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AN ENVIRONMENTAL ROLE FOR ENERGY REGULATORS

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INTRODUCTION

Electricity guides us to the bathroom during ungodly hours of the night. It browns our breakfast toast and heats our hot tubs. Electricity makes life better. Right? For all its multifarious uses, electricity creates environmental costs not often reflected in prices. The positive economic value generated by electricity, therefore, often borrows against an estimated $33 trillion in annual flows of natural commodities, services, and amenities—usually referred to as "ecosystem services" or just "eco-services."[1] As electricity spurs economic development, a careful accounting of environmental costs is necessary to ensure that electricity adds to our quality of life without making hidden debits. This essay provides a brief guide through the world of games, deceit, exaggeration, and professional ineptitude that envelops this apparently simple environmental accounting solution, and ultimately proposes a regulatory salve: an environmental role for energy regulators.

The environmental effect of power generation on our climate is no secret. Large coal-fired power plants can use 10,000 tons of coal every day.[2] Interestingly, just one ton of coal produces 1.5 to 3.5 tons of carbon dioxide (CO_2) upon combustion, implying emissions of up to

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[1] Robert Costanza *et al.*, *The Value of the World's Ecosystem Services and Natural Capital*, 387 NATURE 253, 253-260 (1997) ($33 trillion valuation based on 1997 dollar); *but see* Nancy Bockstael *et al.*, *On Measuring Economic Values for Nature*, 34 ENVTL. SCIENCE & TECH. 1384, 1384-1389 (2000) (explaining that measures of global willingness-to-pay to prevent complete loss of ecosystem services are specious and unrealistic as real world trade-offs occur at points between complete loss and complete preservation, and therefore *marginal* willingness-to-pay is a more useful measure of eco-service value).

[2] Geoffrey Heal, *The Economics of Renewable Energy*, National Bureau of Economic Research 4 (2009) (working paper 15801).

35,000 tons of CO_2 and as much as $3 million in climate change-related damages *every day*.[3] This infamous and abundant fuel provided 49% of electricity to American consumers,[4] including 60% of electricity from electric utilities in 2008.[5] Natural gas, contributing about half as much CO_2 per British thermal unit (BTU) as coal,[6] fueled 21% of American electricity consumption in that same period.[7]

If environmental harm were limited to climate change, utility regulation would be relatively straightforward, but it is not. Particulate matter, sulfur dioxide (SO_2), nitrogen oxides (NOx), and heavy metal emissions—mostly from coal—pose serious dangers to public health and the environment.[8] Even with the mitigating effect of existing environmental regulations, at least one recent estimate puts total social cost of coal-fired electricity at $300 per ton.[9] Beyond power generation, roughly 160,000 miles of high-voltage transmission lines, running along easements 200+ feet wide, gobble up large swaths of open land and disrupt natural environments along the way.[10] The environmental significance of utilities' activities warrants vigilant attention from regulators. But *which* regulators? This essay suggests that environmental regulators may be in too deep vis-à-vis electric utilities' environmental performance, and effective regulation may depend on the extent to which electricity regulators become more involved in environmental matters.

Part I begins this essay by briefly outlining the history and goals of American utility regulation. Part II explores the considerable potential for electricity regulators to affect environmental quality, both in terms of exogenous regulation (i.e. helping enforce environmental

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[3] *Id.* at 5-6 (citing NICHOLAS STERN, THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW (2006)). Carbon dioxide, known as a "greenhouse gas," remains in the atmosphere for approximately 100 years and is a primary contributor to global climate change.

[4] U.S. ENERGY INFORMATION ADMINISTRATION, NET GENERATION BY ENERGY SOURCE Table 1.1 (2009) *available at* http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html. Coal plays a smaller role in the energy portfolios of

[5] *Id.* at Table 1.2.

[6] FRED BOSSELMAN *ET AL.*, ENERGY, ECONOMICS AND THE ENVIRONMENT 528 (2006).

[7] U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 4 at Table 1.1.

[8] Particulate matter is a source of heart and lung disease, asthma, and haze; SO_2 forms sulfuric acid in the atmosphere that destroys vegetation and destabilizes water pH balances as acid rain; NOx causes smog and combines with SO_2 to form acid rain; emitted mercury concentrates up the food chain and causes human developmental problems. *See* BOSSELMAN *ET AL.*, *supra* note 6 at 252-258; *see generally* VACLAV SMIL, ENERGY AT THE CROSSROADS 105-116 (2003) (describing scientifically the environmental effects of emissions).

