner.³⁸ That consideration is analogous to the reasonable-expectation interest of the public utility when it placed in service a long-lived, nonsalvageable asset (such as an electricity generation plant or a telecommunications loop or a transmission line) or made similar kinds of nonsalvageable investments giving rise to stranded costs.

In Part IV, we review the *efficient component-pricing rule*, which specifies that the price of network access must include all opportunity costs incurred by the supplier in providing the product—that is, all potential earnings that the supplying firm forgoes, either by providing inputs of its own rather than purchasing them, or by offering services to competitors that force it to relinquish business to those rivals, and thus to forgo the profits on that lost business. The rule requires that the price of a unit of access to an incumbent's network should equal its average incremental cost, including all pertinent incremental op-

surrendered). But it does not prohibit change. Thus if Hawaii wants to reject some of its anachronistic landholding system, there should be no bar to its doing so if compensation is made. It isn't just roads and post offices that qualify as public goods; economic institutions do, too.

Fischel, *supra* note 2, at 73 (referring to Hawaii Hous. Auth. v. Midkiff, 467 U.S. 229 (1984)).

³⁷ We confine our analysis to the Takings Clause of the U.S. Constitution. Analogous provisions in the state constitutions, some of which predate the Fifth Amendment, may offer even stronger protections against uncompensated confiscations of property. See, e.g., Burrow v. City of Keene, 432 A.2d 15, 18 (N.H. 1981) ("[T]he New Hampshire Constitution makes explicit what is implicit in the Fifth Amendment to the Federal Constitution, namely, that 'no part of a man's property shall be taken from him . . . without his consent . . .'" (emphasis in original) (quoting N.H. Const. pt. 1, art. 2)).

³⁸ Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978).

portunity costs.³⁹ A number of regulatory bodies have considered or are considering the use of the rule in connection with the deregulation of electricity and local telephony markets.⁴⁰

In Part V, we introduce and explain the *equivalence principle*. It posits that an equivalence exists between the following concepts: (1) the expectation-damages remedy for breach of the regulatory contract; (2) the calculation of just compensation for a deregulatory taking; (3) the change in the financial value of the regulated public utility as a consequence of regulatory change; and (4) the access price that would promote efficient interconnection, resale, and unbundling in network industries opened to competition. The rule that accomplishes those simultaneous goals is the efficient component-pricing rule. In all four cases, the critical insight for courts and regulators to grasp is that the law protects *expectations*, for the essential reason that expectations determine decisions and actions in a market economy. One important implication of the equivalence principle for current regulatory proceedings is that, for any given rate structure, an interconnection price will be confiscatory under the Takings Clause unless that price is computed in a manner that promotes only *efficient* entry into the market at issue. That result is not limited to the Takings Clause of the U.S. Constitution, but rather applies as a matter of fundamental legal and economic logic to any jurisdiction that by constitution, statute, regulation, or common law recognizes an individual's right to just compensation when the state confiscates her property for a public purpose.

In Part VI, we examine several implications of efficient capital markets for the recovery of damages or other remedies by the public utility in response to a deregulatory taking. First, we examine the argument that shareholders of the public utility have already been compensated, in the cost of capital that regulators have allowed the utility to earn, for the risk that the regulator will breach the regulatory contract before the utility has had enough time to recover the cost of nonsalvageable assets that the utility put into service in detrimental reliance on that regulatory contract. We show that this argument is improbable as a matter of economic theory.

³⁹ See William J. Baumol & J. Gregory Sidak, *Toward Competition in Local Telephony* 93-116 (1994) [hereinafter Baumol & Sidak, *Toward Competition in Local Telephony*]; William J. Baumol & J. Gregory Sidak, *The Pricing of Inputs Sold to Competitors*, 11 *Yale J. on Reg.* 171, 178-89 (1994) [hereinafter Baumol & Sidak, *The Pricing of Inputs Sold to Competitors*].

⁴⁰ E.g., *Telecom Corp. of N.Z. Ltd. v. Clear Communications Ltd.*, [1995] 1 N.Z.L.R. 385 (P.C. 1994).

Second, we analyze the Supreme Court's current rule that a statute that diminishes property value is not ripe for challenge on takings grounds until the state has actually enforced the statute against the property owner. That rule, we argue, is naive because it ignores that an efficient market, such as the equities market in which the common stocks of electric utilities and telephone companies are traded, impounds the value of regulatory change (including breach of the regulatory contract by the regulator) into the relevant stock prices as soon as information becomes publicly available. The taking thus occurs when the state signals its abrogation of the regulatory contract, not when that abrogation subsequently takes official effect. Delaying the litigation of takings claims based on abrogation of the regulatory contract will lead not only to inefficient resource allocation, but also to the unjust enrichment of the wrong set of utility shareholders.

Third, we show why it is myopic for competitive entrants into the market formerly served on an exclusive basis by the public utility to oppose its recovery of stranded costs. Fourth, we critique an anarchic argument made for not allowing recovery of stranded cost.

In Part VII, we demonstrate how the problem of recovering stranded costs differs under public rather than private ownership. That analysis has special relevance to nations that are contemplating the privatization of a network industry in which stranded costs might accompany the introduction of competition.

In Part VIII, we consider the principles that limit a person's right to receive compensation for changes in regulation that diminish a firm's value. Would the repeal of agricultural price supports, for example, give rise to a valid takings claim by farmers? The answer, we argue, lies in the unique character of the regulatory contract into which public utilities and the state have entered. It is both feasible and necessary for courts to distinguish between firms that have entered into an explicit or implicit contract with the state and firms that have merely obtained regulation or legislation that has created for them the ability to earn economic rents without any countervailing *quid pro quo*.

I

DEREGULATION AND NETWORK PRICING

The competitive transformation of local exchange telecommunications and the electric power industry raises significant takings questions about whether regulators should give a public utility the opportunity to recover its stranded costs. As regulators mandate the unbundling of basic network elements in local telephony or mandate

wholesale and retail wheeling in the electricity industry, they introduce competition that denies a utility the opportunity to recover the cost of service; at the same time, those regulators often leave untouched the utility's preexisting incumbent burdens. Such regulatory action threatens to confiscate private property—namely, shareholder value—for the promotion of competition, without just compensation. In this section, we address the major issues giving rise to the problem of deregulatory takings.

A. *Natural Monopoly and Network Industries*

A given production technology is said to exhibit the property of *natural monopoly* if a single firm can supply the market at lower cost than can two or more firms.⁴¹ That textbook definition of natural monopoly is based on a cost function that assigns total costs to outputs. The cost function has the natural monopoly property if a firm with that cost function has lower costs than would an allocation of output among two or more firms *using the same cost function*. If the technology of local telephony or of electricity generation and transmission exhibits natural monopoly characteristics, then a single firm can construct and operate that network at a lower cost than can two or more firms.

Several aspects of the definition of natural monopoly deserve special attention. That definition begins with a *known technology*, as represented by the natural monopoly cost function. To assert that an industry is characterized by natural monopoly, one implicitly assumes that there is a single “best” technology that is commonly known, that all firms would have access to that technology, and that all firms operating that technology would be at the efficient production-possibility frontier.⁴² In particular, the natural monopoly cost function is a long-run cost function, so that investment can be adjusted to achieve the efficient level of capital investment required for operating at minimum cost for each output level.

Based on the standard definition, a cost function has the natural monopoly property if the technology exhibits *economies of scale* over the relevant range of output. In particular, economies of scale are

⁴¹ See William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and the Theory of Industry Structure* 8 (rev. ed. 1988); Sanford V. Berg & John Tschirhart, *Natural Monopoly Regulation: Principles and Practice* 22 (1988); Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 295-96 (2d ed. 1994); Roger Sherman, *The Regulation of Monopoly* 80-81 (1989); Daniel F. Spulber, *Regulation and Markets* 3 (1989); Jean Tirole, *The Theory of Industrial Organization* 19-20 (1988); Kenneth E. Train, *Optimal Regulation: The Economic Theory of Natural Monopoly* 6-8 (1991).

⁴² Spulber, *supra* note 41, at 138.

said to be present if the marginal costs of production are less than the average costs of production over the relevant range of output.⁴³ Stated differently, economies of scale are said to exist over the relevant range of output when unit costs decline with the volume of production. Economies of scale are a sufficient condition for natural monopoly for a single-product firm.

Economies of scale can be due to many different technological factors. *Fixed costs* are a source of economies of scale that is particularly significant to industries that require networks, such as telecommunications, electricity, railroads, oil and natural gas pipelines, and water services. Fixed costs are costs that do not vary with fluctuations in output, unlike operating or "variable" costs. The fixed costs of establishing a network system are the costs of facilities such as transmission lines, which are not sensitive to the level of transmission on the lines.

The need to avoid *duplication of facilities*, particularly duplication of the fixed costs of the network system, is an important component of the natural monopoly argument for the regulation of most network industries. The argument is that, because costs are minimized by not duplicating network infrastructure, regulators should bar the entry of competing carriers. This argument has been put forward in a wide range of regulated industries in which transmission or transportation facilities are a significant portion of total costs.

B. *Stranded Investment and Stranded Costs*

As the preceding discussion indicates, regulated network industries such as telecommunications and electric power involve substantial sunk costs. Those costs reflect nonrecoverable, market-specific investments. Ordinarily, sunk costs do not affect business decisions, which are only concerned with available benefits and avoidable costs. To base future decisions on those costs is known as the "fallacy of sunk costs." Nonetheless, the regulatory treatment of stranded costs can have important distributional consequences and can affect incentives for the public utility to make future investments in highly specific and nonsalvageable assets. In that respect, neglect of cost recovery

⁴³ The firm's average-cost function refers to the cost per unit of output evaluated at each output level. The firm's marginal-cost function refers to the additional cost of producing one more unit of output, evaluated at each level of output. Economies of scale are not necessary for natural monopoly. The natural monopoly property can be present at an output level at which the cost function exhibits decreasing returns to scale. See Spulber, *supra* note 41, at 115-18; see also Carlton & Perloff, *supra* note 41, at 58-63.

would be ill-advised because it could profoundly affect the outcome of the repeated-play game between the public utility and its regulator.⁴⁴

By opening regulated markets to competition, regulators can reduce the earnings of the incumbent public utilities. The capital equipment and other facilities of those utilities may not be suited to the changing requirements of competitive markets. Moreover, competitive rules designed by regulators seeking to "manage" the transition to competition may handicap incumbent public utilities relative to new entrants. Those changes in regulatory policy can reduce the regulated firm's net revenues and deny its investors an opportunity to earn a fair return on their investments made under the previous regulatory regime. Those changes also prevent the utility's shareholders from having a return of their invested capital when the utility retires from service the assets that such capital was used to acquire. That inability of utility shareholders to secure return of, and a competitive rate of return on, their investment gives rise to the condition known as stranded investment or stranded costs.⁴⁵

As we shall demonstrate in Part II, one can measure stranded costs as the anticipated shortfall in net revenues under competition as a consequence of changes in regulatory policy. Although private contracts and the regulatory contract are not identical forms of agreements, economic analysis of the common law of contracts illuminates the correct way to measure stranded costs and the best approach to recovery of stranded costs by applying basic principles from private contracts. We shall argue in Part II that the regulatory contract protects the utility's opportunity to earn a competitive return on investments that it made to discharge its obligation to serve.

C. *Incumbent Burdens*

As a market served exclusively by a public utility is opened to competition, regulators create the possibility of stranded costs if they retain or impose different regulations on the incumbent utility in com-

⁴⁴ On the relationship of reputation to repeated games, see David M. Kreps, *A Course in Microeconomic Theory* 531-36, 764-67 (1990). In this Article and in our previous writings, we emphasize that the relationship between the regulated firm and its regulator is a bargaining situation. That is, the relationship is not, as it is sometimes characterized, either a setting in which the regulator imposes exogenous rules on passive firms or a setting in which a passive regulator is "captured" by the firms that it ostensibly regulates.

⁴⁵ More precisely, stranded investment is a subset of stranded costs. The latter includes expenditures (such as the mandatory purchase of energy at the utility's avoided cost but above the market price of such energy) that are not capital investments in physical plant per se, but which nonetheless reflect outlays required by regulators that cannot be recouped in the presence of competitive entry. Throughout this Article, we shall use the broader concept of stranded costs.

parison with those imposed on actual and potential entrants. Such regulatory differences cause *greater* costs to be placed on the incumbent public utility than on entrants. Incumbent burdens encourage or even subsidize some forms of entry and create the potential for *uneconomic bypass*.⁴⁶ Uneconomic bypass is said to occur if entry raises the total industry costs of providing a given level of service; such bypass can result from subsidies to entrants or from asymmetric regulation of incumbent public utilities and entrants.⁴⁷ An incumbent burden is the opposite of an entry barrier in the sense that the former facilitates entry and bypass of the existing network even if such bypass would be uneconomic in the absence of the regulations. Stated differently, incumbent burdens are analogous to the phenomenon of "raising rivals' costs,"⁴⁸ except that in an industry subject to public utility regulation the "rival" whose cost is being raised is the incumbent public utility rather than the entrant. Thus, the raising of a rival's cost is a method not of facilitating inefficient exclusion from a market, but of facilitating inefficient entry into it.

In telecommunications, for example, the regional Bell operating companies (RBOCs) face a variety of regulatory restrictions (including common-carrier provisions, universal-service requirements, and public filing of rates) that are generally not imposed on new entrants. In most major markets in the United States, the local exchange carrier is either one of the seven RBOCs or GTE, a firm comparable in size to any given RBOC but never part of the former Bell System.⁴⁹ Other restrictions on the RBOCs create lower limits on certain tariffs, which limit the RBOCs' ability to compete with entrants and which provide a tariff umbrella for competitors. The regulated rate structure of the RBOCs, with high rates charged to business customers, has created opportunities for selective bypass of the local network, particularly by competitive access providers such as Metropolitan Fiber Systems and Teleport Communications Group, which principally serve large business customers.⁵⁰

⁴⁶ See MacAvoy, Spulber & Stangle, *supra* note 11, at 209-10.

⁴⁷ See *id.*

⁴⁸ Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 *Yale L.J.* 209, 209 (1986).

⁴⁹ See generally Michael K. Kellogg, John Thorne & Peter W. Huber, *Federal Telecommunications Law* 211-20, 402-05 (1992).

⁵⁰ Affidavit of Glenn A. Woroch at 8-12, *United States v. Western Elec. Co.*, No. 82-0192 (D.D.C. filed July 6, 1994) (Affidavit dated June 27, 1994, submitted on behalf of Motion of Bell Atlantic Corporation, BellSouth Corporation, Nynex Corporation, and Southwestern Bell Corporation to Vacate the Decree); MFS Communications Co., Inc., 1995 SEC Form 10-K, at 8-9 (1995).

The inefficiencies created by incumbent burdens suggest that market entry of competitors should be accompanied by a lifting of uneven restrictions placed on the RBOCs. By removing those restrictions, regulators would eliminate artificial handicaps arising from regulation. That would allow an RBOC to respond to competitive challenges through its strategies for pricing, investment, and innovation. Entry would reflect competitive considerations instead of regulatory restrictions on the incumbent public utility.

1. The Regulatory Quarantine

Quarantines, such as the line-of-business restrictions formerly imposed by the Modification of Final Judgment (MFJ) that broke up the Bell System, constitute a significant incumbent burden for the RBOCs.⁵¹ An RBOC is placed at a competitive disadvantage relative to entrants that can offer a bundle of services and thereby provide customers the convenience of "one-stop-shopping." The RBOC is also deterred from entry into markets that could generate revenues for the firm, while competitors are not denied access into those markets.⁵² Because the line-of-business restrictions deny the RBOCs the opportunity to earn revenues that their competitors may earn, the RBOCs are placed at a competitive disadvantage overall. Moreover, the RBOCs are denied returns to their technological expertise and market knowledge. That impediment further places them at a competitive disadvantage in comparison with actual and potential competitors in the local exchange. In the absence of the line-of-business restrictions, the RBOCs would be able to compete in any telecommunications market as actual or potential entrants.

The incumbent burden created by a regulatory quarantine has three dimensions. First, the public utility subject to the quarantine is denied economies of scope or of vertical integration. Second, the utility is denied marketing benefits and transactions-costs savings derived from bundling services, thus creating disadvantages relative to en-

⁵¹ See generally Kellogg, Thorne & Huber, *supra* note 49, at 291-342; MacAvoy, *supra* note 13, at 175-200.

⁵² The principal rationale for the quarantine is the fear (under cost-of-service regulation) of cost misallocation by an RBOC from regulated to unregulated products and a related fear that such misallocation would enable the RBOC to engage in predation against rivals in the unregulated market. For critiques of the plausibility of that theory, or of the need to resort to a quarantine to prevent the perceived competitive risk, see MacAvoy, *supra* note 13, ch. 6; Paul S. Brandon & Richard L. Schmalensee, *The Benefits of Releasing the Bell Companies from the Interexchange Restrictions*, 16 *Managerial & Decision Econ.* 349-64 (1995); J. Gregory Sidak, *Telecommunications in Jericho*, 81 *Cal. L. Rev.* 1209, 1216-22 (1993) (book review); Daniel F. Spulber, *Deregulating Telecommunications*, 12 *Yale J. on Reg.* 25 (1995).

trants who can offer such bundles. Third, with respect to its entry into adjacent markets, the utility in effect is subjected to an antitrust rule of per se illegality rather than a rule of reason having a market-power screen and an efficiency defense. Under the rule of reason, of course, the plaintiff must prove that the firm restraining trade possesses market power⁵³ and that the anticompetitive effects of the firm's restraint outweigh its procompetitive effects.⁵⁴ The incumbent burdens thus created by line-of-business restrictions illustrate how regulation can create a competitive disadvantage rather than an advantage for incumbent regulated firms such as the RBOCs.

2. *Implicit Income Transfers Embedded in the Rate Structure*

Rate regulations that involve cross-subsidization and other rate-structure distortions also create incumbent burdens. New entrants generally target the highest-margin customers. Frequently, those are the customers whom regulators require the incumbent utility to charge prices exceeding cost so that other customers may be charged prices below cost.

The traditional economic rationales for regulating an industry are the existence of natural monopoly or the presence of externalities.⁵⁵ Some telecommunications regulations, such as policies promoting universal service, are justified as a means to capture for consumers as a whole the benefits of "network externalities" that accrue as the size of the network grows.⁵⁶ Such externalities will vary with both the number of consumers having access to the network and the amount by which each consumer uses the network. Network externalities become less important as more and more subscribers are connected to

⁵³ Market power is "the power to control prices or exclude competition." *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956). It is "the ability to raise prices above those that would be charged in a competitive market." *NCAA v. Board of Regents of the Univ. of Okla.*, 468 U.S. 85, 109 n.38 (1984); accord *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 27 n.46 (1984); William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 *Harv. L. Rev.* 937, 937 (1981). The Supreme Court has imposed the market-power screen in a variety of contexts. See, e.g., *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 224-26 (1993); *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 460 (1986) ("[T]he purpose of the inquiries into market definition and market power is to determine whether an arrangement has the potential for genuine adverse effects on competition . . ."); *Northwest Wholesale Stationers, Inc. v. Pacific Stationery & Printing Co.*, 472 U.S. 284, 296 (1985).

⁵⁴ See, e.g., *NCAA*, 468 U.S. at 98-102; *Broadcast Music, Inc. v. Columbia Broadcasting Sys., Inc.*, 441 U.S. 1, 18-23 (1979).

⁵⁵ The following discussion draws from Robert W. Crandall & J. Gregory Sidak, *Competition and Regulatory Policies for Interactive Broadband Networks*, 68 *S. Cal. L. Rev.* 1203 (1995).

⁵⁶ See, e.g., Lester D. Taylor, *Telecommunications Demand in Theory and Practice* 9 (1994).

the network. With respect to the narrowband network for voice telephony, once subscription rises to more than ninety-five percent of all households, the remaining positive externalities that may be achieved on the margin surely become quite small.

The more pervasive economic justification for regulating local telephony or electricity generation, transmission, and distribution is natural monopoly that derives from economies of scale and scope. But, as we demonstrated earlier, that justification may lose its persuasiveness over time. What was once a naturally monopolistic method for delivering a particular kind of telecommunications service may be supplanted by a lower-cost method that does not necessarily have large sunk costs and low incremental costs.⁵⁷ That kind of transformation has already occurred in the generation of electricity with the advent of combined-cycle gas-fired plants, and it appears to be occurring today in local telephony with the development of various wireless technologies. Moreover, the number of alternative technologies that might be employed to build and operate the interactive broadband networks of the future leaves unanswered the question of whether such networks will have the monopolistic cost characteristics of natural monopoly. The wiser course for regulators, therefore, is to encourage competition among technologies and firms.

For there to be a true tournament among all potential providers of a service previously supplied solely by a regulated firm, it is necessary that the market be free of regulatory barriers to entry—that is, barriers created artificially by statute or regulation, rather than by economies of scale and scope inherent in the industry's cost structure. Opposition to new entry, of course, is a predictable response among incumbent firms in any industry. Since at least the 1930s, incumbent firms in the United States have repeatedly entreated regulators to prevent, or at least to circumscribe, entry by rival firms exploiting new communications technologies. For example, newspapers resisted the growth of radio broadcasting, radio broadcasters resisted the growth of over-the-air television, over-the-air television broadcasters resisted the growth of cable television, cable-television operators resisted the entry of telephone companies into video, and so forth.⁵⁸

An additional factor has frequently inclined regulators toward the suppression of entry. Typically, regulators have used the pricing structure for the services of the regulated firm as an off-budget means of subsidizing the delivery of such services to politically favored groups of consumers, such as residential customers or rural custom-

⁵⁷ See Spulber, *supra* note 52, at 31-45.

⁵⁸ See, e.g., Bruce M. Owen & Steven S. Wildman, *Video Economics* 14-18 (1992).

ers.⁵⁹ But if the incumbent is to remain financially solvent while being obliged to sell services below cost to a particular set of customers, it must charge at least one other set of customers (typically business and industrial customers) prices that exceed the cost of serving them. Open entry, however, frustrates such pricing: The more that prices for a group of customers exceed the cost of serving them, the greater the incentive for a rival firm to enter the market and “cream skim” by underpricing the incumbent (even if the entrant’s costs exceed the incumbent’s costs). To preserve the incumbent’s ability to recoup losses on its forced sale of services to the regulator’s preferred class of customers at uncompensatory prices, the regulator typically enables the incumbent to earn monopoly rents on the sale of its services to other customers.

But the regulator can keep that fragile edifice of arbitrary prices standing only by restricting entry and by impeding the ability of consumers to substitute rival services (often ones made possible by an advance in technology) for the regulated service. There results a kind of market allocation by regulatory fiat: The regulator defends, though not in so many words, a policy of permitting the incumbent regulated firm to earn supracompetitive returns on sales to certain customers, a portion of which the incumbent will be obliged to sacrifice at the regulator’s behest to subsidize service to those classes of customers whom the regulator deems to be deserving. Eventually, large customers demand that the regulator permit competitive entry. The typical result is “partial regulation,” under which the incumbent regulated firm faces both continued regulation and, in its more profitable markets, competition.

3. *Barriers to Use of the Least-Cost Production Technology*

New entrants may be allowed to avoid regulations that thwart the use of the least-cost production technology and in that sense may be more efficient producers than the incumbent public utility. For example, the Public Utility Regulatory Policies Act (PURPA),⁶⁰ enacted in 1978, requires a utility to buy power from cogenerators and small power producers known as “qualifying facilities” at the utility’s avoided cost, even when the utility could purchase cheaper energy for its customers elsewhere.⁶¹ Although avoided cost was intended to be

⁵⁹ See, e.g., Robert W. Crandall, *After the Breakup: U.S. Telecommunications in a More Competitive Era* 23-29 (1991).

⁶⁰ Pub. L. No. 95-617, 92 Stat. 3117 (1978).

⁶¹ Under PURPA, a qualifying facility must produce useful thermal energy through the sequential use of the energy used to generate electricity. 16 U.S.C. §§ 796(17)-(18) (1994); 18 C.F.R. § 292 (1995). A qualifying facility must meet certain ownership, operating, and

analogous to marginal cost, faulty implementation of PURPA distorted the cost structures of utilities and thus created a disparity between those utilities and independent power producers that were not qualifying facilities. Independent power producers, in effect, are free to employ the cheapest method of generating electricity.

D. Open Access and Mandatory Unbundling

Deregulation of the network industries often is accompanied by regulatory policies requiring the incumbent utility to provide "open access" to its transmission facilities. Deregulation in electricity and telecommunications has been accompanied by regulations aimed at vertical divestiture or separation of vertically integrated activities of incumbent utilities. Regulators specify both what activities should be available for competition and the prices and conditions under which access to incumbent facilities is to be granted.

1. Electricity

In electric power transmission and distribution, federal regulators recently have been empowered to require an electric utility to transmit power for others—that is, to "wheel" power over its transmission and distribution network that has been generated by competitors. That new authority only applies to wholesale transactions. Retail wheeling and wholesale wheeling denote the transmission of power to retail and wholesale customers, respectively. Federal law gives the regulation of retail service to the states, a large number of which are considering proposals to restructure the industry to permit retail customers to purchase another utility's power and have the host utility provide access. Further, many utilities are considering this option on their own initiative.

PURPA increased the authority of the Federal Energy Regulatory Commission (FERC) in 1978 to order interconnection of electric utility systems and gave it the authority to order wholesale wheeling.⁶² Through its enactment of the Energy Policy Act of 1992,⁶³ Congress amended section 211 of the Federal Power Act to allow any generator

efficiency criteria established by the Federal Energy Regulatory Commission. 18 C.F.R. § 292.205-206 (1996). Among the advantages of being designated a qualifying facility are that electric utilities must provide the qualifying facility interconnection, must purchase its output at the purchasing utility's avoided cost, and must provide the qualifying facility back-up power. *Id.* §§ 292.303(c)-(d), 292.305(b).

⁶² Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, §§ 202-04, 92 Stat. 3117, 3135-40 (codified as amended at 16 U.S.C. § 24 (1994)). PURPA added §§ 210, 211, and 212 to the Federal Power Act, ch. 687, 49 Stat. 803, 846-47 (1935) (codified as amended at 16 U.S.C. § 824 (1994)).

⁶³ Pub. L. No. 102-486, 106 Stat. 2776.

to petition FERC for mandated access to a utility's transmission grid.⁶⁴ A substantial portion of wholesale power transactions depends on wheeling,⁶⁵ and many states are in the process of establishing requirements for retail wheeling.⁶⁶

2. Local Telephony

In telecommunications, open access requires the local exchange carrier (LEC) to open its network to access and transmission by competing carriers.⁶⁷ To understand the deregulation of the local exchange, it is necessary to introduce some terminology. A *telecommunications network* refers to the trunk lines and switches that direct traffic over the trunk lines.⁶⁸ *Access* refers to the way in which individual users of the telecommunications system are connected to the network.⁶⁹ Access connections include copper-wire loops, coaxial links, fiber-optic lines, or wireless interfaces. *Interconnection* refers to connections between networks, including those operated by different companies such as interexchange carriers (such as AT&T or MCI) and local exchange carriers (such as Bell Atlantic or GTE).

Open-access provisions by regulators establish rules for interconnection of networks. Open-access regulations often impose requirements on regulated carriers for the pricing and transmission of traffic originating or terminating on another company's network. For example, the interexchange carriers (IXCs) pay the LECs access charges to

⁶⁴ 16 U.S.C. § 824j(a) (1994). Section 211 now provides:

Any electric utility, Federal power marketing agency, or any other person generating electric energy for sale for resale, may apply to the Commission for an order under this subsection requiring a transmitting utility to provide transmission services (including any enlargement of transmission capacity necessary to provide such services) to the applicant.

Id.; see also Policy Statement Regarding Good Faith Requests for Transmission Services, 18 C.F.R. § 2.20 (1995).

⁶⁵ See Energy Info. Admin., *Electric Trade in the United States, 1992* (DOE/EIA-0531(92) 1994).

⁶⁶ See Energy Info. Admin., *Performance Issues for a Changing Electricity Power Industry 19-22* (1995).

⁶⁷ See generally Larson, *supra* note 22, at 2-13; Larson, Kovacic & Mudd, *supra* note 22, at 434-37; Alexander C. Larson & Margarete Z. Starkey, *Unbundling Issues and U.S. Telecommunications Policy*, 6 *Stan. L. & Pol'y Rev.* 83 (1995).

⁶⁸ The local wireline network traditionally consists of connections between customer premises and central offices, which are themselves connected. If each customer premise is connected to the central office by dedicated loops, resembling the spokes connected to the hub of a wheel, the network is said to have a "star" form. If the customers connect by dedicated loops to a trunk line running to the central office, the network has a "bus" form. Finally, if the customers are connected by dedicated loops to a circular trunk that originates and terminates at the central office, the network has a "ring" form. See George Calhoun, *Wireless Access and the Local Telephone Network 396* (1992).

⁶⁹ See *id.* at 69.

terminate traffic of customers using the IXC network. Competition in the local exchange from a variety of companies creates alternative means for companies to gain access to the local exchange and other networks. Technological and regulatory change have caused the emergence of alternative access suppliers such as wireless providers (such as cellular and personal communications systems), fiber-optic systems of competitive access providers, and the fiber-optic and coaxial cable systems of cable-television operators.

Unbundling applies to the sale of the switching and transmission services of the local exchange company. Regulatory definitions of individual services and network "components" are necessarily arbitrary, for any service is a bundle of features. Regulators attempt to distinguish individual services and then require the LEC to offer them for sale to both customers and competitors. Regulatory unbundling can extend to very specific network components—including interfaces, network functions, switching services, maintenance, customer information, and billing and ordering systems. Such forced unbundling is meant to provide competitive access to local exchange facilities, but it can easily produce inefficiencies. Peter Huber, for example, notes: "If private branch exchanges (PBXs) compete directly against LEC-supplied Centrex service, then it makes no sense to order the unbundling of either. Suppliers of both PBXs and Centrex will bundle or unbundle as customers demand, or will quickly lose ground to more responsive competitors."⁷⁰ Furthermore, as Huber emphasizes, "unbundling imposed on a LEC service that faces competition will, at best, only raise prices and inconvenience customers."⁷¹

Resale refers to the purchase and sale by competitors of the LEC's network services. Depending on regulatory rules and the LEC's service offerings, competitors can resell virtually any service already sold by the LEC or new services created using the LEC's facilities in combination with those of the entrant. Among the services offered for resale are "vertical" components such as switching services (call waiting, call forwarding), transmission services, and the services of local loops. Resale effectively substitutes the merchant function of the reseller (including marketing, sales, billing, and ordering) for those of the LEC. Resale permits competitors to enter the market for distribution of services without constructing facilities that would duplicate the LEC's. Moreover, resale permits entrants to bundle their

⁷⁰ Peter W. Huber, *Competition and Open Access in the Telecommunications Markets of California* 7 (Feb. 8, 1994).

⁷¹ *Id.*

own services, such as long-distance or cellular service, with LEC services.

E. Implications

In telephony and electric power, the regulator has mandated access to the network of the incumbent utility at regulated rates. The regulated firm is required to make available the services of the network in "unbundled" form—that is, the company must follow detailed technical or economic specifications that allow competitors, customers, and suppliers to have ease of access to those facilities that is comparable to that of the company's own access. The network often is characterized equivalently as a "bottleneck," or a "monopoly component," or an "essential facility." The regulator argues that the facilities cannot profitably be duplicated by the utility's competitors. That argument is put forward to justify possibly onerous and costly access requirements.

Moreover, by specifying the terms of access, regulators eliminate potential efficiency gains from negotiated access and unbundling. By not relying on market mechanisms to determine the nature and extent of unbundling, regulators run the risk of creating inefficient and inflexible access and interconnection rules that impose costs on all parties and potentially subsidize entrants at the expense of incumbents and, ultimately, consumers. Furthermore, regulators and competitors argue that competition would be served if competing firms had access to those facilities at a regulated and uniform price.

Competitors argue strenuously for open access on the grounds of fairness and on the grounds of the potential benefits of competition. To the extent that they receive network services below cost, open-access provisions can result in a transfer of income from the regulated incumbent's investors and captive customers, to the entrant's investors and customers. Such an income transfer should not be defended as fair, for its allocation is arbitrary and depends on the ability of customers to switch to the new entrant. Moreover, there is no reason for the claims of new entrants to the transfers to take precedence over the expected returns of the incumbents. The benefits of competition need not be achieved because subsidized entry can result in inefficient duplication and bypass of existing facilities. Moreover, if the regulated incumbent is constrained in its ability to compete with new entrants, mandated access should not be portrayed as open competition.

Deregulation through mandatory access has significant implications for the regulated firm. If there is controlled entry into the franchise territory of the regulated utility before open access, then un-

bundling, interconnection, and other access provisions enable entrants to compete with the incumbent by using the incumbent's facilities. If such entry denies the incumbent the opportunity to earn the allowed rate of return expected under regulation, open access thus represents a breach of the regulatory contract. Moreover, if regulated rates do not compensate the incumbent for the cost of providing access and unbundled service, including the opportunity cost of alternative uses for the facilities used to supply access, then a taking will have occurred.

In short, when the state removes entry regulations, it will jeopardize the financial solvency of the regulated public utility unless it simultaneously allows that utility to "rebalance" its rate structure to eliminate the implicit subsidies and unless the costs of incumbent burdens are either shared by all firms in the market or explicitly reimbursed by some third party. In actuality, however, federal regulatory agencies and state public utility commissions are allowing entry into regulated network industries before rates are rebalanced and special-service obligations borne by the incumbent public utility are financed by some other means. We shall now show that under either the law of contract or the law of property those circumstances give the regulated utility a remedy against the state.

II

THE REGULATORY CONTRACT AND REMEDIES FOR ITS BREACH

State public utility regulation of electric power generation, transmission, and distribution, and of local telephony, represents a contract between the state and the regulated company. The economic functions of the regulatory contract, as well as the legal duties and remedies associated with it, are identical to those of a contract between private parties.

A. *Economic Foundations of the Regulatory Contract*

Consumers and businesses voluntarily participate in a market transaction only if they receive *gains from trade*—that is, only if the transaction yields positive net benefits for them. A supplier will not invest in a transaction unless the supplier expects the returns from the transaction to cover all economic costs, including a competitive return to invested capital. That principle is summarized in Armen Alchian's classic definition of cost: "In economics, the cost of an event is the

highest-valued opportunity necessarily forsaken."⁷² The supplier's costs of investing in the transaction include the highest net benefit of all opportunities forgone, known as *opportunity cost*.

1. *Cost Recovery for Transaction-Specific Investment*

Cost recovery is an essential element of contract law. A contract must provide *consideration* to each of the parties, which implies that those incurring costs must expect to recover those costs including a return to invested capital. Victor Goldberg, for example, has noted of contracts generally:

Suppose that one party has to make a considerable initial investment and that the value of the investment depends on continuation of the relationship. An employee investing in firm-specific capital is one example; a second would be an electric utility building a plant to serve a particular area. Both will be reluctant to incur the high initial costs without some assurance of subsequent rewards. Other things equal, the firmer that assurance the more attractive the investment. So, for example, if the utility customers agree to give it the exclusive right to serve them for twenty years, then the utility would find construction of a long-lived plant more attractive than if it did not have such assurance. Of course, if a new, superior technology were likely to appear within three years, the customers would not want the long[-]lived plant built. Nevertheless, there will be lots of instances in which the parties will find it efficacious to protect one party's reliance on the continuation of the relationship.⁷³

Cost recovery is an essential aspect of utility regulation as well.⁷⁴ Utilities would not have undertaken the extensive investments required to provide regulated service within their franchise region without the opportunity to recover their costs. In a manner similar to Goldberg's, one of us has specifically written about the public utility's recovery of transaction-specific investments under the regulatory contract:

The regulatory contract is often justified as a means of mitigating the risks of making large irreversible investments that are faced by regulated utilities. Customers of utilities gain from such commitments, since efficient levels of investment yield lower costs of service. There is an incentive to honor commitments regarding

⁷² Armen A. Alchian, Cost, in 3 International Encyclopedia of the Social Sciences 404, 404 (David L. Sills ed., 1968).

⁷³ Victor P. Goldberg, Relational Exchange: Economics and Complex Contracts, 23 Am. Behavioral Scientist 337, 340 (1980), reprinted in Readings in Contract Law 16, 18 (Victor P. Goldberg ed., 1989).

