2004

# Distributing the Costs of Environmental, Health, and Safety Protection: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform

David M. Driesen
*Syracuse University. College of Law*

# DISTRIBUTING THE COSTS OF ENVIRONMENTAL, HEALTH, AND SAFETY PROTECTION: THE FEASIBILITY PRINCIPLE, COST-BENEFIT ANALYSIS, AND REGULATORY REFORM

*David M. Driesen*

*Syracuse University College of Law*
*E.I. White Hall*
*Syracuse, NY 13244-1030*
*(315) 443-4218*
*ddriesen@law.syr.edu*

*March 1, 2004*

# DISTRIBUTING THE COSTS OF ENVIRONMENTAL, HEALTH, AND SAFETY PROTECTION: THE FEASIBILITY PRINCIPLE, COST-BENEFIT ANALYSIS, AND REGULATORY REFORM

DAVID M. DRIESEN


## ABSTRACT

This article offers a normative theory justifying the feasibility principle found in many environmental statutes. It then uses this theory to shine light on the regulatory reform debate.
The feasibility principle avoids widespread plant shutdowns while maximizing the stringency of regulation that does not have this outcome.

The feasibility principle a reasonable democratically chosen response to distributional concerns and provides meaningful guidance regarding both maximum and minimum stringency. Pollution's tendency to concentrate severe harms upon randomly selected pollution victims justifies this approach's stringency. Normally, cost concerns cannot justify failure to protect people from death, illness, and ecological destruction. But the principle's constraints apply in the one situation where some initial restraint might be justified, when regulation threatens to produce widespread shutdowns that concentrate significant harms on individuals. Widely distributed costs, the type that obtain when plant closures are not likely, have de minimus impacts that cannot justify allowing death, serious illness, and ecological destruction to continue unabated..

Leading advocates of regulatory cost-benefit analysis (CBA) agree that the distribution of costs and benefits matters to regulation. They continue to endorse CBA, which does nothing to address those concerns, because they see the alternative to CBA as regulation without any analysis or meaningful guiding principles. The feasibility principle, however, relies upon rational analysis, offers more meaningful guidance than CBA, and has the capacity to advance CBA supporters' goals better than CBA does, and at much less cost.

Advocates of CBA have distorted the debate about regulatory reform by portraying it as a debate about whether or not cost receives consideration. Analysis of the feasibility principle shows that consideration of cost has always pervaded the regulatory system. Much of the debate should concern how we address costs, not only whether agencies should consider cost. This debate will profit from a clear picture of the feasibility principle.

# DISTRIBUTING THE COSTS OF ENVIRONMENTAL, HEALTH, AND SAFETY PROTECTION: THE FEASIBILITY PRINCIPLE, COST-BENEFIT ANALYSIS, AND REGULATORY REFORM

*David M. Driesen*

## TABLE OF CONTENTS

# DISTRIBUTING THE COSTS OF ENVIRONMENTAL, HEALTH, AND SAFETY PROTECTION: THE FEASIBILITY PRINCIPLE, COST-BENEFIT ANALYSIS, AND REGULATORY REFORM

*David M. Driesen*[*]

## I. INTRODUCTION

Proponents of cost-benefit analysis (CBA) often portray the choice involved in deciding whether to create a "cost-benefit state" as simply a choice between cost-sensitive decision-making and cost-blind decision-making.[1] But consideration of cost pervades the regulatory system and always has, even before the current push toward CBA.[2] In particular, numerous statutory provisions establishing technology-based criteria for setting standards require agencies to consider cost.[3] But they do not require

---

[*] J.D. Yale Law School 1989. Professor, Syracuse University College of Law; Affiliate, Maxwell School of Citizenship Center for Environmental Policy and Administration; Scholar, Center for Progressive Regulation; Adjunct Professor, State University of New York, College of Environmental Science and Forestry. The author wishes to thank Ted Hagelin, Eric Posner, Sid Shapiro, and Tom McGarity for comments and Melissa Pennington and Jeff Philps for research assistance. I take responsibility for any errors.

[1] *See* Richard A. Posner, *Cost-Benefit Analysis: Definition Justification, and Comment on Conference Papers,* 29 J. Legal Stud. 1153, 1157 (2000) (the need to compel a decision-maker to confront costs justifies CBA); Stephen F. Williams, *Squaring the Vicious Circle,* 53 ADMIN. L. REV. 257, 261 (2001) (defending CBA by comparing it to the view that any consideration of cost is wrong"); CASS R. SUNSTEIN, THE COST-BENEFIT STATE: THE FUTURE OF THE REGULATORY STATE 14 (2002) [hereinafter SUNSTEIN, COST-BENEFIT STATE]; Thomas O. McGarity, *A Cost-Benefit State,* 50 ADMIN. L. REV. 7 (1998).

[2] *See* Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection,* 150 U. PENN. L. REV. 1553, 1557 (2002) (development of environmental regulation has almost always involved the consideration of cost); Thomas O. McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation,* 46 LAW & CONTEMP. PROBS. 159, 164 (1983) [hereinafter *Strategies*] (cost is "invariably" a criterion used to set technology-based standards); Kennecott v. EPA, 780 F.2d 445, 456 (4th Cir. 1985) (Congress did not permit EPA to ignore cost and EPA carefully analyzed compliance cost in developing technology-based effluent limits). *Cf.* CASS R. SUNSTEIN, RISK AND REASON: SAFETY, LAW, AND THE ENVIRONMENT 16-17 (2002) [hereinafter, RISK AND REASON] (suggesting, wrongly, that Congress did not consciously consider the reasons for technology-based regulation and that Congress was "indifferent to" costs in the 1970s).

[3] *See* Ackerman & Heinzerling, *supra* note 2, at 1553; Hooker Chemicals & Plastics Corp. v. Train, 537 F.2d 620, 635 (2nd Cir. 1976) (reversing standards set without considering cost of coping with freezing that might hinder application of relevant technology); FMC Corp. v. Train, 539 F.2d 973, 978-79 (4th Cir. 1976) (upholding EPA's economic analysis while rejecting claim that it must conduct CBA); Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 477 (D.C. Cir. 1974) (Secretary of labor could

(continued...)

agencies to weigh those costs against the value of avoided harms (usually referred to as benefits).[4] Instead, they often require application of the feasibility principle, a principle requiring maximum feasible emission reductions. The Supreme Court addressed this principle last term in *Alaska Department of Environmental Conservation v. EPA* (*Cominco)*.[5] This article examines that principle and compares it to CBA.

The feasibility principle reflects a key democratic decision about the distribution of costs, namely a preference for avoiding widespread plant shutdowns. This preference for avoiding plant closures provides a sensible approach to distributional issues and addresses many other concerns that influence CBA advocates. Furthermore, by demanding stringent regulation where such regulation does not threaten widespread shutdowns, this approach maximizes the protection of health, which is fundamental to welfare, in situations where doing so does not threaten welfare in a significant way.[6] This approach allows Congress, rather than administrative agencies, to make fundamental policy decisions about how to evaluate the distribution of costs. This Congressional role fits both democratic theory and the claims of cost-benefit proponents better than a

---

[3](...continued)
consider "economic feasibility" in promulgating standards under Occupational Safety and Health Act).

[4] *See* David M. Driesen, *The Societal Cost of Environmental Protection: Beyond Administrative Cost-Benefit Analysis,* 24 ECOLOGY L. Q. 545, 560-62 (1997) (explaining that the term "benefit" in cost-benefit analysis of environmental regulation refers to averted harm); Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 262 (5th Cir. 1989) (administrator must determine whether costs can be reasonably borne by industry, but need not conduct a cost-benefit analysis); CPC Int'l, Inc. v. Train, 540 F.2d 1329, 1341 (8th Cir. 1976) (section 306 of the Clean Water Act does not require cost-benefit analysis); American Petroleum Inst. v. EPA, 858 F.2d 261, 265-66 (5th Cir. 1988) (EPA need not correlate costs and benefits, since economic and technological feasibility is the test for BAT limits under the Clean Water Act); EPA v. National Crushed Stone Ass'n, 449 U.S. 64, 71 (1980) (BAT limits do not require comparison of cost to effluent reduction benefits); Building and Const. Trades Dep't, AFL-CIO v. Brock, 838 F.2d 1258, 1264 (D.C. Cir. 1988) (Supreme Court has held that Secretary of Labor may not balance costs against benefits in implementing feasibility standards under Occupational Safety and Health Act).

[5] 124 S. Ct. 983, 999, 1002 n. 13 (2004) (discussing how best available control technology (BACT) requirements in the Clean Air Act involve cost considerations but restrain implementing agencies). Environmental practitioners have taken to referring to the case as the Cominco case, because it addressed a permitting issue at Cominco company's zinc mine. Id. at 7-14.

[6] *Cf.* SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH 52-55 (2003) (suggesting that feasibility regulation avoids serious economic disruption while declining to treat injury and death as fungible like a dollar cost).

mandate that agencies consider CBA.[7] Implementation of the feasibility principle has an additional advantage; it requires a limited kind of analysis, a feasibility analysis, that avoids many of the difficulties that plague CBA.[8]

The comparison between CBA and the feasibility principle matters a great deal. Technology-based standard setting provisions dominate the United States Code.[9] But they have existed, since the mid-1970s, alongside a minority of statutes that have been based on a cost-benefit approach.[10] Moreover, first by executive order, and more recently by statute, elected officials have required CBA of most major regulations, including many technology-based regulations.[11] If the status quo continues, the debate about the value of CBA will influence regulatory outcomes that now reflect a requirement for CBA and different, albeit cost-sensitive, statutory criteria.