[9] Heal, *supra* note 2 at 8

[10] *See* U.S. ENERGY INFORMATION ADMINISTRATION, TRANSMISSION FACT SHEET (2003) *available at* http://www.eia.doe.gov/cneaf/electricity/page/fact_sheets/transmission.html.; Andy Stone, *An Interstate Highway System for Energy*, 182 FORBES 108, 108 (Nov. 24, 2008).

agencies' regulations) and endogenous regulation (i.e. using existing authority for environmental ends). Ultimately, this essay concludes in Part III by urging further consideration of electricity regulators' role in regulating the electricity industry's environmental performance.

I. REGULATION OF PUBLIC UTILITIES

The common law has long set apart supply of vital services, whether privately or publicly delivered, for special treatment. The Reconstruction era Supreme Court wrote that "it has been 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., and in so doing to fix a maximum of charge to be made . . . ."[11] Businesses thus "affected with a public interest" were singled out for government control for protection of the communities they served.[12] The perceived danger for which regulation was a prophylactic, however, was primarily service affordability, and the public's interest extended little beyond protected consumerism.[13] Economists articulated a more technical justification public utility regulation, distinguishing public utilities by their economies of scale and natural monopoly characteristics.[14] In certain cases a monopolized market is naturally most efficient, but monopolies require public regulation to ensure that consumers see optimal prices and service.[15] From the beginning, therefore, the dual, indiscrete goals of public utilities regulation have been protection of the public interest and restraint of natural monopoly.

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[11] Munn v. Illinois, 94 U.S. 113, 125 (1872).

[12] *Id.* at 126 ("[W]e find that when private property is 'affected with a public interest, it ceases to be *juris privati* only.' . . . Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, 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.") (citing LORD HALE, DE JURIS PORTIBUS (1670)).

[13] JAMES C. BONBRIGHT, PRINCIPLES OF PUBLIC UTILITY RATES 4 (1961) ("[T]he primary purpose of [utility] regulation must be, ostensibly at least, the protection of the public in the role of consumers . . . ." (citing Phillips Petroleum Co. v. Wisconsin, 347 U.S. 672, 683 (1954))); *See generally* CHARLES D. JACOBSEN, TIES THAT BIND: ECONOMIC AND POLITICAL DILEMMAS OF URBAN UTILITY NETWORKS 1800-1990 74-136 (2000) (describing the drive toward of economic growth that characterized the historical development of electric utilities).

[14] MICHAEL A. CREW & PAUL R. KLEINDORFER, THE ECONOMICS OF PUBLIC UTILITY REGULATION 3 (1986). Multiple sets of competing power lines delivering electricity to consumers, for example, would be wasteful because one set is sufficient. The lines portion of the electricity industry naturally lends itself to monopoly.

[15] *Id*.

Contemporary public utility regulation, therefore, emerged out of common law duties regarding public interest and economic efficiency.[16] At the core of state and federal regulations, public utilities are required to provide (1) safe, (2) adequate and (3) nondiscriminatory service (4) to all who apply (5) at a just and reasonable price.[17] Beyond these service-oriented protections, regulators must account for the public interest in countless other utility actions, such as mergers, acquisitions, and facilities construction and expansion. For clarity and economy, the term "utilities," as it is used throughout this essay, refers to investor-owned businesses that own electric generation, transmission, or distribution facilities.[18]

II. TWO HATS: ELECTRICITY REGULATORS AS ENVIRONMENTAL REGULATORS

A. Regulating From the Outside: Environmental Enforcement

State and federal environmental agencies exercise virtually exclusive environmental oversight of electric utilities. This environmental regulation takes many forms, but it can be simplified into two categories: market-based and command-and-control. The Clean Air Act's SO_2 cap and trade program furnishes an example of a market-based regulation.[19] Under this scheme, regulators set a cap on total SO_2 emissions and issue permits for emissions under the cap. Emitters theoretically abate pollution up to the prevailing permit price, after which point they prefer to purchase permits for excessive emissions or sell excessive permits for profit.[20] The Clean Air Act, however, "commands" the United States Environmental Protection Agency (EPA) to establish minimum pollution control standards for new or modified stationary polluters, including power generators.[21] Depending on whether the region is in attainment of federal air quality standards,[22] the power generator must install "best available pollution control technology" (BACT) which is a facility-specific standard "based on the maximum degree of

[16] FORD P. HALL, THE CONCEPT OF A BUSINESS AFFECTED WITH A PUBLIC INTEREST 7-16 (1940) (outlining various theories of public utility origins in common law traditions).
[17] DAVID J. MUCHOW AND WILLIAM A. MOGEL, ENERGY LAW AND TRANSACTIONS § 2.01 (LexisNexis Matthew Bender 2009).
[18] Investor-owned utilities own greater than seventy percent of electricity generation, sales, and revenues nationwide. ENERGY INFORMATION AGENCY, ELECTRIC POWER ANNUAL 2000 VOLUME II 2 (2000). Several consumer-owned municipal utility districts (MUDs), public utility districts (PUDs), and rural electric cooperatives may exist within a state, but these are typically only loosely regulated by state public utilities commissions (PUCs).
[19] 42 U.S.C. § 7651(c)-(o) (2006).
[20] CHARLES D. KOLSTAD, ENVIRONMENTAL ECONOMICS 155-174 (2000).
[21] 42 U.S.C. § 7411.
[22] *Id.* § 7409.