⁷⁴ See Jean-Jacques Laffont & Jean Tirole, A Theory of Incentives in Procurement and Regulation 53-127 (1993).

compensatory rates of return to assure that regulated firms will undertake future investment and that they will maintain their existing capital equipment. In practice, honoring commitments to investors in regulated utilities keeps down future borrowing costs by reducing investor risk.⁷⁵

Cost-of-service regulation of public utilities is based on allowing a utility the opportunity to recover its investment, including a competitive rate of return.⁷⁶ Utilities have had to undertake substantial investments to discharge their obligation to serve. The purpose of a regulatory contract is to provide for recovery of "economic costs," by which we mean the full cost of an activity, including direct expenditures, the time cost of money expended for capital investment, and any other opportunity costs. As mentioned earlier, an opportunity cost of an activity is the net benefit forgone from the next best alternative activity. The time cost of money is an opportunity cost of an investment because it represents the highest return that the investor could have earned by investing the money elsewhere.

The expectation that a utility will be able to recover its costs applies as well to new expenditures that the utility makes to satisfy regulatory obligations even if the industry is partially or fully deregulated. The utility cannot be asked to provide services in the competitive market at regulated prices that are noncompensatory—that is, at prices that do not allow for full cost recovery, particularly when the firm is mandated to offer unbundled services. Moreover, deregulation of the local exchange, or mandatory unbundling of electricity generation and transmission, does not eliminate the responsibilities of regulatory authorities to allow the incumbent utility the reasonable opportunity to recover costs *already incurred* to satisfy the utility's obligation to serve. Regulators have a continuing responsibility to allow the utility the opportunity to recover those costs.

For the foregoing reasons, the Supreme Court has long recognized the recovery of economic costs to be an integral part of cost-of-service regulation. The notion that utilities are businesses operated in the public interest has long guided regulation of the industry. Drawing on English common law, the Court stated in its landmark decision *Munn v. Illinois*⁷⁷ in 1877 regarding price regulation of grain elevators that "when private property is affected with a public interest it ceases

⁷⁵ Spulber, *supra* note 41, at 610.

⁷⁶ Jean-Jacques Laffont and Jean Tirole observe, "In the absence of a detailed long-term contract, the regulated firm may refrain from investing in the fear that once the investment is in place, the regulator would pay only for variable cost and would not allow the firm to recoup its sunk cost." Laffont & Tirole, *supra* note 74, at 54.

⁷⁷ 94 U.S. 113 (1877).

to be *juris privati* only.”⁷⁸ Twenty-one years later, Justice Harlan’s opinion for the Court in *Smyth v. Ames*⁷⁹ established the quid pro quo of utility regulation: “The corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered by it.”⁸⁰ Thus, the regulated company is to be compensated for its expenditures in providing service. Justice Harlan suggested that the “fair value” of the regulated company’s property should be determined by considering the “original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses.”⁸¹ As we shall demonstrate, the consideration of probable earning capacity of the property is of particular relevance for determining the compensation for stranded investment.

In *Federal Power Commission (FPC) v. Hope Natural Gas Co.*⁸² in 1944 the Court effectively limited judicial review of ratemaking to those cases where rates are not “just and reasonable.”⁸³ Rates are defined to be just and reasonable if they balance consumer and investor interests. The Court held that rates should “enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed.”⁸⁴

In setting rates, regulatory commissions have followed the Court’s 1923 decision in *Bluefield Water Works & Improvement Co. v. Public Service Commission*.⁸⁵ The Court held that a utility is entitled to compensatory rates on property that it employs “for the convenience of the public.”⁸⁶ Such rates permit the company to earn a return equal to that on “investments in other business undertakings which are attended by corresponding risks and uncertainties.”⁸⁷ In the *Permian Basin Area Rate Cases*,⁸⁸ the Court held that a regulatory agency has discretion in its choice of the method for setting rates as

⁷⁸ Id. at 129 (quoting *Aldnutt v. Inglis*, 12 East. 527, 541 (1810)).

⁷⁹ 169 U.S. 466 (1898).

⁸⁰ Id. at 546.

⁸¹ Id. at 547.

⁸² 320 U.S. 591 (1944).

⁸³ Id. at 602.

⁸⁴ Id. at 605.

⁸⁵ 262 U.S. 679 (1923).

⁸⁶ Id. at 692.

⁸⁷ Id.

⁸⁸ 390 U.S. 747 (1968).

long as they are within a "zone of reasonableness."⁸⁹ The reviewing court is responsible for determining whether the regulatory commission action "may reasonably be expected to maintain financial integrity, attract necessary capital, and fairly compensate investors for the risks they have assumed, and yet provide appropriate protection to the relevant public interest, both existing and foreseeable."⁹⁰ The zone of reasonableness makes clear both the latitude of the regulatory commission and its responsibility to mediate between consumer and investor interests.

2. *Opportunism and Asset Specificity*

Oliver Williamson defines *opportunism* as "self-interest seeking with guile,"⁹¹ and he describes utility regulation as a "highly incomplete form of long-term contracting" in which the terms are adapted to "changing circumstances" to assure the supplier of a fair rate of return.⁹² There would be difficulties with simply auctioning franchises in the manner that Harold Demsetz proposed,⁹³ Williamson argues, because it is possible that parties to the franchise agreement would behave opportunistically and renege on their contractual promises. He emphasized the possibility that cable-television operators would bid low on the franchise and later raise prices to take advantage of the regulator's sunk costs of searching for a franchise operator.⁹⁴ Conversely, empirical evidence indicates that cities awarding cable franchises may take advantage of the cable operator's irreversible investment in transmission facilities.⁹⁵

The problem of regulatory opportunism stems from the fact that regulatory assets, including expenditures for plant and equipment and capitalized expenditures to perform duties mandated by regulators, are likely to be transaction-specific. That is, the assets have little value outside the regulatory transaction. Paul Milgrom and John Roberts define an asset's degree of specificity to be "the fraction of [the asset's] value that would be lost if it were excluded from its major

⁸⁹ Id. at 767.

⁹⁰ Id. at 792.

⁹¹ Oliver E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting* 47 (1985) [hereinafter Williamson, *Economic Institutions of Capitalism*]; Oliver E. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implications* 26 (1975) [hereinafter Williamson, *Markets and Hierarchies*].

⁹² Oliver E. Williamson, *Franchise Bidding for Natural Monopolies—In General and with Respect to CATV*, 7 *Bell J. Econ.* 73, 91 (1976).

⁹³ Harold Demsetz, *Why Regulate Utilities?*, 11 *J.L. & Econ.* 55, 56-57 (1968).

⁹⁴ Williamson, *supra* note 92, at 91-101.

⁹⁵ See Mark A. Zupan, *Cable Franchise Renewals: Do Incumbent Firms Behave Opportunistically?*, 20 *RAND J. Econ.* 473, 475-76 (1989).

use.”⁹⁶ Williamson observes that “asset specificity is the big locomotive to which transaction cost economics owes much of its predictive content.”⁹⁷ He notes that markets that are contestable are those without asset specificity, so that “contestability theory and transaction cost economics are looking at the very same phenomenon—the condition of asset specificity—through opposite ends of the telescope.”⁹⁸

The transition from regulation to competition being observed in markets traditionally served by public utilities is facilitated by technological changes that affect the degree of asset specificity. The regulatory contract that was suited for an industry with significant asset specificity is not suited for an industry in which asset specificity has declined considerably. This problem of incompatibility between the degree of asset specificity and the regulatory regime arises in the transition to competition: Incumbent utilities have not yet recovered the costs of their assets that are specific to a regulated market, and entrants meanwhile can invest in facilities that have considerably less asset specificity (wireless telecommunications, for example) or can provide service with minimal investment (resale of incumbent telecommunications services, for example).

It would breach the regulatory contract for the regulator to make unilateral changes in regulation that might prevent a utility from recovering the economic costs of investments that it made to discharge its regulatory obligations to serve. Contractual protections of the interests of the utility and its investors exist so that the state and private companies can continue to make agreements requiring investments in highly specialized capital. Analogously, Paul Joskow has studied the nature of the long-term contracts by which coal mines supply electric utilities with coal.⁹⁹ He found that, because that contractual relationship entails durable, transaction-specific investment by both parties, the supply contracts have detailed price-escalation clauses to reflect changes in the cost of supplying coal. Rather than set specific prices, the contracts establish the framework for determining how price adjustments should be made in the event that circumstances change in a way that the parties could not have foreseen when entering into the contract. Just as the cost of forming private agreements that entail

⁹⁶ Paul Milgrom & John Roberts, *Economics, Organization and Management* 307 (1992).

⁹⁷ Williamson, *Economic Institutions of Capitalism*, *supra* note 91, at 56.

⁹⁸ *Id.* at 56 n.14.

⁹⁹ Paul L. Joskow, *Asset Specificity and the Structure of Vertical Relationships: Empirical Evidence*, 4 *J.L. Econ. & Org.* 95 (1988); Paul L. Joskow, *Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets*, 77 *Am. Econ. Rev.* 168 (1987); Paul L. Joskow, *Vertical Integration and Long-Term Contracts: The Case of Coal-Burning Electric Generating Plants*, 1 *J.L. Econ. & Organization* 33 (1985).

transaction-specific investments is reduced by the institution of contract law, so agreements between the state and private companies depend on analogous contractual protections to reduce and allocate the risk of cost recovery for specialized assets that cannot be salvaged if the contract is not performed.

As with private contracts, the regulatory contract is designed to address "holdup" problems. By incurring substantial capital expenditures to perform its obligation to serve, the utility is vulnerable to confiscation.¹⁰⁰ In the absence of contract enforcement, the utility is at the mercy of the regulatory authority: By lowering rates to levels that do not allow a full recovery of costs, after the facilities have been created, a regulator could take advantage of the utility and its investors. The prices posted by a company supplying telecommunications or electricity services can be raised or lowered without incurring more than the costs of communicating the new tariffs to customers. The regulated rates are thus much more flexible than are the utility's capital facilities in contrast since those are irreversible, market-specific investments. To the extent that they were tailored to meet regulatory obligations to serve, the utility's investments need not be fully recovered in a competitive-market setting. That means that the regulatory contract is necessary as a means of protecting the regulated utility from regulatory "holdup."

The opening of the telecommunications or electricity markets to competition provides a temptation for regulators to behave in an opportunistic manner. The utilities have already constructed their network facilities. They will keep those facilities in operation as long as revenues cover their operating costs, even if revenues are not sufficient to allow even partial recovery of capital costs.

"Core" customers are those customers of the regulated utility who have limited opportunities to switch to competitive suppliers, while "noncore" customers are better able to seek alternatives. Noncore customers can take advantage of common-carrier regulations by relying on the incumbent utility as a back-up service or carrier of last resort. Typically, core customers are residential and small business customers, while noncore customers are large commercial and industrial customers. Core customers thus often bear a greater share of overhead costs when deregulation leads to selective entry and bypass of the incumbent utility. With continued regulation of the util-

¹⁰⁰ For a similar argument, see Timothy J. Brennan & James Boyd, *Political Economy and the Efficiency of Compensation for Takings*, Resources for the Future Discussion Paper 95-28, at 25 (June 1995) ("[T]here is the possibility of regulatory moral hazard . . . when the government can act opportunistically to capture the benefits of private investment through changes in regulatory policy.").

ity's core markets, some of those costs would be shifted to remaining core customers while others would represent losses for utility investors. Thus, some putative benefits of competition are merely an income transfer from the utility's investors and core customers to noncore customers, rather than a gain due entirely to enhanced productivity. Some rate rebalancing is desirable to eliminate cross-subsidization from regulated rate structures. Deregulation should not, however, be used as a means to achieve gains for some customers by imposing losses on utility investors.

3. *Credible Commitments*

It is widely recognized in economic theory that commitments made in bargaining situations influence the behavior of other actors only to the extent that the person making such commitments is credibly bound (by himself or others) to honoring them.¹⁰¹ The notion of enforceable agreements plays a similar role in regulated industries as it does in competitive markets. As Pablo Spiller and others have shown both theoretically and empirically, the level of investment in long-lived infrastructure undertaken by a regulated (or recently privatized) public utility depends critically on regulatory institutions having been designed to ensure the credibility of the regulator's commitments that it will not act opportunistically once the utility has placed those nonsalvageable assets into service.¹⁰² The utility's investors would not be willing to commit vast amounts of capital to carry out an obligation to serve unless the regulator's offer of an opportunity to earn a fair rate of return were credible. Regulated utilities relied upon those contractual assurances in planning and carrying out their investment and service plans. Conversely, the regulator would not be willing to provide a franchise protected by entry regulation and to authorize the utility's pricing and investment plans unless the utility's promises to provide services were credible. The legal and public policy context in which the regulatory process operates provides guarantees to the parties to the regulatory contract.

¹⁰¹ See, e.g., Milgrom & Roberts, *supra* note 96, at 133; Oliver E. Williamson, *The Mechanisms of Governance* 120-44 (1996); Williamson, *Economic Institutions of Capitalism*, *supra* note 91, at 167; Thomas C. Schelling, *The Strategy of Conflict* 22-28 (Harvard University Press 1968) (1960).

¹⁰² Pablo T. Spiller, *Institutions and Regulatory Commitment in Utilities' Privatizations*, 2 *Indus. & Corp. Change* 387 (1993); Shane Greenstein, Susan McMaster & Pablo T. Spiller, *The Effect of Incentive Regulation on Infrastructure Modernization: Local Exchange Companies' Deployment of Digital Technology*, 4 *J. Econ. & Mgmt. Strategy* 187, 189 (1995); Brian Levy & Pablo T. Spiller, *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation*, 10 *J.L. Econ. & Organization* 201, 204 (1994).

As with private contracts, the regulatory contract must involve consideration, for the agreement is voluntary. The first utilities did not spring into existence as a result of some government conscription of private capital. The regulated utility submits to various regulatory restrictions including price regulations, quality-of-service requirements, and common-carrier regulations. In return, the regulated firm receives a protected franchise in its service territory and its investors are allowed an opportunity to earn revenues subject to a rate-of-return constraint. Without the expectation of earning a competitive rate of return, investors would not be willing to commit funds for the establishment and operation of the utility. The funds are committed to provide services to the customers of the regulated utility. Once the utility invests those funds, the long depreciation schedules typical in electricity and telecommunications regulation credibly commit the utility to performing its obligations under the regulatory contract by denying it the opportunity to recover its capital before the end of its useful life.

4. *Relational Contracting*

A question sometimes asked in regulatory proceedings is, "Where, Professor X, is this regulatory contract to which your testimony refers?" That question is akin to asking an Englishman to produce a copy of his constitution. The regulatory contract is a bundle of public utility statutes, utility commission precedents, adjudicatory decisions, rulemakings, hearings on the record, formal notices of proposed rulemaking, and public commentary. Such reasoning is neither novel nor inherently economic, for it is the same logic that propels the Supreme Court's analysis of state legislation that has given rise to a contractual obligation:

In general, a statute is itself treated as a contract when the language and circumstances evince a legislative intent to create private rights of a contractual nature enforceable against the State. In addition, statutes governing the interpretation and enforcement of contracts may be regarded as forming part of the obligation of contracts made under their aegis.¹⁰³

Although the original franchise agreement between the public utility and a municipality is usually the critical first document in the bundle of agreements concerning the relationship between the state and the utility, no single document is likely to encapsulate the entire regulatory contract.

¹⁰³ United States Trust Co. v. New Jersey, 431 U.S. 1, 17 n.14 (1977) (citations omitted).

The relational contract between the utility and the regulated firm is analogous to a corporation, which is an easily identified entity but consists of multiple contracts that define the firm. The corporation is often said to be a "nexus of contracts" between the firm and its investors, employees, suppliers, and customers.¹⁰⁴ Although there may be articles of incorporation, the contracts that compose the firm cannot be unified in a single document.

Victor Goldberg provides an important early characterization of the regulatory contract. He observes that private contracts involve both an *ongoing relationship* that uses "rough formulae or mutual agreement to adjust the contract to current situations," and *agency*, which occurs when a firm deals with many customers who "find it desirable to act collectively through an agent both to negotiate the terms and to administer the contract over time."¹⁰⁵ Goldberg asserts that "[r]egulation can be viewed as an implicit administered contract in which both elements are significant."¹⁰⁶

Even if there were no explicit documentation at all of the relationship between the regulator and the firm, the regulatory contract would still represent a meeting of the minds. All of the arguments concerning the economic function of the legal requirements of a contract between private parties apply with equal, if not greater, force to the regulatory contract between the state (or federal regulator) and the regulated firm. Thus, the state (or federal regulator) cannot credibly assert that it owes no remedy to the incumbent when it breaches the regulatory contract while adopting policies that promote competitive entry.

As with private contracts, the regulatory contract has both express and implied provisions. The franchise award, orders approving rates, and orders approving capital expenditures are clearly formal written agreements. Inclusion of capital expenditures in the regulated rate base is certainly a formal contractual agreement. The regulatory contract also has implied features. The utility undertakes capital expenditures of some extended economic lifetime in anticipation of cost recovery. Regulatory approval of such capital expenditures implies that there will not be fundamental changes in the regulator's approach to the company's market environment during the economic lifetime of those investments without addressing the issue of compensating investors.

¹⁰⁴ E.g., Frank H. Easterbrook & Daniel R. Fischel, *The Economic Structure of Corporate Law* 8-12 (1991); Roberta Romano, *The Genius of American Corporate Law* 1 (1993).

¹⁰⁵ Victor P. Goldberg, *Regulation and Administered Contracts*, 7 *Bell J. Econ.* 426, 428, 429 (1976).

¹⁰⁶ *Id.* at 427.

Transactions usually do not involve simultaneous performance, as with a simple exchange. Contracts are necessary to address the problems that may arise with the passage of time. Generally, there is a delay between the time the contract is entered into and the time that performance is completed. In the interim, foreseen and unforeseen changes in the circumstances of the parties may arise. The contract is designed to adjust the terms of the transaction to handle contingencies.

Just as vertical integration is a transactions-cost-reducing substitute for complete contingent-claim contracting, so also is the administrative process surrounding the regulatory contract. The implicit terms, fleshed out by the administrative process, are as important as the explicit ones, especially given the contract's duration. The regulatory contract can therefore be left as improvisational and relational, like the loose weave of the Delaware Corporate Code or Article II of the Constitution.¹⁰⁷ It is more efficient for the parties to eschew specificity in their enumeration of rights and duties under the regulatory contract in innumerable contingent situations over the long life of the useful assets employed, and to rely instead on an alternative mechanism for ensuring that neither party will act opportunistically with respect to the other; such mechanisms include vertical integration and credible commitments, including administrative procedures enforced by an independent judiciary.¹⁰⁸ An absence of contract specificity, however, is not the same as the public utility's ceding unconditional discretionary powers to the regulator.

The regulatory process itself is a formal proceeding, whether it transpires at the federal or state level. Parties present testimony and evidence in formal public proceedings for the record. The agency gives formal notice of proposed rulemakings and considers the comments of interested parties. That process establishes the regulatory bargain and serves not only to make the process transparent, but also to assure the participants that their interests are protected, just as contract rights and remedies protect the parties to private contracts. The formal proceedings make a public record that helps to protect the legal and economic interests of consumers and the firm's investors.

Regulatory hearings, particularly for rate setting, provide a forum in which market participants can interact directly with each other and the regulatory commission. The hearings serve an important eco-

¹⁰⁷ See J. Gregory Sidak, *The President's Power of the Purse*, 1989 *Duke L.J.* 1162, 1235-38.

¹⁰⁸ Williamson, *Markets and Hierarchies*, *supra* note 91, at 69; Oliver E. Williamson, *Transaction-Cost Economics: The Governance of Contractual Relations*, 22 *J.L. & Econ.* 233, 236-39 (1985).

conomic purpose. Just as the terms of private contracts are the result of negotiation between the parties, so the regulatory process involves *bargaining* between the regulatory authority, the regulated firm, its customers, and other interested market participants.¹⁰⁹ The bargaining process encompasses cost measurement, cost allocation, quality of service, and allowed rate of return. Negotiation results in rates and investment plans for the utility to provide service within its service area.

Bargaining between consumers and firms under the auspices of the regulatory agency does not necessarily indicate that the regulatory commission acts in the public interest, by maximizing social welfare, simply to carry out its public duties. Regulatory commissioners may pursue entirely private objectives, including personal notions of fairness, the quest for power and self-aggrandizement, or merely avoidance of criticism. Furthermore, regulatory commissions may be subject to capture by one industry interest or another, or one consumer interest or another, depending on whether the bargaining power of any particular interest group dominates that of other groups. The regulated outcome often is a compromise when interest groups have countervailing bargaining power. Bargaining power in the regulated setting results from direct influence of the parties over the bureaucrats serving on the regulatory commissions as well as indirect influence.

Generally, interested parties obtain bargaining power through the exercise of indirect influence over regulatory commissions. Indirect influence stems from legislative, executive, and judicial oversight of commission activities. Interest groups may apply to the legislature for special hearings or legislation that limits commissioner discretion. They may appeal to the executive branch for political pressure or appointment of new commissioners. Finally, interested parties may appeal commission actions to the courts, seeking to remand or reverse unfavorable decisions.

B. Historical Origins of the Regulatory Contract

Some who oppose the recovery of stranded investment by the regulated firm assert that the regulatory contract is a recent fabrication. Economist Robert Michaels, for example, wrote in 1995:

Voltaire said that history was nothing but a fable that had been generally agreed upon. The fictitious regulatory compact that justifies stranding compensation makes for poor history and misleading fable. Despite frequent claims that its roots go back to *Hope* and

¹⁰⁹ Spulber, *supra* note 41, at 85-86, 269-71.

Bluefield, the compact is a recent intellectual invention. According to a LEXIS® search, the first regulatory and court decisions to mention it only appear in 1983 and 1984. The legislative history of regulation is strikingly devoid of references to a compact, and no known regulation arose from a collaborative effort at which anything resembling a compact was on the agenda. "Stranded investment" carries a similarly short pedigree, and is to this day absent from textbooks on regulation and industrial organization.¹¹⁰

Michaels's claim is false. It does not comport with American legal and economic history.

1. *The Contractual Foundations of Charles River Bridge and Munn v. Illinois*

The origins of the regulatory contract can be found in two of the Supreme Court's most notable decisions concerning regulation and public contracting: *Charles River Bridge v. Warren Bridge*¹¹¹ and *Munn v. Illinois*.¹¹² These cases show that the concept of a public utility, as well as the subsequent premise for public utility regulation, were explicitly based in contract law.

a. *Charles River Bridge*. In 1837 the Court emphasized the power of the state to safeguard the interests of the community when it ruled against the interests of an operator of a private toll bridge in *Charles River Bridge*. For present purposes the decision is notable because of the common understanding throughout it that the relationship between the state and the private firm was contractual in nature. By an act of 1785, the Massachusetts legislature incorporated the Proprietors of the Charles River Bridge, authorizing the corporation to construct a bridge over the Charles River between Boston and Charlestown. The legislature granted the Proprietors of the Charles River Bridge the right to own the bridge and to collect tolls for pas-

¹¹⁰ Robert J. Michaels, *Stranded Investment Surcharges: Inequitable and Inefficient*, *Pub. Util. Fort.*, May 15, 1995, at 21, 21. Presumably, Michaels is referring to *New England Coalition on Nuclear Pollution v. Nuclear Regulatory Commission*, 727 F.2d 1127, 1130 (D.C. Cir. 1984) (Scalia, J.) ("It may be possible to believe (though we do not pass upon the point), as the Commission evidently believed when it issued its proposed rule, that the very nature of government rate regulation—a compact whereby the utility surrenders its freedom to charge what the market will bear in exchange for the state's assurance of adequate profits—assures financial stability for public utilities."), and *Washington Utilities & Transportation Commission v. Puget Sound Power & Light Co.*, 62 *Pub. Util. Rep.* 4th (PUR) 557, 581 (Wash. 1984) ("Understanding the dichotomy between the treatment of expenses prudently undertaken to provide service and providing a return on investment and that they are two separate matters is critical to the understanding of the regulatory compact and the operation of utilities.").

¹¹¹ 36 U.S. (11 Pet.) 420 (1837).

¹¹² 94 U.S. 113, 124 (1877).

sage over it for a period of forty years. The bridge opened to traffic in 1786. In 1792 the state legislature extended the life of the charter until 1856. In 1828 the Massachusetts legislature incorporated the Proprietors of the Warren Bridge, authorizing the corporation to construct another bridge over the Charles River near the Charles River Bridge. After the Proprietors of the Warren Bridge had earned the agreed-upon return on their investment by operating the bridge as a rival toll bridge, ownership of the bridge was to revert to the state. The Proprietors of the Charles River Bridge sought to enjoin the construction of Warren Bridge. During the pendency of the case, the Warren Bridge was built and the Proprietors of the Warren Bridge reaped sufficient return from tolls so that the ownership of the bridge reverted to the state, at which point the state made the Warren a free bridge, and "the value of the franchise granted to the proprietors of the Charles River Bridge [was] . . . entirely destroyed."¹¹³

Writing for the Court, Chief Justice Taney ruled that the case should turn simply on whether the authorization and subsequent construction of the Warren Bridge was an act of the Massachusetts legislature that impaired obligations of the contract between the Proprietors of the Charles River Bridge and the State of Massachusetts. Citing precedent, he affirmed that an abandonment of a state's power to enact subsequent legislation "ought not to be presumed, in a case, in which the deliberate purpose of the state to abandon it does not appear."¹¹⁴ Chief Justice Taney, therefore, gave strict construction to the Charles River Bridge charter and found that, in the absence of an explicit grant, the Massachusetts legislature did not convey any implied right of exclusivity to the Proprietors of the Charles River Bridge; although the creation of the Warren Bridge completely destroyed the value of the Charles River Bridge franchise, it did not impair any obligations under the contract in question.¹¹⁵

Chief Justice Taney assumed a particularly narrow perspective in considering the existence of a contract between the state and the Proprietors of the Charles River Bridge. He declined to examine the totality of the relationship as it arose under the charter. Instead, he simply inquired whether there was a contract that specifically forbade the state from chartering a second bridge. Chief Justice Taney concluded that no implied contract existed that prohibited the state's actions with regard to the Warren Bridge.¹¹⁶ In essence, Chief Justice Taney failed to look at the legal relationship established under the act

¹¹³ *Charles River Bridge*, 36 U.S. (11 Pet.) at 538.

¹¹⁴ *Id.* at 548 (quoting *Providence Bank v. Billings*, 29 U.S. (4 Pet.) 514, 524 (1830)).

¹¹⁵ *Id.* at 548-49.

¹¹⁶ *Id.* at 549-53.

of the Massachusetts legislature in 1785 and to analyze whether the creation of the second bridge detrimentally affected any legal rights arising under that relationship. With his strict construction of the charter, Chief Justice Taney sought to answer only whether there existed an implied contract to maintain the exclusivity of the charter.

Chief Justice Taney wrongly addressed the amendment of the charter in 1792. In that year, the state legislature chartered the West Boston Bridge to be located at a different point along the river, "which they knew would lessen [the Charles River Bridge's] profits."¹¹⁷ As compensation for the lost profits, the legislature granted to the Proprietors of the Charles River Bridge an extension to their charter. Rather than recognize the quid pro quo inherent in the charter's amendment, Chief Justice Taney mischaracterized the legislative intent to maintain the investment expectations of the Proprietors of the Charles River Bridge:

On the contrary, words are cautiously employed to exclude that conclusion; and the extension is declared to be granted as a reward for the hazard they had run, and "for the encouragement of enterprise." The extension was given because the company had undertaken and executed a work of doubtful success; and the improvements which the legislature then contemplated, might diminish the emoluments they had expected to receive from it.¹¹⁸

The other Justices writing opinions did not share Chief Justice Taney's narrow perspective.

In his concurrence, Justice McLean recognized the relationship between the State of Massachusetts and the Proprietors of the Charles River Bridge as a contract:

Where the legislature, with a view of advancing the public interest by the construction of a bridge, a turnpike road, or any other work of public utility, grants a charter, no reason is perceived why such a charter should not be construed by the same rule that governs contracts between individuals.

The public, through their agent, enter into the contract with the company; and a valuable consideration is received in the construction of the contemplated improvement. This consideration is paid by the company, and sound policy requires, that its rights should be ascertained and protected, by the same rules as are applied to private contracts.¹¹⁹

Justice McLean considered that construction of charters or franchises to be necessary to stimulate private undertaking for the public good:

¹¹⁷ *Id.* at 550.

¹¹⁸ *Id.* at 551.

¹¹⁹ *Id.* at 558 (McLean, J., concurring).

The unrestricted profits contemplated, were necessary to induce or justify the undertaking. Suppose within two or three years after the Charles River Bridge had been erected, the legislature had authorized another bridge to be built alongside of it, which could only accommodate the same line of travel. Whether the profits of such a bridge were realized by a company or by the state, would not the act of the legislature have been deemed so gross a violation of the rights of the complainants, as to be condemned by the common sense and common justice of mankind?¹²⁰

In an early recognition of opportunity costs, Justice McLean noted that “[t]he value of the bridge is not estimated by the quantity of timber and stone it may contain, but by the travel over it.”¹²¹ In his view, the state eliminated the value of the Charles River Bridge by authorizing the construction of the Warren Bridge and establishing it as a free bridge: “The sovereign power of the state has taken the tolls of the complainants, but it has left them in possession of their bridge. Its stones and timbers are untouched, and the roads that lead to it, remain unobstructed.”¹²² Nonetheless, by the end of his meandering concurrence, Justice McLean declined to view the Massachusetts legislature as having impaired any obligations under the Charles River Bridge contract, the existence of which he had belabored to demonstrate. Justice McLean’s conclusion appears to have turned on his tacit assumption that, from 1785 to roughly 1828, the Proprietors of the Charles River Bridge had reaped enough profit from their undertaking to more than recover their invested capital, which thereby relieved the state from its contractual obligations and freed it to charter a second bridge.

Even Justice Story in dissent found the charter to be a contract. After surveying much common law and explaining the king’s prerogative to repeal or amend his conveyance, Justice Story countered with a statement of his view of the law:

[A]ll this doctrine in relation to the king’s prerogative of having a construction in his own favour, is exclusively confined to cases of mere *donation*, flowing from the bounty of the crown. Whenever the grant is upon a valuable consideration, the rule of construction ceases; and the grant is expounded exactly as it would be in the case of a private grant, favourably to the grantee. Why is this rule adopted? Plainly, because the grant is a contract, and is to be interpreted according to its fair meaning. It would be to the dishonour of the government, that it should pocket a fair consideration, and

¹²⁰ *Id.* at 562 (McLean, J., concurring).

¹²¹ *Id.*

¹²² *Id.* at 565 (McLean, J., concurring).

then quibble as to the obscurities and implications of its own contract.¹²³

Applying his rule to the facts of the case at hand, Justice Story concluded that, "upon the principles of common reason and legal interpretation, the present grant carries with it a necessary implication that the legislature shall do no act to destroy or essentially to impair the franchise."¹²⁴

b. Munn v. Illinois. The Court's historic 1877 decision in *Munn v. Illinois* began its defense of the constitutionality of rate regulation of grain elevators with a long-winded recitation of how membership in a civil society entails the consent of each citizen to what the preamble of the Constitution of Massachusetts called a "social compact."¹²⁵ That compact, while it "does not confer power upon the whole people to control rights which are purely and exclusively private," wrote Chief Justice Waite for the majority, "does authorize the establishment of laws requiring each citizen to so conduct himself, and so use his own property, as not unnecessarily to injure another."¹²⁶ In only four more sentences Chief Justice Waite purported to establish the direct lineage of such weighty political theory to the more prosaic practice "customary in England from time immemorial, and in this country from its first colonization, to regulate ferries, common carriers, hackmen, bakers, millers, wharfingers, innkeepers, &c."¹²⁷

The Court in *Munn* discussed the unique character of the property of a regulated firm; for that reason we shall return to the decision in our discussion in Part III of property-based protections for abrogation of the regulatory contract. For present purposes, however, *Munn* is illuminating because it described a kind of metamorphosis that property was thought to undergo when it became so productive as to command a substantial market:

Looking . . . to the common law, from whence came the right which the Constitution protects, we find that when private property is "affected with a public interest, it ceases to be *juris privati* only." This was said by Lord Chief Justice Hale more than two hundred years ago . . . and has been accepted without objection as an essential element in the law of property ever since.¹²⁸

¹²³ *Id.* at 597 (Story, J., dissenting) (emphasis in original).

¹²⁴ *Id.* at 646 (Story, J., dissenting).

¹²⁵ *Munn v. Illinois*, 94 U.S. 113, 124 (1877).

¹²⁶ *Id.*

¹²⁷ *Id.* at 125.

¹²⁸ *Id.* at 125-26 (quoting Lord Chief Justice Hale, *De Portibus Maris*, 1 Hargrave Law Tracts 45, 78 (Dublin 1787)).

To Chief Justice Waite and the majority, property becomes "clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large."¹²⁹ That process, the Court reasoned, effected an implicit transfer of property rights from the owner to the public: "When . . . one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created."¹³⁰ From his analogies to common carriers under English law, it was clear that Chief Justice Waite envisioned a bargain between the state and the owner of the property that had become clothed with a public interest.¹³¹

In dissent, Justice Field thought that Chief Justice Waite's statement of the rule was too broad:

When Sir Matthew Hale, and the sages of the law in his day, spoke of property as affected by a public interest, and ceasing from that cause to be *juris privati* solely, that is, ceasing to be held merely in private right, they referred to property dedicated by the owner to public uses, or to property the use of which was granted by the government, or in connection with which special privileges were conferred. Unless the property was thus dedicated, or some right bestowed by the government was held with the property, either by specific grant or by prescription of so long a time as to imply a grant originally, the property was not affected by any public interest so as to be taken out of the category of property held in private right.¹³²

Despite the fact that he was dissenting, from this passage it should be clear that even Justice Field could have agreed that the typical bargain between a public utility and its regulator entailed a quid pro quo in the form of a private franchise. Later in his dissent, Justice Field expressly spoke of the government's right to regulate rates being an implicit condition of the bargain under which it conferred special

¹²⁹ *Id.* at 126.

¹³⁰ *Id.* The Court explained that the owner could rescind his grant of property rights to the public: "He may withdraw his grant by discontinuing the use; but, so long as he maintains the use, he must submit to the control." *Id.* As our subsequent discussion of abandonment indicates, however, a public utility would subsequently be found to face barriers to withdrawing its property from public use, notwithstanding this language in *Munn*.

¹³¹ Richard Epstein's reading of *Munn* comports with our contractual interpretation of that decision. He observes that Chief Justice Waite "noted that traditional common carrier obligations imposed upon a party receiving a legal monopoly the obligation to charge only reasonable fees for the services rendered, where the restriction on the power to charge what one sees fit is the quid pro quo for the monopoly in question." Epstein, *supra* note 6, at 168 n.15.

¹³² *Munn*, 94 U.S. at 139-40 (Field, J., dissenting).

benefits on the regulated firm.¹³³ He argued that in the frequently cited cases of

public ferries, bridges, and turnpikes, of wharfingers, hackmen, and draymen, . . . there was some special privilege granted by the State or municipality; and no one, I suppose, has ever contended that the State had not a right to prescribe the conditions upon which such privilege should be enjoyed. The State in such cases exercises no greater right than an individual may exercise over the use of his own property when leased or loaned to others.¹³⁴

To Justice Field, therefore, the state's power to impose rate regulation was the result of a bargain in which the state conferred special benefits on the regulated firm in return for its acceptance of rate regulation and public-service obligations.

2. *Explicit Contracting Between Municipalities and Public Utilities*

The notions of bargaining between the regulator and the regulated firm, which pervade *Munn* in both Chief Justice Waite's majority opinion and Justice Field's dissent, are repeated many times over in practice. Numerous court decisions and scholarly writings from the late nineteenth century and early twentieth century flatly contradict Michaels's assertion that the regulatory contract is a recent concoction, as does George Priest's authoritative article from 1993 showing the contractual origins of public utility regulation.¹³⁵ That Michaels's LEXIS research did not produce more or earlier reported cases may reflect nothing more profound than his evident failure to recognize that, as Justice Story noted in *Green v. Biddle*¹³⁶ in 1823, "the terms compact and contract are synonymous."¹³⁷ For Michaels to prove that the phrase "regulatory compact" was recently coined to refer to the contractual relationship under discussion does not begin to rebut the evidence that municipalities and public utilities routinely entered

¹³³ It is only where some right or privilege is conferred by the government or municipality upon the owner, which he can use in connection with his property, or by means of which the use of his property is rendered more valuable to him, or he thereby enjoys an advantage over others, that the compensation to be received by him becomes a legitimate matter of regulation. Submission to the regulation of compensation in such cases is an implied condition of the grant, and the State, in exercising its power of prescribing the compensation, only determines the conditions upon which its concession shall be enjoyed. When the privilege ends, the power of regulation ceases.

Id. at 146-47 (Field, J., dissenting).

¹³⁴ Id. at 148-49 (Field, J., dissenting).

¹³⁵ George L. Priest, *The Origins of Utility Regulation and the "Theories of Regulation" Debate*, 36 J.L. & Econ. 289 (1993).