Moreover, industry, with significant support from the think tanks it funds, some judges, and scholars who have adopted the conservative think tank's view of existing regulation, seeks to supplant existing law with cost-benefit standards.[12] Environmentalists and many academic environmental

---

[7] *See* Driesen, *supra* note 4, at 605-13 (arguing that administrative CBA is anti-democratic).

[8] *See* Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 387, 390-401 (D.C. Cir. 1973) (rejecting CBA as difficult if not impossible, but critically reviewing agency analysis of technological capability).

[9] *See* Christopher H. Schroeder, *In The Regulation of Manmade Carcinogens, If Feasibility Analysis is the Answer, What is the Question,* 88 MICH. L. REV. 1483, 1496 (1990) (feasibility analysis seems to be gaining a "working hegemony in the world of practical administration").

[10] *See* Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991) (interpreting the toxic substances control act as requiring a cost-benefit approach to limiting toxic substances); Environmental Defense Fund v. EPA, 548 F.2d 998, 1012-18 (D.C. Cir. 1976) (proponent of a pesticide must show that its benefits outweigh its risks).

[11] *See* Pub. L. No. 104-4, § 202(a), 109 Stat. 64 (codified at 2 U.S.C. § 1532); Exec. Order No. 12, 291, 3 C.F.R. 127 (1982), *reprinted in* 5 U.S.C. § 601 app. at 431-34; Exec. Order No. 12,866, 3 C.F.R. 638-49 (1994), *reprinted in* 5 U.S.C.A. § 601 (West Supp. 1995); Exec. Order 13258, *reprinted in* 67 Fed. Reg. 9385 (Feb. 26, 2002). *See generally* Thomas O. McGarity, *The Expanded Debate Over the Future of the Regulatory State,* 63 U. CHI. L. REV. 1463, 1476-79 (1996) (discussing the executive orders and Unfunded Mandates Act); Steven Croley, *White House Review of Agency Rulemaking: An Empirical Investigation,* 70 U. CHI. L. REV. 821 (2003) (discussing OMB review under the Clinton administration); UNITED STATES GENERAL ACCOUNTING OFFICE, RULEMAKING: OMB'S ROLE IN REVIEW'S OF AGENCIES' DRAFT RULES AND THE TRANSPARENCY OF THOSE REVIEWS (2003).

[12] *See* McGarity, *supra* note 1, at 34 (CBA's strongest advocates are corporations, trade associations, and associated think tanks); Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit*

(continued...)

law experts claim that such a change would greatly weaken environmental law.[13] Advocates for corporations and some academics argue that CBA would improve government regulation. All agree that the issue is critical.

While past discussion of CBA usually focuses on the concept of economic efficiency, leading scholars on both sides of the regulatory reform debate agree that distribution of costs matters to environmental protection. This article therefore moves beyond the debate about the merits of economic efficiency to address the broader arguments made about CBA. Those who have supported CBA while saying that distribution matters have said very little about how current statutes or CBA address distributional concerns.[14] A comparison of the feasibility principle and CBA allows one to test the arguments of prominent CBA proponents, such as Cass Sunstein, Matthew Adler, and Eric Posner, who support it, despite expressing skepticism about neoclassical economic's devotion to economic

---

[12](...continued)
*Analysis,* 150 PENN. L. REV. 1489, 1498-99 (2002) (proposing to make a cost-benefit criterion presumptively determinative of the stringency of regulation); Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1222 (5th Cir. 1991) (creatively interpreting the Toxic Substances Control Act as requiring cost-benefit analysis); International Union, UAW v. OSHA, 938 F.2d 1310, 1326-27 (D.C. Cir. 1991) (Williams, J., concurring) (encouraging the Occupational Safety and Health Administration (OSHA) to interpret the Occupational Safety and Health Act (OSH law) as requiring cost-benefit analysis); American Dental Ass'n v. Martin, 984 F.2d 823, 828 (7th Cir. 1993) (Coffey J., dissenting) (suggesting that OSHA should adjust its decision based upon a cost-benefit analysis).

[13] *See, e.g.,* Linda E. Greer, *Testimony of Linda Greer, PhD Senior Scientist, Natural Resources Defense Council before the Senate Committee of Government Operations concerning The Role of Risk Assessment and Cost Benefit Analysis in Regulatory Reform* at 7 (February 15, 1995); *Hearings on Pesticide Safety Improvement Act of 1991 Before the Subcomm. on Dep't Operations, Research and Foreign Agriculture, House Comm. on Agriculture*, 102d Cong., 2d Sess. 176 (1992)(statement of Erik Olson, Senior Attorney, Natural Resources Defense Council); SHEILA JASANOFF, THE FIFTH BRANCH SCIENCE ADVISORS AS POLICY-MAKERS 207 (1990) (describing how scientific review of risk assessment led to protracted delays under TSCA). Donald Hornstein, *Lessons from Federal Pesticide Regulation on the Paradigms and Politics of Environmental Law Reform*, 10 Yale J. Reg. 369, 422 (1993) (describing "analytical treadmill" stemming from risk assessment as part of the CBA under the federal pesticide statute).

[14] *See, e.g.,* Cass R. Sunstein, *Constitutionalism After the New Deal,* 101 HARV. L. REV. 420, 462 (1987) (recognition of goals of resource distribution should temper use of CBA); Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State,* 62 U. CHI. L. REV. 1, 46-47 (1995) (suggesting analytical techniques for taking distribution into account, but not discussing the normative theory of how and when distribution should matter); Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis,* 109 YALE L. J. 165, 168 (1999) (suggesting modification of costs and benefits to reflect the higher marginal value of dollars to the poor). *Cf.* Sidney A. Shapiro & Thomas O. McGarity, *Not So Paradoxical: The Rationale for Technology-Based Regulation,* 1991 DUKE L. J. 729, 739-42 (making an equitable argument for technology-based regulation).

efficiency.[15] I focus on these scholars for a number of reasons. First, they include many of the most active, prominent, and influential writers on the subject of government regulation and its reform. Second, their arguments have not received nearly as widespread critical attention as the efficiency idea has in the academic literature.[16] And finally, the question of why scholars who claim to reject the principle economic rationale for CBA nevertheless embrace the technique provides an interesting puzzle.[17]

This article seeks to improve the quality of the ongoing regulatory reform debate in three ways. First, this article corrects a key error many cost-benefit proponents make, equating consideration of cost with CBA.[18] CBA involves comparing costs to benefits, but many statutory provisions authorize consideration of costs without requiring agencies to weigh them against benefits.[19] This clarification shows that those who frame the debate

---

[15] *See* McGarity, *supra* note 1, at 10 (identifying Sunstein as a proponent of a "softer" variety of CBA than that offered by "free marketeers"). *See, e.g.,* SUNSTEIN, RISK AND REASON, *supra* note 2;, Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position,* 68 U. CHI. L. REV. 323, 324 (2001) (supporting CBA, but disapproving of willingness to pay approach in estimating benefits); Adler & Posner, *supra* note 14, at 187-94 (reviewing arguments of defenders of CBA, most of which, come from economists); Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis,* 68 U. CHI. L. REV. 1137, 1140 (2001) (CBA may serve a valuable role, even if efficiency is not the proper social goal).

[16] *See, e.g.,* Louis Kaplow and Steven Shavell, *Fairness v. Welfare,* 114 HARV. L. REV. 961 (2001); Christopher T. Wonnell, *Efficiency and Conservatism,* 80 NEB. L. REV. 643 (2001); Ward Farnsworth, *The Taste for Fairness,* 102 COLUM. L. REV. 1992 (2002) (book review); Howard F. Chang, *A Liberal Theory of Social Welfare: Fairness, Utility, and the Pareto Principle,* 110 YALE L. J. 173 (2000); Jules L. Coleman, *Efficiency, Utility and Wealth Maximization,* 8 HOFSTRA L. REV. 509 (1980); Michael B. Dorff, *Why Welfare Depends Upon Fairness: A Reply to Kaplow and Shavell,* 75 S. CAL. L. REV. 847 (2002); Jules L. Coleman, *The Grounds of Welfare,* 12 YALE L. J. 1511 (2003) (book review)*;* Douglas A. Kysar, *Law, Environment, and Vision,* 97 N. W. U. L. REV. 675 (2003); JULES L. COLEMAN, MARKETS, MORALS AND THE LAW (1988); MARK SAGOFF, THE ECONOMY OF THE EARTH (1988).

[17] *Cf.* Thomas O. McGarity, *Regulatory Analysis and Regulatory Reform,* 65 Texas L. Rev. 1243, 1297 (1987) [hereinafter, *Regulatory Analysis*](CBA is concerned with efficient allocation of resources, not their distribution).

[18] *See, e.g.,* Adler & Posner, *supra* note 14, at 176-77 (noting confusion about what CBA is and pointing out that some treat any method requiring tradeoffs, rather than "absolute standards," as CBA); Williams, *supra* note 1, at 261 (defending CBA by comparing it to the view that any consideration of cost is wrong").