reduction . . . which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable."[23] Ready or not, EPA and state environmental agencies must wrestle with questions of facility-specific costs, abatement potential, financial structure, long-term business strategies, existing infrastructure, and technology practicability—and not only for electricity generators, but "any building, structure, facility, or installation which emits or may emit any air pollutant."[24]

Across this kaleidoscope of industrial contexts, each industry—indeed each firm—possesses unique characteristics that make efficient and effective environmental regulation little more than a regulator fantasy. Regulators of an economy-wide concern like the environment cannot be expected to amass the nuanced understanding of utility financial structures, abatement costs, operating expenses, and management strategies that energy regulators have acquired over nearly a century of dissecting the industry. Frustratingly, the rich institutional knowledge of industry-specific agencies, like the Federal Energy Regulatory Commission (FERC) and state Public Utilities Commissions (PUCs), lays fallow while environmental regulators struggle to frame and enforce environmental standards for utilities.

Energy regulators do not simply possess a special knowledge of the industry; they possess a wealth of information specific to individual firms. Utilities are subject to extensive reporting and record-keeping requirements in order to assist FERC and PUCs in fixing, respectively, wholesale and retail electricity rates, including a "reasonable" return to utilities' equity owners.[25] The reported information includes operating expenses such as wages, managerial salaries, fuel costs, taxes, pollution abatement, and other variable costs of doing

[23] *Id.* § 7479(3). New or modified sources located in areas failing to satisfy national ambient air quality standards must comply with the "lowest achievable emission rate" (LAER) standard, which is similar to BACT except with fewer economic considerations. *Id.* § 7501(3). Additionally, existing sources in areas falling short of federal standards must adopt "reasonably available control technology" (RACT). *Id.* § 7502(c)(1).

[24] *Id.* § 7411(a)(3).

[25] Fed. Power Comm. v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944) ("[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."). FERC exercises licensing authority and operational oversight over hydroelectric facilities. Federal Water Power Act, 16 U.S.C. § 799 (2006). FERC also regulates transmission and wholesale electricity transactions in interstate commerce. 16 U.S.C. § 824; Fed. Power. Comm'n v. Florida Power & Light Co., 404 U.S. 453, 462-63 (1972) (holding that all wholesale intrastate electricity sales that "commingle" with interstate electricity fall under FERC's exclusive jurisdiction). Following deregulation, however, FERC has delegated most of its wholesale generation rate fixing responsibility to the marketplace, so long as sellers demonstrate a lack market power (ability to affect electricity prices), but FERC continues to exercise authority over transmission rates. FERC Order 888, 61 Fed. Reg. 21540 (1996).

business. It also comprises fixed costs such as the value and depreciation of utility property, and capital structure, including loan interest rates.[26] Furthermore, energy regulators have broad authority to audit and access records to study performance, efficiency, structure, or anything relevant to the public interest.[27]

To connect the dots, then, it seems obvious that energy regulators have much to contribute when enforcing command-and-control regulations like the Clean Air Act's BACT standard for new and modified power generators. Specialized knowledge of the industry and individual firms enables energy regulators to better determine achievable emission reductions "on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs."[28] Even in market-based regulation, energy regulators can use their expertise to assure that environmental regulations give rise to optimal abatement strategies, as discussed in the following paragraphs.

A handful of years after passage of the Clean Air Act, the Supreme Court entertained the distressed plea of a Missouri utility, Union Electric.[29] Missouri's state implementation plan (SIP) of national air quality standards for SO_2 required Union Electric to reach a particular emissions level within three years. The economic and technological impossibility of this requirement, Union claimed, arose from several factors: the recent scarcity of low-sulfur coal, inadequate abatement equipment costing upwards of $500 million, carrying, operating, and maintenance costs of over $120 million per year, and the unlikelihood of obtaining financing.[30] The Court did not disagree that the state's chosen method of meeting federal standards might be impossible, but concluded:

> [I]f a State . . . desires a particular air quality by a certain date and [] is willing to . . . lose a certain industry if attainment is not possible, such a determination is fully consistent with the structure and purpose of [the Clean Air Act].[31]

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[26] *See e.g.* 18 C.F.R. pt. 101; *see* MICHAEL A. CREW & PAUL R. KLEINDORFER, THE ECONOMICS OF PUBLIC UTILITY REGULATION 98-99 (1986).
[27] *See* 16 U.S.C. 825(b) (2006); *see e.g.* N.J. STAT. § 48:2-16.1 (2009).
[28] 42 U.S.C. § 7479(3).
[29] Union Electric Co. v. EPA, 427 U.S. 246 (1976).
[30] *Id.* at 271.
[31] *Id.* at 265.