¹³⁶ 21 U.S. (Wheat.) 1 (1823).

¹³⁷ Id. at 92.

into explicit contracts in the nineteenth century and early twentieth century, long before the advent of the state public utilities commissions.

In fact, the regulatory contract in the United States was born roughly 180 years ago, the offspring of public necessity and private undertaking. During the first half of the nineteenth century, city governments lacked the necessary financial resources and expertise to provide their citizens all the benefits that might flow from the momentous scientific and industrial developments of that era. So the cities solicited the help of private entrepreneurs.¹³⁸ State legislatures or local municipalities offered charters or franchises to railroads and utilities. Those contracts gave the private firms critical access to public rights-of-way and often delegated to them the power of eminent domain. In return, the companies committed to building the costly infrastructures, and they accepted the obligation to serve the public on a nondiscriminatory basis at reasonable rates. Each franchise was the product of a bargained-for exchange, satisfying the public need for services such as water and electricity, while allowing private enterprises the opportunity to earn a competitive return. It is therefore inaccurate to deny either the contractual origins of the present regulatory relationship, the contractual motivations for the subsequent transition from municipal franchising to state regulatory commissions, or the contractual essence of the regulatory relationship that resulted from that transition. Our purpose in discussing the following Supreme Court cases is not to endorse the logic of particular legal doctrines, some of which the Court has since abandoned, but rather to show as a *factual* matter that in various kinds of cases predating the rise of the state regulatory commission the Court regarded the municipal franchise as a contract.

In an important article on the subject, George Priest proposed an explanation for the use of municipal franchising that is grounded in voluntary exchange and contractual adaptation:

[P]ublic utility companies voluntarily entered contracts subjecting themselves to regulation in order to gain authority to use public rights-of-way for laying gas and water pipes, stringing telephone and electric poles, burying electrical wires, and laying street railway tracks. Regulation of the utility's activities and terms of business resulted from a negotiation between the municipal government and

¹³⁸ See Eli W. Clemens, *Economics and Public Utilities* 72-74 (1950); Herbert B. Dorau, *Materials for the Study of Public Utility Economics* 2-8, 12-22, 31-49 (1930); William M. Ivins & Herbert Delavan Mason, *The Control of Public Utilities* 4-14 (1908); Joseph Asbury Joyce, *A Treatise on Franchises* 542-54 (1909); 1 Delos F. Wilcox, *Municipal Franchises* 1-3 (1910).

the utility in a context that both parties recognized saved the utility the costs of negotiating with and securing rights from the individual property owners they intended to serve.¹³⁹

New York City, for example, introduced franchise contracts as early as the 1820s for gas and the 1830s for street railway transportation.¹⁴⁰ Other franchises for services such as electricity, water, toll bridges, and telephone service soon followed.

The franchise was a legal instrument—a contract having all the constitutional protection that a contract between private parties would enjoy. Joseph Joyce, writing at the turn of the century in his treatise on municipal franchises, observed:

[F]ranchises are based in this country upon contracts between the sovereign power and a private citizen, made upon a valuable consideration for purposes of public benefit as well as for individual advantage; and it is said by Chancellor Kent that franchises “contain an implied covenant on the part of the government not to invade the rights vested, and on the part of the grantees to execute the conditions and duties prescribed in the grant. Some of these franchises are presumed to be founded on a valuable consideration, and to involve public duties, and to be made for public accommodation, and to be affected with *jus publicum*, and they are necessarily exclusive in their nature. The government cannot resume them at pleasure, or do any act to impair the grant, without a breach of contract.”¹⁴¹

From this absolutist view of the municipal franchise as contract, which the government could not unilaterally amend, the modern regulatory contract emerged.

The degree to which government may regulate utilities, during any given period, has been defined by the courts. The extent of regulation allowed by the courts, in turn, reflected the degree to which the government was dependent upon and strove to nurture the utility, given the current economic and social climate. Thus, as the railroads became a powerful economic force sooner than the electric, water, or telephone companies, the courts were more willing to allow greater regulation of the railroads a few decades before the latter companies. Yet despite the differences in relative economic might, the regulatory contract in each of those industries was formed in the late nineteenth and early twentieth centuries while the Supreme Court vacillated on the definitions of three constitutional doctrines: the prohibition of a

¹³⁹ Priest, *supra* note 135, at 303.

¹⁴⁰ *Id.* at 302.

¹⁴¹ Joyce, *supra* note 138, at 12 (quoting James Kent, *Commentaries on American Law* *458 (Boston, Little, Brown, & Co. 14th ed. 1896)).

state to impair the obligation of contracts, the prohibition of government to take private property without just compensation, and the rise and fall of substantive due process. In the context of each of those doctrines the Court examined the extent to which the state could exercise its police power over a regulated utility.

By 1848 the Court recognized, in *West River Bridge Company v. Dix*,¹⁴² a state's power to commandeer—for just compensation—a toll bridge built by a private party subject to an exclusive franchise.¹⁴³ In 1795 Vermont granted an exclusive 100-year franchise to build and operate a toll bridge. In 1843 the local government took the bridge for public use and paid the bridge company \$4000. Justice Daniel wrote for the Court that the taking did not constitute an impermissible impairment of the bridge company's contract.¹⁴⁴

Less than twenty years later, the Court proclaimed the importance of franchise rights and the inviolability of contract, again in the context of a challenge to the holder of a bridge franchise. In 1865, in defending an exclusive bridge franchise from impairment, Justice Davis delivered the Court's opinion in *The Binghamton Bridge*.¹⁴⁵ The opinion embodied the general economic ideology that pervaded most of the judicial opinions on franchise regulation of that era and characterized the inviolability of contract as the keystone to the relationship between government and private enterprise:

The purposes to be attained are generally beyond the ability of individual enterprise, and can only be accomplished through the aid of associated wealth. This will not be risked unless privileges are given and securities furnished in an act of incorporation. The wants of the public are often so imperative, that a duty is imposed on Government to provide for them; and as experience has proved that a State should not directly attempt to do this, it is necessary to confer on others the faculty of doing what the sovereign power is unwilling to undertake. The legislature, therefore, says to public-spirited citizens: "If you will embark, with your time, money, and skill, in an enterprise which will accommodate the public necessities, we will grant to you, for a limited period, or in perpetuity, privileges that will justify the expenditure of your money, and the employment of your time and skill." Such a grant is a contract, with mutual considerations, and justice and good policy alike require that the protection of the law should be assured to it.¹⁴⁶

¹⁴² 47 U.S. (6 How.) 507 (1848).

¹⁴³ *Id.* at 512.

¹⁴⁴ *Id.* at 533.

¹⁴⁵ 70 U.S. (3 Wall.) 51 (1865).

¹⁴⁶ *Id.* at 73-74.

That economic philosophy and respect for voluntary exchange typified many utility regulation cases of the period.

The protection against governmental takings of private property functioned as a complement to the prohibition of impairment of contractual obligations. During the nineteenth century, the protection of the Contract Clause was the principle more often applied to cases of utility regulation.¹⁴⁷ The Takings Clause, however, would emerge as the primary protection against regulatory incursions by government. During the years spanned by *West River Bridge* and *The Binghamton Bridge* the Court devised the doctrine of substantive due process. Although in 1887 the Court in *Munn v. Illinois*¹⁴⁸ upheld a regulation of rates of grain elevators "affected with a public interest,"¹⁴⁹ by 1905 in *Lochner v. New York*¹⁵⁰ the Court found "no reasonable foundation for holding" a statute limiting the number of hours that bakers may work in a week "to be necessary or appropriate as a health law."¹⁵¹ The Court began to rule upon the reasonableness of statutes, particularly those effecting economic regulation; that orientation affected the Court's view of other utility regulation cases, including those decided under the Contract Clause.

In 1885 the Court held unconstitutional, in *New Orleans Water-Works Co. v. Rivers*,¹⁵² a local government's ordinance that infringed upon the exclusive rights that the state legislature granted a water company.¹⁵³ The Louisiana legislature in 1877 granted the New Orleans Water-Works Company the exclusive right to provide water to the city of New Orleans for fifty years.¹⁵⁴ In 1882 the city council of New Orleans passed an ordinance to allow an individual to lay pipes to provide his New Orleans hotel with water. The Court upheld the exclusivity of the New Orleans Water-Works's franchise:

The right to dig up and use the streets and alleys of New Orleans for the purpose of placing pipes and mains to supply the city and its inhabitants with water is a franchise belonging to the State, which she could grant to such persons or corporations, and upon such terms, as she deemed best for the public interests. And as the object to be attained was a public one, for which the State could make provision by legislative enactment, the grant of the franchise could

¹⁴⁷ U.S. Const. art. I, § 10, cl. 1 ("No State shall . . . pass any . . . Law impairing the Obligation of Contracts . . .").

¹⁴⁸ 94 U.S. 113 (1877).

¹⁴⁹ *Id.* at 125-27.

¹⁵⁰ 198 U.S. 45 (1905).

¹⁵¹ *Id.* at 58.

¹⁵² 115 U.S. 674 (1885).

¹⁵³ *Id.* at 681-82.

¹⁵⁴ *Id.* at 676-77.

be accompanied with such exclusive privileges to the grantee, in respect of the subject of the grant, as in the judgment of the legislative department would best promote the public health and the public comfort, or the protection of public and private property. Such was the nature of the plaintiff's grant, which, not being at the time prohibited by the constitution of the State, was a contract, the obligation of which cannot be impaired by subsequent legislation, or by a change in her organic law. It is as much a contract, within the meaning of the Constitution of the United States, as a grant to a private corporation for a valuable consideration, or in consideration of public services to be rendered by it, of the exclusive right to construct and maintain a railroad within certain lines and between given points, or a bridge over a navigable stream within a prescribed distance above and below a designated point.¹⁵⁵

In the companion case, *New Orleans Gas Co. v. Louisiana Light Co.*,¹⁵⁶ the Court recognized that a state may exercise its police power to protect the health, morals, and safety of its citizens, but the power to regulate is tempered by an inability to impair contractual obligations.¹⁵⁷ On facts similar to those in *New Orleans Water-Works*, the Court observed: "That the police power . . . is restricted . . . is further shown by those cases in which grants of exclusive privileges respecting public highways and bridges over navigable streams have been sustained as contracts, the obligations of which are fully protected against impairment by State enactments."¹⁵⁸

In *Walla Walla City v. Walla Walla Water Co.*¹⁵⁹ the Court extended its defense of contract to a municipal franchise.¹⁶⁰ In 1883 the legislature of Washington Territory incorporated the city of Walla Walla. One of its enumerated powers under the charter was the power to provide water for the city, and the right to permit the use of city streets for the purpose of laying pipes for furnishing such supply. Pursuant to its power, the city of Walla Walla by contract granted to the Walla Walla Water Company in 1887 the right to lay and maintain water mains and related infrastructure for twenty-five years. The water company accepted and complied with all conditions in the contract. In 1893, however, the city passed an ordinance to provide for the construction of a system of water works to supply the city with water. The question thus arose whether the federal court had jurisdiction to decide whether the city had unconstitutionally impaired the

¹⁵⁵ *Id.* at 680-81.

¹⁵⁶ 115 U.S. 650 (1885).

¹⁵⁷ *Id.* at 660-61.

¹⁵⁸ *Id.* at 662.

¹⁵⁹ 172 U.S. 1 (1898).

¹⁶⁰ *Id.* at 22-23.

obligation of its franchise contract. On his way to concluding that the federal courts did indeed have jurisdiction, Justice Brown wrote that

this court has too often decided for the rule to be now questioned, that the grant of a right to supply gas or water to a municipality and its inhabitants through pipes and mains laid in the streets, upon condition of the performance of its service by the grantee, is the grant of a franchise vested in the State, in consideration of the performance of a public service, and after performance by the grantee, is a contract protected by the Constitution of the United States against state legislation to impair it.¹⁶¹

Although the city's franchise did not confer a monopoly, Walla Walla Water's contract specifically stipulated that the city would not compete with the company. The city argued that the noncompete provision made the contract void as against public policy. But the Court rejected the argument and interpreted that provision, along with an eminent domain provision, as ancillary restraints that protected the franchisee's opportunity to recover the cost of its investment in infrastructure:

There was no attempt made to create a monopoly by granting an exclusive right to this company, and the agreement that the city would not erect water works of its own was accompanied, in section 8 of the contract, with a reservation of a right to take, condemn and pay for the water works of the company at any time during the existence of the contract. Taking sections 7 and 8 together, they amount simply to this: That if the city should desire to establish water works of its own it would do so by condemning the property of the company and making such changes in its plant or such additions thereto as it might deem desirable for the better supply of its inhabitants; but that it would not enter into a direct competition with the company during the life of the contract. As such competition would be almost necessarily ruinous to the company, it was little more than an agreement that the city would carry out the contract in good faith.¹⁶²

The Court regarded the noncompete provision as "a natural incident to the main purpose of the contract,"¹⁶³ without which a private com-

¹⁶¹ *Id.* at 9.

It is true that in these cases the franchise was granted directly by the state legislature, but it is equally clear that such franchises may be bestowed upon corporations by the municipal authorities, provided the right to do so is given by their charters. State legislatures may not only exercise their sovereignty directly, but may delegate such portions of it to inferior legislative bodies as, in their judgment, is desirable for local purposes.

Id.

¹⁶² *Id.* at 17.

¹⁶³ *Id.*

pany would not voluntarily make the substantial asset-specific investments required to provide water service:

In establishing a system of water works the company would necessarily incur a large expense in the construction of the power house and the laying of its pipes through the streets, and, as the life of the contract was limited to twenty-five years, it would naturally desire to protect itself from competition as far as possible, and would have a right to expect that at least the city would not itself enter into such competition. It is not to be supposed that the company would have entered upon this large undertaking in view of the possibility that, in one of the sudden changes of public opinion to which all municipalities are more or less subject, the city might resolve to enter the field itself—a field in which it undoubtedly would have become the master—and practically extinguish the rights it had already granted to the company.¹⁶⁴

Thus, the Court well recognized by the turn of the century that key provisions in the regulatory contract existed to ensure cost recovery for specialized investments and to deter opportunism.

Finally, with apparent disregard for its holding in *Munn*, the Court in 1902 held unconstitutional, in *Detroit v. Detroit Citizens' Street Railway Co.*,¹⁶⁵ a city ordinance attempting to reduce the rates of a street railway that had been fixed in the company's franchise.¹⁶⁶ The Detroit Citizens' Railway had operated pursuant to its franchise for several years when, in 1899, the Detroit city council enacted an ordinance to reduce the company's rates. But, as in the case of a contract between private parties, price was a crucial element of the regulatory contract that could not be unilaterally altered:

The rate of fare is among the most material and important of the terms and conditions which might be imposed by the city in exchange for its consent to the laying of railroad tracks and the running of cars thereon through its streets. It would be a subject for grave consideration and conference between the parties, and when determined by mutual agreement, the rate would naturally be regarded as fixed until another rate was adopted by a like agreement.¹⁶⁷

¹⁶⁴ *Id.* at 17-18.

¹⁶⁵ 184 U.S. 368 (1902).

¹⁶⁶ *Id.* at 397-98.

¹⁶⁷ *Id.* at 384. Elsewhere the Court elaborated on the need for bilateral agreement to modify the contract price:

The rate of fare having been fixed by positive agreement under the expressed legislative authority, the subject is not open to alteration thereafter by the common council alone, under the right to prescribe from time to time the rules and regulations for the running and operation of the road.

Again, as in *Walla Walla Water*, the Court's rationale for denying the city of Detroit the unilateral power to reduce price under the contract emphasized cost recovery, asset specificity, opportunism, and credible commitments:

It would hardly be credible that capitalists about to invest money in what was then a somewhat uncertain venture, while procuring the consent of the city to lay its rails and operate its road through the streets in language which as to the rate of fare amounted to a contract, and gave the company a right to charge a rate then deemed essential for the financial success of the enterprise, would at the same time consent that such rate then agreed upon should be subject to change from time to time by the sole decision of the common council. It would rather seem that the language above used did not and was not intended to give the right to the common council to change at its pleasure from time to time those important and fundamental rights affecting the very existence and financial success of the company in the operation of its road, but that by the use of such language there was simply reserved to the city council the right from time to time to add to or alter those general regulations or rules for the proper, safe and efficient running of the cars, the character of service, the speed and number of cars and their hours of operation and matters of a like nature¹⁶⁸

In short, *Detroit Citizens' Street Railway* recognized that the franchise was a contract and that under the Constitution a state (and certainly a municipality) could not infringe upon the rights vested under that contract, especially with regard to allowable rates.

3. *The Evolution from Municipal Franchises to State Public Utility Commissions*

As one would expect of relational contracting, the utility franchises themselves evolved over time, ultimately creating administrative boards that were the precursors to the state public utilities commissions. Early franchises often were vague and left discretion to the utility company. City governments tried to stipulate more precise conditions in the franchise agreement, but changing economic and technological circumstances demanded greater flexibility, and the pre-

Nor does the language of the ordinance, which provides that the rate of fare for one passenger shall not be more than five cents, give any right to the city to reduce it below the rate of five cents established by the company. It is a contract which gives the company the right to charge a rate of fare up to the sum of five cents for a single passenger, and leaves no power with the city to reduce it without the consent of the company.

Id. at 389.

¹⁶⁸ Id. at 384-85.

cise franchises grew to be unworkable. According to Priest, the solution was to eliminate the restrictive details and introduce an administrative board, often having representatives from both the utility and the local government.¹⁶⁹ From those administrative boards grew the state regulatory commissions, most of which came into existence between 1907 and 1922.¹⁷⁰

Presumably utilities would not have agreed to switch from municipal franchising to state public utility regulation unless that change produced net benefits for them. From Priest's analysis, it would appear that the utilities did not incur greater costs under state regulation in terms of diminished property protections. The prevailing understanding of the Contract and Takings Clauses and of substantive due process from 1907 through 1922 would have afforded the public utility security against state interference with the terms of its preexisting municipal franchise. At the same time, state regulation likely offered a utility two kinds of benefits over municipal franchising. First, the horizontal expansion of electrical and telephony networks implied that those networks likely crossed municipal boundaries. Such horizontal expansion presumably reflected the exploitation of economies of scale or of network externalities related to increased subscribership.¹⁷¹ But that horizontal expansion also implied that electrical and telephony networks would face the new problem of allocating common fixed costs to different municipal jurisdictions for purposes of setting reasonable rates. The complexity of that task could be avoided if state regulators instead set rates over a larger geographic area. Second, as electric utilities and local exchange carriers entered into horizontal mergers, they would be subject to regulation by multiple cities. Alternatively, a state public utility commission offered the public utility "one-stop shopping" on matters of regulation. Thus, the advent of state public utilities commissions may have been a way to minimize the transactions costs of utility regulation once efficient production mandated that the regulated firms merge across geographic markets within a state.

¹⁶⁹ Priest, *supra* note 135, at 321.

¹⁷⁰ [S]tate regulatory commissions were first created in the late 1880s (in Massachusetts) but then were inaugurated with sudden uniformity in the decade and a half following 1907. . . . [B]y 1922, electric regulatory commissions had been introduced in thirty-seven of the forty-eight states and gas commissions in eighteen of twenty large states.

Id. at 296.

¹⁷¹ For a discussion of the horizontal integration of local exchange companies during that period, see generally Milton Mueller, *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* (1996).

C. *The Principal Components of the Regulatory Contract*

The three components of the regulatory contract are entry controls, rate regulation, and utility service obligations. The state commission controls the entry of the utility's competitors and authorizes rates that give the utility's investors the opportunity to earn a "fair" rate of return on their investment. In return, the regulated utility must comply with regulatory accounting procedures for the disclosure of its costs, abide by price regulations, limit its business activities in other markets, invest in sufficient transmission and access services to all customers within its service territory who request service, operate efficiently as determined by the regulatory commission, make only investments that are "prudent," meet regulatory standards for quality of service, and comply with a host of other provisions.

The broad terms of the regulatory contract are governed by the regulatory authority's preceding decisions, legislation, and judicial oversight. Regulated rates are set through public rate hearings that generally follow rules of administrative procedure. Interested parties must be informed of the time, place, and nature of the hearings, the legal authority and jurisdiction upon which the hearing is to be held, and the matters of fact and law that are asserted.¹⁷²

The regulatory authority approves the utility's investment projects through prudency reviews and used-and-useful hearings.¹⁷³ The regulators approve the prices charged by the regulated utility and review its financial performance. Thus, the regulatory contract is between the utility and the regulatory commission, as the agent of the legislature, which in turn represents the general public. It is not necessary to believe that the commission acts in the public interest to conclude that the commission undertakes obligations as the public's representative. The actions of the regulatory commission are government commitments that potentially obligate public funds.

1. *Entry Regulation*

Regulations limiting the entry of competitors into the service territory of the incumbent utility are a standard feature of the regulatory contract. Regulatory commissions control entry through the awarding of franchises and the requirement of a certificate of public convenience and necessity. Regulators have restricted entry into telecommunications, the electric power industry, natural gas, water services, hospitals, broadcasting, and many other industries.

¹⁷² See, e.g., Cal. Pub. Util. Code § 311 (West 1996) (hearings, evidence, and decisions).

¹⁷³ See Spulber, *supra* note 41, at 269-71.

Entry controls have traditionally limited competition for the utilities and allowed them the opportunity to earn a fair rate of return on their investments while conforming to rate regulation and regulatory service obligations. The elimination of regulatory entry barriers to achieve the benefits of competition represents a fundamental change in the terms of the regulatory contract. To avoid confiscatory outcomes, those changes need to be counterbalanced by altering both the responsibilities and compensation for the incumbent utilities.

The traditional justification for entry restrictions in telecommunications has been to achieve the cost gains from *natural monopoly*. For example, in 1982 then-Judge Stephen Breyer wrote that "local telephone service seems to be generally accepted as a natural monopoly."¹⁷⁴ Technological change and industry transformations in telecommunications and other markets have cast doubt on the natural monopoly argument for regulation.¹⁷⁵ Furthermore, competition brings cost efficiencies and incentives for innovation that cannot be achieved through entry and rate regulation. Those benefits are manifest in the markets that experienced the first deregulation wave—airlines, trucking, and rail freight transportation. Moreover, the high transaction costs associated with cost-of-service regulation lead many to question whether any potential cost gains can possibly justify continuing to regulate entry.

Accordingly, state PUCs have begun to dismantle regulatory barriers to entry into the local exchange and into the retail distribution of electricity. The elimination of franchise protection by the state legislatures or PUC is a unilateral change of a fundamental part of the regulatory contract. Although cost efficiencies may no longer justify continuing entry regulations, that changed circumstance does not eliminate the regulator's responsibility to allow utilities to recover their costs incurred before the change in the regulatory contract.

2. Regulation of Rates

The regulation of rates by federal agencies and state PUCs is another standard feature of the regulatory contract. Rate regulation to control monopoly power generally accompanies entry restrictions that were put in place to protect natural monopoly. Control over rates also places responsibilities on regulators. The need to raise capital repeatedly, and constitutional protections against takings under the Fifth and Fourteenth Amendments, require regulators to take into account the interests of investors.

¹⁷⁴ Stephen G. Breyer, *Regulation and Its Reform* 291 (1982).

¹⁷⁵ See Spulber, *supra* note 52, at 34-41, 43-45.

Many justifications have been advanced for rate regulation.¹⁷⁶ In addition to controlling monopoly power, rate regulation often is perceived as a means of achieving universal service and maintaining reasonable rates for consumers and industry. Federal agencies and state PUCs have followed a standard procedure in cost-of-service ratemaking. The utility estimates its operating costs including depreciation for a selected year, known as a "test year." The estimate reflects expectations about demand and operating costs. In addition, the utility calculates its capital costs, which generally are estimated using the book value of capital expenditures net of depreciation. The regulatory commission sets an "allowed rate of return" for the company's financial costs. Methods of determining the rate of return vary, but in many cases the PUC averages the costs of the utility's debt with an estimate of the costs of capital for equity owners. Following regulatory accounting rules, the regulatory commission calculates the total costs of the utility as its operating cost plus the rate base times the allowed rate of return. That estimate of costs is referred to as the utility's "revenue requirement." Based on the revenue requirement, the utility proposes rates to the regulator that are designed to recover estimated costs.

It should be evident that the regulatory commission cannot unilaterally terminate its obligation to the utility. Deregulation does not absolve the regulators of their responsibility to permit regulated companies the reasonable opportunity to earn competitive rates of return on their investments. Rates can be expected to fall under competition, while regulators continue to impose performance requirements on the utilities. The "end-result" test of *FPC v. Hope Natural Gas Co.*¹⁷⁷ should be applied to the effects of competitive rules so that investors are permitted to earn a competitive return on capital investment under regulation.

3. *The Obligation to Serve*

As a general rule in antitrust law, a firm may unilaterally refuse to deal with any prospective customer.¹⁷⁸ That rule even extends to a monopolist's unilateral refusal to deal, so long as the firm by doing so

¹⁷⁶ For further discussion, see, e.g., Breyer, *supra* note 174, at 15-34; Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* 3-14 (MIT Press rev. ed. 1988) (1970); Richard Schmalensee, *The Control of Natural Monopolies* 1-10 (1979); Spulber, *supra* note 41, at 603-10.

¹⁷⁷ 320 U.S. 591 (1944). *Hope* applies an "end-result" test that evaluates the financial impacts of regulation based on their *net* effects on the firm's profits on its regulated activities. See *supra* notes 82-84 and accompanying text.

¹⁷⁸ See *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919).

does not intend to create or maintain a monopoly.¹⁷⁹ That rule does not apply to utilities, however.

Utilities carry an obligation to serve customers in their franchise region at posted prices. That duty to serve requires the company to expand its transmission and switching capacity to meet the growth and location of customer demand. Utilities have constructed facilities to provide reliable telephone, electricity, or natural gas service. Regulators monitor the performance of regulated utilities in a variety of other areas, including responsive customer relations, speed of repairs, or other services. The cost of capacity investments are recovered through their inclusion in the rate base. The utility earns the allowed rate of return on its capital expenditures net of depreciation. The utility recovers the cost of assets through depreciation allowances that are treated as operating costs.

The regulatory contract requires performance from utilities that has necessitated substantial capital expenditures, which were made subject to regulatory approval and oversight. If the regulator unilaterally changes the regulatory contract, a complete review of the utility's performance obligations becomes necessary.

a. The Obligation to Extend the Network to Provide Service to All Consumers. The public utility's obligation to serve entails the obligation to extend its network to serve new customers. Why must a utility be *forced* to make additional sales? The answer, in general terms, is that the private marginal benefit of extending service is less than the private marginal cost. Left to its own devices, the utility would build a network reaching a lower percentage of the populace than regulators would desire. For a fixed, geographically averaged price, the utility would stop expanding its network when the private marginal cost of doing so began to exceed the private marginal benefit. A social-welfare-maximizing regulator would prefer to have the network expanded to the point where *social* marginal cost equals *social* marginal benefit.¹⁸⁰ Alternatively, the utility would depart from pricing its services at a fixed price and, instead, charge higher prices to customers in high-cost areas. Thus, the need to impose on the utility an obligation to extend its network is the direct implication of policies of universal service and rate averaging.

¹⁷⁹ See *id.*

¹⁸⁰ For a theoretical exposition of that proposition by a former state regulatory commissioner, see Eli Noam, *Telecommunications in Europe* 26-42 (1992). The regulatory universal-service objective can be due to other motivations, however, including political considerations.

Early in the experience of public utility regulation, the Supreme Court recognized that interrelationship. When confronted with a utility's constitutional challenge to the obligation to extend its network, the Court announced a rule that coincides precisely with the test that economists decades later would articulate for defining the existence of subsidized prices.

In 1917 the Court decided *New York ex rel. New York & Queens Gas Co. v. McCall*,¹⁸¹ a case in which the New York Public Service Commission ordered a gas utility having an exclusive franchise to extend its gas mains and service pipes to the community of Douglaston, "located about a mile and a half beyond the then terminus of the company's gas mains, but within the Third Ward of the Borough of Queens."¹⁸² From the Court's description, Douglaston would have been a desirable market to serve—affluent and rapidly growing.¹⁸³ The utility's reluctance to extend service stemmed from the fact that "the mains of the company, which extended to the point nearest to Douglaston, were being used to almost their full capacity, and for this reason the estimated cost of making the improvement included new mains of some eight miles in length."¹⁸⁴ The utility estimated that its return on investment for the extension would be only 2¼%, which (although not expressly stated in the opinion) was presumably below the cost of capital. Although the utility attacked the order as a deprivation of due process, it did not claim "that the comparatively small loss . . . would render its business as a whole unprofitable" and it did not explicitly allege a taking of property.¹⁸⁵ The Court rejected the utility's due process argument and affirmed the order to extend the line:

Corporations which devote their property to a public use may not pick and choose, serving only the portions of the territory covered by their franchises which it is presently profitable for them to serve and restricting the development of the remaining portions by

¹⁸¹ 245 U.S. 345 (1917).

¹⁸² *Id.* at 346.

¹⁸³ See *id.* at 349. The Court explained that:

The community of Douglaston . . . was a rapidly growing settlement of three hundred and thirty houses, of an average cost of \$7,500, thus giving assurance that the occupiers of them would be probable users of gas, and which, with very few exceptions, were occupied by families the entire year. While the community is described in the assignment of error as "independent and remote" the record shows that it was served at the time by franchise holding companies, which supplied water, electric light and telephone to its inhabitants, and that the number of houses had doubled within a few years.

Id.

¹⁸⁴ *Id.* at 349-50.

¹⁸⁵ *Id.* at 351.

leaving their inhabitants in discomfort without the service which they alone can render. To correct this disposition to serve where it is profitable and to neglect where it is not, is one of the important purposes for which these administrative commissions, with large powers, were called into existence . . .¹⁸⁶

McCall thus establishes the following rule: If a public utility with entry regulation and a uniform rate structure is meeting or exceeding its revenue requirement, then it cannot refuse a request to extend its network to serve a new customer below incremental cost.

That proposition can be restated in a manner more familiar to contemporary economic analysis of network industries. A utility would not voluntarily extend its network to a given customer i if doing so would generate an incremental loss for the utility—that is, if

$$R_i < IC_i,$$

where R_i is the utility's revenue from customer i , and IC_i is the utility's incremental cost of serving customer i . Under the regulatory contract, however, the utility can be excused from its duty to extend service even at a loss if and only if the utility as a whole is unprofitable—that is, if its total revenues TR are less than its total costs TC :

$$TR \equiv \sum_{j=1}^n R_j < TC.$$

It follows that, if the utility is precisely meeting a break-even constraint on its overall operations,

$$TR \equiv \sum_{j=1}^n R_j = TC,$$

as is the stylized objective of rate-of-return regulation, and if the utility is required by the *McCall* rule to extend service unprofitably to customer i , then there must be at least one other customer k from whom the utility earns revenues exceeding incremental costs:

$$R_k > IC_k.$$

Economies of scope imply that the sum of incremental costs across the services that the company provides is less than total cost. The sum of incremental costs can equal total cost if the services are independent. Note that in the absence of economies of scope, it is inefficient to operate the services jointly. Even if each service covers its incremental cost, therefore, one or more services must cover joint and common

¹⁸⁶ *Id.*; see also Richard J. Pierce, Jr., *Economic Regulation: Cases and Materials* 169-70 (1994).

costs as well. If, in addition, a service does not cover all of its incremental costs, then other services must also carry the remaining incremental costs.

The *McCall* rule thus guarantees the existence of a cross-subsidy in the utility's rate structure. A regulated firm's rate structure is said to be free of cross-subsidies if and only if the prices satisfy the *incremental cost test*.¹⁸⁷ Applying the incremental cost test, revenues generated by each service cover the incremental cost of providing that service.¹⁸⁸ The rationale for the incremental cost test is the requirement that each service must generate revenues that at least cover the additional cost of producing that service. If not, the other service is providing a cross-subsidy, and the customers of the other service would be better off receiving their service independently, at its stand-alone cost.

If a firm is regulated, it is desirable to design a rate structure that is free of cross-subsidies. Otherwise, the economic incentives can lead to allocative inefficiency. Customers receiving the subsidy do not observe the full economic costs of their service and consequently demand an inefficiently high amount; customers providing the subsidy demand an inefficiently low amount or seek bypass alternatives that may be uneconomic under some conditions. As explained earlier, however, regulators almost invariably require the public utility to conform to a rate structure that is rife with cross-subsidies.

As we shall see shortly, the prohibition against a public utility's exiting its franchise area is another instance in which the regulatory contract compels the utility to deviate from subsidy-free prices so that the state can continue to effect income transfers through the utility's rate structure.

¹⁸⁷ See Baumol & Sidak, *Toward Competition in Local Telephony*, supra note 39, at 57, 81-83; William J. Baumol, *Superfairness: Applications and Theory* 113-20 (1986). Alternatively, a break-even regulated rate structure is said to be free of cross-subsidies if and only if the prices satisfy the *stand-alone cost test*. See Baumol, Panzar & Willig, supra note 41, at 352-53; Baumol & Sidak, *Toward Competition in Local Telephony*, supra note 39, at 81-83. Stand-alone cost refers to the firm's long-run total cost of each service operated separately. The stand-alone cost test requires that the revenues generated from either of two services not exceed the stand-alone cost of providing that service. If the revenues from one service do exceed its stand-alone cost, then that service is providing a cross-subsidy to the other service. (The definition of the stand-alone cost test is given in terms of two services. In the case of more than two services, the test requires that no group of services subsidizes any other group of services.) The test for cross-subsidization demonstrates that the customers of the service providing the cross-subsidy would be better off if that service could be obtained independently of the other service.

¹⁸⁸ The incremental cost test is defined here for only two services. In the case of more than two services, the revenues generated by each group of services must cover the incremental cost of providing that group of services.

b. Service Quality. Regulators require a public utility to maintain specified levels of service quality. Quality of service is a fundamental part of the universal-service requirement. Regulated utilities must maintain sufficient capacity not only to provide service to all customers who request it, but also to meet the peak demands of its customers. With variability of demand, the firm needs to carry the cost of substantial capital investment that can remain idle off-peak. The effect of service quality regulation is that the type of capital equipment that the utility employs to meet its service obligations is tailored to satisfying regulatory specifications, which are often articulated in terms of engineering standards for reliability, capacity, and so on. Moreover, capacity investments are designed to meet service requirements while passing the test of prudence reviews and used-and-useful tests for cost recovery.

Service quality regulations have several significant implications for the recovery of stranded investment. First, it is often the case that the types of facilities that are needed to meet regulatory requirements are ill-suited to competitive markets. That fact does not in itself indicate that the regulated firm failed to invest wisely or that it embraced obsolete technology. Rather, the capacity that is best adapted for one type of market structure should not be expected to fit another type of market structure. For example, after airline deregulation, as airlines switched from direct routes to a hub-and-spoke system, they needed different airport accommodations and different types of planes. The capital equipment that a regulated monopoly needs to provide service is unlikely to match the needs of a competitive firm.

Second, the capital equipment needed by competitive firms is meant to satisfy customer needs rather than one-size-fits-all technological standards. Thus, compared with a firm whose capital investment is designed to serve all in a uniform manner, entrants can target service offerings to specific customer needs and provide better service to some classes of customers.

Third, because the incumbent regulated firm built a system with substantial excess capacity, its cost of maintenance and operation can be expected to differ from those of entrants, who have the prerogative to ration customers. Moreover, the capital facilities of incumbents are long-lived, so that entrants can take advantage of technological change in the design of their facilities. Technological obsolescence of incumbent facilities thus need not indicate errors in the incumbent's investment strategy.

In the case of electric power, the utility must maintain sufficient generation, transmission, and distribution capacity to meet the pattern of demand with baseload, shoulder, and peaking capacity. Because

the cost of storing power is prohibitive, and because regulators do not permit rationing of residential and commercial customers, the utility must recover the costs of capacity through demand charges based on maximum use, and through energy charges. Moreover, the utility provides standby capacity because it must remain prepared to serve customers that self-generate or purchase power elsewhere, whenever they have additional needs for power.

Regulatory standards for generation, transmission, and distribution capacity generally specify high levels of reliability—typically one day of major power outages in ten years.¹⁸⁹ Utilities attempt to meet their power demand at least cost by operating an assortment of power plants (including nuclear, gas, fuel oil, and coal) and by purchasing power. Their supply problem differs from that of specialized entrants who can simply contribute power for resale within a pool arrangement. Utilities attempt to smooth the patterns of electricity usage through peak-load pricing or time-of-day pricing and through other programs to shift the costs of usage toward peak users. Rate regulation constrains such efforts, however. In addition, utilities address the variability of demand through the design of interruptible or curtailable rates that allow industrial users to obtain discounts in return for allowing their load to be dropped if capacity shortages occur during peak periods.