[19] *See* Whitman v. American Trucking Ass'ns, 531 U.S. 457, 470 (2001) (states consider claims of economic and technological infeasibility when formulating state implementation plans under the Clean Air Act); International Union, UAW v. OSHA, 938 F.2d 1310, 1313, 1321 (D.C. Cir. 1991) (distinguishing between a cost sensitive feasibility criterion and a cost-benefit criterion that involves weighing "pros and cons").

as a debate between cost-obliviousness and CBA[20] have distorted the regulatory reform debate, and invites a more informed debate about the consideration of cost in environmental law. Second, this article takes a step toward developing a positive theory of environmental law, explaining and defending the normative values undergirding a vast array of statutory provisions.[21] We sorely need a positive theory of environmental law, lest we radically revise it without adequately understanding its normative structure. In general, the lack of a positive theory has led many writers to treat environmental law as hopelessly incoherent.[22] That treatment makes almost any reform proposal look attractive, at least to those not intimately familiar with the practical pitfalls of CBA and the variability of the approaches it spawns.[23] Third, this article improves the regulatory reform debate by comparing CBA to an alternative form of analysis, feasibility analysis. CBA proponents have distorted the regulatory reform debate by suggesting that the alternative to CBA is no analysis at all.[24] But even

---

[20] *See, e.g.,* Posner, *supra* note 1, at 1157.

[21] *See* Schroeder, *supra* note 9, at 1496.

[22] *See, e.g.,* Adler & Posner, *supra* note 14, at 175 ("when EPA did not use CBA it was not clear what methodology it did use."), 194 (suggesting that many economists favor CBA, because they see no acceptable alternatives; while likening the alternatives to "no guide at all").

[23] Opponents of CBA have relied more upon pragmatic arguments and less upon defending alternative normative structures. *See, e.g.,* SHAPIRO & GLICKSMAN, *supra* note 6; McGarity, *supra* note 1, at 23-32, 50-58 (discussing the pragmatic difficulties in developing and applying CBA); FRANK B. CROSS, ENVIRONMENTALLY INDUCED CANCER AND THE LAW 90, 147 (1989) (feasibility regulation has proven the "most effective"); McGarity, *Regulatory Analysis*, *supra* note 17, 23 at 1254-55 (identifying techno-bureaucratic rationality as a "second-best" rationality in light of practical limitations of inadequate data, unquantifiable values, mixed societal goals, and political realities"); Wendy A. Wagner, *Innovations in Environmental Policies: The Triumph of Technology-Based Standards,* 2000 U. ILL. L. REV. 83, 94-107 (arguing for technology-based statutes as expeditious, enforceable, predictable, even-handed, and adaptable). I do not mean to disparage the importance of pragmatic arguments. And even the pragmatists have included some important theoretical arguments in their work. *See, e.g.,* Shapiro & McGarity, *supra* note 14, at 735-36 (discussing contrast between willingness to pay and willingness to accept methodologies for calculating costs); THOMAS O. MCGARITY, REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY (1991) [ hereinafter REINVENTING RATIONALITY](combining a theoretical analysis with pragmatic evaluation of experience); McGarity, *Strategies, supra* note 2, at 166-173 (discussing theoretical problems with economic efficiency). *See also* SHAPIRO & GLICKSMAN, *supra* note 6, at 49 (rejecting economic efficiency criterion as incompatible with widely held social values).

[24] Cass R. Sunstein, *In Praise of Numbers: A Reply,* 90 GEO. L. J. 2379, 2384 (2002) (suggesting that absent CBA regulators might have to "flip a coin" in order to make

(continued...)

without CBA agencies regularly engage in some form of analysis. A comparison between feasibility and cost-benefit analysis shines fresh light on a number of the CBA proponents' key arguments.

This article reframes the regulatory reform debate as a discussion about how to treat costs both institutionally and substantively.[25] Because current treatment of costs is so poorly understood, the substantive issues have been inadequately defined in the past.

This article begins by explaining the feasibility principle and its role in technology-based regulation. It then develops a theoretical argument in support of this approach.

The second part reviews the neoclassical economic theory that supports CBA. It then summarizes the recent legal scholarship repudiating the neoclassical foundation, but offering a menage of alternative rationales that purport to take the distribution of cost into account.

The third part evaluates the question of whether the feasibility principle meets the requirements of the theories advanced to support CBA. It concludes that the feasibility principle fits the requirements of CBA proponents closely enough to make it impossible to understand why they prefer CBA, at least in the context of most technology-based standard setting. It calls for a debate that focuses upon how to consider cost, at least under statutory provisions that already require some cost consideration.

## II. THE FEASIBILITY PRINCIPLE

This first part describes the feasibility principle's content, explains it role, and defends it normatively. I claim that this principle provides a useable heuristic, capturing a central thrust of technology-based regulation. It also provides a normatively attractive approach to taking cost into consideration in a way that is sensitive to concerns about the distribution of costs and environmental harms.

### *A. Defining the Feasibility Principle*

---

[24](...continued)
decisions). *Cf.* Howard Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning Regulatory Reforms,* 37 STAN. L. REV. 1267, 1303 (1985) (a useful analysis of regulatory approaches must include an accurate description of how the current system works).

[25] I focus upon the role of the executive and legislative branches, not the judicial here. *Cf.* Richard J. Pierce, *The Appropriate Role of Costs in Environmental Regulation,* 54 ADMIN. L. REV. 1237, 1246-1257 (2002) (rejecting judicial canon of construction favoring CBA).

In *American Textile Manufacturers Institute v. Donovan,*[26] the Supreme Court addressed an industry claim that the Occupational Safety and Health Administration (OSHA) must assure that the costs of standards for toxic pollutants in the work place bear a reasonable relationship to the benefits such a standard provides.[27] The Court rejected the argument.[28] The statutory provision at issue in the case required OSHA to "set the standard which most adequately assures, to the extent feasible, that no employee will suffer material impairment of health or functional capacity."[29] The Court concluded that Congress had already considered cost and decided to put the health and safety of workers above all other consideration, save that of feasibility.[30] The Court, relying upon a dictionary definition, defined feasibility in terms of what one is capable of doing.[31]

Last term, the Court addressed feasibility again in *Cominco*.[32] The Court held that EPA may overrule state decisions about what constitutes an emission limitation reflecting "best available control technology" (BACT) under the Clean Air Act.[33] The majority and the dissent agreed that the BACT provision requires "the technology that can best reduce pollution within practical constraints," a formulation suggestive of the maximum feasible reduction.[34] The majority supported its holding that EPA may correct state BACT determinations by pointing out that the requirement to maximize emission reductions considering cost constrained the state permitting authority's discretion.[35]

The feasibility principle exemplified in these cases generally requires stringent regulation,[36] but presumptively subjects this demand for stringency to two constraints. First, the principle authorizes government agencies to forego physically impossible environmental

---

[26] 452 U.S. 490 (1981).

[27] Id. at 506.

[28] *See* id. at 509.

[29] 29 U.S.C. § 655(b)(5).

[30] Donovan, 452 U.S. at 509.

[31] Id. at 508-09 (quoting Webster's Third New International Dictionary 831 (1976)).

[32] Alaska Dep't of Envtl. Conservation v. EPA, 124 S. Ct. 983 (2004).

[33] Id. at 1-2 (the Act allows EPA to check state BACT determinations by blocking construction of a facility).

[34] Id. at 23 n. 13.

[35] Id.; Donovan, 452 U.S. at 508-509.

[36] *See* id. at 509 (requiring "no" material health impairment, if possible).

improvements.[37] Second, the principle authorizes government agencies to forego constraints so costly that they cause widespread plant shutdowns.[38] I will refer to these constraints as the technological and cost constraints respectively.[39]

These restraints might fail, in theory at least, to constrain administrative agency unless understood in a properly limited way. As the Supreme Court pointed out in *Union Electric v. EPA,*[40] a plant can always meet an environmental standard by shutting down.[41] Since shutting down a facility reduces emissions to zero, an approach that treated the shutdown of an industry as a feasible technological option would provide no constraint at all.[42] Since principles of statutory interpretation preclude reading statutes to render any of their language superfluous, such as the language requiring "feasible" measures, courts have understood the feasibility principle as contemplating some technological change that allows production of existing goods and services to continue.[43] It contemplates changes in how we produce

---

[37] AFL-CIO v. OSHA, 965 F.2d 962, 980-82 (11th Cir. 1992) (reversing standard when agency fails to show that techniques exist to meet the limit); Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 819 (9th Cir. 1980) (striking down effluent limits, because EPA does not demonstrate that required biological treatment would allow industry to meet discharge limits).

[38] *See, e.g.,* AFL-CIO, 965 F.2d at 982 (requiring agency to find that cost will not threaten the existence or competitive structure of an industry, even if it does portend disaster for some marginal firms); National Renderers Ass'n v. EPA, 541 F.2d 1281, n. 7 (8th Cir. 1976) (EPA exempted small plants from regulations predicted to cause many of them to close);Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 477-78 (D.C. Cir. 1974) (Congress did not intend to protect employees from occupational health and safety dangers by "putting their employers out of business"). *See* Daniel A. Farber, *Taking Slippage Seriously,* 23 HARV. ENVTL. L. REV. 297, 306 (1999) (explaining that Congress enacted technology-based provisions for toxic water pollutants after EPA balked at implementing risk-based standards that would lead to "widespread plant closings").

[39] *See* McGarity, supra note 2, *Strategies,* at 164 (standard setter must consider economic and technological feasibility in setting technology-based standards); American Petroleum Inst. v. EPA, 858 F.2d 261, 265-66 (5th Cir. 1988) (BAT limitations must be economically and technologically achievable).

[40] 427 U.S. 246 (1976).