Union Electric's ardent claims that it would be forced to shutdown fell flat with the Court's majority. Justice Powell recognized in his concurring opinion that such draconian environmental enforcement could carry "potentially devastating consequences" that grossly outweigh the benefits to public health and the environment.[32] If aware of situations like Union Electric's, he continued, "Congress . . . would strike a different balance."[33]

An information vacuum formed the core of the problem in *Union Electric*. State environmental officials presumably nurtured no intention to wreck "devastating consequences" on Missouri through an ill-conceived SIP. Precisely as the state sought to implement Clean Air Act pollution standards, the state PUC and FERC could have provided invaluable consultation. With a glut of industry expertise and intimate knowledge of Union Electric's cost structure, these energy regulators presumably could have called Union's bluff or confirmed its claims of economic doom—all before the regulatory hatchet fell. With this knowledge, environmental officials could have tempered, or intensified, their plan. Instead, Missouri environmental officials rolled the dice.[34]

Energy regulators' input could also prove critical in the opposite scenario. Whereas in the actual *Union Electric* case, energy regulators could have protected against "potentially devastating consequences" of overzealous regulation, the following hypothetical shows that energy regulators could also protect against inadequate environmental regulation.[35] Suppose Missouri environmental officials hoped to retain flexibility in their aggressive plan to abate pollution. If Union Electric showed that abatement costs were unexpectedly burdensome after the first year, then Missouri would consider trimming back the standards. On the other hand, if Union Electric admitted that abatement costs were less than expected, then Missouri might favor ratcheting up the standards. Retaining flexibility is desirable from an environmental regulator's standpoint in order to respond to uncertainties regarding firms' compliance costs—and the political danger of exacerbating unemployment via excessive cost burdens. If Union Electric perceives that regulation could change in the short-term, it has incentives to defer more cost-

[32] *Id.* at 270-72.
[33] *Id.* at 272.
[34] As it turns out, Union Electric was bluffing. Now known as Ameren Corporation, Union Electric survived and has become one of the country's largest electric utilities. Ameren Corp. Website, http://www.ameren.com/Aboutus/ADC_AU_AmerenCorp.asp. (last visited Dec. 10, 2009).
[35] The following example is adapted from KOLSTAD, *supra* note 20 at 206-211 (2000).

effective long-run abatement commitments in favor of a short-term strategy that incurs higher costs in the long run. Union could, for example, switch to high-cost low-sulfur coal, hoping for a temporary fix, rather than sink millions of dollars into pollution abatement equipment, which would be cheaper in the long-run.[36] Environmental regulators would evaluate compliance costs over the "test" period and project those costs into the future to determine whether costs and benefits balance out. The long-term calculation of fuel-switching costs will be higher than abatement equipment with high up-front costs. Without industry expertise (knowledge of coal markets; abatement technology availability and costs; prospects of cost-recovery through ratemaking process; frequency of rate adjustments; progress and prospects of state electricity deregulation;[37] etc.), regulators would lower the environmental bar in response to Union Electric's artificially inflated long-term compliance costs. This is an economic problem of moral hazard: when nobody sees, anything goes. Here, again, due to industry expertise and firm-specific knowledge, energy regulators are better equipped to recognize and stop environmental "gaming" when it occurs.

The exact contours of FERC and PUC involvement in environmental enforcement—coordinating interagency consultations, expanding energy regulators' legislative agendas to environmental issues, denying cost-recovery for artificial cost inflation, or other approaches—must be left to future research on the topic. The next section looks beyond energy regulators' role in enforcing exogenous environmental regulation and explores the potential influence of endogenous authority on the environment.

B. Regulating From the Inside: Environmental Implications of FERC and PUC Authority

Both FERC and PUCs wield policy instruments that significantly affect the environment. Their authority to regulate utility rates, market entry, financing, and accounting not only influence utilities' behavior toward the environment, but also demand-side consumption choices. In short,

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[36] Alternatively, one could imagine a scenario where the polluter *does* invest in the best long-term strategy, e.g. abatement equipment, but fails to put forth effort to properly maintain the equipment. The declining benefits of the abatement equipment may be hidden from environmental regulators, but clearly known to energy regulators as they regularly evaluate the utility's expense sheets. These hidden (in)actions exemplify the economic problem of moral hazard.

[37] Many scholars contend that the movement toward electricity deregulation will make low energy costs the sole determinant of free-market success, and that energy regulators will no longer use ratemaking authority to reward pollution abatement. *See e.g.*, William G. Rosenburg, *Restructuring the Electric Utility Industry and Its Effect on the Environment*, 14 PACE ENVTL. L. REV. 69 (1996).