In telecommunications, utilities also must have sufficient transmission and switching capacity available to meet peak demand. Systems are designed in terms of reserve capacity, instead of limiting customer usage with system limits. Telecommunications facilities are designed to meet technical specifications for reliability and accuracy of transmission. Those standards can quickly become obsolete in a market with multiple providers and new transmission technologies such as digital signals and wireless personal-communications services. In addition to such service quality rules that affect capital investment, other rules set standards for time to answer (for operator pick-up), repair time, billing requirements (accuracy and specificity), and reliability in terms of reserve capacity. Those rules can create competitive disadvantages if they are imposed on incumbent utilities but not on entrants.

c. The Implicit Obligation to Maintain Capacity for the Return of the "Prodigal Son." The utility's obligation to maintain capacity for the return of departed customers is analogized to the parable of the

¹⁸⁹ See Leonard S. Hyman, *America's Electric Utilities: Past, Present and Future* 30 (5th ed. 1994).

prodigal son.¹⁹⁰ In the parable, one son asks for his inheritance, leaves his father, and squanders his legacy; the other son stays and manages his father's farm. When the prodigal son returns, impoverished, and begs to be given a job as a mere laborer, the father instead lovingly welcomes the son back into the family and holds a feast to celebrate his return, which angers the loyal son.

Often a large customer will terminate service from the utility and turn either to a competing provider of service or to self-provision of the service. For example, a factory may install its own electrical generators. Nonetheless, the departing customer continues to enjoy the benefits of a service that the utility provides to it: insurance that the customer will be able to rely on the utility to supply service if the customer's alternative source of supply is inadequate. The utility must maintain sufficient capacity to serve the departed customer *if he returns*.

Until he actually returns to the utility, however, the departed customer makes no contribution to recovery of the utility's cost of maintaining standby capacity. Needless to say, the departed customer makes no contribution to margin with which the utility can recoup losses on services provided below cost to politically preferred constituencies. The departed customer is a free rider, and the remaining customers pay the premium on the insurance that he consumes. That insurance subsidy artificially raises the price of service to remaining customers and makes alternative provision of the utility's service increasingly attractive to the utility's remaining customers, particularly large users.

d. Exit Regulation. One significant but neglected implication of the utility's obligation to serve is that the utility cannot exit a market at will. A utility must secure the regulator's authorization through an abandonment proceeding to withdraw service.¹⁹¹ Unlike the utility, competitive entrants can abandon any of their facilities at will. The prohibition on abandonment is therefore clearly an incumbent

¹⁹⁰ Luke 15:11-32; see, e.g., Backup and Maintenance Rates and the Treatment of Stranded Costs, 152 Pub. Util. Rep. 4th (PUR) 349, 353 (Me. Pub. Utils. Comm'n 1994) (asking if "some sort of 'prodigal son' penalty" should be imposed upon customer's return).

¹⁹¹ See William K. Jones, Cases and Materials on Regulated Industries 385-88 (1967); Charles F. Phillips, Jr., The Regulation of Public Utilities: Theory and Practice 570 (3d ed. 1993) ("Voluntary abandonment, either partial or complete, must be approved by the regulatory commissions."); Oliver P. Field, The Withdrawal from Service of Public Utility Companies, 35 Yale L.J. 169, 170-72 (1925); Ford P. Hall, Discontinuance of Service by Public Utilities, 13 Minn. L. Rev. 181 (1929); Note, The Duty of a Public Utility to Render Adequate Service: Its Scope and Enforcement, 62 Colum. L. Rev. 312, 319-22 (1962).

burden, one closely related to the utility's universal-service obligation. Regulators should lift the prohibition on abandonment as soon as they permit competitive entry into the utility's service area. Until that time, the utility, compared with the unregulated firm, faces a barrier to exit. That barrier is substantial because, given rate averaging, the utility is inevitably required to offer some customers service at uncompensatory prices.

In fact, the prohibition against a public utility exiting its franchise area is symmetrical to the *McCall* rule compelling the utility to extend service: If the utility is at least breaking even, then it can be denied the freedom to terminate service on a line that produces an incremental loss, just as it can be compelled to extend service to new customers who would produce an incremental loss.¹⁹² A representative statement of the rule appears in a 1918 decision involving a municipal railway:

If a railway company is under a statutory or a contract duty to maintain and operate a line, it will be compelled by injunction or mandamus so to do, even though the further operation should be at a loss. It is only when there is no valid or binding obligation to continue operation that the company may, at its discretion, abandon an unprofitable line or branch. If there is a binding obligation to maintain and operate a part of a system, it is questionable whether that part or branch can ever be abandoned, unless the losses inflicted by its continued operation are such as will wreck the entire system.¹⁹³

The prohibition on exit is thus another aspect of the regulatory contract that compels the utility to deviate from subsidy-free prices.

The question of abandonment and the utility's right to withdraw service provides a valuable perspective on the regulatory contract concerning the question of whether that contract is enforceable against the utility. The contractual or statutory limits on abandonment resemble a specific-performance requirement for the utility. When a party to private contract commits a breach, an Anglo-American court disfa-

¹⁹² See, e.g., *Fort Smith Light & Traction Co. v. Bourland*, 267 U.S. 330, 332-33 (1925); *Crawford v. Duluth St. Ry.*, 60 F.2d 212, 215 (7th Cir. 1932); *Iowa v. Old Colony Trust Co.*, 215 F. 307 (8th Cir. 1914); *City of Columbus Ry. Power & Light Co. v. Columbus*, 253 F. 499, 505 (S.D. Ohio 1918), *aff'd*, 249 U.S. 399 (1919); *Northern Ill. Light & Traction Co. v. Commerce Comm'n*, 134 N.E. 142, 147 (Ill. 1922); *City of Salina v. Salina St. Ry.*, 220 P. 203, 205 (Kan. 1923). The Supreme Court stated in *Texas Railroad Commission v. Eastern Texas Railroad*, 264 U.S. 79 (1924), that "if at any time it develops with reasonable certainty that future operations must be at a loss, the company may discontinue operation and get what it can out of the property by dismantling the road." *Id.* at 85. To require otherwise would effect a confiscation of property: "To compel it to go on at a loss, or to give up the salvage value, would be to take its property without just compensation which is a part of due process of law." *Id.*

¹⁹³ *Columbus Ry. Power & Light Co.*, 253 F. at 505.

vors specific performance and will order it only when the service or good is unique or when the buyer could not obtain a similar contract in the market.¹⁹⁴ The idea that the municipality or regulatory commission cannot obtain a similar contract in the market motivates the prerogative that the commission enjoys at common law, a prerogative resembling the remedy of specific performance, to demand that the utility discharge its obligation to serve by not abandoning routes or lines serving an incrementally unprofitable group of customers. With the arrival of competition, however, the motivation for restrictions on abandonment would seem to vanish, for the regulator then can rely on the market to obtain services for those customers whom the utility would abandon. That rationale can be found in the existing cases. Courts have considered the availability of adequate substitute service relevant to whether the regulated firm may be allowed to abandon service on a line or to a group of customers that is incrementally unprofitable.¹⁹⁵ When such substitutes are available, courts have even allowed the regulated firm that is profitable as a whole to exit an incrementally unprofitable segment of the market.¹⁹⁶

D. Remedies for Breach of the Regulatory Contract

Contract remedies provide guidance on the measurement of stranded costs and the proper economic approach to determining compensation for those costs. Given that the utility's costs were incurred under the regulatory contract, the opening of the utility's market to competition—that is, the termination of entry regulation protecting the utility's franchise—is a breach of a material term of that contract if not accompanied by an offsetting removal of incumbent burdens. It is opportunistic behavior by the promisor—namely, the regulator.

In private contracts, damage remedies for breach guard against opportunistic behavior. The standard remedy for breach of contract is

¹⁹⁴ See William Bishop, *The Choice of Remedy for Breach of Contract*, 14 *J. Legal Stud.* 299, 307 (1985); Anthony T. Kronman, *Specific Performance*, 45 *U. Chi. L. Rev.* 351, 357-58 (1978); Alan Schwartz, *The Case for Specific Performance*, 89 *Yale L.J.* 271, 272 (1979); Steven Shavell, *The Design of Contracts and Remedies for Breach*, 99 *Q.J. Econ.* 121, 146 (1984); Thomas S. Ulen, *The Efficiency of Specific Performance: Toward a Unified Theory of Contract Remedies*, 83 *Mich. L. Rev.* 341, 364 (1983).

¹⁹⁵ See, e.g., *Mississippi R.R. Comm'n v. Mobile & O.R.R. Co.*, 244 U.S. 388, 395-96 (1917); *State ex rel. Kirkwood v. Public Serv. Comm'n*, 50 S.W.2d 114, 116 (Mo. 1932).

¹⁹⁶ *Cincinnati N.R.R. v. Public Utils. Comm'n*, 165 N.E. 38, 41 (Ohio 1929) (railroad passengers adequately served by bus); *Union Pac. R.R. v. Public Serv. Comm'n*, 132 P.2d 128, 130 (Utah 1942) (same).

to award the promisee its *expectation interest*.¹⁹⁷ The proper remedy for breach of the regulatory contract is therefore to give the utility the expected level of profit that it would have received had there not been a breach of the regulatory contract. The contract price under the regulatory contract equals the sum of the utility's revenue requirements over the years that the regulatory contract was expected to remain in force. As noted previously, the revenue requirement equals the utility's operating cost (plus depreciation), plus its allowed rate of return multiplied by its rate base. The utility's variable cost equals its operating cost plus depreciation.

1. *The Public Utility's Right to Expectation Damages for the Regulator's Breach of the Regulatory Contract*

The expectation-damages remedy for breach of the regulatory contract can be calculated based on principles of contract law. It is useful to specify the method of determining those damages in the context of regulation.

Consider the simplest case of a two-period investment problem. In the initial period, the regulated firm makes an irreversible investment of I dollars in plant and equipment. The regulated utility expects to earn revenues R^e and to incur operating costs C^e in the second period. The regulated firm discounts its earnings at rate i , which represents the opportunity cost of capital in an investment of comparable risk. The expected profit of the regulated firm is therefore equal to discounted expected revenues net of operating costs minus capital investment:

$$\text{Expected profit} = \frac{R^e - C^e}{1+i} - I.$$

The profit is also referred to as *economic rent*. The net revenues $R - C$ are referred to as *quasi-rent*.

Economic rent provides an incentive for a firm to enter the market. That means that the contract must be such that expected profit is greater than or equal to zero. The regulated firm would not make an investment unless the present discounted value of net revenues exceeds investment cost.

Economic quasi-rent provides an incentive for a firm to remain in the market. Once the firm has sunk its irreversible investment I , the

¹⁹⁷ See Dan B. Dobbs, *Handbook on the Law of Remedies: Damages, Equity, Restitution* 786-88 (1973); E. Allan Farnsworth, *Legal Remedies for Breach of Contract*, 70 *Colum. L. Rev.* 1145, 1148 (1970); L.L. Fuller & William R. Perdue, Jr., *The Reliance Interest in Contract Damages*: 1, 46 *Yale L.J.* 52, 52-53 (1936).

firm no longer considers the investment in its decisionmaking. In this simple two-period model, the firm decides whether or not to produce depending on whether expected revenues cover expected costs, $R^e \geq C^e$. That is precisely the temptation for the other party to the contract to behave opportunistically. The regulator has an incentive at that point, after the investment has been made, to seek to lower revenue payments to the level of expected operating costs. The regulated firm would continue to operate even if revenues were lowered all the way to the level of expected operating costs. Thus, regulatory opportunism is an attempt to capture the regulated firm's quasi-rent.

Suppose that the regulator breaches the contract after the regulated firm has made the irreversible investment in plant and equipment. If the regulated firm does not operate, it does not receive revenues R , but it also does not incur operating cost C . Thus, expectation damages for breach of contract equal the net revenues forgone:

$$\text{Expectation-damages payment} = R^e - C^e.$$

Accordingly, expectation damages equal the firm's expected net earnings and correspond exactly to the firm's quasi-rent. If the expectation-damages payment is made, then the regulated firm earns the profit that it would have made had the contract been honored. Moreover, the regulator is not tempted to breach the contract simply to capture the quasi-rent, because that would be the precise amount of the damage payment.

If the damages are to be paid in the preceding period, it is necessary to discount damages. The appropriate discount rate should reflect the regulated firm's cost of capital, which depends on the riskiness of regulated returns. Then, the present value of the expectation-damages payment is $(R^e - C^e)/(1 + i)$. Typically, the assets of regulated utilities have long lifetimes. Thus, expectation damages in the initial period should equal the expected present discounted value (*PDV*) of cash flow over the time horizon T that the firm expected to earn revenues from the regulated assets:

$$PDV = \sum_{t=0}^T \frac{R_t^e - C_t^e}{(1+i)^t}.$$

In the *PDV* calculation, the terms R_t^e and C_t^e denote expected revenues and operating costs in period t , and i is the discount rate.

2. Competition and Mitigation of Damages

If the regulated utility's productive assets are removed from service as a result of competitive rules and continuing regulation, then its

stranded cost is a loss to society. As in the case of any loss of resources, steps to mitigate the loss should be taken by parties in a position to do so.¹⁹⁸ The common law is replete with instances where a party legally entitled to compensation for a harm it has suffered nonetheless is obliged to mitigate that harm if possible.¹⁹⁹ Not surprisingly, state PUCs have addressed the recovery of "nonmitigable" stranded costs, a concept whose meaning we shall now explore.

a. The Utility's Duty to Mitigate and the Regulator's Duty Not to Impede Mitigation. Though it is clear that the utility's duty to mitigate stranded costs serves the interest of consumers, it is also clear on closer inspection that mitigation serves the utility's best interest as well. That is so because the utility's large business customers do not have service contracts that terminate simultaneously. As customers with early expiration dates depart, they leave the as-yet-unrecovered portion of stranded costs to be borne by a dwindling number of remaining customers. But the overwhelming number of those remaining (commercial and industrial) customers can be presumed to operate in competitive markets for their own goods and services. A firm in a competitive market that is made to pay a higher price than its rivals for an essential input such as telecommunications will suffer losses and, in the extreme case, eventually cease operations. Companies that cease operations do not buy any telecommunications services from the utility, even if they remain contractually obligated to do so.

Knowing that it cannot bankrupt or financially jeopardize its remaining customers in that manner, the utility has a strong incentive to find new customers for its excess capacity. The obligation illustrates that the economic interests of the utility and consumers are indeed often entirely compatible, despite appearances to the contrary.

Those losses are offset by revenues that the utility will earn in the marketplace *using those same facilities*. As in the preceding example, the expectation damages that would restore the utility to the position that it would have occupied had the regulatory contract not been breached equal the utility's revenue requirement net of competitive-market revenues. *Therefore, the proper economic measure of stranded costs equals the difference between (1) the public utility's net revenue requirement under regulation and entry controls and (2) the net reve-*

¹⁹⁸ The following discussion expands that found in Baumol & Sidak, *supra* note 17, at 111-13.

¹⁹⁹ For discussion of the common law duty to mitigate contract damages, see *Rich v. Daily Creamery Co.*, 296 N.W. 253 (Mich. 1941); *Sauer v. McClintic Marshall Constr. Co.*, 146 N.W. 422 (Mich. 1914); Restatement (Second) of Contracts § 350 cmt. b (1979).

nues earned by the utility from those stranded facilities in the competitive market.

It is important not to deduct all of the utility's potential earnings in the competitive market, for they may include earnings from newly expanded facilities that would have been obtained even if the regulatory contract had continued in force. Only those revenues earned from facilities that were released by the termination of the regulatory contract should be used to offset the losses.

Some harm is nonmitigable. Regulatory assets generally have no market value because they are no more than accounting conventions. They represent additions to the rate base used to recover operating expenses for such regulatory programs as demand-side management. Common sense and economic efficiency dictate that the regulator not perpetuate policies that continue to increase the magnitude of such regulatory assets at the same time that the regulator is contemplating remedies for breach of the regulatory contract. Even if the regulator takes steps on its own to mitigate the stranding of regulatory assets by ending programs such as demand-side management, it will still be difficult for the utility to mitigate damages resulting from its inability to recover the cost of facilities that deregulation has made obsolete. It may be the case that *no* form of mitigation is available to the utility other than to do what competition would require—namely, to retire facilities whose revenues fail to cover operating costs.

Furthermore, the regulator has a duty not to interfere with the utility's efforts to mitigate stranded costs. Mitigation requires the utility to make the best use of capital facilities created under regulation. It is therefore essential that the regulator not restrict the incumbent utility's pricing and product offerings in the new competitive environment. The regulator's imposition or continuation of pricing restrictions and quarantines can only increase the magnitude of the utility's nonmitigable stranded costs, which ultimately will harm consumers.

b. The Measurement of the Utility's Expectation Damages Net of Mitigation. Expectation damages emphasize the public utility's forgone earnings as a consequence of the regulator's breach of the regulatory contract. One should therefore compute the value of stranded assets by calculating the utility's expected net revenue stream under regulation and subtracting the utility's expected net revenue stream under competition.

The regulator breaches the regulatory contract by opening the market to competition. The utility is likely to continue operating. It may experience lower revenues, but its costs may change as well. Let R_1^e and C_1^e denote expected revenues and costs under regulation, and

let R_2^e and C_2^e denote expected revenues and costs under competition. Then, the fundamental measure of the change in the firm's net expected earnings is defined as:

$$\Delta \equiv (R_1^e - C_1^e) - (R_2^e - C_2^e).$$

The expectation damages for a given period equal the difference between the contract price net of regulated costs and the market price net of competitive-market costs:

$$\text{Expectation damages} = \Delta.$$

The net revenues in the competitive market, $R_2^e - C_2^e$, are the *mitigation* of contract damages. If the regulated firm earns this amount and receives the damages payment, that is sufficient to restore the seller's expected profit. The expectation-damages payment assumes that the payment is made at the time that the net revenues would have been incurred.

Measurement of expectation damages is further complicated because the assets of the deregulated utility have long lives. Let PDV_1 denote the present discounted value of expected net revenues under regulation as previously defined. Similarly, define PDV_2 as the present discounted value of expected net revenues earned by the firm under competition. The economically correct measure of damages net of mitigation is to take the difference, Δ^* , between the present discounted values of the two cash flows:

$$\text{Expectation damages} = \Delta^* \equiv PDV_1 - PDV_2.$$

When there is only a single period, that expression coincides with the single-period expectation-damages measure. When there is more than one period, the calculation of damages encounters at least two difficulties. First, the time horizons for the two PDV calculations can easily differ. For example, the assets may be retired from service much sooner in the competitive case than they would be in a regulated industry. So there are two distinct time horizons, T_1 under regulation and T_2 under competition. Second, the discount rates will most likely differ in the two PDV calculations. For example, increased risk in the competitive market will require a higher rate of discount in the competitive PDV . Therefore, there are two discount rates, i_1 under regulation and i_2 under competition. Because the competitive firm expects to earn PDV_2 under competition, it follows that the expectation-damages payment (possibly with different time horizons and discount rates for the two PDV calculations) restores the expectation of the firm to its initial expectation, which is PDV_1 .

3. *The Superiority of the Net-Revenue Approach to the Asset-by-Asset Approach to Measuring Damages for Breach*

The expectation-damages approach emphasizes the net revenues of the regulated utility. That approach contrasts with the *reliance interest* of the public utility, which equals the irreversible, transaction-specific investment that the utility made in reliance on the continuation of the regulatory contract. That amount is equal to the rate base, which is the book value of the investment in facilities, net of depreciation. Because of the regulated revenue requirement, expectation damages and reliance damages coincide if reliance damages include the utility's rate base net of depreciation, plus additional liabilities that the utility expected would be included in the rate base. The two damage measures do not coincide with a narrow interpretation of stranded investment that does not take into account the full set of costs.

The expectation-damages approach has a distinct advantage over remedies that are based on an assessment of the regulated firm's capital expenditures. Most significantly, expectation damages provide the correct incentives for regulators to honor the regulatory contract when it is efficient to do so, thus deterring regulatory opportunism. Moreover, expectation damages provide incentives for efficient breach. If the benefits of competition exceed the benefits of regulation, the expectation-damages remedy will send the correct signal.

If competition lowers operating costs, then it is worthwhile to shift from regulation to competition. That is, competition is desirable if $C_1 > C_2$. Note that the damage payment is positive only if revenue payments fall under competition as well. Breach of the regulatory contract is called for if and only if the payment to the firm under regulation exceeds the payment to the firm under competition plus the payment for breach of contract:

$$R_1 > R_2 + [(R_1 - C_1) - (R_2 - C_2)].$$

By cancelling the revenue terms on both sides of the equation, we obtain again the cost inequality $C_1 > C_2$. This establishes that with the expectation-damages remedy, the regulator will breach the regulatory contract if and only if competition lowers operating costs.

That insight addresses the common complaint that the benefits of competition will not be achieved if a damage remedy must be paid to incumbent utilities before moving to competition. On the contrary, the benefits of competition stem from operating efficiencies and the corresponding lowering of revenue payments. Paying damages to compensate the regulated firm still leaves benefits for consumers. The

benefits derive from lower costs, not income transfers from investors to consumers.

There are other benefits from a revenue-based approach, not the least of which is avoidance of reopening past regulatory hearings. Under the established regulatory process, regulators and intervenors carefully scrutinized the utility's investments before they were made. Those investments included in the rate base were judged to have been prudently incurred. The only investments stranded by competition are those in the rate base. In the electric power industry, some persons opposed to allowing a public utility the opportunity to recover stranded costs characterize those costs as imprudent investments in inefficient and uncompetitive generation facilities. That characterization ignores that the public utility commission considered those generation facilities to be efficient when it approved them as part of the overall set of utility-generating facilities. Moreover, those facilities were designed on the basis of expectations of technology, capacity utilization, and customer requirements *at the time that those assets were installed*. For regulators to reevaluate those decisions on the basis of current market conditions is entirely appropriate for current planning purposes, but it is entirely inappropriate as a review of past choices using 20/20 hindsight.

The utility's loss from the regulator's breach of the regulatory contract equals the contract payments net of operating costs for the time period that the regulatory contract was expected to remain in force. In any single year, the utility's stranded investment equals the utility's rate base times its allowed rate of return. The loss therefore includes the book value of capital facilities and the capitalized value of "regulatory assets" that the regulator has permitted or directed the utility to include in its rate base.

The earnings-based approach is preferable to revisiting each of the utility's specific capital investments and expenditures and then summing those that have become "stranded." First, it is not necessary to value the utility's costs and investments in an asset-by-asset manner, for that analysis already took place in regulatory rate hearings and prudency reviews. Listing specific costs and evaluating whether or not they were stranded reopens all of the past rate hearings and prudency reviews. Second, an asset-by-asset review could introduce errors in estimating stranded investment if the calculation excluded some reliance expenditures. Third, the asset-by-asset approach ignores that the relevant inquiry posed by the problem of stranded costs is how to compensate the utility for its forgone *expectations* under the regulatory bargain. A retrospective, asset-by-asset approach is likely

to underestimate the utility's damages and thus create incentives for the regulator to resort to inefficient breach of the regulatory contract.

The expectation-damages approach emphasizes that contracts do not protect investment per se; rather they serve to protect *expected gains from trade*. As Justice McLean observed, the value of the Charles River Bridge lay in the tolls that it could be expected to earn, not in the quantity of timber and stone that the structure contained. It is therefore not necessary to itemize and reevaluate every component of stranded investment and other costs to assess the value of stranded investment unless such a procedure is performed in the context of estimating the regulated revenue requirement.

By emphasizing the revenue requirement, the expectation-damages approach also makes it clear how to compare regulated earnings with the relevant portion of the utility's earning after deregulation, without the need to designate specific assets as competitive or stranded.

The net-revenue approach clearly shows that there are benefits from the removal of some of the utility's obligations to serve and other incumbent burdens. Doing so will raise net revenues for the incumbent public utility and hence lower required compensation. The award of expectation damages for stranded costs implies that the removal of incumbent burdens by the public utility commission or state legislature will lower the incumbent utility's stranded costs.

4. *Contract Modification: The Replacement of Rate-of-Return Regulation with Incentive Regulation*

Parties to a contract sometimes modify their agreement and thus supersede the old contract with a new one. With respect to the regulatory contract, modification has occurred when the regulator and the public utility have agreed, through the formality of public rulemakings, to alter a key provision of the contract, such as the manner in which the price of the utility's output is determined and whether the utility's profit level will be regulated along with its price. That modification has taken the form of the transition from cost-of-service, rate-of-return regulation to incentive regulation such as price caps.²⁰⁰ State legislatures have also participated in some modifications of the regulatory contract by repealing statutes that prohibit competitive entry into regulated services such as local exchange telephony.²⁰¹ Some

²⁰⁰ See generally David E.M. Sappington & Dennis L. Weisman, *Designing Incentive Regulation for the Telecommunications Industry* (1996).

²⁰¹ See, e.g., Cal. Pub. Util. Code § 2882.3 (West Supp. 1996); Va. Code Ann. § 56-235.5 (Michie Supp. 1996).

of the new regulatory structures even carry the name "social contract."²⁰²

A change in regulatory procedures, such as a switch from rate-of-return regulation to a system of price caps, does not necessarily represent a termination of the regulatory contract. Generally, such changes in telecommunications and electricity regulation have preserved the regulator's obligation to provide the utility with an opportunity to earn a competitive rate of return on its investment.

The basic system of price caps often keeps in place other aspects of rate regulation. The regulator continues to control rates through the caps; the utility has price flexibility below the price limit. Price-cap formulas frequently feature sharing rules that require the utility to divide earnings above some threshold amount with its customers. Regulators typically continue to assume responsibility for the financial health of the regulated utility. The basic dimensions of the regulatory contract remain in place if regulators retain the system of entry controls as revenue-protection devices and maintain the utility's service obligations.

For example, the California Public Utilities Commission (CPUC) included *financial and rate stability* among its goals in establishing its system of incentive regulation for local exchange carriers called the "new regulatory framework."²⁰³ The financial stability goal meant that the financial condition of the local telephone exchange carriers should not change markedly under the new regulatory framework. According to the CPUC: "Stability is an important aspect for any plan. As financial stability promotes rate stability, customers, utilities and other market participants will each benefit from predictable prices for utility services."²⁰⁴ Despite the use of a price-cap formula for adjusting rates, the CPUC continued extensive monitoring of the regulated companies' financial and operational information, indicating the regulator's continued responsibility for the financial return of the

²⁰² See, e.g., Proposed Policies Governing Restructuring California's Electric Services Industry and Reforming Regulation, 151 Pub. Util. Rep. 4th (PUR) 73 (Cal. Pub. Utils. Comm'n 1994); Alternative Regulatory Frameworks for Local Exchange Carriers, 107 Pub. Util. Rep. 4th (PUR) 1, 41 (Cal. Pub. Utils. Comm'n 1989); New England Tel. & Tel. Co., 153 Pub. Util. Rep. 4th (PUR) 355, 363 (Mass. Dep't Pub. Utils. 1994); New England Tel. & Tel. Co., 123 Pub. Util. Rep. 4th (PUR) 289, 305 (N.H. Pub. Utils. Comm'n 1991); Comprehensive Review of Telecommunications, 138 Pub. Util. Rep. 4th (PUR) 620 (R.I. Pub. Utils. Comm'n 1992).

²⁰³ As the commission defines it, the new regulatory framework is an incentive-based regulatory framework "centered around a price cap indexing mechanism with sharing of excess earnings above a benchmark rate of return level." Alternative Regulatory Frameworks for Local Exchange Carriers, 107 Pub. Util. Rep. 4th (PUR) at 13.

²⁰⁴ Id. at 153.

LECs. The CPUC indicated its intent to maintain the utilities' financial returns through *increased* regulation:

A regulatory structure which combines the price cap indexing approach with a sharing mechanism can provide protection to both shareholders and ratepayers from the risks that the indexing method may over- or underestimate the revenue changes which are needed to keep the utility financially healthy—but not too healthy. The increased regulatory involvement required to implement and maintain a sharing mechanism is a price we are willing to pay at this time for this added protection.²⁰⁵

Thus, the switch to incentive regulation, while maintaining other components of the regulatory contract, represents at most modification, not abandonment, of the contract.

Changes in the mechanism of rate adjustment are an administrative procedure instead of a fundamental change in contract terms. Price-cap mechanisms provide incentives for efficiency by allowing utilities to keep some of the gains from cost reductions. Such benefits existed under rate-of-return regulation as a consequence of lags between rate hearings. Price caps confer pricing flexibility allowing the regulated utility to carry out some limited changes in its rate structure, while keeping regulatory control over total revenues. Incentive regulation begins to constitute a fundamental renegotiation of the regulatory contract only when it is coupled with relaxation of entry controls and changes in the utility's obligations to serve.

The use of price caps and other forms of incentive regulation does not alter the manner in which damages for breach of the regulatory contract are calculated. The damages should still equal the present value of net revenues. The amount of damages should be adjusted to the extent that the pricing method alters the net revenue expectations of the utility. The relaxation of entry barriers reduces earnings, and competitive opportunities allow for mitigation as before. The formula for calculating damages thus remains the same.

E. Mistake and Impossibility

When, in private contracts, an unforeseen event makes the performance of a contract substantially more costly for one of the parties than was envisioned at the time of contract formation, the party facing that higher cost of performance understandably can be expected to argue that he should be excused from performing the contract because

²⁰⁵ *Id.* at 88.

it is impossible to do so.²⁰⁶ Similarly, one party in those circumstances may seek to be excused from performance on the grounds that no contract in fact exists because of the (presumably mutual) mistake of the promisor and promisee. Regulators may similarly claim mistake or impossibility as a defense to efforts by the regulated firm to enforce the regulatory contract.²⁰⁷ It was a mutual mistake of fact, the state would assert, not to foresee that a competitive-market structure could arise in the relevant network industry. Similarly, the advent of a competitive market, the state would argue, makes it impossible for the state to ensure that the regulated firm will receive the reasonable opportunity to recover its invested capital and earn a competitive rate of return on it.

Before we examine the plausibility of such arguments, it bears emphasis that by their very nature such defenses raised by the regulator reinforce the conclusion that the regulated firm and the state entered into a contract. The thrust of those defenses is that the formation of the regulatory contract was faulty because of mutual mistake, or that outside forces prevent the regulator's performance of that contract at a cost that the parties *ex ante* would have considered reasonable. In either case, the regulator's defense forecloses the argument that it never had a contractual relationship with the regulated firm. Furthermore, whenever a party invokes the defense of impossibility or mistake, the natural question to ask is whether the parties already contracted, implicitly if not explicitly, for the risk in question to be borne by the party now seeking to have the contract declared void. In the case of a regulated utility, that question is especially compelling, for a critical objective of the regulatory contract is to reduce the volatility surrounding the allowed rate of return, thereby allowing the utility to use debt efficiently in funding its transaction-specific, long-lived investments in infrastructure.

Consider now the remedy if the regulatory contract were declared void and service were terminated. When, because of mistake or impossibility, a contract is rescinded or deemed never to have been formed in the first place, the court orders the parties to make restitution of the benefits conferred upon one another.²⁰⁸ That remedy is intended to prevent the parties from being unjustly enriched at the

²⁰⁶ See Richard A. Posner & Andrew M. Rosenfield, *Impossibility and Related Doctrines in Contract Law: An Economic Analysis*, 6 *J. Legal Stud.* 83, 89-90 (1977).

²⁰⁷ For a discussion of this problem in the guise of disallowances of prudently incurred capital investments, see Richard J. Pierce, Jr., *The Regulatory Treatment of Mistakes in Retrospect: Canceled Plants and Excess Capacity*, 132 *U. Pa. L. Rev.* 497, 511-17 (1984).

²⁰⁸ Restatement (Second) of Contracts §§ 376, 384 (1981); Restatement of Restitution § 150 (1937); Dobbs, *supra* note 197, at 266, 722, 741.

expense of the other or unjustly penalized. The parties are to be restored to the positions that they would have occupied had the contract not been signed. Such an exercise presents difficulties, for the transaction at issue—namely, the creation of and investment in the regulated firm—gives rise to costs that cannot be recovered.

For the regulated utility, restitution of the benefits that it conferred upon the state (for consumers, as third-party beneficiaries) suggests a damage remedy similar to recovery of reliance expenditures. Because the utility is subject to cost-of-service regulation, the utility's expected revenues were meant to recover the economic costs of providing service. Thus, the utility was expected to receive the reasonable opportunity to recover the cost of its investment and to receive a competitive rate of return. To the extent that the utility did not recover some portion of its costs under the agreement, it should be allowed to recover the remaining amount from consumers.

A court should offset such recovery by deducting any benefits that the regulated firm received up until the moment of rescission. That offset would include the maximum of the scrap value of the capital investment or the returns that could be obtained from continued operation of the facilities in the competitive market. By deducting the returns that would be earned by continued operation of the facilities, the regulated firm would not benefit from the continued services of facilities, from continued use of public rights of way (presumably at incremental cost), or from facilities constructed using eminent domain. The past benefits of entry regulation need not be reimbursed because rate (or price) regulation already constrained the utility's revenues. Moreover, in retail wheeling and in the unbundling of the local telephone loop, the regulator has already taken the benefit of entry regulation away from the incumbent regulated firm.

Up until the moment of rescission, what benefits have consumers received from the regulated firm? During each preceding year that a regulatory contract was thought to be in effect, consumers compensated the utility under cost-of-service regulation for the value of service delivered. The services consumed cannot be returned, and reasonable payment has already been made. Thus, the remaining compensation that need be made by consumers in this case is the regulated firm's rate base plus a fair rate of return to capital investment. The depreciation schedule required by the regulator meant that consumers received service at a price that paid for the retirement of a lesser amount of the utility's invested capital than was realistic in light of the economic obsolescence of generation assets precipitated by newer, more efficient technologies or changes in regulation. Similarly, consumers received the benefits of all the incumbent burdens, dis-

cussed at length earlier, that were borne by the regulated firm between the outset of the contract and the time of the contract's rescission.

The next question is, who is responsible for preventing mistakes in contract formation? The efficient solution to that question is to place the responsibility for preventing mistakes on the party who can do so at the least cost. The regulated firm has a responsibility to present accurate data of cost and performance of its service obligations to the regulatory authority. Those responsibilities already are reflected in disclosure requirements. The regulator has a responsibility to make clear its own regulatory policy, in terms of what types of investment are approved for inclusion in the rate base, what prices the utility may charge, and what the utility's service obligations are. The regulatory authority surely is the party best informed about impending changes in its own policies, particularly with regard to substantial deregulation. The regulator has a professional staff and operates a system of public hearings on the record. It should not be able to sustain a defense that it did not understand the terms of the regulatory contract.

F. *Promissory Estoppel*

The relationship between the public utility and the regulator is a contract. For sake of argument, however, assume the counterfactual: that no contract can be found to exist between the utility and its regulator. The regulated firm would still be entitled to recover damages from the state at least in the amount of the utility's costs incurred in detrimental reliance on representations made to it by the regulator.

The doctrine of promissory estoppel entitles a promisee to recover damages even though no contract existed between him and the promisor, usually for lack of consideration flowing from the promisee to the promisor. The *Restatement (Second) of Contracts* provides: "A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise."²⁰⁹ At a minimum, the damages that the promisee may recover under promissory estoppel are reliance damages. Moreover, legal scholars note that, as

²⁰⁹ Restatement (Second) of Contracts § 90(1) (1979). An earlier version of the same general notion appeared in Restatement of Contracts § 90 (1932). See generally Robert Birmingham, Notes on the Reliance Interest, 60 Wash. L. Rev. 217 (1985); Melvin A. Eisenberg, Donative Promises, 47 U. Chi. L. Rev. 1 (1979); Jay M. Feinman, Promissory Estoppel and Judicial Method, 97 Harv. L. Rev. 678 (1984); Richard A. Posner, Gratuitous Promises in Economics and Law, 6 J. Legal Stud. 411 (1977).

such cases have increasingly involved business relationships²¹⁰ rather than the traditional classroom hypothetical of the rich uncle who promises to pay his nephew's college tuition, courts have become more inclined to protect the promisee's expectation interest, presumably on the reasoning that "in business cases, expectation recovery may better reflect opportunity losses than would reliance recovery."²¹¹ Thus, a number of courts have awarded the promisee lost profits under a promissory estoppel theory.²¹²

The natural question that arises when promissory estoppel is applied to the relationship between the regulator and the regulated firm is whether the regulator has indeed made a promise. Under traditional contract principles, the answer is yes. The *Restatement (Second) of Contracts* defines a promise as "a manifestation of intention to act or refrain from acting in a specified way, so made as to justify a promisee in understanding that a commitment has been made."²¹³ Compare that definition with the notice of proposed rulemaking, and its subsequent report and order, that typify the actions of a regulatory body with jurisdiction over telephone companies, electric utilities, and other regulated network industries. Those documents routinely are dozens of pages long and reflect hundreds of pages of comments of interested parties to whom the regulator is required, by state or federal administrative procedure statutes, to give notice of proposed changes in regulation.²¹⁴ And, although a regulatory agency is free to repudiate an earlier policy upon which private parties may have relied, it must give a reasoned explanation when doing so.²¹⁵

In the specific case of long-lived investments made by local exchange carriers or electric power companies, the regulator's "manifestation of intention to act or refrain from acting in a specified way"²¹⁶ is even more inescapable. In such instances, regulators convened proceedings to review specific proposed capacity additions and rate-base inclusions of investments in facilities, and these proposals were often hotly contested by interested parties. What else could such proceed-

²¹⁰ Feinman, *supra* note 209, at 691 n.59 ("[P]romissory estoppel cases now arise chiefly in commercial contracts.")