[41] Id. at 265 n. 14.

[42] *See* American Federation of Labor v. Brennan, 530 F.2d 109, 121 (3rd Cir. 1975) ("the most certain way to eliminate industrial hazards is to eliminate industry").

[43] *See* American Iron & Steel Inst. v. OSHA, 577 F.2d 825, 835 (3rd Cir. 1978) (Congress did not intend to cripple an industry or render it extinct); TRW, Inc. v. Andrews, 534 U.S. 19, 31 (2001) (calling the canon requiring construction not rendering any word superfluous a "cardinal principle" of statutory construction). *Cf.* Horsehead Development

(continued...)

goods and services for consumers, not the elimination of the goods and services.[44] Indeed, the technological constraint implicitly defines physically possible emission reductions as those achieved without widespread shut down of plants.[45] It does not refer to feasibility in the abstract, but to the feasibility of existing businesses carrying out their activities while meeting demands for pollution control.[46] So understood, the technological constraint limits permissible stringency.

The technological and cost constraints share the common goal of avoiding widespread shut-downs of plants or facilities.[47] In this sense, they are both cost sensitive.[48]

---

[43](...continued)
Corp. v. Browner, 16 F.3d 1246, 1270 (D.C. Cir. 1994) (allowing regulation that imposes potentially unfeasible requirements for monitoring products of incomplete combustion, because standard is "protective of human health" and facility could cease to burn hazardous waste as fuel).

[44] *See* Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 388 (D.C. Cir. 1973) (directing EPA to consider on remand whether its regulation "unduly precludes supply of cement."); International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 640 (D.C. Cir. 1973) (technological feasibility satisfied if the demand for new passenger automobiles can generally be met, even if emission standards limit model and engine choice).

[45] *See, e.g.,* Brennan, 530 F.2d at 121 (Congress did not choose to ban all hazardous occupations); Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 478 (D.C. Cir. 1974) (Occupational Safety and Health Act does not put workers' employers out of business by requiring unavailable technology or destroying financial viability).

[46] *See* Hodgson, 499 F.2d at 478.

[47] *See* American Dental Ass'n v. Martin, 984 F.2d 823, 825 (7th Cir. 1993) (Posner J.) (OSHA must determine whether standards imperil the existence of or threaten massive dislocations to the industry); Brennan, 530 F.2d at 121-23 (Congress must have intended to allow Secretary of Labor to consider technological and economic feasibility, lest the Occupational Safety and Health Act require the elimination of hazardous occupations); American Iron & Steel Inst., 577 F.2d at 835 (Congress did not intend to cripple an industry or render it extinct).

[48] Professor Wagner's claim that the theory behind technology-based standards is "cost-blind" has some support in the legislative history of Best Available Technology limits under the Clean Water Act. *Compare* Wagner, *supra* note 23, at 93 *with* Pac. Fisheries, 615 F.2d at 817 (explaining how legislative history led some courts to construe BAT as cost-blind). But the prevailing interpretation of this provision and all other technology-based provisions authorizes consideration of cost. *See, e.g.,* Pac. Fisheries, 615 F.2d at 817 (EPA must consider cost in setting BAT limits). She is correct that technology-based standard setting criteria often do not "leave the door open to arguments" that implementing the feasibility principle is unnecessary. Id. But that means that the standard usually ignores relationships between costs and benefits, not that it ignores costs. *See, e.g.,* id. at 818-819. If these standards ignored costs, they would allow shutdowns of entire industry, which, I argue, they do not approve of.

The cost constraint requires assessment of cost and the technological constraint requires assessment of engineering possibilities, i.e. a technological assessment.[49] But cost assessment presupposes technological assessment.[50] The cost of making any environmental improvement equals the cost incurred in making the physical changes necessary to accomplish it.[51] Nobody can begin to estimate the cost of an environmental improvement until an engineer describes the technologies regulated parties will use to make that improvement.[52] This dependence of cost estimation on technological assessment applies to any procedure that considers cost, including CBA. Feasibility analysis therefore begins with identification of technologies that might reduce pollution. It continues with identification of the levels of pollution control these technologies might achieve. The analysis then estimates the costs of employing relevant technologies to achieve various levels of reduction.[53] The cost constraint, however, implies that the regulator must analyze whether the cost of implementing the technologically possible reductions would lead to plant shutdowns.[54] This implies that regulators must compare cost, not to benefits, but to net earnings prior to regulation and the value of corporate assets.[55] Costs significant enough

---

[49] Reynolds Metals Co. v. United States, 760 F.2d 549, 551 (4th Cir. 1985) (EPA tests application of model technologies to figure out what discharge limits they can achieve); Building and Const. Trade Dep't, AFL-CIO v. Brock, 838 F.2d 1258, 1268-69 (D.C. Cir. 1988) (finding a low asbestos exposure standard achievable even though some use of respirators might be needed in some cases).

[50] *See* McGarity, *supra* note 1, at 15.

[51] *See, e.g.,* Forging Industry Ass'n v. Secretary of Labor, 773 F.2d 1436, 1453-54 (4th Cir. 1985) (reviewing agency cost estimates of specific measures required by standard protecting workers from hearing loss).

[52] *See* EDWARD A PARSON, PROTECTION THE OZONE LAYER: SCIENCE AND STRATEGY 169 (2003) (an economics panel was unable to undertake any economic analysis of the cost of replacing ozone depleting substances, because it worked in parallel with, rather than after, a panel assessing technological options); Posner, *supra* note 15, at 1145 (cost of regulation requiring installation of scrubbers will rely upon market data about the cost of scrubbers to estimate benefits).

[53] *See, e.g.,* American Iron & Steel Inst. v. EPA, 568 F.2d 284, 297 (3rd Cir. 1977) (describing this procedure); Natural Resources Defense Council v. EPA, 863 F.2d 1420, 1426 (9th Cir. 1988) (record contains evidence of the cost of retrofitting offshore facilities with reinjection capability).

[54] *See* National Renderers Ass'n v. EPA, 541 F.2d 1281, 1288-89 (8th Cir. 1976) (remanding standards to EPA when it failed to consider increased cost estimate's impact on economic viability of new facilities).

[55] *See* Alaska Dep't of Envtl. Conservation v. EPA (Cominco), 124 S. Ct. 983, 1006-08 (continued...)

to render plants *unprofitable* could lead their owners to shut them down.[56] For that reason, feasibility analysis also includes an assessment of the cost's impact on shutdowns.

The *Cominco* Court recognized that consideration of cost in a regulation subject to the feasibility principle requires comparison of the costs of pollution control to the economic capabilities of facilities in a portion of its opinion upholding EPA's finding that the state permitting authority established unreasonably lax BACT limits.[57] Cominco, the company whose permit limits were at issue, failed to disclose financial data about its operation that might demonstrate the infeasibility of the limits EPA ultimately demanded.[58] Because of this non-disclosure, the state acknowledged that it could not determine whether the cost of stringent controls would harm the "profitability and competitiveness" of Cominco's zinc mine.[59] Since no basis existed for finding the mine's profitability and competitiveness impaired, the Court agreed that EPA properly disapproved of the state permitting authority's choice of relatively lax pollution limits.[60] The Court's discussion of the agencies' disagreement about BACT, however, implies that evidence that costly

---

[55](...continued)
(2004) (state agency determination of infeasibility is arbitrary when it lacks information about cost's impact of profitability of an operation); National Wildlife Federation v. EPA, 286 F.3d 554, 564 (D.C. Cir. 2002); (plant closures predicted when net earnings fall below the salvage value of a regulated mill); CPC Int'l, Inc. v. Train, 540 F.2d 1329, 1341 (8th Cir. 1976) (CBA not required for technology-based decisions under the Clean Water Act); Kennecott v. EPA, 780 F.2d 445, 456 (4th Cir. 1985); American Iron & Steel Inst. v. OSHA, 577 F.2d 825, 836-37 (3rd Cir. 1978) (affirming the feasibility of a regulation imposing total costs of around $240 million, because industry was profitable with producers earning more than $857 million a year); National Renderers, 541 F.2d at 1289 (EPA erred in failing to compare costs to income to measure economic viability); United Steelworkers of America v. Marshall, 647 F.2d 1189, 1265 (D.C. Cir. 1989) (no matter how "initially frightening" the projected costs, a court must examine those costs in "relation to the financial health and profitability of the industry. . .").

[56] *See, e.g.,* National Wildlife Federation, 286 F.3d at 559 (EPA rejected regulatory options that would cause mill closures); CPC Int'l.v. Train, 515 F.2d 1032, 1051-52 & n. 42 (8th Cir. 1975) (low profit margins may make it hard to pass increased costs to consumers, and therefore make costs of special concern). *Cf.* Asbestos Information Ass'n /North America v. OSHA, 727 F.2d 415, 424 (5th Cir. 1984) (costs not exceeding 7.2 cents per dollar of sale seen as reasonable).

[57] Cominco, 124 S. Ct. at 1006-09.

[58] Id. at 1007.

[59] Id.

[60] Id. at 1007-08.

controls would lead to a shutdown could justify a finding of infeasibility.[61]

Cass Sunstein has suggested that the feasibility principle's cost and technological constraints do not restrain regulators. He writes that "no agency has lost a challenge to the feasibility of its regulation," thereby suggesting that the courts do not hold agencies accountable.[62] As the cases set out in the margin demonstrate, courts have frequently reversed and remanded agency determinations that its regulation is feasible, usually on the ground that the agency has run afoul of the technology constraint.[63] Agencies may win many feasibility cases,[64] but they also lose a substantial number.