FERC regulates wholesale electricity transactions and transmission rates, and PUCs regulate virtually everything at the retail distribution level. Both levels of regulation are important in minimizing the environmental impact of electricity.

The power to determine electricity rate structures entails a high degree of influence over utility business models and goals. Each retail utility must file schedules of its rates and charges with state PUCs for retail sales. Following deregulation, FERC allows competitive generators to sell at market prices without agency review, but continues to regulate transmission service and interconnection charges. Regulators must balance consumer and investor interests in approving rates, but given the fact-specific task of establishing "just and reasonable" rates,[38] courts are exceedingly reluctant to intervene in regulatory ratemaking.[39] Thus regulators enjoy tremendous flexibility in designing rate schemes, and their choices have significant environmental implications.

Retail rates are most commonly set today according to the cost of service design.[40] Regulators must determine a utility's (1) operating expenses (variable costs), (2) rate base (fixed costs), and (3) reasonable rate of return to calculate the total annual revenues a utility should receive according to the following formula: [Revenues] = [Operating Expenses] + {[Rate of Return]*[Rate Base]}.[41] The total allowable revenues are then divided among different customer classes based on some average volume of consumption over a test period (i.e. the past twelve months). In other words, [Electricity Price] = [Revenues] ÷ [Anticipated Units Sold]. The set price will not change until recalibrated in the next rate case, perhaps five years later.[42]

The problem arises in the interval between rate cases. While prices remain unchanged, the volume of sales used to calculate the fixed price will likely increase.[43] During the roughly five-year period between rate cases, before price per kilowatt-hour is corrected for increased

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[38] 16 U.S.C. § 824d(a) (2006). Most state authorities adopted this rate standard. *See* discussion *infra* note 48.
[39] Morgan Stanley Capital Group, Inc. v. Pub. Util. Dist. No. 1, 128 S. Ct. 2733, 2738 (2008) ("The [Federal Energy Regulatory] Commission is not bound to any one ratemaking formula, but the Commission must choose a method that entails an appropriate 'balancing of the investor and the consumer interests.'" (quoting *Fed. Power Comm'n. v. Hope Natural Gas Co.* 320 U.S. 591, 603 (1944))).
[40] Wayne Shirley & Mike Taylor, *Decoupling Utility Profits From Sales* 5 (whitepaper) (2009) *available at* http://www.energycentral.com/download/products/Decoupling_Utility_Profits_From_Sales.pdf.
[41] MUCHOW AND MOGEL, *supra* note 17 at § 2.07.
[42] Shirley & Taylor, *supra* note 40 at 7.
[43] Electricity consumption in the United States has been steadily increasing since data became available in 1949 and increased by approximately 1540% from 1949 to 2007. U.S. ENERGY INFORMATION ADMINISTRATION, ANNUAL ENERGY REVIEW 2008 Table 8.1 (2008).

demand, utilities enjoy increasing revenues and profits. Therefore, utilities operating within the cost-of-service rate design experience strong incentives to encourage consumption and inefficiency by ratepayers, and to delay rate cases as long as possible. Profits are effectively "coupled" with volume of electricity sales, despite periodic returns to "truly" authorized revenues via rate cases. Indeed a mere five-percent increase in revenue can trigger a thirty-five-percent increase in profit for vertically-integrated utilities and a sixty-percent increase in profit for "wires only" utilities.[44]

A handful of state energy regulators are beginning to address this misalignment of utility and environmental interests.[45] "Decoupled" rate designs hold revenues constant and allow electricity prices to fluctuate between rate cases. The rate formulas ensure that frequent price adjustments (e.g. monthly) hold utility revenues static and remove incentives to push greater sales volumes.[46] Regulators could also reduce environmentally damaging incentives of coupled rates by scheduling more frequent rate cases to restore intended profit margins.

Energy regulators also have wide latitude in determining whether rates are "just and reasonable."[47] The Colorado Supreme Court has phrased the "just and reasonable" standard as a matter of investor and consumer rights, with the consumer possessing "the right [] to pay a rate which accurately reflects the cost of service rendered."[48] If this formulation of the standard were taken seriously, it would sound the death knell for $300/ton coal-fired power and possibly natural gas.[49] Accounting for external costs associated with fossil fuel-generated power—such as compromised national security interests,[50] fluctuating prices leading to macroeconomic