²¹¹ *Id.* at 688.

²¹² See, e.g., *Walters v. Marathon Oil Co.*, 642 F.2d 1098, 1100-01 (7th Cir. 1981); *Universal Computer Sys., Inc. v. Medical Servs. Ass'n*, 628 F.2d 820, 824-25 (3d Cir. 1980); *Arnold's Hofbrau, Inc. v. George Hyman Constr. Co.*, 480 F.2d 1145, 1148 (D.C. Cir. 1973); *Walker v. KFC Corp.*, 515 F. Supp. 612, 617 (S.D. Cal. 1981).

²¹³ *Restatement (Second) of Contracts* § 2 (1979).

²¹⁴ See, e.g., 5 U.S.C. § 553 (1994).

²¹⁵ *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983).

²¹⁶ *Restatement (Second) of Contracts* § 2 (1979).

ings purport to do if not "justify a promisee in understanding that a commitment has been made"?²¹⁷

In short, "contract" or not, the commitments made by the regulator to the regulated firm constitute a promise upon which that firm could be expected to rely. Thus, the promise gives rise to a remedy of at least reliance damages, if not expectation damages.

III

TAKINGS AND THE PROPERTY OF REGULATED COMPANIES

The Supreme Court has placed takings cases into three categories. In declining order of judicial solicitude given the property owner, the categories are physical invasions of property, confiscatory public utility rates, and regulatory takings.²¹⁸ Breach of the regulatory contract does not fit automatically into any one of those categories because, being unprecedented, it necessarily is a case of first impression under the Takings Clause. That is true even with respect to the precedents addressing public utility regulation. Although arguments can be made for and against recovery of stranded costs, ultimately the Supreme Court (and its counterpart in other nations) will have to rely on first principles of legal and economic theory to decide whether to recognize a deregulatory taking as an event necessitating the state's payment of just compensation. Those principles, we argue here, support such payment. We then examine the Court's reasoning under each of its three doctrinal branches of takings jurisprudence to determine the extent to which a deregulatory taking can be analogized to cases decided under those doctrines. We conclude that under all three branches of existing takings jurisprudence, the regulator's abrogation of the regulatory contract is a compensable confiscation of the property of the regulated firm.

A. Economic Rationales for Property Protections

It is difficult to imagine a market economy without legal protections for private property. The definition and enforcement of prop-

²¹⁷ *Id.* Feinman notes that:

The standard . . . is not whether the promisor clearly made a promise, but whether, given the context in which the statement at issue was made, the promisor should reasonably have expected that the promisee would infer a promise. This standard may be met not only by a particular promise or representation, but also by general statements of policy or practice . . .

Feinman, *supra* note 209, at 692.

²¹⁸ See Richard A. Epstein, *Takings: Of Private Property and Common*, 64 *U. Chi. L. Rev.* (forthcoming winter 1997).

erty rights are the legal foundation of a market economy. The economic functions of property rights are several.

1. *Completeness, Exclusivity, and Transferability as Prerequisites of Allocative Efficiency*

Clearly defined property rights are necessary for the exchange of goods and services between individuals. Market exchange cannot take place in the absence of complete, exclusive, and transferable property rights. Before one can transfer ownership of a resource in a market transaction, there must be a meeting of the minds over what bundle of rights is being bought and sold. Even immediate transactions require a definitive understanding of the seller's exclusive ownership of a good and the ability to transfer that ownership to the buyer. Property rights provide the common understanding between buyer and seller, and thus make exchange possible.²¹⁹ Economic analysis demonstrates that market exchange allocates resources to their highest-value use. Well-defined property rights are therefore necessary for the economy to achieve an efficient allocation of resources.

2. *Exclusivity and Voluntary Exchange*

Property rights help to ensure that market exchange is voluntary. Even if property rights to goods were complete and exclusive, transferability is required for prices to emerge and for goods to be allocated to the highest-value user. Property rights protect individuals from confiscation of property by individuals, companies, or the government. The Supreme Court emphasized in *Dolan v. City of Tigard*,²²⁰ as it had in earlier takings cases, that "the right to exclude others [is] 'one of the most essential sticks in the bundle of rights that are commonly characterized as property.'"²²¹ The force of that observation, of course, is in no way limited to real property. Any productive activity requires an investment of labor, capital, and other resources, as well as some delay, before the fruits of those investments are reaped.

3. *Incentives for Investment*

Property rights are essential for production because they protect individuals and companies that invest resources in productive activities. That is so since property rights guarantee that the investor owns the fruits of his efforts and expenditures. Noting that "[a]ll this has

²¹⁹ See, e.g., Richard A. Posner, *Economic Analysis of Law* § 3.1, at 33 (4th ed. 1992).
²²⁰ 114 S. Ct. 2309 (1994).

²²¹ *Id.* at 2316 (quoting *Kaiser Aetna v. United States*, 444 U.S. 164, 176 (1979)).

been well known for hundreds of years," Judge Richard Posner observes that "without property rights there is no incentive to incur these costs because there is no reasonably assured reward for incurring them."²²² Thus, property rights are the foundation of static allocative efficiency as well as dynamic allocative efficiency. Static allocative efficiency is achieved when resources are employed in their current highest-value use by consumers and firms. Dynamic allocative efficiency is achieved when resources are employed in the highest-value use over time. Dynamic allocative efficiency can be applied to evaluate resource conservation, investment, entry, and other decisions with costs and benefits occurring over time.

Without protection of property there would be a reduction in incentives to invest, because there would be an increased risk that others would appropriate the returns to the investment. The classic example is the farmer planting crops in anticipation of reaping the harvest. Those who confiscate property or the productive returns created by the investment of resources are free riding on the efforts of others. Free riders create economic inefficiencies because they do not take account of the full costs associated with their behavior.

Similarly, conservation represents an investment in natural resources.²²³ The conservationist leaves natural resources in the ground for future use, or lets renewable resources such as fish and forests appreciate in value through growth.²²⁴ If an individual does not have ownership of the resource, he is deprived of the incentive to refrain from current consumption, and the resource will be depleted at a faster rate than is economically efficient. That result is equivalent to underinvestment in the resource. In the absence of complete and exclusive property rights, the well-known "tragedy of the commons" emerges: Free-riding individuals will compete to deplete a scarce resource, rather than make efficient use of the resource and invest in its further development.²²⁵

The incentive for investment has direct implications for capital markets. Investors in corporations purchase shares to obtain the residual claims on the company's returns—that is, the after-tax profits of the company net of payments to debtholders. Without property protection of returns to equity, investors similarly would have a re-

²²² Posner, *supra* note 219, § 3.1, at 32 (citing 2 William Blackstone, *Commentaries* *4, *7).

²²³ See generally *Essays in the Economics of Renewable Resources* (Leonard J. Mirman & Daniel F. Spulber eds., 1982).

²²⁴ See, e.g., *id.*

²²⁵ See generally Garrett Hardin, *The Tragedy of the Commons*, 162 *Sci.* 1243 (1968).

duced incentive to invest in stock, which would significantly complicate the raising of funds through financial markets.

B. *The Judicial Rationale for the Takings Clause*

If the institution of property is so salubrious, then it would follow that the uncompensated confiscation of property by the government would be harmful indeed. One would therefore expect the Supreme Court to reiterate the preceding arguments concerning the economic functions of property when explaining the existence of and purpose behind the Takings Clause. Several lines of reasoning have impressed the Court.

1. *Preventing the Wasteful Public Consumption of Resources*

The Supreme Court emphasized in *First English Evangelical Lutheran Church v. County of Los Angeles*²²⁶ that the Takings Clause "is designed not to limit the governmental interference with property rights *per se*, but rather to secure *compensation* in the event of otherwise proper interference amounting to a taking."²²⁷ To an economist, the obvious purpose of compensation is to ensure that, by being required to pay the opportunity cost of seized property, the government uses such property efficiently.

The Court has evidenced some discomfort with the notion that the government should be constrained to internalize all the costs that its regulatory decisions impose on others. The Court stated in *Andrus v. Allard*:²²⁸ "[G]overnment regulation—by definition—involves the adjustment of rights for the public good. Often this adjustment curtails some potential for the use or economic exploitation of private property. To require compensation in all such circumstances would effectively compel the government to regulate by *purchase*."²²⁹ That is an embarrassing admission for the Court to make. It would seem that the government, like everyone else, would like to get something for nothing. A government that had to pay its own way would be more circumspect about announcing policies that impose costs on private parties, even though those policies are believed to benefit the public as a whole.

²²⁶ 482 U.S. 304 (1987).

²²⁷ *Id.* at 315 (emphasis in original).

²²⁸ 444 U.S. 51 (1979).

²²⁹ *Id.* at 65 (emphasis in original); accord *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978); *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).

2. *The Transactions Costs of Compensating Private Parties for Changes in Government Policies*

There is a more charitable reading that one can give to the Court's statements of aversion to requiring the payment of just compensation in every case of government regulation. In one of the most famous passages in any takings case, Justice Holmes observed in *Pennsylvania Coal*: "Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law."²³⁰ To be sure, regulation affects the value of every business subject to its jurisdiction, and an attempt to compensate for every diminution in "values incident to property,"²³¹ however slight, would require enormous transactions costs. Consequently, it is efficient that courts do not classify all uncompensated regulatory changes as takings. But that concern about economizing on the costs of compensating diffuse, de minimis diminutions in property values does not describe the situation facing regulated utilities in network industries now undergoing the transformation to competition. The diminution in property values in those industries is large and concentrated among few companies.

3. *Prevention of Free Riding*

The limits on government takings do not merely help to assure economic efficiency in the allocation of resources and development of property through investment. They also prevent the government itself from free riding on the efforts of individuals. A taking is to be regarded as an exceptional occurrence where public use of the property would increase wealth by being more productive than an alternative private use, and where there is a severe market failure that prevents the consensual transfer of the property.²³²

4. *Prevention of Disproportionate Burden from Changes in Government Policies*

The Supreme Court emphasized in *Armstrong v. United States*²³³ that the Takings Clause serves "to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice,

²³⁰ *Pennsylvania Coal*, 260 U.S. at 413.

²³¹ *Id.*

²³² This can take the form of holdouts when the last property owner of a group of properties necessary to effectuate the public use asks for compensation in excess of the alternative use or market value of his single piece of property. See *id.*

²³³ 364 U.S. 40 (1960).

should be borne by the public as a whole."²³⁴ An economic interpretation of the *Armstrong* Court's standard is that it is equivalent to what William J. Baumol has called the *Pareto improvement criterion*, according to which a policy action improves social welfare and therefore may be undertaken if some individuals are made better off and no individuals are made worse off.²³⁵ Baumol's criterion rests on consent and unanimity, and thus is consistent with voluntary exchange.

Furthermore, if the government failed to compensate for its confiscations of property, the power of eminent domain (as well as the police power, which is at issue in the regulatory takings cases) could become a tool for nothing more than income redistribution, rather than a means to create public goods. The uncompensated confiscation of property (or the uncompensated diminution of property value through exercise of the police power) could become a means to fund government policies in a less transparent, less accountable, off-budget manner.

C. *Regulatory Takings and the Destruction of the Investment-Backed Expectations of the Incumbent Regulated Firm*

Regulatory takings occupy an uneasy place in economic theory and in American constitutional law. As the least-protected class of government confiscation of property, regulatory takings have produced an analytical model in the Supreme Court that is only occasionally hospitable to the plight of landowners subjected to land-use or environmental restrictions. Nonetheless, the straightforward applica-

²³⁴ *Id.* at 49. The enunciation of that principle has become boilerplate in the Court's subsequent takings cases. See, e.g., *Dolan v. City of Tigard*, 114 S. Ct. 2309, 2316 (1994); *Pennell v. City of San Jose*, 485 U.S. 1, 9 (1988); *First English Evangelical Lutheran Church v. County of L.A.*, 482 U.S. 304, 318-19 (1987); *Webb's Fabulous Pharmacies, Inc. v. Beckwith*, 449 U.S. 155, 163 (1980); *Agins v. Tiburon*, 447 U.S. 255, 260 (1980); *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 123 (1978). Judge Jay Plager of the Federal Circuit recently expressed the principle as follows:

The question at issue here is, when the Government fulfills its obligation to preserve and protect the public interest, may the cost of obtaining that public benefit fall solely upon the affected property owner, or is it to be shared by the community at large. In the final analysis the answer to that question is one of fundamental public policy. It calls for balancing the legitimate claims of the society to constrain individual actions that threaten the larger community, on the one side, and, on the other, the rights of the individual and our commitment to private property as a bulwark for the protection of those rights. It requires us to decide which collective rights are to be obtained at collective cost, in order better to preserve collectively the rights of the individual.

Loveladies Harbor, Inc. v. United States, 28 F.3d 1171, 1175 (Fed. Cir. 1994) (footnote omitted). For an early articulation of the principle, see *Monongahela Navigation Co. v. United States*, 148 U.S. 312, 325 (1893).

²³⁵ See Baumol, *supra* note 187, at 7-9, 30-37.

tion of that same model to the state's repudiation of the regulatory contract produces, even at this lowest level of judicial solicitude, powerful protection for the property of the regulated firm.

1. *Weaknesses in the Kaldor-Hicks Compensation Criterion Implicit in the Law of Regulatory Takings*

In the typical regulatory takings case the state, relying on the Supreme Court's 1887 decision in *Mugler v. Kansas*²³⁶ and its lineage, asserts that it is exercising its police powers in a legitimate fashion such that no compensation need be paid for the resulting diminution in the value of private property.²³⁷ That reasoning implicitly embraces a notion of social welfare that lawyers, economists, and philosophers have subsequently called *Kaldor-Hicks compensation* or *potential Pareto superiority*.²³⁸ Strict Pareto efficiency would require the winners from a policy change to use some of their gains to compensate the losers. The requirement that winners pay actual compensation to losers would ensure that the state would undertake only Pareto-efficient policies—that is, policies that would improve the welfare of at least one person without reducing the welfare of any other person. Faced with the prospect that actual compensation would entail prohibitively high transactions costs and thus limit the discretionary powers of the state to regulate, Nicholas Kaldor proposed in 1939 the criterion of potential Pareto superiority, under which a policy that would be Pareto superior with the payment of compensation is defended as welfare-enhancing even if winners fail to compensate losers.²³⁹

Kaldor-Hicks compensation was in perfect synchronicity with the metamorphosis of American constitutional law during the New Deal, a metamorphosis which curtailed protections of contract and property and gave the central government virtually unlimited regulatory powers over economic activity.²⁴⁰ But the construct created several diffi-

²³⁶ 123 U.S. 623 (1887).

²³⁷ See, e.g., *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1022 (1992).

²³⁸ See Jules L. Coleman, *Markets, Morals and the Law* 81-86 (1988); Fischel, *supra* note 2, § 2.2, at 68; Posner, *supra* note 219, § 1.2, at 13-14.

²³⁹ See Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 *Econ. J.* 549 (1939); see also John R. Hicks, *Foundations of Welfare Economics*, 49 *Econ. J.* 696 (1939). A related contemporaneous paper is T. de Scitovsky, *A Note on Welfare Propositions in Economics*, 9 *Rev. Econ. Stud.* 77 (1941), and a more modern treatment appears in E.J. Mishan, *Introduction to Normative Economics* 303-14 (1981).

²⁴⁰ Although that metamorphosis is most closely associated with the year 1937, see *West Coast Hotel Co. v. Parrish*, 300 U.S. 379 (1937); *NLRB v. Jones & Laughlin Steel Corp.*, 301 U.S. 1 (1937), the process can be thought to have spanned nearly a decade. By 1937, the Court had already diluted the Contract Clause in *Home Building & Loan Association v. Blaisdell*, 290 U.S. 398 (1934). The crown jewel of the Court's modern jurisprudence,

culties for the Takings Clause. First, the losses associated with policy changes are true opportunity costs. When they are not compensated, policy change (which is to say, regulation) is overconsumed relative to the level of regulation that would be demanded under a constitutional standard that required actual compensation for Pareto-efficient policy decisions.

Second, the Kaldor-Hicks standard is naive about the public-choice aspects of regulation. A principal benefit of requiring the payment of compensation to the losers under regulatory change is to remove their political opposition to Pareto-superior government policies. If property owners know that their losses from regulation will go uncompensated, potential losers will consume their resources in resisting Pareto-improving policies and force potential winners to consume their resources in defending such policies. Consequently, the magnitude of the net benefits to society from such policies will fall.²⁴¹

Third, it is not always the case that the transaction costs of identifying and compensating losers are so prohibitively high that no attempt should be made to pay compensation. The transaction costs of paying compensation depend in part on how diffusely the loss is spread across the population of property owners. The losses from some regulatory restrictions on the use of property are highly concentrated. If given adequate notice by the state of its pending regulatory change, potential losers who will have concentrated losses can be relied upon to identify themselves.²⁴² Thus, in the case of concentrated losses—as a practical matter, the only kind of takings case that is litigated—the Kaldor-Hicks orientation of the current regulatory takings jurisprudence is likely to violate the principle announced in *Armstrong* and reaffirmed by the Court many times since: that public bur-

footnote 4 of *United States v. Carolene Products Co.*, 304 U.S. 144 (1938), came a year later, and *Wickard v. Filburn*, 317 U.S. 111 (1942), eliminated any practical constraint on the scope of the federal commerce power. That development stood unchecked for more than half a century, until *United States v. Lopez*, 115 S. Ct. 1624 (1995).

²⁴¹ The result will be reminiscent of the well-recognized dissipation of monopoly rents by firms competing to achieve a monopoly. See Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. Pol. Econ. 807, 807-08 (1975).

²⁴² A counterargument in favor of no payment of compensation is that the certainty that losers will receive compensation for regulatory changes will induce moral hazard on the part of property owners. See Lawrence E. Blume, Daniel L. Rubinfeld & Perry Shapiro, *The Taking of Land: When Should Compensation Be Paid?*, 99 Q.J. Econ. 71, 71 (1984). The empirical substantiality of such moral hazard is open to question, however, particularly in relation to the moral hazard likely to arise from more explicit forms of government insurance. For example, which is more likely to induce risk taking on the part of property owners along the South Carolina coast: the availability of federal disaster relief for hurricane damage, or the requirement that the state pay compensation for environmental regulations that it imposes?

dens should not be disproportionately borne by a small segment of the population.²⁴³

Fourth, and most important as a matter of economic theory and constitutional principle, the Kaldor-Hicks criterion fails to put either the winners or the losers to an actual test of their willingness to pay and their willingness to accept payment, respectively. Do the winners' benefits really exceed the amount that they would be willing to pay? At the same time, would the notional compensation of the Kaldor-Hicks criterion really have been acceptable to the losers? Neither party to this hypothetical bargain actually reveals his preferences in the manner that routinely occurs under voluntary exchange. Furthermore, the government presumably is the entity making the determination of whether that hypothetical bargain would take place. So, if the government's interest is to expand its size by issuing more regulations, it will have an incentive to find that the hypothetical transaction would have occurred. That is not to say that the Kaldor-Hicks criterion will be used solely to expand the scope of government. This same criterion, based on evaluating net benefits without regard to redistribution of income from winners to losers, underlies the use of cost-benefit analysis to evaluate regulation and other public policies, often in the name of reducing the extent of government regulation. A proper use of cost-benefit analysis, however, should include the actual payment of compensation if takings occur.

2. *Existing Legal Criteria Concerning Regulatory Takings*

The law of regulatory takings has descended from Justice Holmes's "general rule" announced in *Pennsylvania Coal* in 1922, a rule most notable for its utter lack of guidance: "while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."²⁴⁴ For half a century the Court gave little guidance as to what "too far" meant. In 1978 Justice Brennan, writing for the Court in *Penn Central*, finally attempted to provide such guidance: A regulation constitutes a taking if it denies the property owner "economically viable use" of that property, which is to be determined by examining the following three factors: (1) the "character of the governmental action," (2) the "economic impact of the regulation on the claimant," and (3) the "extent to which the regulation has

²⁴³ See *Armstrong v. United States*, 364 U.S. 40, 49 (1960).

²⁴⁴ *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922).

interfered with distinct investment-backed expectations."²⁴⁵ The Court has reiterated that three-part test in subsequent decisions.²⁴⁶

Scholars have criticized even *Penn Central*'s three-part test for being so vague as to allow inconsistent outcomes, and for lacking any indication of the relative weight to be accorded each of those three factors.²⁴⁷ Although we do not share those scholars' criticisms of the importance of "investment-backed expectations" as one of the relevant factors for the Court to consider, our principal purpose here is not to articulate the "optimal" legal test for regulatory takings. Rather, our purpose is to show that the Court's existing legal standard for regulatory takings is even more likely to indicate a need for compensation in the case of breach of the regulatory contract than in the case of burdensome land-use restrictions, which spawned the rule.

a. The Character of Governmental Action. In a thoughtful opinion for the Federal Circuit in *Loveladies Harbor, Inc. v. United States*,²⁴⁸ Judge Jay Plager described this first of the three *Penn Central* criteria as requiring a court to scrutinize "the purpose and importance of the public interest reflected in the regulatory imposition" and "to balance the liberty interest of the private property owner against the Government's need to protect the public interest through imposition of the restraint."²⁴⁹ That analysis sounds identical to the means-ends scrutiny of economic regulation that courts employ under the Due Process Clauses of the Fifth and Fourteenth Amendments. Implicitly, that means-end analysis takes place at the level of minimum-rationality review. As Judge Plager noted, the Court has considered whether "the avowed need of the Government" to protect some "interest of the public" is indeed "a legitimate interest"²⁵⁰ and whether "the method of attaining the sought-after goal was reasonably designed to attain it."²⁵¹ Presumably, if the regulation were deficient in either respect (a tall order under minimum rationality), then the regulation would not be a valid exercise of the police power, and compensation would be due the property owner. At the same time, of course, the regulation in question would be invalid on due process

²⁴⁵ *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978).

²⁴⁶ See, e.g., *PruneYard Shopping Ctr. v. Robins*, 447 U.S. 74, 83 (1980); *Kaiser Aetna v. United States*, 444 U.S. 164, 174-75 (1979).

²⁴⁷ See Fischel, *supra* note 2, § 1.18, at 51; Andrea L. Peterson, *The Takings Clause: In Search of Underlying Principles, Part I, A Critique of the Current Takings Clause Doctrine*, 77 Cal. L. Rev. 1299, 1317 (1989).

²⁴⁸ 28 F.3d 1171 (Fed. Cir. 1994).

²⁴⁹ *Id.* at 1176.

²⁵⁰ *Id.* (citing *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1014 (1984)).

²⁵¹ *Id.* (citing *Nollan v. California Coastal Comm'n*, 483 U.S. 825, 837 (1987)).

grounds. If, as is more likely, the regulation survived review under that minimum-rationality standard, the takings analysis would proceed to consideration of *Penn Central's* other two criteria.

b. The Economic Impact of the Regulation on the Claimant. This second criterion can be seen as a requirement to minimize the transactions costs of takings claims, along the lines of Justice Holmes's remark in *Pennsylvania Coal* that government "hardly could go on" if made to compensate every diminution in value arising from its regulation.²⁵² Below a certain cutoff, it would seem, an uncompensated diminution in property value arising from a change in regulation should not consume the resources of the state (as defendant) and the courts. That reasoning is analogous to the requirement that a party plead a minimum amount in controversy to establish jurisdiction.

Interestingly, Judge Plager reasoned in *Loveladies* that *Penn Central's* overriding requirement—that the payment of compensation for a regulatory taking was conditioned on the property owner's showing that the government had denied him "economically viable use" of his property—was just another way of expressing the idea embodied in *Penn Central's* second criterion concerning the economic impact of the regulation on the claimant.²⁵³ In Judge Plager's words, both articulations expressed the same "threshold requirement that the plaintiff show a serious financial loss from the regulatory imposition."²⁵⁴

c. Interference with Distinct Investment-Backed Expectations. The remaining criterion in the *Penn Central* test—interference with distinct investment-backed expectations—does all the heavy lifting in a regulatory takings case. If the government has used its police power in a reasonable manner for a legitimate purpose, and if the regulation has diminished the value of private property by a nontrivial amount, then the remaining question is whether the property owner himself has absorbed that diminution or whether he already contracted to accept the diminution if and when it occurred. Again, Judge Plager's formulation in *Loveladies* is particularly lucid.

The requirement that the property owner establish his distinct investment-backed expectations is "a way of limiting takings recoveries to owners who could demonstrate that they bought their property in

²⁵² *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1992). In *Loveladies*, 28 F.3d at 1176-77, Judge Plager imputed just such a meaning to Justice Holmes's remark.

²⁵³ *Loveladies*, 28 F.3d at 1177 (citing *Agins v. Tiburon*, 447 U.S. 255, 260 (1980); *Nolan*, 483 U.S. at 834)).

²⁵⁴ *Id.*

reliance on a state of affairs that did not include the challenged regulatory regime.”²⁵⁵ Judge Plager elaborated:

In legal terms, the owner who bought with knowledge of the restraint could be said to have no reliance interest, or to have assumed the risk of any economic loss. In economic terms, it could be said that the market had already discounted for the restraint, so that a purchaser could not show a loss in his investment attributable to it.²⁵⁶

To that analysis of risk bearing, one can add a related point: The requirement is a means to impose a system of falsifiability on what could otherwise become an inherently subjective inquiry. Without the requirement that the property owner objectively prove, through evidence of investment, that he detrimentally relied on the challenged regulatory regime, how could a court really know whether the regulation at issue had diminished *this person's* wealth at all? Specious claims of lost property value would otherwise inundate the state. This further explanation of *Penn Central's* third factor comports with the Court's observation in *Ruckelshaus v. Monsanto Co.*²⁵⁷ that “[a] ‘reasonable investment-backed expectation’ must be more than a ‘unilateral expectation or an abstract need,’”²⁵⁸ and its statement in *Usery v. Turner Elkhorn Mining Co.*²⁵⁹ that “legislation readjusting rights and burdens is not unlawful solely because it upsets otherwise settled expectations.”²⁶⁰ A private party may have expectations that are, objectively speaking, unreasonable. The Court, not surprisingly, has delivered more guidance on what are *not* reasonable investment-backed expectations than what are.²⁶¹

Consider a case involving changes in American foreign policy with respect to Libya.²⁶² Although increasing tension with Libya impaired an American citizen's right to continue receiving the benefits of a contract, signed in 1985, to perform work in Libya for ten years,²⁶³ such changes in policy did not effect a regulatory taking.²⁶⁴

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ 467 U.S. 986 (1984).

²⁵⁸ *Id.* at 1005-06 (quoting *Webb's Fabulous Pharmacies, Inc. v. Beckwith*, 449 U.S. 155, 161 (1980)). *Loveladies* also quotes the *Ruckelshaus* observation. *Loveladies*, 28 F.3d at 1177.

²⁵⁹ 428 U.S. 1 (1976).

²⁶⁰ *Id.* at 16.

²⁶¹ See *Concrete Pipe & Prods., Inc. v. Construction Laborers Pension Trust*, 508 U.S. 602, 646-47 (1993); *Connolly v. Pension Benefit Guar. Corp.*, 475 U.S. 211, 226-27 (1986); see also *Golden Pac. Bancorp v. United States*, 15 F.3d 1066, 1074-75 (Fed. Cir. 1994).

²⁶² *Chang v. United States*, 859 F.2d 893 (Fed. Cir. 1988).

²⁶³ *Id.* at 896.

²⁶⁴ *Id.* at 897.

The Federal Circuit found in *Chang v. United States* that the American citizen had been put on notice—by constitutional provisions, statutes, and court decisions concerning Congress’s power to regulate foreign commerce—that U.S. foreign policy could change unexpectedly at any time without giving rise to a right of compensation for contracts thereby impaired.²⁶⁵ Moreover, it would have been objectively unreasonable to expect that the employment contract would be secure from impairment in light of “the overwhelming public knowledge of strained and deteriorating relations between the two countries existing at the time when the plaintiffs entered their contracts.”²⁶⁶ Whether one has investment-backed expectations thus depends on “the foreseeability of the risk of disruption” of the legal relationships upon which the contract critically depends.²⁶⁷ The private party must have had a “reasonable expectation” at the time the contract was entered that it “would proceed without possible hindrance” arising from changes in government policy.²⁶⁸

3. *The Investment-Backed Expectations of a Public Utility*

If analyzed as a regulatory taking, the problem of stranded costs is far more compelling than the typical case of land-use restrictions. The regulatory contract is a detailed contract that imposes obligations on the utility and the regulatory authority. Moreover, the regulatory contract is subject to executive, legislative, and judicial oversight. The formality and continuity of the contract and its oversight reinforce the conclusion that it is reasonable for a public utility to expect that the regulator will discharge its duties under the contract and that the contract is an agreement that may be enforced against the regulator in court.

Furthermore, the overriding purpose of the regulatory contract is to induce the public utility to make specialized investments. By accepting its franchise, the regulated utility undertakes an obligation to serve—that is, to provide service to any and all customers in its service territory. The utility further agrees to abide by a host of regulations that determine its prices, product offerings, investments, and accounting procedures. Most important, the utility must make long-term investments in highly specialized, immovable facilities. The regulatory contract exists to create the institutional structure of incentives and credible assurances for the public utility to undertake the substantial

²⁶⁵ Id.

²⁶⁶ Id.

²⁶⁷ Id.

²⁶⁸ Id.

capital costs required to perform its service obligations. Without those credible assurances, a public utility would not have been willing to incur capital costs to build the facilities needed to satisfy regulatory obligations to serve—including, notably, the provision of universal service at a uniform price, regardless of incremental cost.

D. Physical Invasion of Property and Its Relation to Mandatory Access to the Premises, Rights of Way, and Network Facilities of the Incumbent Regulated Firm

In contrast to regulatory takings, government policies that effect physical invasions of property elicit the greatest judicial protection of private property. A physical invasion of property compelled by the state gives rise to an absolute right of compensation.

I. The Loretto Decision

The leading decision on takings arising from physical invasion of property is the Supreme Court's 1982 decision in *Loretto v. Teleprompter Manhattan CATV Corp.*,²⁶⁹ which defended the rule of an absolute right to compensation even in the case of "a minor but permanent physical occupation of an owner's property authorized by government."²⁷⁰ The Court announced that "when the 'character of the governmental action' is a permanent physical occupation of property, our cases uniformly have found a taking to the extent of the occupation, without regard to whether the action achieves an important public benefit or has only minimal economic impact on the owner."²⁷¹

At issue in *Loretto* was a New York statute that required a landlord to permit a cable-television (CATV) company to install its CATV facilities upon her property, subject to payment of no greater than the "reasonable" compensation determined by a state commission. Exclusively franchised to build the CATV system within certain parts of Manhattan, Teleprompter wired Ms. Loretto's five-story apartment building, for which the commission deemed her to be entitled to a one-time payment of one dollar. The Court described the motivation for the statute as "facilitat[ing] tenant access to CATV,"²⁷² but another possible motivation goes unmentioned. Before enactment of the statute, Teleprompter routinely paid a property owner five percent of the gross revenues received from having access to his property.²⁷³

²⁶⁹ 458 U.S. 419 (1982).

²⁷⁰ *Id.* at 421.

²⁷¹ *Id.* at 434-35 (citation omitted) (quoting *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978)).

²⁷² *Id.* at 423.

²⁷³ *Id.*

The statute gave Teleprompter a way to pay a lower price for such access.

Teleprompter's physical invasion of Ms. Loretto's building was minor, consisting of a cable "slightly less than one-half inch in diameter and of approximately 30 feet in length along . . . the roof top," two directional taps on the front and rear of the roof that were four-inch cubes,²⁷⁴ "two large silver boxes along the roof cables," and the screws, nails, and bolts used to attach those various pieces of infrastructure to the building.²⁷⁵ Plainly, what motivated Ms. Loretto's suit was not the obtrusiveness of Teleprompter's physical occupation of her property, but rather her reduced compensation (in terms of not receiving the former five percent share of CATV subscription revenues generated by her tenants) upon being compelled to grant access to her property essentially for free.

In other words, although *Loretto* was in practical terms a simple case of access pricing, the Court chose to make the fact of physical invasion dispositive.²⁷⁶ Referring to one of *Penn Central's* three criteria, Justice Marshall wrote for the majority that "when the physical intrusion reaches the extreme form of a permanent physical occupation, . . . 'the character of the government action' not only is an important factor in resolving whether the action works a taking but also is determinative."²⁷⁷ A physical intrusion by government has an "unusually serious character" and, if permanent, is "extreme" and fundamentally different from a temporary physical intrusion.²⁷⁸ "When faced with a constitutional challenge to a permanent physical occupation of real property, this Court has invariably found a taking."²⁷⁹ Frank Michelman, the Court concluded, had "accurately summarized" the law on physical invasions of property in a classic *Harvard Law Review* article:

²⁷⁴ *Id.* at 422 (quoting *Loretto v. Teleprompter Manhattan CATV Corp.*, 423 N.E.2d 320, 324 (N.Y. 1981)).

²⁷⁵ *Id.* Actually, two buildings were involved, but we have simplified the facts here.

²⁷⁶ *Id.* at 426 ("[A] permanent physical occupation authorized by government is a taking without regard to the public interests that it may serve.").

²⁷⁷ *Id.* (quoting *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978)).

²⁷⁸ *Id.*

²⁷⁹ *Id.* at 427. In reaching its conclusion regarding physical occupations, the Court distinguished *Pumpelly v. Green Bay Co.*, 80 U.S. (13 Wall.) 166 (1872) (permanent flooding of private property), from *Northern Transportation Co. v. Chicago*, 99 U.S. 635 (1879) (temporary flooding of private property). *Loretto*, 458 U.S. at 427-28. The Court also emphasized its point by relying on additional decisions in which it had predicated the finding of a taking on the permanent flooding of private property. *Id.* at 428 (citing *United States v. Kansas City Life Ins. Co.*, 339 U.S. 799, 809-10 (1950); *Sanguinetti v. United States*, 264 U.S. 146, 149 (1924); *United States v. Cress*, 243 U.S. 316, 327-28 (1917); *Bedford v. United States*, 192 U.S. 217, 225 (1904); *United States v. Lynah*, 188 U.S. 445, 463-70 (1903)).

"The modern significance of physical occupation is that courts . . . never deny compensation for a physical takeover. The one incontestable case for compensation (short of formal expropriation) seems to occur when the government deliberately brings it about that its agents, or the public at large, 'regularly' use, or 'permanently' occupy, space or a thing which theretofore was understood to be under private ownership."²⁸⁰

Unlike the balancing analysis in a regulatory takings case, "a permanent physical occupation is a government action of such a unique character that it is a taking without regard to other factors that a court might ordinarily examine."²⁸¹ As such, Justice Marshall found that the statute at issue effected a compensable taking.²⁸²

The Court in *Loretto* reached the right result. But it is questionable whether that result flowed from either the physical occupation of the property or the permanence of that occupation, rather than from the statute's interference with Ms. Loretto's ability to reap the pecuniary benefits incident to ownership of her property. The Court, for example, said that "constitutional protection for the rights of private property cannot be made to depend on the size of the area permanently occupied."²⁸³ On one level that statement can be taken to be a rhetorical flourish or an absolutist adherence to principle. But on another level, it can be taken to suggest that the concept of permanent physical occupation is a proxy for some other jurisprudential concern, with the significance of that proxy remaining unchanged even as the objective burden of such physical occupation becomes more and more insignificant in terms of its relevant measure of area, volume, or mass. The Court hinted as much in *Loretto* by making light of the factual disagreement between the majority and the dissenters over the volume of the cable boxes attached to Ms. Loretto's building. "The displaced volume [is] not critical: whether the installation is a taking does not depend on whether the volume of space it occupies is bigger than a breadbox."²⁸⁴ Surely Ms. Loretto cared less about the permanent clutter that Teleprompter placed on her rooftop than about the five percent royalty on gross revenues that she was foreclosed from receiving under New York's statute. Although the Court emphasized the traditional interests and rights of a property owner, and addressed

²⁸⁰ *Loretto*, 458 U.S. at 427 n.5 (emphasis in original) (quoting Frank I. Michelman, Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law, 80 Harv. L. Rev. 1165, 1184 (1967)).