He also suggests that agency authority to force technology provides an escape from the cost and technology constraints. He writes that feasibility limitations do not prevent basing regulations on technologies that can be brought into existence with massive use of existing resources.[65] This argument grossly exaggerates the technology-forcing character of regulation under the feasibility principle. The courts

---

[61] *See generally* id. at 1009 (EPA remains open to persuasion that its recommended BACT limit would prove economically infeasible on an appropriate record).

[62] SUNSTEIN, RISK AND REASON, *supra* note 2, at 217.

[63] *See, e.g.,* D. Bruce La Pierre, *Technology-Forcing and Federal Environmental Protection Statutes,* 62 IOWA L. REV. 771, 820 (1977) (finding rejection of agency's technological analysis has been the 'primary ground" for judicial rejection of effluent limitations); Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 392-401 (D.C. Cir. 1973); CPC Int'l, 515 F.2d at 1047-51 (rejecting technology not demonstrated to meet promulgated standard within the regulated industry, while purporting to accept possibility of basing standards on technologies used in other industries); Hooker Chemicals & Plastics Corp. v. Train, 537 F.2d 620, 634-37 (2nd Cir. 1976) (rejecting EPA rationale for standard relying upon technology not costed and adequately discussed in the record); FMC Corp. v. Train, 539 F.2d 973, 982 (4th Cir. 1976) (rejecting reliance upon single plant's achievement and predicting that the regulated parties could apply their expertise to meet limits, when record does not identify plant or provide details); Tanners' Council of America v. Train, 540 F.2d 1188, 1193 (4th Cir. 1976) (rejecting regulation of tannery effluent); AFL-CIO v. OSHA, 965 F.2d 962, 981 (11th Cir. 1992) (agency concluded that "existing engineering controls are available" to meet its standards for air contaminants, but court rejects its finding because of lack of information about how specific industries will meet the standards).

[64] *See, e.g.,* National Petrochemical & Refiners Ass'n v. EPA, 287 F.3d 1130, 1151 (D.C. Cir. 2002) (upholding limits on diesel engine exhaust emissions); National Wildlife Federation, 286 F.3d at 576 (upholding regulation of pulp and paper effluent discharge); Husqvarna AB v. EPA, 254 F.3d 195, 203 (D.C. Cir. 2001) (upholding air pollution standards for new handheld non-road engines); Kennecott, 780 F.2d at 447 (upholding limits on effluent from non-ferrous metal manufacturing industry).

[65] *See* SUNSTEIN, COST-BENEFIT STATE, *supra* note 1, at 14.

have often interpreted the feasibility principle as technology forcing (in keeping with legislative history and, in some cases, clear statutory language),[66] but have adopted standards of judicial review that have largely stymied adoption of regulations that rely upon significant technological innovation.[67] The courts have generally required agencies

---

[66] Congress sometimes clearly indicates a technology-forcing intent through employment of the future tense in articulating the feasibility principle. *See, e.g.,* Husqvarna, 254 F.3d at 199-201 (statutory language requiring standards based on technologies that "will be" available is technology forcing); Natural Resources Defense Council v. Thomas, 805 F.2d 410, 429 (D.C. Cir. 1986) (future tense in statute read to allow standards based on "projections of technology that is not currently available"); Refiners Ass'n, 287 F.3d at 1136 (EPA may use technology-forcing standards for mobile sources). The courts, especially in the 1970s, often announced that the feasibility principle not expressed in the future tense contemplates technology-forcing, usually because of legislative history. *See, e.g.,* Portland Cement, 486 F.2d at 391 (analogizing NSPS provisions to technology forcing standards for mobile sources); Hooker, 537 F.2d at 636 (agency may rely upon technology which is not presently in use); Society of Plastics Indus., Inc. v. Occupational Safety and Health Admin., 509 F.2d 1301, 1309-10 (1975) (OSHA may rely upon prediction that industry will develop new technology to reach the required level of protection, but going on to identify existing technologies that can be used); Asarco v. Occupational Safety and Health Admin., 746 F.2d 483, 495 (9th Cir. 1984) (interpreting Occupational Safety and Health Act standard setting provision as technology forcing). *See also* Appalachian Power Co. v. EPA, 135 F.3d 791, 801 (D. C. Cir. 1998) (stating that requirement for standards based on available technology could allow standards based on "predicted improvements in existing technology"); Sierra Club v. Costle, 657 F.2d 298, 364 (D.C. Cir. 1981) (EPA may hold industry to "improved design and operational advances", because the "Clean Air Act" is a technology-forcing statute") *Cf.* Lignite Energy Council v. EPA, 198 F.3d 930, 933 (D.C. Cir. 1999) (New Source Performance Standards are not technology forcing); National Wildlife Federation v. EPA, 286 F.3d 554, 558 (D.C. Cir. 2002) (agency evaluates existing or "available" technologies to create BAT or BADT standards); American Iron and Steel Inst. v. EPA, 526 F.2d 1027, 1058 (3rd Cir. 1975) (Congress expected standards to be based on technologies demonstrated on a pilot facility, but not to be limited to widely adopted technologies); American Frozen Food Institute v. Train, 539 F.2d 107, 132 (D.C. Cir. 1976) (accepting agency reliance on two model Canadian plants as basis for a standard).

[67] *See* La Pierre, *supra* note 63, at 805-831 (judicial requirement that agency prove that at least one technology can meet the agency's performance standard has prevented technology-based regulation from forcing technological innovation). La Pierre identifies one case that would place the burden on industry to show that it could not achieve an effluent standard. Id. at 829 (citing American Petroleum Institute v. EPA, 540 F.2d 1023, 1038-39 (10th Cir. 1976)). But EPA itself did not adopt this approach and the courts agreed with EPA. La Pierre concluded that the technology-based standard setting has not provided an incentive for major technological innovation. La Pierre, *supra* note 63, at 837.

Even commentators who ascribe success to technology-forcing statutes recognize this point. For example, a student note appearing in 1979 claimed that the Clean Air Act has succeeded in forcing the advance of technology in at least two key industries, electric

(continued...)

to prove the availability of technology under these provisions, in spite of some early suggestions that industry, as the party with the most relevant information, should bear the burden of disproving agency claims of feasibility.[68] Agencies have generally relied upon test results from application of already existing technologies to justify regulations.[69] Courts sometimes invoke the Congressional intent to force technology in order to allow agencies to rely on these test results in the face of inevitable industry arguments that variations in real world conditions render limited test results an unacceptable basis for regulation of an

---

[67](...continued)
utilities and copper smelting. *See* Note, *Forcing Technology: The Clean Air Act Experience,* 88 Yale L. J. 1713, 1718-19 (1979) . The author, however, describes this advance as a product of industry efforts to improve technology to meet state implementation plan requirements aimed at meeting health based ambient standards. Id. at 1725 (state implementation plan (SIP) requirements stimulated almost all private scrubber demonstrations prior to 1976). Once the state level experimentation had produced some results, EPA incorporated those results in its new source performance standards. Id. at 1727. Thus, the feasibility-based limit simply facilitated diffusion of existing technology. But the Act as a whole produced some innovation by creating an expectation that states must demand sufficient reductions to protect public health. Id. at 1730-34.

[68] *See* National Lime Ass'n v. EPA, 627 F.2d 416, 433 (D.C. Cir. 1980) (placing burden of proof regarding feasibility on EPA); International Harvester Co. v. Ruckelshaus, 478 F.2d 615, 642-43, 648 (D.C. Cir. 1973) (purporting to place burden on car companies to show that emission standards cannot be met, because they possess the data; but reversing the burden once industry has made a prima facie case against feasibility); NRDC v. EPA, 655 F.2d 318, 333-34 (D.C. Cir. 1981) (setting out a test for judicial review of agency predictions of technological advances).

[69] *See* Portland Cement, 486 F.2d at 392, 395, 402 (explaining that a tested plant had met EPA's particulate standard and that EPA had relied upon actual test results not predictions about future technology to justify its standard); Appalachian Power, 135 F.3d at 801-806 (EPA showed that existing technology already performed to the standard, using an extensive data-base of facilities already employing it); FMC Corp., 539 F.2d at 982 (EPA relied upon a plant's performance to justify its technological choice); National Asphalt Pavement Ass'n v. Train, 539 F.2d 775, 786 (D.C. Cir. 1976) (all parties agreed that the technology EPA relied upon in creating New Source Performance Standards existed and EPA claimed that actual tests demonstrated that it could meet the promulgated performance standard); Sierra Club, 657 F.2d at 360-64 (some plants had met this limit over some period of time, but EPA relied upon some refinement of existing technologies to predict compliance with its standard); National Petrochemical & Refiners Ass'n, 287 F.3d at 1136-37 (test plants performed as well as or better than the standards required); International Harvester, 478 F.2d at 625 (a car had actually met the standards, but industry disputed whether the technology was sufficiently durable); AFL-CIO, 965 F.2d at 981 (agency concluded that "existing engineering controls are available" to meet its standards for air contaminants); Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 263 (5th Cir. 1989) (EPA defines demonstrated technology in terms of technology that works in "pilot plants, semi-works, or other level").

entire industry.[70] But the agencies do not simply slip the technology constraint through general appeals to the power of innovation. Furthermore, the cost constraint applies, even if a standard meets the technology constraint on the basis of projected innovation.[71] This constraint would presumably prevent an agency from enacting a regulation that relied on development of new technology that would require expenditures significant enough to produce widespread plant closures. The cost and feasibility constraints provide real limits to agency power to mandate pollution reduction. The feasibility principle does not, however, consist wholly of constraints, as the *Cominco* decision clearly recognizes.[72] This principle requires maximum reductions at least up to the point where plant closures begin to occur.[73] This allows a great deal of environmental regulation to

---

[70] *See* Husqvarna, 254 F.3d at 201 (while CAA section 213 is technology forcing, EPA claimed that existing technologies already met the standard it imposed); .