[44] Shirley & Taylor, *supra* note 40 at 8. "Vertically-integrated" utilities own generation assets as well as transmission or distribution lines. These utilities are increasingly rare with deregulation. "Wires only" utilities, often located in deregulated jurisdictions, have divested or disaggregated all generation assets.
[45] The environment, however, may not be the reason for addressing the coupled volumetric sales and profits. *See id.* (noting that increased occurrence of small-scale self-generation has occasionally led to *declines* in consumption between rate cases, which hurts utility profits—decoupling, therefore, can protect profits for utilities).
[46] *Id.* at 14-18.
[47] 16 U.S.C. § 824d(a) (2006).
[48] Durango Transp. v. Pub. Utils. Comm'n, 122 P. 3d 244, 250 (Colo. 2005) (emphasis added) (holding that the investor possesses the right "to earn a return reasonably sufficient to maintain the utility's financial integrity") (citing Colorado-Ute Elec. Ass'n, Inc. v. Public Utils. Comm'n, 760 P.2d 627, 642 (Colo.1988)); *See* Public Utility Regulatory Policy Act, 16 U.S.C. § 2621(d)(1)-(5) (2006) (urging PUCs to adopt rates that accurately reflect the cost of service).
[49] *Supra* text accompanying note 9.
[50] William Pizer, *Setting Energy Policy in the Modern Era*, 156 RESOURCES 8, 9-10 (2005).

decline,[51] climate change and other environmental damages[52]—would show fossil fuels' true cost of service to be unviable. Ample interpretive space exists, then, for FERC and PUCs to deem electricity from the most egregious polluters "unjustly and unreasonably" priced, for the price simply fails to reflect considerable social costs.

Furthermore, energy regulators may deny recovery through ratemaking for unreasonable or imprudently incurred costs,[53] including costs of wholesale energy purchases in certain circumstances.[54] In such a case, shareholders bear the expenses for unwarranted costs rather than consumers.[55] As a business "affected with a public interest,"[56] a much more rigorous scrutiny applies to utility business decisions than comparable decisions by ordinary corporations.[57] PUCs typically evaluate "whether the [utility's] conduct was reasonable at the time, considering the circumstances."[58] The New York PUC has declared that its "responsibility is to determine how reasonable people would have performed the task that confronted the [utility]."[59]

This standard for imprudently incurred costs, the author argues, is dangerously misleading given energy regulators' primary duty to protect the public interest.[60] Utilities' business decisions should be "reasonable" not from the perspective of a reasonable free-market profit maximizer, but from the view of a reasonable personification of the "public interest" with which the business is affected. Regulators must look holistically at investor and consumer interests to judge a business decision's prudence in light of the public's pecuniary and

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[51] Ian W.H. Perry and J.W. Anderson, *Petroleum: Energy Independence is Unrealistic*, 156 RESOURCES 11, 12 (2005) (In fluctuating energy markets, "price increases harm the U.S. economy more than price reductions benefit it.").
[52] *Supra* text accompanying note 9.
[53] *E.g.*, NAACP v. Fed. Power Comm'n, 425 U.S. 462, 468 ("[FERC] clearly has the duty to prevent its regulatees from charging rates based upon illegal, duplicative, or unnecessary labor costs.").
[54] According to the filed-rate doctrine, a PUC may not deny recovery of a wholesale energy purchase on the grounds of an unreasonable rate when such rate was deemed "just and reasonable" by FERC. *See Maislin Ind., Inc. v. Primary Steel, Inc.*, 497 U.S. 116, 127 (1990) (quoting *Louisville & Nashville R. Co. v. Maxwell*, 237 U.S. 94 (1915)). Denial of cost recovery, however, could occur for reasons unrelated to the wholesale rate. *Pike County Light & Power Co. v. Penn. Pub. Util. Comm'n.*, 465 A.2d. 735, 738 (1983) (upholding PUC denial of cost recovery on grounds of utility's unreasonable selection of energy sources).
[55] *See* Acker v. United States, 298 U.S. 426, 430-431 (1936) (finding rates "extravagant and wasteful").
[56] Munn v. Illinois, 94 U.S. 113, 126 (1872).
[57] Compare the "business judgment rule" applied to business decisions in derivative suits where the business is not deemed a public utility. *Kamin v. American Express Co.*, 86 Misc. 2d 809, 812 (1976); WILLIAM T. ALLEN *ET AL.*, LAW OF BUSINESS ORGANIZATION 252 (2d ed. 2007) ("[T]he business judgment rule means that courts will not decide (or allow a jury to decide) whether the decisions of corporate boards are either substantively reasonable by the 'reasonably prudent person' test or sufficiently well informed by the same test.")
[58] Re Long Island Co., 72 Pub. Util. Rep. 4th 252, 265-266 (N.Y. 1987).
[59] *Id.*
[60] Fed. Power Comm'n. v. Hope Natural Gas Co. 320 U.S. 591, 603 (1944); *supra* Part I.