²⁸¹ *Id.* at 432. The Court likened its rule on permanent physical invasion to a per se rule in antitrust law. *Id.* at 435 n.12.

²⁸² *Id.* at 438-41.

²⁸³ *Id.* at 436-37.

²⁸⁴ *Id.* at 438 n.16.

the harm that physical invasion inflicts upon such rights,²⁸⁵ that discussion is evidently dictum in light of the emphatic enunciation of the *per se* rule that preceded it.

Justice Marshall reasoned that a government policy permitting the permanent physical occupation of private property without compensation would be harmful to society as a matter of first principles, and that such considerations animated the precedents upon which the Court relied in *Loretto*. "Property rights in a physical thing," Justice Marshall stated, are "the rights 'to possess, use and dispose of it,'" and the government's permanent physical occupation of private property "destroys each of these rights."²⁸⁶ In support of that proposition, Justice Marshall made three points:

First, the owner has no right to possess the occupied space himself, and also has no power to exclude the occupier from possession and use of the space. The power to exclude has traditionally been considered one of the most treasured strands in an owner's bundle of property rights.²⁸⁷

As we argued earlier, a powerful economic rationale supports Justice Marshall, for the power to exclude is a prerequisite to voluntary exchange, allocative efficiency, and investment. Justice Marshall, however, had considerably more difficulty articulating the importance of protecting the *expectation interest* incident to property ownership:

Second, the permanent physical occupation of property forever denies the owner any power to control the use of the property; he not only cannot exclude others, but can make no nonpossessory use of the property. Although deprivation of the right to use and obtain a profit from property is not, in every case, independently sufficient to establish a taking, it is clearly relevant.²⁸⁸

The nonpossessory use that the owner would presumably make of his property would be to alienate to others the net revenue stream that the property would generate. Yet the Court evidently did not want to follow its reasoning to its logical conclusion and acknowledge that the destruction of the reasonable expectation of that net revenue stream—not the physical invasion of property *per se*—is the proximate cause of the property owner's diminution in property value and thus the basis for the government's payment of compensation. Such reasoning would have flowed naturally from the 1893 decision in

²⁸⁵ *Id.* at 435-38.

²⁸⁶ *Id.* at 435 (quoting *United States v. General Motors Corp.*, 323 U.S. 373, 378 (1945)).

²⁸⁷ *Id.* at 435-36 (citing *Kaiser Aetna v. United States*, 444 U.S. 164, 179-80 (1979); *Restatement of Property* § 7 (1936)).

²⁸⁸ *Id.* at 436 (citing *Andrus v. Allard*, 444 U.S. 51, 66 (1979)).

Monongahela Navigation Co. v. United States,²⁸⁹ in which the Court held, in the case of the federal government's confiscation of private locks and dams that had made the Monongahela River navigable, that "just compensation requires payment for the franchise to take tolls, as well as for the value of the tangible property" itself.²⁹⁰

And indeed Justice Marshall's third point was redolent of the implication that just compensation required protecting the property owner from the full opportunity cost of the physical invasion:

Finally, even though the owner may retain the bare legal right to dispose of the occupied space by transfer or sale, the permanent occupation of that space by a stranger will ordinarily empty the right of any value, since the purchaser will also be unable to make any use of the property.²⁹¹

Physical occupation of the property denies its owner the ability to alienate not only a given right in the bundle (the stream of net revenues from the property), but also the entire bundle of rights.

The closest that the Court came to saying that the Takings Clause protects the owner's expectation interest in his property was Justice Marshall's observation that "an owner suffers a special kind of injury when a *stranger* directly invades and occupies the owner's property"²⁹² and that consequently "property law has long protected an owner's expectation that he will be relatively undisturbed at least in the possession of his property."²⁹³ Justice Marshall further stated that, for such an invasion, "the property owner entertains a historically rooted expectation of compensation."²⁹⁴ But, of course, more than protecting Ms. Loretto's expectation of being undisturbed in her *possession* of property, the Court was protecting Ms. Loretto's expectation that she would be undisturbed in the *use* of her property (through her ability to negotiate with Teleprompter a better access charge for her building than the one dollar that the statute allowed).

Five years later, in *FCC v. Florida Power Corp.*,²⁹⁵ the Court considered a similar situation. The Pole Attachments Act²⁹⁶ authorized the FCC to regulate the rates, terms, and conditions of the attachment of cable-television wires to utility poles if the state did not engage in such regulation; however, the statute did not mandate access to the

²⁸⁹ 148 U.S. 312 (1893).

²⁹⁰ *Id.* at 345.

²⁹¹ *Loretto*, 458 U.S. at 436.

²⁹² *Id.* (emphasis in original).

²⁹³ *Id.* "To require, as well, that the owner permit another to exercise complete dominion literally adds insult to injury." *Id.* (citing Michelman, *supra* note 280, at 1228 & n.110).

²⁹⁴ *Id.* at 441.

²⁹⁵ 480 U.S. 245 (1987).

²⁹⁶ 47 U.S.C. § 224 (1994).

utility poles.²⁹⁷ An electric utility challenged the statute as a permanent physical invasion of private property, but the Court ruled in *Florida Power Corp.* that *Loretto* did not apply.²⁹⁸ Justice Marshall, writing for a unanimous court, reasoned that the statute merely regulated prices in consensual transactions. Unlike the New York statute in *Loretto*, which contained the “element of required acquiescence . . . at the heart of the concept of occupation,” the federal law did not compel the property owner to submit to an involuntary transaction.²⁹⁹ *Florida Power Corp.* thus does not make *Loretto* any less applicable to mandatory network unbundling, for the introduction of such a regulatory obligation is by definition not voluntary.

2. *Mandatory Interconnection or Unbundling*

Because of the technological and economic complexity of interconnection and unbundling in network industries, it is easy to overlook the obvious: Mandatory interconnection and unbundling constitute a government-ordered, physical invasion of the property of the incumbent regulated firm. Electric utilities and local telephone exchange carriers have rights of way, poles, conduits, transmissions lines, switches, central offices, and the like. Indeed, to build that physical infrastructure, an electric utility, or telephone or telegraph company originally had to acquire the consent of the landowner or, if it was exercising the right of eminent domain, pay just compensation for its taking.³⁰⁰ Mandatory interconnection or unbundling envisions rivals of the regulated firm having physical access to its property. The Oregon Supreme Court has recognized that fact and, relying upon *Loretto*, held unanimously in 1995 that the state PUC’s order that enhanced-service providers be allowed to co-locate their equipment on the premises of incumbent local exchange carriers constituted a physical invasion that violated the Takings Clause.³⁰¹ The court empha-

²⁹⁷ *Id.* The Telecommunications Act of 1996 made such access mandatory and specified the method for computing compensation for it. Thus, a new wave of pole attachment cases may arise for which *Florida Power Corp.* will no longer be dispositive.

²⁹⁸ *Florida Power Corp.*, 480 U.S. at 250-53.

²⁹⁹ *Id.* at 252. In 1992 the Court reinforced that rationale: Property owners who “voluntarily open their property to occupation by others . . . cannot assert a *per se* right to compensation based on their inability to exclude particular individuals.” *Yee v. City of Escondido*, 503 U.S. 519, 531 (1992).

³⁰⁰ See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 428-30 (1982) (citing *Portsmouth Harbor Land & Hotel Co. v. United States*, 260 U.S. 327 (1922); *Western Union Tel. Co. v. Pennsylvania R.R. Co.*, 195 U.S. 540 (1904); *St. Louis v. Western Union Tel. Co.*, 148 U.S. 92 (1893); *Southwestern Bell Tel. Co. v. Webb*, 393 S.W.2d 117 (Mo. Ct. App. 1965); *Lovett v. West Va. Cent. Gas Co.*, 65 S.E. 196 (W. Va. 1909)).

³⁰¹ *GTE Northwest, Inc. v. Public Util. Comm’n*, 900 P.2d 495, 501-06 (Or. 1995), cert. denied, 116 S. Ct. 1541 (1996).

sized that "the facts that an industry is heavily regulated, and that a property owner acquired the property knowing that it is heavily regulated, do not diminish a physical invasion to something less than a taking."³⁰²

Furthermore, a physical invasion of the incumbent firm's property may occur even when the invasion is not visible. The first questions of interconnection pricing in modern regulatory experience arose in connection with the sale of "trackage rights" in the railroad industry. By order of the Interstate Commerce Commission, railroad *A* would be allowed to purchase the right to move its trains over tracks owned by railroad *B*, thus extending the geographic reach of railroad *A*'s rail network beyond its own facilities.³⁰³ One can scarcely imagine a more vivid example of physical invasion than freight trains owned by one railway barreling down another railway's stretch of track.

In electrical or telecommunications networks, the electrons or photons are the equivalent of a railway's locomotives. Indeed, the metaphor "information superhighway" derives its saliency from its ability to convey that, no matter how silent or invisible it may be, the physical movement of bits across telephone wires is as tangible as trucks transporting goods across the interstate highway system. In *Loretto* the Court said that the web of cable-television infrastructure that constituted a physical invasion of property in that case "could be described as a cable 'highway' circumnavigating the city block."³⁰⁴ The wheeling of electricity over the transmission grid presents a slightly different case of physical movement through a network. Power flows through multiple paths of least resistance as determined by Ohm's Law and Kirchhoff's Laws, and thus transmissions of electricity follow unanticipated routes to their final destinations.³⁰⁵ None-

³⁰² *Id.* at 504.

³⁰³ See Baumol & Sidak, *Toward Competition in Local Telephony*, *supra* note 39, at 95-96 (citing *St. Louis S.W. Ry.—Trackage Rights over Mo. Pac. R.R.—Kansas City to St. Louis*, 1 I.C.C.2d 776 (1984), 4 I.C.C.2d 668 (1987), 5 I.C.C.2d 525 (1989), 8 I.C.C.2d 80 (1991)).

³⁰⁴ *Loretto*, 458 U.S. at 422.

³⁰⁵ See, e.g., David K. Cheng, *Field and Wave Electromagnetics* 175, 180-81 (1983); Peter S. Fox-Penner, *Electric Power Transmission and Wheeling: A Technical Primer* 5, 53 (1990). Kirchhoff's voltage law "states that around a closed path in an electric circuit the algebraic sum of the [electromagnetic forces] (voltage rises) is equal to the algebraic sum of the voltage drops across the resistances." Cheng, *supra*, at 180 (emphasis omitted). Kirchhoff's current law "states that the algebraic sum of all currents flowing out of a junction in an electric circuit is zero." *Id.* at 181 (emphasis omitted). The two laws respectively form the bases for loop analysis and node analysis in circuit theory. *Id.* at 180-81. On the pricing of transmission in the presence of parallel flows, see William W. Hogan, *Contract Networks for Electric Power Transmission*, 4 *J. Reg. Econ.* 211, 218-28 (1992).

theless, the condition remains fundamentally the same as the locomotive operating pursuant to trackage rights: A rival's use of the incumbent's network involves occupying the physical capacity of that infrastructure to deliver a service that competes with the incumbent's.

Moreover, it does not matter that the party making the physical invasion of the telephony or electricity network is a private company rather than the government itself. As the Court said in *Loretto*: "A permanent physical occupation authorized by state law is a taking without regard to whether the State, or instead a party authorized by the State, is the occupant."³⁰⁶

E. Uncompensatory Regulation of Public Utility Rates

Sandwiched between the strict protection of private property in cases of physical invasions and the minimal protection in cases of regulatory takings are the cases involving the setting of rates for regulated public utilities. Just as property rights are an essential element of private exchange, so also are they required for individuals to transact with the government. Constitutional protections of property rights and due process are the foundation for the administrative process of regulation. Given that the terms of trade between individuals (or companies) is a private matter, how is price regulation to be reconciled with the protection of individual property rights?

Private property protection is the basis for utility regulation. The regulatory contract is subject to the full property protections of the Takings Clause.³⁰⁷ As explained earlier, investor-owned utilities have a public mandate or obligation to provide service to all in a community who desire such service. In fulfillment of that duty, and in reasonable anticipation of future requests for increased service, the utility purchases and employs specialized assets. Without adequate compensation, the utility will not seek to make investments for expansion or replacement of plant and property and will not be able to raise the necessary capital. Rate regulation controls the returns to investment by the utility's owners; such regulation affects the property's value and therefore must not be confiscatory.³⁰⁸ The rate of return allowed on property used for public purposes must be sufficient to compensate

³⁰⁶ *Loretto*, 458 U.S. at 433 n.9.

³⁰⁷ See *Chang v. United States*, 859 F.2d 893, 895 (Fed. Cir. 1988) ("There is no question that '[v]alid contracts are property, whether the obligor be a private individual . . . or the United States.'" (quoting *Lynch v. United States*, 292 U.S. 571, 579 (1934))).

³⁰⁸ See *Covington & Lexington Turnpike Rd. Co. v. Sandford*, 164 U.S. 578, 597 (1896) (A rate that is too low can "destroy the value of [the] property.").

investors.³⁰⁹ Sufficiency is measured relative to rates that enable the regulated firm "to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risk assumed."³¹⁰ Furthermore, the establishment of formal regulatory proceedings with hearings on the record by administrative regulatory agencies reflects the constitutional guaranty that the utility receive due process in ratemaking.

1. *The Duquesne Test of Fair Return on Prudently Incurred Investment*

A taking occurs if regulatory authorities interfere with the utility's opportunity to earn a fair return on prudently incurred investments made to carry out regulatory obligations. Because the state regulates the return that the utility can earn, courts have long considered rate regulation of a utility's property to be subject to the Takings Clause. Uncompensatory rate regulation thus requires compensation of the utility's investors for their forgone expected returns. The major takings cases involving regulated utilities, such as *FPC v. Hope Natural Gas Co.*³¹¹ and *Duquesne Light Co. v. Barasch*,³¹² do not clearly answer the question of whether the regulator's refusal to allow the public utility the opportunity to recover stranded costs is a taking, for those decisions did not address the consequences of deregulation and wholesale abrogation of the regulatory contract in the name of establishing a competitive marketplace.

In *Duquesne*, the Duquesne Light Company began making investments in new nuclear power plants.³¹³ Those investments were reasonable (prudent) in light of the current costs of different production technologies and expected future demand at the time they were made. Changes in the relative costs and risks of nuclear power (for example, the Three Mile Island nuclear mishap) resulted in a further (prudent) decision to abandon the nuclear power plants. Duquesne had spent roughly \$35 million in planning and preparation by that time.³¹⁴ Duquesne sought to add those sunk costs to its rate base and to recover them through amortization and the allowed rate of return. Unfortunately for Duquesne, after the expenditure but before the in-

³⁰⁹ *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 308 (1989); *Smyth v. Ames*, 169 U.S. 466, 546 (1898). See generally Richard J. Pierce, Jr., *Public Utility Regulatory Takings: Should the Judiciary Attempt to Police the Political Institutions?*, 77 *Geo. L.J.* 2031 (1989).

³¹⁰ *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944).

³¹¹ 320 U.S. 591 (1944).

³¹² 488 U.S. 299 (1989).

³¹³ Several other utilities were involved in *Duquesne*. For simplicity, we refer only to Duquesne.

³¹⁴ *Duquesne*, 488 U.S. at 302.

clusion of the nuclear costs in the rate base, Pennsylvania enacted legislation that foreclosed the Pennsylvania Public Utility Commission from granting Duquesne recovery of those costs through higher utility rates.³¹⁵

The Supreme Court examined whether the state legislation caused a taking of the property of Duquesne's shareholders without just compensation. Writing for the Court, Chief Justice Rehnquist noted that Duquesne had "a state statutory duty to serve the public" and that its "assets are employed in the public interest," but that the company was "owned and operated by private investors."³¹⁶ Those characteristics set the regulated firm apart from others: "This partly public, partly private status of utility property creates its own set of questions under the Takings Clause of the Fifth Amendment."³¹⁷

Whether the allowed rates of a public utility violate the Takings Clause depends on whether they are "confiscatory"³¹⁸—a determination which, the Court admitted in the 1898 *Smyth v. Ames*³¹⁹ decision, was "always . . . an embarrassing question."³²⁰ The answer to that question, however, does not depend on the use of any single methodology. The *Duquesne* Court reaffirmed the holding in *Hope* that it is the overall effect of rate regulation, not the details or methods, that matters.³²¹ The question for the Court was thus whether Duquesne's actual rate of return was constitutionally sufficient. In measuring the overall rate of return, the Court accepted Duquesne's unrecovered sunk costs as part of its prudently incurred investment.³²²

³¹⁵ *Id.* at 303-04.

³¹⁶ *Id.* at 307.

³¹⁷ *Id.*

³¹⁸ *Id.* at 307-08 (citing *FPC v. Texaco Inc.*, 417 U.S. 380, 391-92 (1974); *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575, 585 (1942); *Covington & Lexington Turnpike Rd. Co. v. Sandford*, 164 U.S. 578, 597 (1896)).

³¹⁹ 169 U.S. 466 (1898).

³²⁰ *Id.* at 546.

³²¹

"[I]t is not theory but the impact of the rate order which counts. If the total effect of the rate order cannot be said to be unreasonable, judicial inquiry . . . is at an end. The fact that the method employed to reach that result may contain infirmities is not then important."

Duquesne, 488 U.S. at 310 (quoting *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 602 (1944)). The *Duquesne* Court liked *Hope's* rhetoric of "theory" and "impact" so much that it quoted the language twice. See *id.* at 314.

³²² *Id.* at 312.

2. *Distinguishing Stranded Costs from the Unrecovered Prudently Incurred Investment*

Five facts convinced the Court that no taking of Duquesne's property had occurred. Those facts, however, look very different when viewed in the context of a breach of the regulatory contract. First, Duquesne did not claim "that the total effect of the rate order arrived at . . . [was] unjust or unreasonable," and the Court found that such effect was "well within the bounds of *Hope*, even with total exclusion" of the prudently incurred costs for the nuclear plants.³²³ In contrast, the total exclusion of stranded costs could bankrupt certain regulated firms.³²⁴

Second, the Court noted that Duquesne's \$35 million investment in the canceled plants comprised only about 1.9% of its total investment base.³²⁵ Although the Court here did not cite Justice Holmes's remark in *Pennsylvania Coal* about the transactions costs of compensating trivial takings of private property,³²⁶ that consideration may have been present. Justice Holmes's idea represents an odd proposition, however, for one would normally expect that if the parties affected by a confiscation are concentrated, then the government's payment of compensation for a taking should be *less* of a burden (and thus more readily made) as the amount of compensation falls. Moreover, \$35 million of property loss is a substantial amount compared with what could conceivably have been at stake in, say, the portentous case of the cable-television paraphernalia littering Ms. Loretto's rooftop. And, again, the amount of stranded costs at stake in the electricity and local telephony markets is greater by orders of magnitude than the \$35 million in *Duquesne*.

Third, the denial of cost recovery caused by the opportunistic behavior of the Pennsylvania legislature did not threaten Duquesne's survival. As the Court stated:

No argument has been made that these slightly reduced rates jeopardize the financial integrity of [Duquesne], either by leaving [it] insufficient operating capital or by impeding [its] ability to raise future capital. Nor has it been demonstrated that these rates are inadequate to compensate current equity holders for the risk associated

³²³ *Id.* at 311-12. "The Constitution protects the utility from the net effect of the rate order on its property. Inconsistencies in one aspect of the methodology have no constitutional effect on the utility's property if they are compensated by countervailing factors in some other aspect." *Id.* at 314.

³²⁴ See Vogelstein, *supra* note 34, at C1.

³²⁵ *Duquesne*, 488 U.S. at 312.

³²⁶ *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).

with their investments under a modified prudent investment scheme.³²⁷

Again, breach of the regulatory contract unquestionably does jeopardize the financial integrity of some regulated firms.

A fourth and related fact upon which the Court relied was that the opportunism exercised by the Pennsylvania legislature was not the most extreme version available to it, given the extent to which a public utility's income depended on the consistency of the rate methodology that its regulators employed:

The risks a utility faces are in large part defined by the rate methodology because utilities are virtually always public monopolies dealing in an essential service, and so relatively immune to the usual market risks. Consequently, a State's decision to arbitrarily switch back and forth between methodologies in a way which required investors to bear the risk of bad investments at some times while denying them the benefit of good investments at others would raise serious constitutional questions. But the instant case does not present this question.³²⁸

Justice Scalia, joined by Justices O'Connor and White, concurred but warned, more forcefully than did Chief Justice Rehnquist's opinion for the majority, that the holding in *Duquesne* would not answer the question of whether just compensation would be due in future takings cases where the nature and magnitude of the utility's prudent investment differed substantially from *Duquesne*'s:

[W]hile "prudent investment" (by which I mean capital reasonably expended to meet the utility's legal obligation to assure adequate service) need not be taken into account as such in ratemaking formulas, it may need to be taken into account in assessing the constitutionality of the particular consequences produced by those formulas. We cannot determine whether the payments a utility has been allowed to collect constitute a fair return on investment, and thus whether the government's action is confiscatory, unless we agree upon what the relevant "investment" is. *For that purpose, all prudently incurred investment may well have to be counted.* As the Court's opinion describes, that question is not presented in the present suit, which challenges techniques rather than consequences.³²⁹

Breach of the regulatory contract *does* present the serious constitutional question that *Duquesne* did not, for it threatens to exploit the utility's irreversible investment to a far greater extent than does the

³²⁷ *Duquesne*, 488 U.S. at 312.

³²⁸ *Id.* at 315.

³²⁹ *Id.* at 317 (Scalia, J., concurring) (emphasis added).

opportunistic disallowance of costs through prudence reviews or other retrospective mechanisms.

Fifth, the Court understood that "utilities are virtually always public monopolies . . . relatively immune to the usual market risks."³³⁰ The new policies mandating interconnection and unbundling, however, will overturn that understanding, for the goal of such policies is to deny incumbent providers of electricity and local telephony their immunity to the "usual market risks" of competition.

In short, although *Duquesne* forced utility investors to bear the losses from unrecovered but prudently incurred sunk costs, all five aspects of the Court's reasoning indicate that the problem of stranded costs arising from breach of the regulatory contract would present a case notably distinguishable from *Duquesne*.

An important implication of *Duquesne* is that utility investors must be compensated in one way or another for prudently incurred sunk costs. One possible method is to include the costs in the investment rate base. Another possible method is to increase the future allowed rate of return such that it is higher than the cost of capital, thereby producing the same effect as if the cost of capital had been allowed on all investments, including sunk-cost losses. A third approach is to increase the allowed rate of return at the time of investment to anticipate the possibility that stranding of investment may occur.³³¹ Otherwise, ratepayers must pay the costs of sunk costs when they occur, since investors were not compensated beforehand. What is *not* permitted is switching "back and forth between methodologies in a way which required investors to bear the risk of bad investments at some times while denying them the benefit of good investments at others," as the Court observed.³³²

Property protections influence the incentives that utilities and ratepayers have to achieve the economically efficient result. If ratepayers bear prudently incurred sunk costs, they will lobby for abandonment of investments only when the economic value of alternative uses for the asset exceeds the value of the asset's continued use by the utility. That is precisely the efficient result. In contrast, investor-

³³⁰ *Id.* at 315.

³³¹ Some discussion of these issues appears in A. Lawrence Kolbe, William B. Tye & Stewart C. Myers, *Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries* 9-46 (1993); A. Lawrence Kolbe & William B. Tye, *The Duquesne Opinion: How Much "Hope" Is There for Investors in Regulated Firms?*, 8 *Yale J. on Reg.* 113, 123-27 (1991) [hereinafter Kolbe & Tye, *The Duquesne Opinion*]; Stephen F. Williams, *Fixing the Rate of Return After Duquesne*, 8 *Yale J. on Reg.* 159, 159-63 (1991); see also Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital* 38-40 (1994).

³³² *Duquesne*, 488 U.S. at 315.

borne prudently incurred sunk costs result in inefficiency because the regulatory commission will be tempted to free ride by confiscating the property of the regulated utility.³³³ That danger is particularly acute in the “endgame” that occurs in the transition from regulation to a competitive market.

3. *Uncompensatory Pricing of Interconnection to the Incumbent's Network or of Unbundled Access to Its Basic Service Elements*

Duquesne fails to address another form of taking that can arise under mandatory unbundling. Apart from being denied the opportunity to recover stranded costs, the incumbent regulated firm may be obliged to sell interconnection to its network or unbundled access to its basic service elements at prices that are uncompensatory. Invariably, the entrant seeks interconnection at (or below) long-run incremental cost (LRIC), with no contribution to the common fixed costs of the incumbent's network. As we will demonstrate in our discussion of the efficient component-pricing rule in Part IV, a price for mandatory network access that is set at LRIC induces inefficient entry and threatens to bankrupt the regulated incumbent.

An illustrative example of the failure to recognize the takings implication of interconnection pricing arose in 1995 in a proceeding before the California Public Utilities Commission (CPUC). The proceeding concerned the method of compensating incumbent local exchange carriers for terminating calls originated by subscribers to new competitive local carriers (CLCs).³³⁴ In 1995 the CPUC adopted rules to authorize prospective CLCs to request certificates of public convenience and necessity to provide local exchange service. Those rules were part of a larger plan to open all of California's telecommunications markets to competition by January 1, 1997. Under the rules, the CLCs were allowed to commence facilities-based local exchange competition on January 1, 1996, and bundled resale-based competition on March 1, 1996.

Before the start of either form of competition, the CPUC adopted for one year, beginning January 1, 1996, “interim” rules concerning the compensation to be paid by carrier *A* for having carrier *B* terminate *A*'s calls on *B*'s local exchange network. Rather than order carriers to charge for terminating access on the basis of some measure

³³³ On the contrasting incentives to achieve the economically efficient result under differing rules for the recovery of stranded costs, see Michael J. Doane & Michael Williams, *Competitive Entry into Regulated Monopoly Service and the Resulting Problem of Stranded Costs*, 2 Hume Papers on Pub. Pol'y, no. 3, at 32 (1995).

³³⁴ *Re Competition for Local Exchange Service*, 165 Pub. Util. Rep. 4th (PUR) 127 (Cal. Pub. Utils. Comm'n 1995).

of cost (however defined), the CPUC adopted the "bill-and-keep" system advocated by the CLCs, which the commission described as follows:

"Bill-and-keep" is a method by which each LEC and CLC terminates local traffic for all other LECs and CLCs with which it interconnects, bearing its own capital and operating costs for these functions. Under this approach, individual LECs or CLCs theoretically bear a proportional share of the overall costs associated with reciprocal traffic exchange.³³⁵

In other words, suppose that ninety-nine percent of calls are placed to subscribers on the network of the incumbent local exchange carrier *B*, and only one percent of calls are placed to subscribers on the network of competitive local carrier *A*. All other things being equal, a subscriber on *A*'s system would therefore need to terminate calls on *B*'s network ninety-nine percent of the time. Under bill-and-keep, *B* would bear the cost of terminating all calls on its system, including the cost of terminating ninety-nine percent of all calls originating from *A*'s subscribers. Conversely, *A* would bear the cost of terminating the calls from *B*'s subscribers; but by assumption those calls only constitute one percent of the total volume of calls placed. Thus, *B* would bear the cost of terminating ninety-nine percent of all traffic and avoid the cost of terminating only one percent. Conversely, *A* would avoid the cost of terminating ninety-nine percent of the calls that originated on its network. As *A*'s share of the market grew, its percentage of termination costs avoided would correspondingly fall.

Bill-and-keep is an alternative to explicit mutual compensation by *A* to *B* and by *B* to *A*. Conceivably, bill-and-keep could economize on transaction costs by obviating the computation and remittance of access charges in settings where the amount owed for flows from *A* to *B* would cancel out the amount owed for flows from *B* to *A*. For that reason, bill-and-keep may be an efficient regime of interconnection pricing in some two-way networks, as in the case of the clearance of checks or transactional paper (credit card receivables) between large numbers of banks. But in local telephony, bill-and-keep will produce a lopsided system of implicit compensation, and hence a substantial subsidy to entrants, until such time as the market shares of *A* and *B* become comparable. No doubt it was for that reason that the CPUC's Division of Ratepayer Advocates, which sup-

³³⁵ *Id.* at 128. The FCC has also endorsed the use of bill-and-keep as a model of interconnection pricing. In re *Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers; Equal Access and Interconnection Obligations Pertaining to Commercial Mobile Radio Service Providers*, Notice of Proposed Rulemaking, CC Dkt. Nos. 95-185, 94-54, 11 F.C.C.R. 5020 (1996).

ported bill-and-keep, argued that, in making its interim compensation rule, the CPUC “may well have assumed that the amount of traffic exchanged would be equal in absolute numbers and thus the exchange would be revenue neutral.”³³⁶

Two local exchange carriers, relying on the California Supreme Court’s 1913 decision in *Pacific Telephone & Telegraph Co. v. Eshleman*,³³⁷ argued to the CPUC that its bill-and-keep rule represented a taking in that the rule forced them to share their facilities with a competitor without compensation. In *Eshleman* (discussed more fully below), California’s highest court had ruled that the state could not subject a public utility to use by its rivals without compensation.³³⁸ Yet in response to the LECs’ argument in 1995, the CPUC ruled that the takings claims were “wholly lacking in merit.”³³⁹ One can hardly be surprised when a regulatory commission rejects an argument that it has violated the Constitution. But even with that caveat in mind, the CPUC’s treatment of the LECs’ takings arguments was notably superficial and dismissive, particularly given the commission’s abbreviated discussion of the United States Supreme Court’s case law on takings.

In three successive paragraphs, the CPUC invoked the physical invasion, regulatory taking, and *Duquesne* lines of cases.³⁴⁰ Even though the CPUC began its discussion of the law by noting that under *Duquesne* “the U.S. Supreme Court recognized that utility-related taking issues should be analyzed by focusing on whether rates properly compensate utilities for the property they have dedicated to public use,” and even though the LECs emphasized the physical invasion of their networks that the interconnection rule entailed (and even though the CPUC *itself* cited *Loretto* as one of “the more important cases”), the commission inexplicably chose to analyze the LECs’ takings claim under the standard least favorable to a regulated utility—namely, the three-part test enunciated in *Penn Central* and subsequently used by the Court in regulatory takings cases.³⁴¹ Indeed, the CPUC refused to follow *Eshleman* on the grounds that it was no longer in fashion:

In the early part of this century, the California Supreme Court did hold that when we order a utility to allow its property to be used in a way that exceeds the limits of its “dedicated use,” then our or-

³³⁶ Re Competition for Local Exchange Service, 165 Pub. Util. Rep. 4th (PUR) at 129.

³³⁷ 137 P. 1119 (Cal. 1913).

³³⁸ *Id.* at 1128.

³³⁹ Re Competition for Local Exchange Service, 165 Pub. Util. Rep. 4th (PUR) at 134.

³⁴⁰ *Id.* at 132-33.

³⁴¹ *Id.*

der is in effect a taking, even if it appears to be a mere regulation. (The “dedicated use” of a utility property, put simply, is the public purpose for which the utility has agreed to use or “dedicate” its property.) Unfortunately, the *Eshleman* case, which in 1913 was one of the first cases decided under the Public Utilities Act, does not provide clear guidance for contemporary takings questions. While the [California Supreme] Court’s wide-ranging discussion of our nature and authority in that case is an important initial construction of the Public Utilities Act, its approach to the taking issue relies on now-outdated principles of jurisprudence and was criticized even by contemporary commentators and jurists.³⁴²

Given the Court’s 1982 decision in *Loretto*, given the five distinguishing factors discussed above that properly inform the limits of the Court’s 1989 *Duquesne* decision concerning uncompensatory rate setting, and given the Court’s invigoration of regulatory takings law by 1992 in *Lucas*, there was nothing “outdated” about the takings challenge to the CPUC’s bill-and-keep rule. Nor should criticisms that commentators and lower courts lodged against *Eshleman* seventy years ago trump the logic that motivates the Supreme Court’s modern takings jurisprudence.

Instead of analyzing the bill-and-keep rule under the precedent of either the California Supreme Court or the U.S. Supreme Court, the CPUC invoked precedent of its own making in which it had stated:

“The jurisprudence of the takings clause presents scholars with nice doctrinal nuances and fine opportunities for subtle disputation. But we need not join that debate here. . . . Having accepted for so long the benefits of monopoly, [the LEC] may not now reclaim this property as its sole private fief. We may regulate that property pursuant to our authority and in so regulating may diminish its value.”³⁴³

Despite the inherent asymmetry of implicit flows of compensation under bill-and-keep, the CPUC said that “[t]his cost allocation does not result in a diminution of the overall return to the LECs[’] shareholders that is so low as to be confiscatory.”³⁴⁴ With that conclusion, the CPUC evidently believed that it had satisfied the requirements of *Duquesne* and *Hope*, for it next purported to apply “established doctrine relating to ‘takings’ outside the utility arena.”³⁴⁵

³⁴² *Id.* at 133 (citing the unreported case of *Pacific Tel. & Tel. v. Wright-Dickerson Hotel Co.* (D. Or. 1914); Annotation, *Right and Duty of Telephone Co. to Make Physical Connection*, 11 A.L.R. 1204, 1213 (1921) (citation to *Pacific Tel. & Tel. Co. v. Eshleman*, 137 P. 1119 (Cal. 1913), omitted)).

³⁴³ *Id.* at 133 (citation omitted).

³⁴⁴ *Id.* at 134.

³⁴⁵ *Id.*

That “established doctrine” consisted not of *Loretto*, but of *Penn Central*’s three-part test. The CPUC first examined the character of its regulation and found that its “regulation of how call termination is handled during the initiation of local exchange competition is a proper exercise of our authority over the LECs who hold their property not as a ‘private fief’ but in the public trust.”³⁴⁶ For reasons that the CPUC declined to explain, it asserted that “[t]he character of our regulation of call termination is not analogous to *Eshleman*.”³⁴⁷ With respect to the LECs’ investment-backed expectations, the CPUC concluded that the LECs would “avoid paying to terminate their customers’ traffic on a CLC’s network during the year that the requirement is in place”³⁴⁸ and that, even though the CPUC did “not yet know if ‘bill-and-keep’ will in fact fully compensate a carrier, it can at least be said that the carriers will receive some benefit.”³⁴⁹ Finally, the CPUC considered the magnitude of the economic harm that bill-and-keep would impose on the LECs:

[I]t must be kept in mind that without some mechanism in place to deal with mutual call termination, local exchange competition cannot even begin. Moreover, during this first year of local exchange competition, we do not expect viable local competitors to be fully operative before the middle of 1996. Therefore, there is little risk of economic harm to [the LECs] from our interim approach. Even if one assumed that “bill-and-keep” would result in some cost to [the LECs], this cost will most likely be small, and it is a small price for these carriers to pay for the benefit they will gain as a result of the newly competitive environment for local telecommunications. In this new environment, [the LECs] may have much *greater* flexibility to enter new markets and *more control* over the rates which they can charge for their services.³⁵⁰

There is more than modest irony in that pronouncement, for the CPUC was in essence saying that the LECs were incapable of recognizing regulatory policies that would serve their self-interest. In the new competitive market that the CPUC described, the LECs could charge no more than competitive prices—namely, the same prices that existing regulation presumably would have produced. But by requiring uncompensatory interconnection-pricing regulation on top of the existing regulatory contract, the CPUC was necessarily requiring the LECs to receive something *less* than a competitive return—either in

³⁴⁶ *Id.*

³⁴⁷ *Id.*

³⁴⁸ *Id.*

³⁴⁹ *Id.*

³⁵⁰ *Id.* (emphasis in original) (citation omitted).

the current regulated environment or in the future competitive environment—at least until the implicit subsidy that bill-and-keep creates for entrants had equalized the volume of calls terminating on the LECs' network and the entrants' networks. Stated differently, a given LEC would only receive compensable interconnection prices under bill-and-keep when it had so subsidized competitive entrants that its share of local exchange terminations had fallen to fifty percent.

The CPUC's decision is most startling in its unexplained refusal to analyze compensation for mandatory interconnection under the one line of Supreme Court cases most relevant to the facts—namely, *Loretto* and the other decisions concerning physical invasion. As explained earlier, the mandatory interconnection of CLCs to the networks of regulated local exchange carriers entails a physical invasion of the pathways of electrons and photons, just as the trackage-rights problem entails the physical invasion of one railroad network by the locomotive owned by the interconnecting railroad. The California Supreme Court had the vision to grasp that point in 1913 in *Eshleman*. Yet eighty-two years later, California's utility regulators had not absorbed *Eshleman*'s lesson—or perhaps merely realized that to apply *Eshleman* would necessitate the finding that the bill-and-keep rule was an unconstitutional taking. To demonstrate this point, a more thorough explication of *Eshleman* is now required.