[71] Husqvarna, 254 F.3d at 202 (EPA calculated cost of control under a technology-forcing statutory provision); Sierra Club v. EPA, 325 F.3d 374, 378 (D.C. Cir. 2003) (EPA must consider costs in implementing a technology forcing requirement for automobiles).

[72] *See* Alaska Dep't of Envtl. Conservation v. EPA, 124 S. Ct. 983, 1002 n. 13 (2004) (requirements for "best" and "maximum" emission reduction restrains the permitting authorities' discretion); National Grain and Feed Ass'n v. OSHA, 866 F.2d 717, 728 (5th Cir. 1989) (section 6(b)(5) of the Occupational Safety and Health Act is "an affirmative mandate" as well as a limitation); National Grain and Feed Ass'n v. OSHA, 858 F.2d 1019, 1035-37 (5th Cir. 1988) (disapproving of agency rejection of union advocated controls that promised some benefit); Chemical Mfrs. Ass'n, 870 F.2d at 263-64 (failure of EPA to consider recycling that has enabled 36 operating facilities to achieve a zero discharge level is arbitrary and capricious).

[73] *See* Weyerhaueser Co. v. Costle, 590 F.2d 1011, 1043 (D.C. Cir. 1978) (Clean Water Act best practicable technology criterion contemplates a right to a clean environment limited only to the extent cleanup is impracticable or unachievable); National Renderers, 541 F.2d at 1289-90 (remanding standard when EPA did not appear to have maximized emission reductions, while suggesting that EPA could justify lax standards if meeting stricter standards would preclude construction of new facilities); Schroeder, *supra* note 9, at 1486 (associating "feasibility analysis" with requirements to install the best available technology that industry can afford); Building and Const. Trade Dep't, AFL-CIO v. Brock, 838 F.2d 1258, 1269 (D.C. Cir. 1988) (Secretary must add measures protecting worker health and safety so long as they are feasible up to the point where significant risk disappears); American Petroleum Inst. v. EPA, 52 F.3d 1113, 1120 (D.C. Cir. 1995) (overriding goal of provisions addressing reformulated gasoline is air quality, and other factors are subordinate). *Cf.* International Union, United Auto Workers v. OSHA, 37 F.3d 665, 668-69 (D.C. Cir. 1994) (OSHA's interpretation of law governing safety standards incorporates feasibility principle's constraints, but only partially incorporates its demand for stringency); Sierra Club v. Costle, 657 F.2d 298, 325, 331-332 (D.C. Cir. 1981) (in reviewing a new source performance standard guided, in part, by conferees' agreement that

(continued...)

continue without constraint. This is because many significant environmental improvements impose costs equaling a tiny fraction of the value of industry sales.[74] This approach does not permit an agency to forego an environmental improvement with costs too insignificant to produce closures.[75] The agency cannot choose a laxer regulation from several conceivable alternatives to save money when no plant closures are involved.[76]

Neither the feasibility principle nor the family of technology-based standard setting rubrics of which it is a large part requires command and control regulation. For technology-based standards rarely command the use of a particular technology.[77] Most technology-based standard setting exercises produce performance standards, requiring achievement of a particular level of pollution reduction.[78]

---

[73](...continued)
consideration of cost in regulating power plants would encompass a number of factors, court declines to limit cost consideration to feasibility alone); Sierra Club v. EPA, 325 F.3d 374 (D.C. Cir. 2003) (allowing an anti-backsliding rule to stand under a feasibility mandate when agency had recently promulgated other rules influencing the relevant emissions, but remanding failure to adequately consider a technology for "on-board diagnostics").

[74] *See* Adam B . Jaffe, et al., *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?,* 33 J. ECON. LIT. 132, 141 (table 6) (1995) (showing direct compliance costs of less than .5 percent of shipment values in many industries and less than 2 percent of shipment value in industries with high abatement cost). *See, e.g.,* Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 818 (9th Cir. 1980) (annual cost of pollution abatement equals between one and two percent of value of fishing industry sales); National Cottonseed Products Ass'n v. Brock, 825 F.2d 482, 488 (D.C. Cir. 1987) (estimating compliance costs of less than .01% of industry revenue); Richard W. Parker, *Grading Government,* 70 U. CHI. L. REV. 1345, 1387-88 (2003) (OSHA's proposed formaldehyde rule's cost estimated at .1 % of revenues).

[75] *See, e.g.,* AFL-CIO v. OSHA, 965 F.2d 962, 983 (11th Cir. 1992) (citing lack of evidence that a stricter rule would not be feasible as reason to invalidate standard before the court).

[76] *See, e.g.,* Public Citizen Health Research Group v. Tyson, 796 F.2d 1479, 1505 (D.C. Cir. 1986) (the OSH Act compels adoption of exposure limit that would "further reduce a significant health risk" and is "feasible to implement").

[77] *See* David M. Driesen, *Is Emissions Trading an Economic Incentive Program?: Replacing the Command and Control/Economic Incentive Dichotomy,* 55 WASH. & LEE L. REV. 289, 297-99 (1998). *See, e.g.,* National Wildlife Federation v. EPA, 286 F.3d 554, 558 (D.C. Cir. 2002) (EPA promulgates discharge limits that correspond to the identified technology, but does not require installation of that technology); Pac. Fisheries, 615 F.2d at 803 n. 3 (fish processors may use alternatives to the EPA's prescribed screening that meet the published effluent limitations).

[78] Oliver A. Houck, *Of Bats, Birds, and B-A-T: The Convergent Evolution of* (continued...)

Environmental statutes generally permit true command and control regulations only when pollution cannot be measured to determine compliance with a performance standard or emissions trading regime.[79] The term technology-based standard describes a type of criterion Congress uses to guide agency standard setting.[80] Agencies must assess the cost and capability of technologies to set technology-based standards and base their standard setting primarily on the capability of technologies.[81] This distinguishes technology-based standard setting from standard setting where comparisons between the cost of technology and benefits guides selection of standards.[82] The feasibility principle provides guidance to agencies deciding how much pollution reduction to demand.[83]

Agencies can employ this principle whether they choose to use an emissions trading program, a performance standard (which requires polluters to meet a numerical standard by a means of their choosing), a pollution tax, or a true command and control regulation.[84] For example, an agency could set a pollution tax at a level that should encourage maximum reductions, but not so high that it triggered widespread plant closures.[85] An agency adopting an emissions trading program could

---

[78](...continued)
*Environmental Law*, 63 MISS. L. J. 403, 417-427, 450 (1994) (*BATs*) (explaining that in pollution control law, companies can choose how to meet standards derived from evaluation of technological alternatives).

[79] *See* Driesen, *supra* note 77, at 297-99 (explaining this point and document it extensively); McGarity, *supra* note 2, at 164 (law rarely permits the standard setter to mandate use of a particular technology). *See, e.g.,* 42 U.S.C. §§ 7411(h); 7412(h); Sierra Club v. Costle, 657 F.2d 298, 316-17 n. 38 (D.C. Cir. 1981).

[80] *See* Driesen, *supra* note 77, at 299.

[81] *See* Schroeder, *supra* note 9, at 1486 (describing a technology-based approach as one where the level of pollution control depends on analysis of technology).

[82] *Cf. infra* notes 111-116 and accompanying text (explaining that the one technology-based statutory provision that seems to require CBA, does not). The Safe Drinking Water Act provides an example of a hybrid statute that combines technology-based standard setting with authority to engage in cost-benefit balancing. *See* Cass Sunstein, *The Arithmetic of Arsenic,* 90 GEO. L. J. 2255, 2267-2268 (2002); Thomas O. McGarity, *Professor Sunstein's Fuzzy Math,* 90 GEO. L. J. 2341, 2343-2344 (2002).

[83] *See* Driesen, *supra* note 77, at 299.

[84] *See* Shapiro & McGarity, *supra* note 14, at 745 (pointing out that incentive based tools can be used to stimulate installation of the best available technology).

[85] McGarity, *supra* note 2, at 164 (a technology-based regime could rely upon a pollution tax). Professors Shapiro and McGarity point out that the first pollution tax proposal in Congress aimed to stimulate installation of scrubbers. Shapiro & McGarity, (continued...)

likewise employ a technology-based criterion to set the limits polluters could meet through reductions at their own facility or through purchase of credits, and some state agencies have done so.[86] Adoption of the feasibility principle for determining the stringency of regulation does not imply any particular position in the debate between traditional regulation and "economic incentives."[87]

Technology-based standard setting appears incoherent to advocates of CBA.[88] This reflects, at least in part, the sheer number of statutory provisions using this approach, the variability of language in these provisions, and the vagaries of implementation.[89] The foregoing explanation helps explain the reasons for the feasibility principle. The feasibility principle offers, at a minimum, a proposal about how to consider costs in environmental decision-making. This proposal would have heuristic value even if no environmental statute yet embodied this principal.