nonpecuniary interests. PUCs, for example, possess the regulatory instruments to police the prudence of retail utilities' fuel choices vis-à-vis environmental vulnerabilities within their service areas, such as ambient air and water quality, and perhaps climate change. From an economist's vantage point, a "reasonable" fuel source depends upon a given community's marginal willingness to pay, via higher electricity rates, for greater environmental quality. Many factors such as local culture, income level, and existing environmental quality would determine a locality's valuation of particular energy sources. A state PUC balancing pecuniary and nonpecuniary "public interests," for example, may deem an upwind coal-generated energy purchase by a utility serving an area in nonattainment of national ambient air quality standards (NAAQS) unreasonable and unrecoverable through rates to consumers.[61] The same purchase, however, may be perfectly reasonable in a community in full attainment of NAAQS and otherwise blessed with an abundance of environmental quality.[62] Thus the cost-recovery prerequisite of prudent decision-making—informed by the public interest—provides another environmental tool for energy regulators.

Ratemaking authority could also be used to solve the moral hazard problem described in the previous section.[63] Recall that Union Electric could artificially inflate environmental compliance costs by choosing a higher-cost long-term abatement strategy that would be lower cost in the short-term. Environmental regulators might respond by adjusting emission targets downward after a brief trial period. If energy regulators identified Union Electric's inferior compliance strategy—which, for the reasons discussed above, they should—they could deny recovery of the artificially high abatement costs as "imprudently incurred."

In addition to managing utilities' behavior, PUCs can design rate structures to promote efficient consumption patterns among ratepayers. The Public Utilities Regulatory Policy Act (PURPA) required state PUCs to consider a number of different rate schemes, several of which incentivize consumer conservation.[64] Time-of-day and seasonal price differentiation, for

[61] Fuel adjustment clauses allow utilities to circumvent the PUC prudence review with respect to fuel costs by automatically passing fuel costs to consumers. Nineteen states allow fuel adjustment clauses without public hearings. MUCHOW AND MOGEL, *supra* note 17 at § 4.02.
[62] This presumes the economic law of diminishing marginal utility holds in this case: as people consume more of a good, like environmental quality, the less they value an additional unit of that good. Environmentally "rich" regions, therefore, might rationally favor more pollution in exchange for small electricity price reductions.
[63] *Supra* Part II.A.
[64] 16 U.S.C. § 2621 (2006).

example, encourages consumers to shift consumption away from peak periods when utilities typically must operate their least efficient and most polluting power generators.[65]

Energy regulators can also exercise leadership in promoting renewable energy sources. In 1998, the Rhode Island PUC ordered the state's lone investor-owned utility to offer net-metering to all customers using small-scale renewable generators for the purpose of offsetting consumption from the grid.[66] Net-metering allows consumers who generate small amounts of electricity to sell their energy back to the utility at retail rates by spinning their respective meters backwards in proportion to the quantity of energy fed back into the grid. The Rhode Island legislature soon followed with legislation enabling the PUC to set net-metering standards.[67] Similarly, the California PUC blazed a trail by authorizing the United States' first feed-in tariff. Feed-in tariffs allow small renewable generators to sell power to utilities at predefined terms and rates without contract negotiations. The California legislature directed the PUC to develop a feed-in tariff structure specifically for deployment of renewables on public water facilities.[68] The PUC responded by greatly expanding the feed-in tariff to non-water facility applications.[69]

Moreover, state PUCs can use their control of utility market entry and expansion to encourage environmentally responsible growth strategies. Before a utility can construct a new power plant, make significant improvements, or expand its service area, the relevant PUC must determine that the action is required by the "present or future public convenience and necessity."[70] The PUC investigates, among other factors, the environmental effect of certain actions,[71] but it omits environmental considerations in other actions.[72] Again, the author argues, a PUC evaluating the "present or future public convenience or necessity" should—according to

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[65] BOSSELMAN *ET AL.*, *supra* note 6 at 752-53.
[66] In Re Narragansett Elec. Co., 1998 WL 995996, 3 (1998).
[67] Database of State Incentives for Renewables and Efficiency, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=RI01R&re=1&ee=1. (last visited Dec. 12, 2009).
[68] A.B. 1969 (Cal. Leg. Sess. 2006).
[69] Cal. PUC Res. E-4137; *see generally* Cal. PUC, *CPUC Approves Feed-in Tariffs To Support Development of Onsite Renewable Generation* (press release) *available at* http://docs.cpuc.ca.gov/word_pdf/NEWS_RELEASE/78824.pdf.
[70] CAL. PUB. UTIL. CODE § 1001 (2009).
[71] CAL. PUB. UTIL. CODE § 1001-1005 (2009) (requiring consideration of "(1) community values, (2) recreational and park areas, (3) historical and aesthetic values, and (4) influence on the environment . . . .").
[72] ORE. REV. STAT. § 758.015 (2009) (when issuing certificate for new transmission facilities, PUC must investigate the "necessity, safety, practicability and justification in the public interest for the proposed transmission line"); OHIO REV. CODE. ANN. § 4906.10 (2009) (requiring consideration of environmental impacts prior to certification of "major utility facilities," which explicitly excludes transmission facilities).

plain language—consider the "public necessity" of sensible environmental and natural resource management in *all* certificated actions. A determination of "public necessity" must depend on the community's marginal willingness to pay for greater environmental welfare, which in turn depends on the community's endemic environmental characteristics.