In *Eshleman*, Justice Henshaw wrote for the California Supreme Court that “‘taking’ of property within the meaning of the constitution is not restricted to a mere change of physical possession, but includes a permanent or temporary deprivation of the owner of its use.”³⁵¹ He then quoted three treatises for the proposition that the mandatory order of trackage rights required the payment of just compensation to the incumbent railroad.³⁵² To Justice Henshaw, when taken together these treatises established the following proposition:

³⁵¹ *Pacific Tel. & Tel. Co. v. Eshleman*, 137 P. 1119, 1127 (Cal. 1913).

³⁵² *Id.* at 1127-28. Justice Henshaw quoted an eminent domain treatise as follows: “[O]ne company cannot be authorized to take the joint use of another's tracks, except by an exercise of the eminent domain power. All the cases practically concede this by holding that compensation must be made. That it is competent for the Legislature to authorize a railroad company to take the right to use the tracks of another railroad jointly, upon making compensation as required by the Constitution, is a proposition almost unanimously supported by the authorities.”

Id. at 1127 (quoting 2 John Lewis, *A Treatise on the Law of Eminent Domain in the United States* § 423 (3d ed. 1909)). Judge Henshaw next quoted a treatise on regulated industries as follows:

“The principles discussed do not go so far as to give one common carrier the right to demand the use of the facilities of rival common carriers in order to compete against them. Thus it seems plain that one railroad cannot be re-

Th[e] principle, it is to be noted, is not that the Legislature, acting directly or through its authorized mandatories, may not subject property devoted by its owners to a public use to another public use, or to the same public use by its rivals, but that the doing of this is an act referable to the power of eminent domain, and not to the police power, and that compensation must be made accordingly. Herein lies the vital distinction between the legitimate exercise of the police power and the exercise of the power of eminent domain. In the former, uncompensated obedience to the order is imperative. In the latter, the order may not be enforced without compensation first made. And, finally, it may not be amiss to point out that the devotion to a public use by a person or corporation of property held by them in ownership does not destroy their ownership, and does not vest title to the property in the public use as to justify, under the exercise of police power, the taking away of the management and control of the property from its owners without compensation, upon the ground that public convenience would better be served thereby, or that the owners themselves have proven false or derelict in the performance of their public duty. Any law or order seeking to do this passes beyond the ultimate limits of the police power, however vague and undefined those limits may be.³⁵³

In *Eshleman* the incumbent local exchange carrier, Pacific Telephone, also operated long-distance trunk lines. The Railroad Commission of California, then the regulator of telephone companies, ordered Pacific to provide interconnection to a competing LEC in each of two counties and reasoned that Pacific would receive compensation in the form of toll revenues for long-distance calls originating on the networks of the competing LECs.

Notwithstanding the CPUC's reading of the case, *Eshleman* is therefore directly relevant to the CPUC's current reasoning concerning bill-and-keep. The commission concluded that the incumbent LECs will eventually benefit under the flexibility of the new competitive environment even though the CPUC has no idea as to whether the bill-and-keep arrangement will sufficiently compensate those LECs for providing mandatory interconnection for competitors in the

quired to make physical connection with its rival so that it may take its business away from it."

Id. at 1127-28 (quoting 1 Bruce Wyman, *The Special Law Governing Public Service Corporations* § 698 (1911)). Finally, in relevant part, Justice Henshaw quoted a treatise on municipal franchises for the proposition that "the Legislature cannot, without compensation to the first company, authorize the second company to take or use the track of the first, although with compensation this might be done under the power of eminent domain if in its judgment the public good required it." Id. at 1128 (quoting John Forrest Dillon, *Commentaries on the Law of Municipal Corporations* § 727 (4th ed. 1890); John Forrest Dillon, *Commentaries on the Law of Municipal Corporations* § 1280 (5th ed. 1911)).

³⁵³ Id.

present. Justice Henshaw rejected a similar argument in *Eshleman* when he wrote that

it cannot be contended . . . that an apportionment of rates or tolls for a service to be rendered in the future is a compensation for the present taking of property, and as little can it be said that the allocation of such rates and tolls to be earned in the future can ever measure up to the constitutional requirement that property shall not be taken without compensation first made and paid to the owner.³⁵⁴

The concurring opinion by Justice Sloss in *Eshleman* elaborates on the regulated firm's need for cost recovery, the potential for competitors to free ride on the regulated firm's investment, and the contractual purpose for which the regulated firm dedicated its property for public use:

By installing its long-distance plant for the use of subscribers to its local systems, [Pacific] has developed an element of great value in the conduct of its local business at various points. It has thereby built up for itself an advantage, and a perfectly legitimate one, over competitors who, with a much smaller investment and at far smaller risk, have created only a local system. It has never offered to share this advantage with rival companies. To be compelled to so share it is to subject its property to a new use—and thus, in part, to take it. If the public interest requires the connection, appropriate provision for estimating and paying the damage occasioned thereby must be made.³⁵⁵

Whereas the CPUC's discussion of the modern version of such issues dismissed the possibility of a taking as "wholly lacking in merit," Justice Sloss's opinion instead recognized the complexity of determining an access price for mandatory interconnection that would satisfy the Takings Clause:

A mere division of the tolls, even though the entire toll may be allotted to [Pacific], is not the compensation required as a condition to the taking of property for public use. In the first place, it is uncertain, both as to amount and time. In the next place, the division of tolls will only pay the company for the service actually rendered by it from time to time. It will not afford any compensation for the damage occasioned by the taking, i.e., by the subjecting of its property to the demands of a public service to which that property was not dedicated. What the measure of such damage is I do not attempt here to define, but it is plain that it includes elements not covered by a mere apportionment of tolls.³⁵⁶

³⁵⁴ Id. at 1137 (citing *Attorney-General v. Old Colony R.R.*, 35 N.E. 252 (Mass. 1893)).

³⁵⁵ Id. at 1143 (Sloss, J., concurring).

³⁵⁶ Id. (citation omitted).

One can read the above passage to suggest that Justice Sloss intuitively recognized that the interconnection price must compensate the incumbent fully for its opportunity cost of providing network access to its competitor, and not simply for its long-run incremental cost. We shall return to that question shortly in Part IV.

*F. Unconstitutional Conditions on the Lifting
of Incumbent Burdens*

In *Dolan v. City of Tigard*,³⁵⁷ the Supreme Court saw a genuine problem of unconstitutional conditions in the much simpler context of land-use regulations:

Under the well-settled doctrine of "unconstitutional conditions," the government may not require a person to give up a constitutional right—here the right to receive just compensation when property is taken for a public use—in exchange for a discretionary benefit conferred by the government where the property sought has little or no relationship to the benefit.³⁵⁸

Similarly, recognizing the potential for unconstitutional conditions in situations involving mandatory access, the Court in *Loretto* said that "a landlord's ability to rent his property may not be conditioned on his forfeiting the right to compensation for a physical occupation."³⁵⁹ The same reasoning applies to local exchange carriers and electric utilities selling interconnection or unbundled access to competitive entrants into their markets. The government, for example, could not "require a landlord to devote a substantial portion of his building to vending and washing machines, with all profits to be retained by the owners of these services and with no compensation for the deprivation of space."³⁶⁰ Consistent with its solicitude for property rights when physically invaded, the Court has been equally absolutist on the question of unconstitutional conditions: "The right of a property owner to exclude a stranger's physical occupation of his land cannot be so easily manipulated."³⁶¹

Those statements put a new face on the relationship between mandatory access and the lifting of incumbent burdens. For example, under the Telecommunications Act of 1996 (and, formerly, under proposed waivers of the Modification of Final Judgment (MFJ) individually negotiated by a regional Bell operating company (RBOC), the

³⁵⁷ 114 S. Ct. 2309 (1994).

³⁵⁸ *Id.* at 2317 (citing *Perry v. Sindermann*, 408 U.S. 593 (1972); *Pickering v. Board of Educ.*, 391 U.S. 563, 568 (1968)).

³⁵⁹ *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 438 n.17 (1982).

³⁶⁰ *Id.*

³⁶¹ *Id.*

Antitrust Division of the Department of Justice, and the inter-exchange carriers) an RBOC confronts a quid pro quo for removal of the prohibition on its provision of interLATA services—that is, toll services that cross local and access transport area boundaries. To be granted permission to enter the interLATA market, the RBOC must sell its unbundled service elements at prices that are acceptable to the most formidable of its would-be competitors—namely, interexchange carriers that seek to enter the local-access market on a resale basis. Those established interexchange carriers demand the sale of unbundled elements at or below long-run incremental cost, which is not a compensatory price.³⁶² Thus, for the RBOC the process of securing relief from its incumbent burdens becomes an exercise in unconstitutional conditions.

G. *Just Compensation for Takings*

At what magnitude is the compensation paid for a taking of private property “just”? Economic analysis provides a simple answer: *Compensation for involuntary exchange is “just” when it is equivalent to the compensation that could be derived from voluntary exchange.* Another way of stating the proposition is that the property owner is treated justly when he is made to be indifferent between voluntarily selling his asset and submitting to the state’s power of eminent domain to condemn his asset for public use.³⁶³

That economic reasoning corresponds to the general principle in both American constitutional law³⁶⁴ and English common law for determining fair compensation for a taking.³⁶⁵ Indeed, English common

³⁶² Cf. MacAvoy, *supra* note 13, at 200-10.

³⁶³ See Epstein, *supra* note 6, at 182 (“In principle, the ideal solution is to leave the individual owner in a position of indifference between the taking by the government and retention of the property.”).

³⁶⁴ See, e.g., *Olson v. United States*, 292 U.S. 246, 255 (1934). The Court has also repeatedly stated: “The owner is to be put in the same position monetarily as he would have occupied if his property had not been taken.” *United States v. Reynolds*, 397 U.S. 14, 16 (1970); accord *United States v. New River Collieries Co.*, 262 U.S. 341, 343 (1923); *Seaboard Air Line Ry. Co. v. United States*, 261 U.S. 299, 304 (1923). That formulation of compensation should not be confused with reliance damages: If the property owner were restored to the status quo ante, he could voluntarily transfer his property to a willing buyer at its expectation value. Thus, the Court’s formulation implicitly requires that restoration of the property owner to the status quo ante will compensate him for all the opportunity costs of losing his property to government confiscation.

³⁶⁵ English jurists have emphasized that the purpose of compensation is to “give[] to the owner compelled to sell . . . the right to be put, so far as money can do it, in the same position as if his land had not been taken from him.” *Horn v. Sunderland Corp.*, 1 All E.R. 480, 491 (C.A. 1941) (Scott, J.); accord *Maidstone Borough Council v. Secretary of State for the Env’t*, 3 P.L.R. 66 (C.A. 1995); see also *Nelungaloo Proprietary Ltd. v. Commonwealth*, 75 C.L.R. 495, 571 (Austl. 1948) (“[T]he purpose of compensation . . . is to place in

law explicitly recognizes that compensation should be based on what the owner of the property could have received for it in voluntary exchange:

As the object is to find the money equivalent for the loss or, in other words, the pecuniary value to the owner contained in the asset, it cannot be less than the money value into which he might have converted his property had the law not deprived him of it.³⁶⁶

Similarly, in a takings case decided in 1897 the Illinois Supreme Court defined market value to be "what the owner, if desirous of selling, would sell the property for; and what reasonable persons, desirous of purchasing, would have paid for it."³⁶⁷ The Illinois legislature subsequently codified that definition.³⁶⁸

What, then, is the price that the property owner would demand before he would voluntarily part with his asset? Another way of phrasing the question is to ask what would be the full cost to the property owner of parting with the asset. The critical insight to answering that question comes once again from Armen Alchian's definition that "the cost of an event is the highest-valued opportunity necessarily forsaken."³⁶⁹ The property owner, therefore, would demand the asset's opportunity cost—which, in the absence of regulatory distortions, will usually equal the asset's market value. As a leading textbook on corporate finance explains:

Sometimes opportunity costs may be very difficult to estimate; however, where the resource can be freely traded, its opportunity cost is simply equal to the market price. Why? It cannot be otherwise. If the value of a parcel of land to the firm is less than its market price, the firm will sell it. On the other hand, the opportunity cost of using land in a particular project cannot exceed the cost of buying an equivalent parcel to replace it.³⁷⁰

Again, English common law contains a corresponding expression of that economic reasoning. The property taken is to be valued not

the hands of the owner expropriated the full money equivalent of the thing of which he has been deprived.").

³⁶⁶ *Nelungaloo*, 75 C.L.R. at 571 (Dixon, J., dissenting).

³⁶⁷ *Ligare v. Chicago, Madison & N.R.R.*, 46 N.E. 803, 808 (Ill. 1897); accord *Edgcomb Steel v. State*, 131 A.2d 70 (N.H. 1957). In his dissent in *Munn v. Illinois*, Justice Field made a similar observation about rate regulation: "The amount [of compensation] fixed will operate as a partial destruction of the value of the property, if it falls below the amount which the owner would obtain by contract . . ." *Munn v. Illinois*, 94 U.S. 113, 143 (1876) (Field, J., dissenting).

³⁶⁸ See 735 Ill. Comp. Stat. 5/7-121 (West 1992) (formerly Ill. Rev. Stat. ch. 110, para. 7-121).

³⁶⁹ Alchian, *supra* note 72, at 404.

³⁷⁰ Richard A. Brealey & Stewart C. Myers, *Principles of Corporate Finance* 98 (4th ed. 1991) (footnote omitted).

merely by reference to the use to which it is being put at the time, but the owner is also entitled to compensation for the potentialities or possibilities of development—that is, the property's opportunity cost.³⁷¹ American courts have similarly ruled that the property owner is entitled to compensation "for the most profitable purpose, or advantageous use, to which [his property] could be put on the day it was taken."³⁷²

If it has been established that the manner by which the state accomplishes the deregulation of electricity markets or local telecommunications markets constitutes a government taking of the property of the utility's investors, how shall the amount of "just compensation" be determined? The market value of the property is a sufficient measure of just compensation if it happens to take into account the opportunity cost of the taking. Justice Marshall observed that "[a]lthough the market-value standard is a useful and generally sufficient tool for ascertaining the compensation required to make the owner whole, the Court has acknowledged that such an award does not necessarily compensate for all values an owner may derive from his property."³⁷³ The notion that the owner should be made whole means that the expected returns to the owner from the property should form the basis of compensation.

A deregulatory taking does not deprive the shareholders of the utility of the physical assets, including the plant and equipment and transmission system of the utility, nor does it deprive them of their ownership share in the regulated firm. Rather, regulators deprive shareholders of the expected returns associated with entry controls and pricing regulations that existed before the deregulation. Thus, it is not necessary to determine the purchase costs of the regulatory assets, nor their resale value, nor their replacement costs. The utility placed the assets in service in expectation of the earnings that would be received. The expected returns of the firm constitute *investment-backed expectations*.

Therefore, just compensation for a deregulatory taking should equal the change in the expected returns to the owners of the property. In the basic example of single-period returns, with compensation paid in the current period, just compensation is the difference between the expected net returns deriving from the property under regulation and the expected net returns under competition:

³⁷¹ *Robinson Bros. (Brewers) Ltd. v. Houghton & Chester-Le-Street Assessment Comm.*, 2 All E.R. 298 (C.A. 1937), *aff'd*, 2 All E.R. 79 (H.L. 1938).

³⁷² *Emmons v. Power Utils. Co.*, 141 A. 65, 67 (N.H. 1927).

³⁷³ *United States v. 564.4 Acres of Land*, 441 U.S. 506, 511 (1979).

Just compensation = Δ .

If the property is expected to generate returns over multiple periods, those returns should be discounted at the appropriate rate, so that compensation equals the difference between the present discounted value of net earnings expected under regulation and those expected under competition. To make the investors whole, they should be compensated for the change in the value of the firm:

Just compensation = Δ^* .

Therefore, for the one period or the multiperiod case, just compensation for a deregulatory taking exactly equals damages for breach of contract.

Another way to determine the change in investment-backed expectations is to consider the change in the value of the firm to the shareholders as a consequence of deregulation. The value of the firm is the sum of each year's discounted cash flows net of investment requirements.³⁷⁴ Thus, in the absence of additional investment in the firm, the value of the firm V is the present discounted value of expected earnings:

$$V = \sum_{i=0}^T \frac{(R_i^e - C_i^e)}{(1+i)^i} .$$

The firm has a different value under regulation than it does under competition. Let V_1 and V_2 respectively denote the value of the firm calculated for net revenues under regulation and the value of the firm calculated using expected net revenues under competition. Then, it should be apparent that the change in the value of the firm is the difference between the two present discounted values of cash flows:

$$V_1 - V_2 = \Delta^* .$$

Thus, just compensation for a deregulatory taking from investors is equal to the change in the value of the firm.

IV

COST RECOVERY THROUGH THE EFFICIENT COMPONENT-PRICING RULE

Technological change and regulatory reform are transforming network industries, permitting competition to occur in portions of the market where it had previously been considered infeasible. In one network industry after another, that transformation raises a recurrent

³⁷⁴ See, e.g., J. Fred Weston, Kwang S. Chung & Susan E. Hoag, *Mergers, Restructuring and Corporate Control* 138-44 (1990).

question: How shall the regulated firm price its sale of services to competitors? The question arises whenever an incumbent utility is the only supplier of an input used both by itself and by an entrant to provide some final product. If the utility charges its rival more for the input than it implicitly charges itself, it will have handicapped that rival's ability to compete. The reverse will be true if regulation forces the utility to charge the entrant less for the input than the utility charges itself. Those scenarios underscore that government should seek to promote sustainable competition that does not require the continuing nurturing of entrants by regulators.

The modern analysis of access pricing arose with the purchase of trackage rights by one railroad from another. Shortly thereafter, the problem manifested itself in telecommunications regulation. One of the most vexing issues facing the regulator of local telephone service in the United States is the pricing of access to the local loop when that service is supplied by the local exchange carrier to interexchange carriers with which the LEC competes in toll services within a local access and transport area (LATA). Access has two significant and pertinent attributes. First, access is an intermediate good—an input used in the supply of a final product (intraLATA toll service and other final products as well). Second, that input is produced by the LEC and used not only by itself, but also by its rivals in the market for the final product. Analogous pricing problems have arisen with respect to network interconnection by competitive access providers, which compete against the LEC in providing the local transport required for a long-distance call, and with respect to the LEC's sale of unbundled service elements in response to regulatory initiatives to open the local loop to competition.

The solution to the recurrent access-pricing problem described above is the efficient component-pricing rule (ECPR).³⁷⁵ A critical requirement for economic efficiency is that the price of any product be no lower than that product's marginal cost. Otherwise, with increasing marginal cost, an excessive amount of output is produced because the returns for the last unit of output are less than the cost of

³⁷⁵ Advocates of the rule include Baumol & Sidak, *Toward Competition in Local Telephony*, supra note 39; Baumol & Sidak, supra note 17; Michael A. Crew & Paul R. Kleindorfer, *Pricing in Postal Service Under Competitive Entry*, in *Commercialization of Postal and Delivery Services: National and International Perspectives* 117, 122-27 (Michael A. Crew & Paul R. Kleindorfer eds., 1995); MacAvoy, supra note 13, at 209; William J. Baumol, Janusz A. Ordover & Robert D. Willig, *Notes on the Efficient Component Pricing Rule*, Paper Presented at The Transition Towards Competition in Network Industries, First Annual Conference, PURC-IDEI-Cirano, Montreal (Oct. 13-14, 1995); Alfred E. Kahn & William Taylor, *The Pricing of Inputs Sold to Competitors: A Comment*, 11 *Yale J. on Reg.* 225 (1994).

producing the last units of output. For a fixed level of output, the price of an additional service should cover its average-incremental cost.

Economic analysis emphasizes that the pertinent marginal cost as well as the average-incremental cost must include all opportunity costs incurred by the supplier in providing the product. Here opportunity cost refers to all potential earnings that the supplying firm forgoes, either by providing inputs of its own rather than purchasing them, or by offering services to competitors that force it to relinquish business to those rivals, and thus to forgo the profits on that lost business. In a competitive market, price always includes compensation for such opportunity costs—for example, for the interest forgone by the firm when it supplies funds from retained earnings rather than borrowing them from a bank. The efficient component-pricing rule states simply that the price of an input should equal its average-incremental cost, including all pertinent incremental opportunity costs. That is:

efficient component price =
the input's direct per unit incremental cost +
the opportunity cost to the input supplier of the sale of a unit of
input.

The literature on the economics of price regulation indicates that the pricing principle just described can guide the choice of efficient access charges. The ECPR principle—also known as the *imputation requirement*, the *principle of competitive equality*, or the *parity principle*—is merely a variant of elementary principles for efficient pricing.

To illustrate the calculation of the efficient component price, let Q_1 and P_1 represent the output and price of the regulated firm, respectively, so that its revenue is $R_1 = P_1 Q_1$. After competitive entry occurs, let Q_2 and P_2 represent the output and price of the formerly regulated incumbent, so that its revenue is $R_2 = P_2 Q_2$. The final output price differs from the initial price as the result of competition.

The incumbent utility produces output and an intermediate input known as “access.” Suppose that each unit of output requires exactly one unit of access. An entrant purchases access from the incumbent. Assume for ease of presentation that the incumbent has the same cost of producing access whether it is for the incumbent’s own use or for that of the entrant. Define the following unit costs:

- b*: Incumbent’s incremental unit cost of producing access;
- c*: Incumbent’s incremental unit cost of producing the final output;
- g*: Entrant’s incremental unit cost of producing the final output.

The incumbent's operating cost of final output production is $C_1 = (c + b)Q_1$ under regulation and $C_2 = (c + b)Q_2$ under competition.

Under regulation, the entrant's net revenue equals the cost of capital k , which represents the cost of investment $(1 + i)I$ of the regulated firm:

$$(P_1 - c - b)Q_1 = k.$$

The capital cost k also represents the network cost of producing the final output and the intermediate input. Note that the markup over the unit cost of producing output and access represents a contribution to margin that covers the cost of capital, or in this case the network cost.

Two examples illustrate the basic framework. In the electric power industry, access represents the transmission and distribution lines of the incumbent utility, which supplies access through wholesale or retail wheeling. The final output production is the generation of electric power that is carried out by the integrated utility and independent generators that rely on the utility for transmission and distribution services.

In the telecommunications industry there are numerous types of network components. One important type of access is the resale of "vertical components," many of which are switching services such as call waiting and call forwarding. In addition, the utility provides access to its transmission facilities and local loops. The final output production could simply be the marketing of the vertical components. Alternatively, the final output can be another transmission service, such as long-distance telecommunications, which is bundled with local access.

The entrant purchases X units of access at price A . Suppose that regulators set the access charge such that the incumbent firm breaks even. Thus, under partial deregulation with competition from an entrant, the incumbent's net earnings, including the returns to selling access, equals capital cost:

$$(P_2 - c - b)Q_2 + (A - b)X = k.$$

Now, solve the equation to obtain an expression for the access charge, and substitute for k using the previous equation. This yields an expression that defines the regulated access charge:

$$A = b + [(P_1 - c - b)Q_1 - (P_2 - c - b)Q_2]/X.$$

Therefore, it follows that the access charge equals the incremental unit cost of access plus the change in the incumbent's net revenue per unit of access sold to the entrant, which is the opportunity cost of provid-

ing access per unit of access.³⁷⁶ Therefore, the net contribution of access to the incumbent's earnings exactly equals the change in net revenues:

$$(A - b)X = \Delta.$$

The entrant receives a price P . The price may differ from the incumbent utility's price if the incumbent and entrant supply differentiated products or if customers have switching costs. Suppose further that the entrant's unit cost of producing final output equals g when the incumbent utility supplies access. Then, the entrant's profit is as follows:

$$(P - A - g)X = (P - b - g)X - \Delta.$$

Therefore, entry is profitable if and only if the entrant's markup over the incremental cost of access and output production exceeds the opportunity cost of access, Δ .

Does this yield efficient entry decisions? The answer is yes for a competitive market in which the entrant and incumbent provide customers with identical final products. If there are multiple entrants that compete with each other, the final output price is reduced to the unit cost for the entrants, $P_2 = A + g$. Entrants bid business away from the incumbent if and only if the price falls below the regulated price. At that point, the incumbent's final output is displaced by entrants and the incumbent's opportunity cost is $\Delta = k$ so that the access charge is the sum of the unit cost of access plus capital costs divided by the combined output of the entrants, $A = b + k/X$. Thus, the requirement that prices fall, $P_2 < P_1$, holds if and only if average costs of service fall under competitive entry:

$$g + b + k/X < c + b + k/Q_1.$$

In turn, this inequality holds if and only if the entrants' unit cost g is lower than the incumbent's unit cost c .³⁷⁷ Therefore, entry occurs if and only if the entrants' unit cost is lower than that of the incumbent. That result implies that the ECPR yields an efficient entry decision. Moreover, the ECPR allows competition to lower prices and expand output.

³⁷⁶ This is the case when service is provided using only the incumbent's facilities. When competing facilities are available, the opportunity cost of the incumbent is the difference between the market price of facilities and the incumbent's incremental cost, b . The efficient access charge then is simply equal to the market price of facilities-based service.

³⁷⁷ To demonstrate this somewhat technical result, observe that $X = D(P_2)$ and $Q_1 = D(P_1)$, where $D(P)$ is market demand. Assuming that market demand crosses average cost from above, the average-cost price is lowered by lowering the average-cost function. This establishes that the inequality holds if and only if $g < c$.

The efficiency properties of the ECPR hold under an alternative market equilibrium. Suppose that the incumbent faces one or more price-taking entrants who follow the initial regulated price, $P = P_1 = c + b + k/Q_1$. If entrants displace the incumbent's output, the opportunity cost of the incumbent is again $\Delta = k$.³⁷⁸ The efficient component price in that case is $A = b + k/Q_1 = P - c$. Under the ECPR, it follows that entry is profitable if and only if there is a production cost efficiency.

The connection between the efficient component-pricing rule and allocative efficiency should now be clear: The rule ensures proper pricing and efficiency in network access, whether it is a rail system, an electric power grid, or a telecommunications loop.³⁷⁹

V

THE EQUIVALENCE PRINCIPLE

There is an equivalence between: (1) damages for breach of the regulatory contract; (2) just compensation for a regulatory taking; (3) the change in investor valuation of the utility after deregulation; and (4) pricing policies that promote efficient entry and interconnection in network industries opened to competition. Those identities are what we mean here by the *equivalence principle*.

A. *Expectation Damages*

The expectation-damages remedy for breach of contract serves to mitigate opportunism while protecting the expectation interests of the parties. Parties breach if and only if it is economically efficient to do so, which occurs if the benefits from breach exceed expectation damages. As we have previously shown, damages for breach of the regulatory contract equals Δ in the single-period case and Δ^* in the multiperiod case.

B. *Just Compensation*

Just compensation for a deregulatory taking equals the value that the owner of the property would voluntarily accept in the market, which reflects not simply the market value of the assets but the oppor-

³⁷⁸ The ECPR's efficiency properties do not depend on complete displacement. With partial displacement, the incumbent's opportunity cost is $\Delta = (P - c - b)X$, where $X = Q_1 - Q_2$ is the entrant's output.

³⁷⁹ For other demonstrations of the ECPR's efficiency, see Baumol & Sidak, *Toward Competition in Local Telephony*, supra note 39, at 105-07; Baumol & Sidak, *The Pricing of Inputs Sold to Competitors*, supra note 39, at 187-89; William J. Baumol & J. Gregory Sidak, *Pricing of Services Provided to Competitors by the Regulated Firm*, 3 *Hume Papers on Pub. Pol'y*, Autumn 1995, at 15, 16-25.

tunity cost to the owner. Thus, the compensation for the investors of the regulated firm equals the difference between net earnings under regulation and net earnings under competition. The returns to the assets under competition correspond to mitigation in the case of contract damages. As in the calculation of contract damages, this of course requires that employment of the assets to provide services under competition is the best alternative use of those assets once deregulation has occurred. If there are better alternatives, including scrapping the assets or resorting to some type of divestiture, those alternatives would determine the proper calculation of just compensation. Thus, just compensation for a deregulatory taking equals Δ when paid in the current period, and Δ^* when paid in advance in the multiperiod case.

C. *Investor Valuation*

Because the value of the firm is the present discounted value of returns, the change in the market value of the utility upon deregulation is exactly equal to Δ^* . Therefore, the change in the market value of the firm provides another approach to estimation of contract damages or just compensation.

Those calculations ultimately will require use of accounting data. That entails using information based on the activities of the firm were it to continue as a regulated enterprise in combination with information on a firm that has a mixture of regulated and competitive activities or even a firm that exclusively carries on competitive activities if deregulation is complete. The forward-looking approach that compares present discounted values of cash flows is the economically correct comparison. Translating that comparison into accounting data will inevitably require a number of compromises, particularly because a forward-looking calculation is called for and accounting measures emphasize past performance. Moreover, some accounting conventions can differ when applied to the regulated firm as opposed to the competitive firm.

Calculation of damages or compensation will encounter the usual difficulties in extending to multiple periods the comparison of economic and accounting losses attributable to competition. Those difficulties are due to problems that arise in determining present discounted values using accounting profitability data.³⁸⁰ There are also problems in determining the losses to the owner arising from deprivation of assets, or from deprivation of some uses of those assets. A

³⁸⁰ See, e.g., Jeremy Edwards, John Kay & Colin Mayer, *The Economic Analysis of Accounting Profitability* 2-3 (1987).

standard objection raised to “value to the owner” rules is that in contrast to historical costs, the forward-looking determination of earnings is necessarily subjective because it depends on estimated cash flows and discount rates.³⁸¹ However, such problems are present in any legal damage calculation. While the deregulation of an industry presents additional complications, the conceptual problems are similar to standard damage calculations. Moreover, the estimation of revenues and costs relative to a “test year” has long been a standard feature of the regulatory process.³⁸²

D. *The Efficient Component-Pricing Rule*

Access pricing that promotes only *efficient* entry, interconnection, and bypass in the market at issue also serves to compensate the utility for its opportunity cost. Thus, if the access-pricing rule is calculated properly, it will serve the same function as contract damages or just compensation. Therefore, under the efficient component-pricing rule, interconnection prices are not confiscatory under the Takings Clause.

One significant caveat must be added to the preceding claim that an equivalence exists between just compensation and the price for mandatory network access computed according to the efficient component-pricing rule. The ECPR is compensatory in the sense that it covers the incumbent utility’s direct economic costs and opportunity costs. The ECPR, however, is not fully compensatory in certain circumstances. The presence of facilities-based entry and the possibility that entrants may purchase, under existing retail rates, services that are substitutes for the unbundled network elements of the incumbent utility reduce the likelihood that the utility will recover its total costs. The ECPR may indicate that the incumbent utility should charge a price for network access that exceeds the stand-alone cost of a rival technology for the provision of access (such as wireless loops, or self-generation of electricity); in that case, the market will allow the incumbent to charge at most a price for access that equals the stand-alone cost of the rival access technology. The residual that remains to be recovered to meet the utility’s total costs must be collected by an alternative method, such as a competitively neutral, nonbypassable end-user charge.³⁸³

³⁸¹ *Id.* at 41-42.

³⁸² See, e.g., 1 Kahn, *supra* note 176, at 26.

³⁸³ For a more detailed and technical exposition of how rival access technologies constrain the ability of the ECPR to be fully compensatory, see J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and the Regulatory Contract: The Competitive Transformation of Network Industries in the United States* (forthcoming 1997).

The efficient component-pricing rule, without facilities-based competition, recovers the utility's opportunity cost of entry (Δ) in each period. By applying the ECPR over time, the utility recovers the net present value of expected revenues. In each period, the utility's net earnings from selling its final output plus the net earnings from selling access equal the net earnings it expected to have obtained under regulation,

$$(R_2 - C_2) + \Delta = R_1^e - C_1^e.$$

Thus, the present value of the utility's total net earnings is equal to the present value of the earnings that it expected under regulation, PDV_1 . Applying the ECPR in each period to recover opportunity costs thus is equivalent to a one-time payment of Δ^* in the initial period.

If the regulator imposes an access-pricing rule that fails to compensate the utility for the opportunity costs of the resources used to provide unbundled access, then the regulator will have given the utility less compensation for that involuntary exchange than that to which the utility would be entitled under established takings jurisprudence. Moreover, the relevant opportunity cost subject to full compensation will not be a static one, but rather a dynamic one that takes into consideration, in the case of a local exchange carrier, the profits that the utility will forgo from lost sales of interactive narrowband, interactive broadband, and enhanced services supported by the advanced information network. In short, if the regulator orders the utility to provide unbundled access to its basic service elements at a price less than that implied by the efficient component-pricing rule, the regulator will effect an uncompensated taking of the utility's property.

Duquesne supports that jurisprudential proposition. The *Duquesne* Court said that decisions regarding the rates of return for regulated utilities "should be commensurate with returns on investments in other enterprises having corresponding risks"³⁸⁴ and should not "jeopardize the financial integrity of the companies . . . by impeding their ability to raise future capital."³⁸⁵ If the regulator were to require the utility to sell unbundled access to its basic service elements at a price that did not include the utility's full opportunity cost, the utility's shareholders would suffer a corresponding forfeiture in their share price. That forfeiture in turn would cause future investors to demand a risk premium from the utility—which is to say the company would face a higher cost of capital that reflected the risk that a regula-

³⁸⁴ *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 314 (1989) (quoting *FPC v. Hope Natural Gas*, 320 U.S. 591, 602 (1944)).

³⁸⁵ *Id.* at 312.

tor might unexpectedly take future actions, contrary to the regulatory contract, that would arbitrarily expropriate shareholder wealth.

VI DEREGULATORY TAKINGS AND EFFICIENT CAPITAL MARKETS

The existence of efficient capital markets raises several important questions concerning stranded costs and deregulatory takings. We examine whether the regulated firm has already been compensated for stranded costs, when claims of deregulatory takings are ripe for adjudication, whether it truly serves the private interests of competitive entrants to oppose stranded-cost recovery by the incumbent regulated firm, and whether a principled argument against stranded-cost recovery can be predicated on the political objective of minimizing the size of the regulatory state.

A. Has the Utility Already Been Compensated for Bearing the Risk of Stranded Costs?

Some argue that the allowed cost of capital has already compensated the incumbent regulated firm for the risk that the regulator will breach the regulatory contract before the incumbent has had the opportunity to recover the cost of nonsalvageable assets acquired in detrimental reliance on the continued operation of that regulatory contract. The most articulate proponent of that view, Irwin Stelzer, writes:

Every utility executive has always known, and many have loudly proclaimed, that regulators are fickle, responding to changing fashions, the political winds, and, often at the urging of the industry, to changing economic circumstances. Surely, it is not implausible to assume that intelligent investors factored the risk of rule changes into the return they have demanded for exposing their capital to the tender mercies of Huey Long's successors in the regulatory profession (the Kingfish's first elective office was as a utility regulator).³⁸⁶

Consequently, Stelzer argues, "it is not at all clear just how far the 'you can't change the rules in mid-investment' argument carries the case that shareholders should not be the ones to bear the costs of the effect of competition on the value of their investments."³⁸⁷ He continues:

³⁸⁶ Irwin M. Stelzer, *What Happens When the Rules Are Changed and the Plug Is Pulled on Electric Utilities?*, *Am. Enterprise*, Nov./Dec. 1994, at 76, 81 [hereinafter *Stelzer, When the Plug Is Pulled*]; see also Irwin M. Stelzer, *A New Era for Public Utilities*, *Pub. Interest*, Fall 1994, at 81, 83-84.

³⁸⁷ Stelzer, *When the Plug Is Pulled*, *supra* note 386, at 81.

Is it not equally plausible to argue that investors knew that regulatory rules change, that they made their investments forewarned of that possibility, and that they have in the past been compensated for the risks for such changes? . . . [U]tility shares have often sold at prices that suggest that shareholders anticipated and received earnings well above those that strict regulation might produce. So in the swings and roundabouts of regulation—lean years, fat years—it is arguable that investors have received rewards that have amply compensated them for the risk that rules would be changed.³⁸⁸

Elsewhere, Stelzer suggests that the regulatory contract was breached before the current restructuring, when “the wave of *ex post* prudence hearings served notice that recoupment of investment was far from certain.”³⁸⁹ Thereafter, Stelzer contends, the utility’s new investment (other than expenditures mandated by regulators) should be “borne by the shareholders who, it can be argued, by that time had fair warning that all was not well with the regulatory compact.”³⁹⁰

1. *Inferences from Stock Prices*

What can stock price fluctuations tell us about deregulatory takings? Establishing causation between regulatory actions and changes in the market value of the firm involves the use of a sophisticated empirical procedure that financial economists call an “event study.” That procedure requires, first, netting out price movements attributable to movements in the stock market as a whole and other industry-specific events on the relevant trading days and, second, demonstrating that the residual movement in the share value of the affected companies corresponds to key regulatory announcements.³⁹¹ It is important to separate the effects of deregulatory announcements on the returns to regulated capital investment from the effects on the utility’s other lines of business. Many regulated utilities engage in diverse competitive activities not subject to regulation. Deregulation may benefit those activities while it penalizes regulated service. For exam-

³⁸⁸ Id. More generalized versions of this argument against compensation on grounds of rational expectations and moral hazard appear in Lawrence E. Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 Cal. L. Rev. 569, 622-23 (1984); Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 Harv. L. Rev. 509, 536-50 (1986); Susan Rose-Ackerman, *Against Ad Hocery: A Comment on Michelman*, 88 Colum. L. Rev. 1697, 1702-11 (1988). For a critical assessment of that theoretical literature, see Fischel, *supra* note 2, at 184-88.