---

[85](...continued)
*supra* note 14, at 745 n. 88.

[86] *See, e.g.,* Approval and Promulgation of Air Quality Implementation Plans, Maryland Reasonably Available Control Technology Requirements for Major Sources of Nitrogen Oxides, 64 Fed. Reg. 8034 (1999), *to be codified at* 40 C.F.R. part 52 (proposing approving of emissions trading as a mechanism for meeting reasonably available control technology limits).

[87] *Cf.* Driesen, *supra* note 77 (questioning the dichotomy that tends to sharply divide academics into proponents of either "economic incentives" or "command and control" regulation).

[88] *See, e.g.,*SUNSTEIN, RISK AND REASON, *supra* note 2, at 10 (suggesting that the debate about CBA is a debate between intuitive regulation and analysis).

[89] *See* Farber, *supra* note 38, at 302 (describing the substitution of ad hoc permit negotiations for uniform technology based standards under the Clean Water Act); Houck, *BATs*, *supra* note 78, at 417-427, 445-47 (describing the plethora of standards and some of the vagaries in their implementation); American Paper Institute v. Train, 543 F.2d 328, 339 (D.C. Cir. 1976) (EPA finds that costs justify benefits, because costs are a small percentage of industry's total capital investment); BP Exploration & Oil, Inc v. EPA, 66 F.3d 784, 795-96 (6th Cir. 1995) (EPA rejects technologically feasible option based on high costs and negative non-water environmental impacts of reducing discharges to zero); Texas Independent Ginners Ass'n v. Marshall, 630 F.2d 398, 403 (5th Cir. 1980) (permissible exposure limit for cotton dust considered infeasible for ginning industry, because it would increase construction costs by 65% and increase costs by 50%); National Cottonseed Products Ass'n v. Brock, 825 F.2d 482, 487 (D.C. Cir. 1987) (costs likely to threaten the competitive posture or structure of industry can render a standard infeasible); Natural Resources Defense Council v. Thomas, 805 F.2d 410, 424 n. 22 (D.C. Cir. 1986) (finding a case on the question of whether standards must reflect the capabilities of technological leaders unhelpful, because legislative history varies with the particular pollutant involved).

In fact, however, this proposal captures the central thrust of existing technology-based statutes. I do not claim that this heuristic perfectly describes all environmental technology-setting provisions. It captures some provisions, such as the feasibility provisions in *Donovan,* and perhaps in *Cominco,* quite well.[90] But it captures others less well. We shall see that it characterizes enough of the law so that defense of this heuristic should count as a substantial argument for a lot of technology-based regulation. And where technology-based regulation deviates from the feasibility principal, one could usefully consider the value of the deviation in deciding whether government policy-makers should encourage these deviations, or reform environmental law to conform better to this principal.

### *B. Feasibility and Technology-Based Regulation*

The feasibility principal has great influence in practice over substantially all technology-based regulation. But not all technology-based statutory provisions conform to this heuristic.

*1. Statutory Provisions Explicitly Conforming to the Feasibility Principle*. – A large number of statutory provisions explicitly require the maximum feasible reduction. While the precise content of the language embodying this demand varies, these provisions basically conform to the feasibility principle described above. For example, section 112(d) of the Clean Air Act,[91] which governs emission standards limiting hazardous air pollution, requires the "maximum degree of reduction achievable," but directs EPA to consider cost in determining this maximum achievable level.[92] Clean Air Act provisions applicable to new sources contain similar language. Federally promulgated new source performance standards must reflect the "best system of emission reduction" that has been "adequately demonstrated" taking cost into account.[93] State limitations for new sources must require the "lowest achievable emission rate" in areas that do not meet the NAAQS and the

---

[90] By "capture," I mean that it provides a reasonably good interpretation of these provisions. I do not claim that the agencies have adopted this interpretation or any other interpretation consistently.

[91] 42 U.S.C. §§ 7401-7671q.

[92] *See* 42 U.S.C. § 7412(d)(2).

[93] 42 U.S.C. § 7411(a)(1).

"best available control technology" in areas that do.[94] And provisions governing EPA standard setting for fuels and mobile sources contain similar language.[95]

Many provisions in the Clean Water Act[96] also contain similar language indicating the presence of the feasibility principle. For example, new sources must meet discharge limits reflecting the "best available demonstrated control technology" and existing sources must eventually meet "best available technology" standards.[97]

The feasibility principle offers a coherent interpretation of these provisions. It is hard to understand what the "maximum reductions"[98] "lowest" emissions,[99] or "best" technology[100] available refer to, if not to the feasibility principle. The concept of achievability suggests that reductions obtainable only through widespread shutdowns are not achievable. And the concept of maximizing achievable reductions should mean that technically achievable reductions not having economic impacts closing plants should be required under these provisions.[101] I

---

[94] 42 U.S.C. §§ 7503(a)(2); 7475(a)(4). *See, e.g.,* Alaska Dep't of Envtl. Conservation v. EPA, 124 S. Ct. 893, 993 (2004) (discussing the "best available control technology" requirements).

[95] *See, e.g.,* National Petrochemical & Refiners Ass'n v. EPA, 287 F.3d 1130, 1134 (D.C. Cir. 2002) (emission standards for diesel engines must "reflect the great degree of emission reduction achievable") (quoting 42 U.S.C. § 7521(a)(3)); American Petroleum Inst. v. EPA, 52 F.3d 1113, 1115 (D.C. Cir. 1995) (Clean Air Act requires greatest reduction achievable through reformulation of gasoline). *Cf.* Husqvarna AB v. EPA, 254 F.3d 195, 199-200 (D.C. Cir. 2001) (section 213(a)(3) of the Clean Air Act requires "the greatest degree of reductions achievable through" application of technology that "will be available" to non-road engines).

[96] 33 U.S.C. §§ 1251-1387.

[97] 33 U.S.C. §§ 1316(a); 1311(b)(2)(A). The new source performance standard provision closely resembles the provision governing new source performance standard provision under the Clean Air Act. *See* Sandra B. Zellmer, *The Virtues of "Command and Control" Regulation: Barring Exotic Species from Aquatic Ecosystems,* 2000 U. ILLINOIS L. REV. 1233, 1271 (referring to section 111 of the Clean Air Act, which governs new source performance standards, as "analogous to" section 306 of the Clean Water Act). Consistent with Clean Water Act's zero discharge goal, the Clean Water Act new sources provision requires standards eliminating pollution altogether, but only "where practicable." 33 U.S.C. § 1316(a)(1). *See also* 16 U.S.C. § 1455(b) (requiring "the greatest degree of pollution reduction achievable through. .. .best available pollution control practices" for non-point dischargers in coastal zones).

[98] *See, e.g.,* 42 U.S.C. § 7412(d).

[99] *See, e.g.* 42 U.S.C. § 7503(a)(2).

[100] *See, e.g.,* 42 U.S.C. § 7411(a)(1).

[101] *See* Alaska Dep't of Envtl. Conservation v. EPA, 124 S. Ct. 983, 994-95 (2004) (continued...)

defend this as a heuristic, however, rather than as a perfectly accurate description of practice, because the agencies and courts have not consistently maximized achievable emission reductions under these rubrics.[102]

*2. Reasonably Available Technology*. – Some technology-based statutory provisions appear to authorize less stringent regulation than the feasibility principle requires.[103] Congress signals this less demanding approach to technology-based regulation by leaving superlative words like "best," "maximum," or "lowest," out of the statutory provision or by qualifying the superlatives to diminish their force.[104] A good example of the absence of superlatives comes from the Clean Air Act, which requires states to apply limits achievable through application of "reasonably available control technology" to major stationary sources in areas not meeting air quality standards.[105] The provisions for best "practicable" technology effluent limits offers a good example of qualification usually leading to laxer standards.[106] These appear to reject

---

[101](...continued)
(describing EPA's requirement that states implementing "best available control technology" requirements under the Clean Air Act employ the most stringent technological alternative, absent a demonstration that this alternative is unavailable for economic, energy, or environmental reasons).

[102] *See, e.g.,* National Lime v. EPA, 627 F.2d 416 (D.C. Cir. 1980) (reversing EPA's NSPS, because agency failed to show why its model plants were fairly representative of the industry as a whole); Natural Resources Defense Council v. Thomas, 805 F.2d 410, 420-24 (D.C. Cir. 1986) (court and agency decline to mandate achievable reductions); Sierra Club v. Costle, 657 F.2d 298, 325, 331-332 (D.C. Cir. 1981) (in reviewing a new source performance standard guided, in part, by conferees' agreement that consideration of cost in regulating power plants would encompass a number of factors, court declines to limit cost consideration to feasibility alone).

[103] *See, e.g.,* EPA v. National Crushed Stone Ass'n, 449 U.S. 64, 75 (1980) (BPT limitations under the Clean Water Act do not require commitment of "maximum economic resources to pollution control, even if affordable").

[104] *Cf.* E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 137-38 (1977) (standards requiring the "greatest" degree of effluent reduction achievable through application of the "best" technology is intended to provide "maximum feasible control of new sources.") (citing S. Rep. No. 92-414, 58 (1971), Leg Hist. 1476).

[105] *See* Michigan v. Thomas, 805 F.2d 176, 181 (6th Cir. 1986). The Clean Water Act provision requiring the "best practicable control technology" considering cost arguably accomplishes a similar relaxation by qualifying the superlative "best' with the word practicable. *See* 33 U.S.C. §§ 1311(b)(1)(A), 1314(b). *See, e.g.,* Texas Oil and Gas Ass'n v. United States Environmental Protection Agency, 161 F.3d 923 (5th Cir. 1998).