Many PUCs use integrated resource planning to regulate market entry or expansion. Integrated resource planning requires utilities to undertake a comprehensive review of all available options for enhancing generating capacity at the lowest cost, including demand-side management strategies for reducing consumption.[73] These plans can be a factor in PUC certificating determinations[74] or cost-recovery determinations in the ratemaking process[75] and can help PUCs with statewide planning processes.[76] Roughly half of state PUCs require utilities to consider environmental externalities associated with each form of energy generation in their integrated resource planning process.[77] Of these, however, only six states have assigned monetary externality values for power sources, and they have done so only for a limited number of pollutants.[78] One study suggests that consideration of environmental externalities has had little practical effect on utilities' planned resource mixes.[79] Thus PUCs' integrated resource planning may alter utility behavior to reduce environmental impacts, but nominal consideration of externalities will, unsurprisingly, have little effect.

III. CONCLUSION

This essay envisages two roles for energy regulators. First, energy regulators can act as enforcers of exogenous regulation. Environmental agencies promulgate and enforce regulations economy-wide. Spanning a variety of sectors and industries—each with its own body of engineering practices, financial structures, management strategies, pricing methods, supply and

[73] MUCHOW & MOGEL, *supra* note 17 at § 4.02.
[74] *E.g.* FLA. STAT. §§ 4.03.501-4.03.517 (2009) (new generation facility must be "most cost-effective alternative available").
[75] Commission Policy Statement on Performance Criteria Regarding Energy Supply Alternatives, Docket No. L-880039 (Pa. Pub. Util. Comm'n Apr. 12, 1988) (utility must submit integrated resource plan to help show that costs incurred were necessary and of comparable value to alternative courses of action).
[76] New York PUC, for example, audited utilities' planning materials in its own planning process. *See* Proceeding on Motion of the Commission to Examine the Plans for Meeting Future Electricity Needs in New York, 95 P.U.R.4th 300 (N.Y. 1988).
[77] U.S. ENERGY INFORMATION ADMINISTRATION, ELECTRICITY GENERATION AND ENVIRONMENTAL EXTERNALITIES 79-89 (1995).
[78] *Id.* at v-vii.
[79] *Id.* at vii.

demand elasticities, and competition levels—environmental authorities cannot be expected to achieve a sensible balance of regulatory costs and benefits in each case. Behind the veil of electricity's technical and business complexities, opportunities exist for utilities' to hoodwink regulators by artificially inflating costs. With industry expertise and firm-specific knowledge, energy regulators can deny recovery of imprudently incurred compliance costs, thereby helping environmental regulators set appropriately *strict* pollution requirements. Likewise, environmental regulation with uncertain economic implications for utilities can inflict economic harm that far outweighs environmental benefit. Energy regulators can call a utility's bluff or confirm its worries about economic destruction thereby helping environmental regulators set appropriately *lenient* pollution requirements.

The second role for energy regulators is that of environmental innovator. In their mission to protect the public interest, regulators must wield their authority so as to address the whole public interest. The long institutional history of the United States' electric industry stretches back to an era when the environment could tolerate business-as-usual impacts. Accordingly, its concept of "public interest" accounts for little more than low price signals to consumers and reasonable returns to investors. The world's environmental situation, however, has changed since the inception of the concept of a "business affected by the public interest."[80] A rapidly and unnaturally changing climate, an exploding human population, the unprecedented rise of developing nations, and grossly unsustainable consumption patterns have rendered the modern power-sector's low price signals a pleasant fiction. Energy regulators, therefore, must ensure that utilities account for their environmental footprint. Regulators can use ratemaking designs that encourage conservation and stimulate renewable energy development. They can also employ judicious use of market entry and expansion oversight—including integrated resource planning—to ensure that the industry operates in the most efficient manner, fully accounting for environmental externalities.

The notion of an environmental role for energy regulators deserves more critical attention. In particular, the nature and evolution of the "public interest" concept deserves further exploration to determine the legal duties and boundaries of energy regulators' environmental influence. Also warranting more thought is the prospect of delegating some Clean Air Act and

[80] *Supra* Part I.

Clean Water Act enforcement authority to energy regulators, outlining the contours of agency responsibilities. Alongside a precarious world economy, many environmental issues stand at critical junctures. A dynamic new environmental oversight role for energy regulators could boost economic efficiency while strengthening natural resource protection.