³⁸⁹ Irwin M. Stelzer, *Restructuring the Electric Utility Industry: Further Tentative Thoughts*, *Electrical J.*, Oct. 1994, at 36, 38.

³⁹⁰ Id.

³⁹¹ See John J. Binder, *Measuring the Effects of Regulation with Stock Price Data*, 16 RAND J. Econ. 167, 167-68 (1985); G. William Schwert, *Using Financial Data to Measure Effects of Regulation*, 24 J.L. & Econ. 121, 122-24, 149-50 (1981).

ple, a local exchange company may experience reduced earnings in local exchange services as a result of deregulation. At the same time, deregulation may allow the firm to expand its already unregulated businesses, such as video or information services. Thus, the net effect of a deregulatory announcement on the market value of the firm may be ambiguous.

Some might argue that no deregulatory taking can occur in the absence of substantial stock price movements, since competitive gains offset losses on regulated services. That reasoning is incorrect. What must be determined is the change in the utility's expected earnings from its *regulated* assets. The utility's returns to unregulated investment are no more relevant to that determination than are the returns to the investments of an unrelated firm operating in some other industry. Moreover, it is essential to separate the effects of multiple regulatory announcements and to evaluate the steady release of information through regulatory hearings, court decisions, filings made by the regulated firm and its adversaries in litigation, and so forth. Event study methodology builds on efficient capital market theory to measure the change in firm value in response to *unanticipated* events. To measure the magnitude of a regulatory taking through stock prices, one must be able to link the move to competition with readily identifiable but unanticipated regulatory events whose abnormal effect on firm value can be measured.

2. *Regulatory Risk Premium*

Some might reason that *Duquesne* implies that investors need not be compensated if they have already received a regulatory risk premium. The notion that compensation has already occurred raises three questions. First, was deregulation foreseen when the utility made its irreversible investment in specialized assets? Second, did the wave of prudence disallowances foreshadow deregulation? Third, if deregulation was foreseen, did investors receive from the regulator compensatory rewards through adjustments in the rate of return to offset the regulatory risk?

a. The Foreseeability of Deregulation. Whether deregulation was foreseen when the utility made its investment may be difficult to determine. To establish that deregulation was foreseen requires explicit recognition of deregulation in rate hearings and other regulatory proceedings. Often, the record is clear that the public utility commission has no intention to depart substantially from traditional regulation. Evidence of the commission's continuing fidelity to the regulatory contract would include its continuing enforcement of entry

controls, rate regulation, and the utility's obligation to serve. In other cases, the commission has deregulated part of the market under its jurisdiction, such as intraLATA toll service in telecommunications. But such a development hardly signals the regulator's imminent abrogation of the regulatory contract, for the commission and the regulated firm may both expect regulation to continue for a large segment of the market, such as the local exchange.

Moreover, as we explained in our earlier discussion of contract modification, the introduction of different forms of regulation, such as price caps or incentive regulation, do not provide conclusive evidence of removal of entry controls, for the commission typically retains all the elements of the regulatory contract while altering only the rate-setting process. For the regulated firm to form a useful prediction that the public utility commission will breach the regulatory contract and cause stranded costs to arise, regulators and the utility would need to be able to foresee the full extent of deregulation—that is, the elimination of entry regulation covering all segments of the utility's franchise markets, including markets for its so-called core customers.

b. The Improbability that Prudency Disallowances Signalled Deregulation. Contrary to Stelzer's assertion, the wave of prudency disallowances did not foreshadow deregulation. Lawrence Kolbe and William Tye have examined compensation for the regulatory risk associated with cost disallowances.³⁹² They found an increase in regulatory risk and a worsening of the regulatory climate for investors, who consequently demanded a higher rate of return to compensate for that heightened risk. Prudency hearings are well within the regulatory contract, but they do not in themselves signal an end to the bargain. Entry controls, rate restrictions, and obligations to serve continue. Indeed, prudency disallowances generally are interpreted as *stricter* regulation—a tightening of controls on the regulated utility, not the loosening of controls that supposedly presages the move to a competitive market. The elimination of entry controls, the corresponding relaxation of pricing restrictions, and the sharing among suppliers of any remaining obligations to serve represent a sea change in the regulatory regime that the regulated firm could not have foreseen by examining past regulatory activities for clues.

Moreover, it is inaccurate to characterize the move to competition as an expansive form of cost disallowance. The opening of the industry to competition certainly will cause write-offs of regulatory as-

³⁹² See A. Lawrence Kolbe & William B. Tye, *It Ain't in There: The Cost of Capital Does Not Compensate for Stranded-Cost Risk*, *Pub. Util. Fort.*, May 15, 1995, at 26.

sets and capital facilities better adapted to regulation than competition. After the utility has made investments to comply with prior regulatory obligations, it would be circular reasoning for the regulator then to disallow those costs as imprudently incurred on the ground that they are not suited—"used and useful," in regulatory jargon—to the new competitive environment. Whether particular investments were prudent is a question already resolved in prior adversarial hearings. Whether deregulation effects a taking by breaching the regulatory contract is a different question entirely.

If the utility could not foresee deregulation when it made its long-lived investments, then the utility is entitled to receive its investment-backed expectations. Alternatively, suppose that the utility did foresee deregulation, but only *after* the utility had made its investments. In that case, the regulator can and should compensate the utility for the greater regulatory risk that it now bears. The regulator can modify the regulatory contract in a number of ways to achieve that purpose, including adjusting the firm's rate of return or allowing the firm accelerated depreciation of its regulated assets.

c. Compensatory Rewards for Foreseeable Regulatory Risk. Even if one could not be confident that the public utility commission would abide by the regulatory contract, that fact would not excuse the regulator from its preexisting obligation to allow the utility the opportunity to earn a competitive rate of return and to recover all the capital costs of its regulatory assets. To excuse the regulator in that situation would be analogous in a private contract to allowing the promisor to breach on the ground that the promisee should have known when the contract was formed that the promisor would behave opportunistically. That reasoning is, to put it mildly, circular. It would imply in essence that, at the time the parties entered into their contract, the promisee (the utility) waived its standard contract remedy of expectation damages in the event of breach by the promisor (the public utility commission) in return for a risk premium being added to the price under the contract.

How great would that risk premium have to be? The regulator would have to make the utility indifferent *ex ante* between (1) the regulator's performance of the contract and (2) the situation in which the regulator might breach the contract with some likelihood and the utility has waived its right to damages for its lost expectation. Therefore, the regulator's consideration paid to the utility for waiving its right to expectation damages would have to exceed, by the discounted present value of the utility's expectation-damages measure, the price at which the contract otherwise would fully compensate the utility.

The price otherwise necessary to compensate the utility would be that which gives it a competitive rate of return on its invested capital and returns that capital by the end of the useful lives of assets placed in service with the use of that capital. In other words, the utility would have accepted a risk premium *ex ante* in lieu of its right to receive expectation damages for breach *ex post* if and only if the regulator in effect prepaid the discounted present value of that damage remedy. If the regulator had done so, however, it would in effect be conceding the existence of the very regulatory contract that opponents of stranded-cost recovery assert does not exist. That is so because the price premium that would result from voluntary bargaining between the regulator and the utility would be the present value of the precise amount that is in dispute in the current debate over stranded costs.

3. *Efficient Risk Bearing for Exogenous and Endogenous Shocks*

Regulators set the allowed rate of return to reflect the utility's cost of capital. The rates that the firm is allowed to charge are set such that the firm's expected revenues equal its estimated revenue requirement. The allowed rate of return is generally an average of the costs of debt and equity weighted by the relative proportions of debt and equity, usually measured at book value. That procedure is followed not only under rate-of-return regulation, but also under price-cap regulation because regulatory commissions often set the initial price caps on the basis of the firm's cost of capital. For example, the FCC sets price caps for interstate access rates and cable-television services using cost-of-capital estimates. The cost of debt usually is taken to equal total interest payments per unit of the book value of debt. The estimated cost of equity is derived in a variety of ways, including the discounted cash-flow method and the earnings/price ratio method. Estimates of the cost of equity generally depend on regulatory assessment of investor expectations regarding the future performance of the firm and thus depend on future regulatory policies.³⁹³ Alternative approaches based on comparable earnings require the regulator to identify firms with comparable risks. The regulator's pricing policy affects the firm's expected earnings; in turn, earnings affect the firm's cost of capital. The circularity of that process implies that the regulated firm, the capital market, and regulators take into

³⁹³ For additional discussion of this point, see Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, 3 *Bell J. Econ.* 58, 65-72 (1972); Richard H. Pettway, *On the Use of β in Regulatory Proceedings: An Empirical Examination*, 9 *Bell J. Econ.* 239, 239-40 (1978); Daniel F. Spulber & Yossef Spiegel, *The Capital Structure of a Regulated Firm*, 25 *RAND J. Econ.* 424, 426-27 (1994).

account the interrelated determination of the cost of capital and regulated prices.

The utility's cost of capital depends on the expected returns of the utility and the riskiness of the stream of returns. Utility earnings are risky due to two types of risk: *exogenous* shocks, which depend on market uncertainty and other factors beyond the firm's control, and *endogenous* shocks, which are subject to some control, particularly those due to regulatory policies. Exogenous shocks are external effects such as fluctuations in market demand; variations in the costs of labor, equipment, and technology; and environmental factors such as the effects of weather on electric power usage, or the effects of adverse weather conditions on the operation of utility facilities. Endogenous shocks are determined by the effect of the regulator's actions on the riskiness of the utility's stream of earnings over time. If regulators pursue predictable policies and if investors do not anticipate fluctuations in earnings caused by disallowances of capital expenditures through prudency reviews, endogenous risk is minimized.

Creating uncertainty due to unexpected shifts in regulatory policies raises the cost of capital to the utility. Those costs must be reflected in future rates because, if the utility expects to attract any further investment, it must compensate investors for the opportunity cost of capital in comparable investments. Therefore, it is inefficient for regulators to create unnecessary uncertainty for the utility's investors. There are few if any benefits from that risk, and the costs can be high. A relatively small likelihood of capital disallowance can entail a correspondingly high increase in the allowed rate of return that is required to compensate investors, as Kolbe and Tye have shown.³⁹⁴ That does not mean that regulators should be denied flexibility of action. Echoing Justice Holmes's remark in *Pennsylvania Coal*, Judge Stephen Williams has observed: "A judicial requirement of compensation for every adverse change, no matter how slight, would freeze the system."³⁹⁵ He cautions, however, that "[i]f there were evidence that jurisdictions engaging in de facto but not de jure wealth confiscation pay in full for their self-indulgence, states would presumably take heed."³⁹⁶

Presumably, the increase in the allowed rate of return that would have been required to compensate utility investors for the possibility of breach of the regulatory contract would be substantial. There is little evidence that such large-scale increases occurred or were even

³⁹⁴ Kolbe & Tye, *The Duquesne Opinion*, supra note 331, at 145-46.

³⁹⁵ Williams, supra note 331, at 162.

³⁹⁶ *Id.* at 163.

contemplated by state regulatory commissions. But the point is not simply the magnitude of such increases in the allowed rate of return. The question is whether such increases in the allowed rate of return, passed on to utility customers through rate increases, would be an efficient way to approach prospective deregulation. Regulators would be creating unnecessary risk, which would then require compensating investors for the risks of loss if markets were to be opened to competition. That is not an efficient way to manage the transition to competition. It is less costly for regulators to make deregulation policy clear and then to compensate investors for diminished expectations, without engaging in a "randomized" strategy. The availability of a less costly alternative makes it unlikely that, as Stelzer suggests, regulators deliberately increased the allowed rate of return to compensate investors for the "risk" of future deregulation.³⁹⁷

B. *The Justiciability of Diminished Expectations*

A recurring problem in takings litigation is whether regulation that threatens to impair the value of property has in fact done so. In *Pennell v. City of San Jose*,³⁹⁸ for example, the Court in 1988 considered a rent-control ordinance that contained a "tenant hardship" provision, which the city could use to order a lesser annual rent increase than that which otherwise would be permissible.³⁹⁹ At the time that landlords challenged the hardship provision as a taking, the city had not relied on the provision in any case to order a lower rent for a tenant.⁴⁰⁰ Consequently, the Court concluded, no possible taking of property had yet occurred and the lawsuit was not ripe for adjudication.⁴⁰¹

With regard to deregulatory takings, the significance of the ripeness rule in *Pennell* becomes clearer when one considers that regulatory announcements suggesting possible takings can reduce the value of publicly traded companies by billions of dollars in a single day. For example, the April 1994 announcement by the California Public Utilities Commission that it would begin proceedings leading to the introduction of retail wheeling of electricity caused Pacific Gas & Electric, SCEcorp., and San Diego Gas & Electric to lose \$4.4 billion in equity

³⁹⁷ See *supra* text accompanying notes 386-88.

³⁹⁸ 485 U.S. 1 (1988).

³⁹⁹ *Id.* at 4-6.

⁴⁰⁰ *Id.* at 9-10.

⁴⁰¹ *Id.* at 8-11. See generally Gregory M. Stein, *Regulatory Takings and Ripeness in the Federal Courts*, 48 *Vand. L. Rev.* 1 (1995).

value, or roughly twenty percent, virtually overnight.⁴⁰² (Note that, in contrast to our discussion of cost-disallowance decisions by the PUCs, the CPUC's announcement on retail wheeling was a formal notice to all utilities subject to that regulator's jurisdiction—and, hence, to the utilities' investors as well—that the regulator might unilaterally seek to rewrite material terms of the regulatory contract.)

The Court's reasoning in *Pennell* ignores that an efficient market values an asset today based on the expectation of the discounted net profit that the asset will generate in the future. Therefore, for purposes of reducing the value of property today, it does not matter whether a provision in a statute that might some day give rise to a taking has in fact been relied upon to effect such a taking. The market anticipates the cost associated with the taking (should it occur), assigns the best estimate today of the probability that such a taking will actually occur in the future, discounts the (lower) net profit to its present value, and reduces the current market value of the asset accordingly. The result is that the owner of the property experiences a diminution *today* in the value of property subject to the statute. It follows, consequently, that as a legal matter it is fallacious to reason, as the Court in *Pennell* did, that the property owner has not yet suffered a harm giving rise to a justiciable controversy.

Indeed, the alternative approach—to wait until the statute is actually applied and has diminished property values—is deceptive. In the interim, other circumstances may have changed as well and thus may confound the process of isolating the diminution in market value attributable solely to the statute. Assessing the diminution in property value at the time a statute is enacted facilitates the elimination of “noise” from the price fluctuations of the asset at issue. In addition, contemporaneous assessment has the advantage of being an evaluation made *ex ante*: Both the property owner and the state remain shrouded in the Rawlsian veil of ignorance concerning the eventual effect on individual property owners in individual cases. By securing contemporaneous assessment, the property owner runs the risk that the market has underestimated the loss that he will actually suffer under the regulation; conversely, the state runs the risk that the market has exaggerated that loss.

But there is no reason to believe that the market is consistently biased in either the property owner's or the state's favor. The market price today reflects the consensus of best estimates and conjectures *held today* of the asset's future stream of net profits. Like any estima-

⁴⁰² Benjamin A. Holden, *California's Struggle Shows How Hard It Is to Deregulate Utilities*, Wall St. J., Nov. 28, 1995, at A1.

tion process, the market price will yield deviations of the actual outcome from the predicted outcome. Yet errors of overestimation will cancel out errors of underestimation, so that the market price today is, on average and in aggregate, an unbiased predictor at that moment of the future stream of net profits to be earned by the asset.

There is an additional reason for the takings claim to be adjudicated at the time the regulatory change is announced rather than when it is first applied. The ownership of a publicly traded corporation continuously turns over as some stockholders sell their shares in the firm and others purchase them. Those who hold stock when the takings claim is litigated under the *Pennell* rule differ from those who hold stock when the announcement of the regulatory change diminished the firm's value. If one goal of the Takings Clause is to achieve fairness by compensating the actual parties whose property was confiscated for a public purpose, then the *Pennell* rule will fail to compensate some shareholders who deserve compensation and confer a windfall on other shareholders who suffered no confiscation. It is possible that the *Pennell* rule could be modified to pay compensation only to shareholders of record at the moment that the regulatory change was announced. But if that accommodation is made, it merely underscores the conclusion that compensation should be paid immediately after the announcement of the regulatory change in an amount equal to the post-announcement diminution in the market-determined price of the asset.

C. Is Competitor Opposition to Recovery of Stranded Costs Farsighted or Myopic?

Typically, competitive entrants oppose a policy of stranded-cost recovery. Those companies believe that stranded-cost recovery would not be in their interests, evidently on the assumption that they would have a price advantage over the incumbent with high stranded costs. That assessment, however, is arguably myopic for two reasons.

First, suppose the regulator denies an incumbent firm with low, long-run incremental costs but high stranded costs the opportunity to recover those stranded costs. In the most dire scenario, the incumbent goes bankrupt, and the investment of its shareholders is wiped out. But the firm's physical assets do not evaporate. Instead, those assets emerge from either liquidation or reorganization without the burden of recovering the stranded costs any longer. The assets still have the same long-run incremental cost.

Stated differently, while the regulator's decision whether to allow recovery of stranded costs will affect future decisions to invest in long-

lived assets, it will not affect the efficiency of existing assets for providing local telephony or generating electricity. In that respect, the entrant reaps no competitive advantage by having the incumbent regulated firm denied recovery of its stranded costs. Under the efficient component-pricing rule, the recovery of stranded costs through the opportunity-cost component in the access charge would reward the entrant whenever it is more efficient than the utility in assembling the retail product sold to consumers.⁴⁰³

Second, the entrant opposed to stranded-cost recovery may be ignoring that the consequence of the regulator's not allowing the incumbent to recover stranded costs would be to raise the cost of capital for *all* firms in the market, including entrants that do not have stranded costs. That is because, while stranded costs are sunk costs that cannot be undone, recovery of such costs *is* a policy decision that regulators have the power to make going forward into the future. Consequently, asset values and economic decisions will be affected by the regulator's prospective decision to honor the regulatory contract in the sense of permitting the incumbent the opportunity to recover its stranded costs. If the regulator does not allow such recovery, then the capital markets will recognize that transaction-specific investments being made today and in the future will be subject to a similar risk of regulatory expropriation, regardless of the current representations of the regulators.

The risk of a fickle or opportunistic regulator will not fall exclusively on the incumbent regulated firm saddled with stranded costs from the past. Rather, such risk will fall on *all* firms subject to that regulator's jurisdiction. In that respect, entrants that argue against stranded-cost recovery are, paradoxically, arguing for a regulatory policy that would raise their own cost of capital.

Perhaps, however, such firms intend to enter the market through use of production technologies that entail a lesser degree of asset specificity than that reflected in the incumbent's production technology. Examples would include entry into the local loop through wireless or through purchase of resale capacity from the incumbent local exchange carrier. An entrant with low asset specificity may believe that it can avoid the higher capital cost necessitated by regulatory opportunism, since its lower proportion of specialized investment implies a lower proportion of total firm value subject to expropriation. Further, such entrants may expect *never* to be subject to regulation by the same regulator. Rather, they may expect to be able to exploit asymmetry in the regulatory burden and in the degree of asset specificity

⁴⁰³ See Baumol & Sidak, *supra* note 17, at 144-47.

required for entry. Even if the entrant can succeed in that strategy, however, it will at a minimum bear the cost of persuading the capital markets that the risk of regulatory opportunism should not be imputed to its cost of debt and equity. In that sense, the entrant still bears some implicit cost as a result of regulatory opportunism. The empirical magnitude of that cost is unclear.

D. The Anarchic Argument Against Compensation

One argument against stranded-cost recovery is notable for its sophistication and cynicism. A prominent libertarian economist has argued to us that, even if one can show that a regulatory contract exists between the state and the regulated firm, takings jurisprudence should not require the state to compensate the firm for its stranded costs.⁴⁰⁴ As faithfully and objectively as we can, we summarize his argument as follows:

The so-called regulatory contract has harmed the consumers it was intended to benefit. The sooner the state replaces regulation with competition, the better for consumer welfare. The state, however, will be forced to postpone or forgo achieving all the benefits of competition in the regulated network industries if it must compensate public utilities for investments in facilities rendered obsolete by competition. It makes no difference that regulators mandated those investments or approved them as prudent, for those regulatory mandates and prudence reviews merely exemplify the extent to which the old regulatory regime deviated from efficient resource allocation. The only possible reason to compensate incumbent public utilities for their stranded costs is to buy their cooperation so that they do not block policies to open electric power and local telephony markets to competition. Moreover, if the state did not allow recovery of stranded costs, private parties would doubt that the state would abide by any future regulatory contract into which it might seek to enter. That would be a good result. Those private parties would be less inclined to engage in rent-seeking activities because they could not be sure that the state would stand behind its representation to use its regulatory powers to protect monopoly rents from competition. Relative to the status quo, private parties entering into any new relationship with the regulator would face a higher cost of capital for investments made in reliance on the regulator's assurances that it would protect a market from competitive entry. That result would be desirable because it would reduce reliance on the state and discourage rent seeking.

⁴⁰⁴ To our knowledge, this person has not publicly expressed his views in print. For that reason, we do not identify him.

The foregoing argument is literally anarchic in that it seeks to impair the government's ability to substitute its regulatory policies for the voluntary association of private individuals and institutions. However much one may value individual liberty and prefer the private rather than public ordering of economic activity, the argument is misguided for no less than five reasons.

First, it is a utopian argument in which the ends justify the means. In this case, the ends are the creation of competitive markets for electricity and local telephony, which will increase consumer welfare relative to the current regulatory regime. No one can quibble with those ends, but the means to achieving them are breach of contract, destruction of investment, and expropriation of wealth. The argument does not seek to comply with neutral principles of law, nor does it respect the historical evidence that the current regime arose from explicit voluntary exchange. The argument relies on economic analysis only in the narrow sense that such analysis can be used to predict the disincentives to bargaining with the state that repudiation of the regulatory contract would produce.⁴⁰⁵ In those respects, the argument is not fundamentally different from more ignominious utopian arguments, situated elsewhere on the political spectrum, that sacrificed the sanctity of property and the rule of law for a vision of the greater good of society.

Second, because the argument is predicated on the state making a Pareto-superior policy move without bothering to compensate losers from the gains enjoyed by winners, it embodies all the problems of the Kaldor-Hicks standard of potential Pareto superiority that we criticized earlier in our analysis of the law of regulatory takings. It is ironic that the call for repudiating the regulatory contract and ignoring its takings implications should come from market liberals who have staunchly defended the rights of property owners to compensation for regulatory takings.

Third, for all of its intricacy, the argument naively assumes that the need for regulation can be extinguished entirely. To put the matter in economic terms, the argument assumes that the regulatory game is over, that there will be no more repeated play between the regulator and the regulated firm. The experience of deregulation, however, suggests that just the opposite will happen: Regulation tends to persist in some residual form even in markets that supposedly have undergone the transition to competition.

⁴⁰⁵ The argument is similar, for example, to the argument that the best way to restrain the growth of the federal government is for it to repudiate some amount of its debt: A government that acted opportunistically with respect to its creditors would thereafter face a higher cost of borrowing, which would limit its ability to finance expenditures with debt.

Fourth, if some form of residual regulation remains, private parties will need to be able to trust the regulator's representations. If they cannot, private parties will eschew investments in the specialized assets so often found in network industries. Instead, incentives will exist to channel private investment into production technologies that have low degrees of asset specificity, a result which may not lead to the lowest cost of production. An anarchic desire to destroy the regulatory state's power to make credible commitments may therefore have serious unintended consequences for consumer welfare.

Fifth, the argument ultimately is a complaint about the failure of democratic institutions. The regulators who entered into the regulatory contract with public utilities were appointed by democratically elected governors or were directly elected by the voters themselves. The state legislatures exercised regular oversight of the public utilities commissions, if not also periodic oversight through the process of confirming commissioners for the PUC. State supreme courts, occupied by justices similarly appointed by democratically elected governors (or popularly elected), reviewed the major policies of the state PUCs. Perhaps one may justly criticize public utility regulation as a defective product of those various democratic processes. But if democratic processes have produced a defective product that harms consumers, it is hardly fair or efficient that the costs of that political failure be placed on the firms that bargained at arm's length with the state and thereafter made irreversible investments in detrimental reliance on the state's representations.

VII

PUBLIC OWNERSHIP AND THE RECOVERY OF STRANDED COSTS

The problems of recovering stranded costs in the face of competitive entry assume a different character when the utility is publicly rather than privately owned. Many public enterprises have no shareholders, other than the citizenry as a whole.⁴⁰⁶ Under public ownership, the cost of mandating access prices at a level lower than that required by the efficient component-pricing rule is to make taxpayers as a whole subsidize competitive entry into the market. If the incumbent public enterprise fails to recover its costs, taxpayers as a whole bear the burden of stranded costs, which will be reflected in the state's diminished equity in the enterprise. Unlike the investor-owned utility, the public enterprise does not have a set of private investors who are

⁴⁰⁶ See, e.g., J. Gregory Sidak & Daniel F. Spulber, *Protecting Competition from the Postal Monopoly* 88 (1996).

asked to bear either the burden of the enterprise's unrecovered stranded costs or the cost of subsidizing the growth of a competitive market.

This unique characteristic of public enterprises has two implications for public policy concerning the transition to competition in network industries. First, if a government were contemplating privatizing a public enterprise—say, Germany's sale of Deutsche Telekom—it is better to complete all policies of stranded-cost recovery or subsidy of competitive entry *before* the enterprise is sold to private investors. By so doing, the government would spread the cost of the transition to competition (including any subsidies to entrants) across all consumers, rather than leaving that cost to be spread across a more concentrated and organized set of private shareholders in the privatized utility. That method of spreading transition costs would mitigate the public-choice problems that otherwise arise if the public enterprise were to be privatized and its exclusive franchise then phased out.

Second, if a state chooses to abrogate the regulatory contract with an investor-owned utility, one alternative (particularly in the face of the utility's possible bankruptcy) is to "nationalize" the utility, passing the stranded costs and entry subsidies on to taxpayers as a whole in their new capacity as implicit shareholders in the public enterprise. Thereafter, the state would resell the public enterprise to investors after all such costs had been recovered and subsidies ended. Essentially, the state, acting like a leveraged buyout firm, would undertake a going-private transaction followed by an initial public offering. Such a strategy represents one possible interpretation that can be given to former Governor Cuomo's proposal that the State of New York buy Long Island Lighting Company.⁴⁰⁷

The possibility of switching back and forth between public and private ownership introduces another intriguing possibility for addressing the problem of stranded costs. When faced with onerous land-use restrictions, some property owners have sued the regulatory body for inverse condemnation—that is, they have sued to force the state to buy the property at its fair market value before the imposition of the restrictions. By analogy, an investor-owned utility that remained subject to incumbent burdens after the regulator had permitted competitive entry could sue the state on an inverse condemnation theory and demand that the state buy the utility and internalize the costs of the regulator's breach of the regulatory compact. That alternative is a variant on the "nationalization" option described above,

⁴⁰⁷ The Governor's Plan for Lilco, N.Y. Times, Oct. 20, 1994, at A26.

but it would be a buyout that the utility would compel the state to undertake, rather than vice versa.

VIII

LIMITING PRINCIPLES FOR STRANDED-COST RECOVERY

The preceding sections have defined deregulatory takings and demonstrated the equivalence of damages for breach of the regulatory contract, just compensation for a taking of property, changes in investor expectations, and efficient access pricing. Such an analysis would not be complete without specifying the limits on stranded-cost recovery. What conditions are *sufficient* for regulatory action to constitute a deregulatory taking? What conditions are *necessary* for a deregulatory taking—that is, for an action to constitute a taking, what pre-conditions must have occurred?

Four conditions appear to be both necessary and sufficient for a deregulatory taking: the existence of a regulatory contract, evidence of investment-backed expectations, the elimination of franchise protections, and a decline in expected revenues. Our preceding discussion has established that those conditions are sufficient for recovery of stranded investment. We will now show that they are also necessary, and that the absence of any one condition strongly suggests that a claim of a deregulatory taking should fail.

A. *Existence of a Regulatory Contract*

A regulatory contract is a necessary condition for stranded investment. There must have been a clear understanding of the terms and conditions of regulation with respect to each of its three components: entry controls, rate regulation, and service obligations. If any component is absent, a deregulatory taking is not likely to have occurred. If there were no regulatory entry controls, increased competition in the market cannot be attributed to changes in regulatory policy. Rate controls are an essential aspect of the regulatory contract, for they are closely associated with the regulator's responsibility to allow the utility's investors to earn a competitive rate of return. Service obligations must exist because stranded investment is the cost of facilities and other expenditures made to perform the utility's obligation to serve.

The three requirements of the regulatory contract are thus an important set of limits on stranded-cost claims. With respect to the first requirement, companies such as steel producers or agribusinesses, which benefit from entry regulations such as import controls, could not make claims on the state if those regulations were removed and increased freedom of trade were allowed. As Justice Pitney wrote in

New York Central Railroad v. White:⁴⁰⁸ “No person has a vested interest in any rule of law entitling him to insist that it shall remain unchanged for his benefit.”⁴⁰⁹ It is well-established that statutory gratuities, such as welfare and pension rights, are not compensable under the Takings Clause.⁴¹⁰ By analogy, a deregulatory policy eliminating mere statutory gratuities that benefited a particular business would not produce a deregulatory taking.

With respect to the second required element of a regulatory contract, although the removal of rate regulations can be problematic because it signals the end of a state-ensured competitive rate of return, without more it does not indicate a deregulatory taking. The firm may fail, but by the same token, it is free to earn considerably more than it could have under regulation. With respect to the third requirement, the obligation to serve (through common-carrier, universal-service, or carrier-of-last-resort rules) generally does not exist in isolation from entry and rate controls.

The regulatory contract can have terms that are an implicit part of the regulatory process, but it is necessary for the regulatory process itself to be explicit. It must be clear who is the regulatory authority and what is the underlying statute that justifies regulation. Any relaxation of the requirement of a regulatory contract invites disputes over whether a claimed benefit of regulation is the result of bilateral exchange or unilateral reliance that may be objectively unreasonable. By analogy, some statutory entitlements to welfare benefits and the like do constitute property for the purposes of due process.⁴¹¹ But such a benefit concerning economic activity should not support a claim of deregulatory taking unless the statute was part of a voluntary exchange between the state and the regulated firm. The potential for ambiguity and dispute under any lesser standard is suggested by Justice Stewart’s remark in *Board of Regents v. Roth*⁴¹² that, to have a property interest in a statutory entitlement, a person’s claim to it must rest not on a mere “unilateral expectation” but on “a legitimate claim

⁴⁰⁸ 243 U.S. 188 (1917).

⁴⁰⁹ *Id.* at 198.

⁴¹⁰ See, e.g., *Bowen v. Gilliard*, 483 U.S. 587, 604, 607 (1987); *United States R.R. Retirement Bd. v. Fritz*, 449 U.S. 166, 174 (1980); *Lynch v. United States*, 292 U.S. 571, 576-77 (1934); *United States v. Teller*, 107 U.S. 64, 68 (1882); *Hoffman v. City of Warwick*, 909 F.2d 608, 616-17 (1st Cir. 1990).

⁴¹¹ *Bishop v. Wood*, 426 U.S. 341, 344 (1976) (tenured public employment); *Mathews v. Eldridge*, 424 U.S. 319, 332 (1976) (social security disability benefits); *Goss v. Lopez*, 419 U.S. 565, 574 (1975) (public education); *Fusari v. Steinberg*, 419 U.S. 379, 387-89 (1975) (unemployment benefits); *Wheeler v. Montgomery*, 397 U.S. 280, 282 (1970) (old-age benefits); *Goldberg v. Kelly*, 397 U.S. 254, 262 (1970) (welfare payments).

⁴¹² 408 U.S. 564 (1972).

of entitlement to it" that reflects the goal of property law "to protect those claims upon which people rely in their daily lives, reliance that must not be arbitrarily undermined."⁴¹³

Relative to Justice Stewart's inquiry, our requirement that a regulatory contract exist avoids inquiry into the reasonableness or legitimacy of unilateral expectations; instead, it focuses on the existence of demonstrable evidence of a voluntary exchange between the state and a private firm to produce services that benefit consumers, on whose behalf the state negotiates as agent. The formality of the regulatory process, with notice and written comments and hearings on the record, provides the mechanism for verifying the mutuality of voluntary exchange and a meeting of the minds. The past decisions and method of operation of the regulatory agency, and the legal framework within which the regulatory agency operates, are essential aspects of the regulatory contract that must be identified before a deregulatory taking can be established.

B. Investment-Backed Expectations

Investment-backed expectations are also a necessary precondition for a deregulatory taking. Simply producing a regulated service, with recovery of costs as they are incurred, does not imply a taking when entry controls are removed. It is the substantial, irreversible investment in facilities to carry out the regulatory obligation to serve that forms the foundation for compensation—even though the calculation of compensation should be based on the change in expected earnings from the regulated assets, not the assets themselves. In contractual terms, the grounds for damages are detrimental reliance, as manifested by irreversible investments made to perform the contract. Without such objectively verifiable reliance, there can be no deregulatory taking.

C. Elimination of Franchise Protections

Third, by definition, deregulation that eliminates franchise protections is a necessary condition for a deregulatory taking. There must be some action by the regulatory authority removing existing regulation. Only certain forms of deregulation are potentially associated with a deregulatory taking. Such an action must remove regulatory barriers to entry into the utility's franchise territory in such a way that revenue protections are eliminated. The utility then faces increased competition as a result of either the removal of regulatory

⁴¹³ Id. at 577.

entry constraints or the granting of regulatory permission to enter through certificates of public convenience and necessity.

Removal of other types of regulatory restrictions on utilities, such as relaxation of constraints on pricing flexibility or the elimination of service obligations, should not suggest the need for cost recovery. Those types of actions do not diminish the earnings of the utility. To the contrary, they likely enhance the utility's earnings. Thus, even though such constraints are part of the regulatory contract, compensation is not required when the regulator removes them.

D. Decline in Expected Revenues

Finally, for companies to receive stranded-cost recovery, it is necessary for expected revenues to decline when deregulation opens the market to competition. In other words, the change in expected revenues net of mitigation, Δ^* , must be positive. If the company experiences gains under competition using formerly regulated assets that offset losses in regulated services, then there is no basis for recovery.

The offsetting gains under competition must be measured carefully. The company's earnings from investments that were not treated as part of the regulatory rate base should not be considered as mitigation. There is a temptation on the part of regulatory authorities to identify the company's profits from its unregulated activities as a potential source of stranded-cost recovery. The reason advanced for such an action is that the formerly regulated company benefits from new competitive opportunities in the market due to deregulation. Such reasoning is flawed because the company's benefits from the newly deregulated market are by no means a "gift" conferred on it by the regulatory commission, even if the company is allowed to enter the market by removal of regulatory quarantines. Instead, company earnings in deregulated markets are simply a return to the company's investment. Such investments are not included in the rate base; in regulatory parlance, they are "below the line." The company assumes all the risk of such investments in competitive markets and is entitled to the full return. Appropriating such investment to pay for recovery of stranded costs or to subsidize continuing regulatory obligations would itself constitute a taking.

CONCLUSION

The repudiation of the regulatory contract in local telephony and the electric power industry presents the same fundamental admoni-

tion that Justice Holmes issued in *Pennsylvania Coal Co. v. Mahon*⁴¹⁴ in 1922: "We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change."⁴¹⁵ If, as appears to be the case, those network industries cease to exhibit conditions of natural monopoly in their production technologies, then no disagreement can remain on economic grounds that competition is superior to regulated monopoly. Only the proper means to achieve that end are in dispute. Just as Holmes recognized, "the question at bottom is upon whom the loss of the changes desired should fall."⁴¹⁶ The answer that regulators, legislators, and the Supreme Court give to that question will affect not only perceptions of the fairness of past regulatory policies, but also the economic efficiency of future regulatory policies and the credibility generally of the state when it contracts with private citizens. The proper treatment of stranded costs and breach of the regulatory contract concerns the future as much as the past.

⁴¹⁴ 260 U.S. 393 (1922).

⁴¹⁵ *Id.* at 416.

⁴¹⁶ *Id.*