[106] *See* Crushed Stone, 449 U.S. at 75 (unlike BAT standards, BPT standards do not require maximum commitment of economic resources within the limit of affordability).
(continued...)

the demand that industry do everything possible, short of shutting down, to maximize reductions.[107]

These provisions offer some guidance to agencies, but much less guidance than the feasibility principle does with respect to minimum stringency. These provisions contemplate feasibility analysis. Assessment of whether a technology is "reasonably available" to an industry requires some notion of whether it is very expensive for the industry. This in turn would seem to require some comparison of the technology's cost to the profits of industry.[108] Like other technology-based regulation, this form of it does not generally contemplate CBA. The adverb "reasonably" modifies "available technology." But it gives the agency little guidance as to when technically available technology too cheap to cause shutdowns is "reasonably" available to it.[109] Because even these relatively lax standards aim to contribute to a statutory goal of protecting public health and the environment, agency and judicial interpretation makes these provisions stricter than their language might suggest if considered in isolation from the statutes of which they are a part. EPA, for example, has consistently interpreted the reasonably available control technology provision to require maximization of reasonably available reductions.[110] Still, these provisions remain far

---

[106](...continued)
For a rare example of an agency paying less attention to economic restraints in the BPT context than it typically does in BAT standard setting, *see* National Metal Finishers v. EPA, 719 F.2d 624, 662 (3d Cir. 1983), *overruled on other grounds,* Chemical Mfrs. Ass'n v. NRDC, 470 U.S. 116 (1985) (rejecting an economic achievability restraint). I have found no other case where an agency has taken such an aggressive approach to statutory provisions that do not seem to insist on maximizing feasible environmental protection.

[107] Crushed Stone, 449 U.S. at 75.

[108] *See, e.g.,* American Iron & Steel Inst. v. EPA, 568 F.2d 284, 302-04 (3rd Cir. 1977) (remanding regulation that failed to adequately consider whether the unprofitable steel industry could raise sufficient capital to install pollution control equipment).

[109] Agencies have often responded to this problem by analyzing the marginal cost effectiveness of various reduction strategies. Agencies have also sometimes employed this approach to statutory provisions that seem to embody the feasibility principle. *See* Husqvarna AB v. EPA, 254 F.3d 195, 200 (D.C. Cir. 2001) (EPA employed incremental cost effectiveness analysis in setting standards for marine engines). Generally, the dollars per ton of marginal reduction increase as regulations become more stringent. EPA often reflexively chooses the mid-range of several control options it can envision and sometimes chooses numbers to avoid a sharp upward slope of a marginal cost-effectiveness curve. *Cf.* Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 204-07 (5th Cir. 1989) (concluding that avoidance of the knee in the curve is not required).

[110] *See* NRDC v. Michigan, 805 F.2d 176, 180 (6th Cir. 1986) (since 1976, EPA has interpreted the reasonably available control technology requirement to demand "the lowest (continued...)

more ambiguous than statutory provisions that embody the feasibility principle.

The best practicable control technology requirements under the Clean Water Act appear to deviate further from the feasibility principle by importing CBA. In assessing practicability, the statute requires EPA to consider whether costs are wholly disproportionate to benefits.[111] But the courts, relying on the Conference Report on the bill that became the Federal Water Pollution Control Act of 1972, have construed the term 'benefits" very narrowly.[112] Rather then define benefit broadly in terms of increased recreational opportunities, fishing, or freedom from waterborne disease, they have narrowly defined it primarily as the amount of effluent reduction.[113] This interpretation reflects the Congressional decision not to require the agency to demonstrate the incremental effect of technology on the quality of receiving waters.[114] It is impossible to define benefits more broadly than just effluent reduction without linking incremental reduction in an industry's discharge to specific water quality consequence, which would vary in an unstable manner on a site-by-site basis.[115] Because this construction amounts to a refusal to quantify the benefits to society from effluent reduction, this statute does not involve cost-benefit analysis as conventionally understood.[116]

---

[110](...continued)
emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.")

[111] *See* 33 U.S.C. § 1311(b)(1)(B). *See also* La Pierre, *supra* note 63, at 819 (CBA required for best practicable control technology standards but not for best available technology standards).

[112] Ass'n of Pac. Fisheries v. EPA, 615 F.2d 794, 805 (9th Cir. 1980). *Cf.* Crushed Stone, 449 U.S. at 76-77 (BPT limitations represent an EPA conclusion that the costs imposed on industry are worth the benefits).

[113] *See* Pac. Fisheries, 615 F.2d at 805; La Pierre, *supra* note 63, at 819-820 (describing the one case to deviate from *Pac Fisheries'* rejection of consideration of ecological benefits, *Appalachian Power Co. v. Train,* 9 ERC 1033 (4th Cir. 1976), as a "major aberration").

[114] *See* Pac. Fisheries, 615 F.2d at 805.

[115] The water quality consequences would prove unstable, because the value of a pollution reduction would vary with the pollution levels of other sources. These levels would vary depending on business cycles and future regulations regulating different pollution sources other than the sources under consideration.

[116] *See* American Petroleum Inst. v. EPA, 540 F.2d 1023, 1037 (D.C. Cir. 1976); E.I. duPont de Nemours & Co. v. Train, 541 F.2d 1018, 1030 (4th Cir. 1976). *See, e.g.,* (continued...)

Generally these relatively lax provisions form the first stage of a multi-stage program of increasingly strict regulation. Thus, for example, Congress generally required water pollution sources to meet best practicable control technology standards by 1977 as a prelude to meeting standards governed by the feasibility principle by 1984.[117] Similarly, the Clean Air Act requires stationary sources to meet limits based on reasonably available control technology, but also contemplates that facilities will eventually shut down or meet requirements reflecting the feasibility principle.[118] This may make the vagueness and laxness of these provisions more comprehensible. Congress decided to take a step forward with considerable latitude for agency judgment as a first step toward conformity with the feasibility principle.

*3. Some Conclusions About the Feasibility Principle's Reach*. – All technology-based agency standard setting provisions conform to the

---

[116](...continued)
Rybachek, 904 F.2d at 1290 (describing EPA cost effectiveness analysis determining that cost of BPT limits equals less than $1 per pound of solids removed from effluent). A similar provision appears in the Clean Water Act provision governing best conventional technology requirements. *See* American Paper Inst. v. EPA, 660 F.2d 954, 960-61 (4th Cir. 1981); BP Exploration & Oil, Inc. v. EPA, 66 F.3d 784, 790 (6th Cir. 1995) (EPA must determine reasonableness of the relationship between costs and effluent reduction benefits). The courts and EPA sometimes characterize this as a cost effectiveness, not a cost-benefit test, in light of the limitations described above. *See* American Paper, 660 F.2d at 961; BP, 66 F.3d at 798. *Cf.* American Paper, 660 F.2d. at 961 n. 15 (referring to this as a cost-benefit test). In addition, these BPT provisions required a comparison between the costs of reduction of industrial effluent and the cost of treating the pollution in publically owned treatment works. American Paper, 660 F.2d at 961. In one case, the court upheld a BPT regulation on the basis of CBA that might have been rejected under a feasibility standard. *See* National Ass'n of Metal Finishers v. EPA, 719 F.2d 624, 661-666 (3rd Cir. 1983), *reversed on other grounds,* Chemical Mfrs. Ass'n v. Natural Resources Defenses Council, 470 U.S. 137 (1985) (deferring to agencies conclusion that costs were not wholly disproportionate to benefits, because statute did not require a finding of practicability). *Cf.* Rybachek, 904 F.2d at 1290-91 (in setting BAT limitations, EPA need not compare costs to benefits).

[117] *See* Cerro Copper Products Co. v. Ruckelshaus, 766 F.2d 1060, 1061 (7th Cir. 1985); EPA v. National Crushed Stone Ass'n, 449 U.S. 64, 75 n. 14 (1980) (describing BPT limits as a first step toward elimination of discharges, with BAT limitations to follow).

[118] *See* Michigan v. Thomas, 805 F.2d 176, 181 (6th Cir. 1986) *(*discussing reasonably available technology requirement applicable to existing sources); 42 U.S.C. § 7411 (requiring that any physical or operational change increasing emissions trigger application of the "best" adequately demonstrated system of emission reduction, taking cost into account); Committee on Environment and Public Works, U.S. Senate, Transcript of Clean Air Act Amendments Mark-Up, March 16, 1977 at 88-89, 91 (discussing expectation that plants would be retired to avoid otherwise required costly new source controls).

central thrust of the feasibility principle. They seek avoidance of widespread plant shutdowns. The "reasonably available control technology" provisions, however, allow agencies to back off from requiring some very burdensome reductions that will not force shutdowns. The feasibility principle governs most technology-based statutory provisions outright. And its philosophy powerfully influences the rest of the corpus of technology-based regulation.

Those intimately familiar with the implementation of this regulation will find the typology developed above a little too neat. In practice, implementation does not always follow the theory that animates the statutes as closely as one might like. Nevertheless, it is helpful to clarify the theory behind several technology-based approaches. And in comparing the feasibility principle to cost-benefit regulation, one should bear in mind that cost-benefit regulation in the past has not conformed to its theory either.[119] Technology-based regulation has often been less stringent and occasionally more stringent than one might imagine form the theory.[120]

### *C. The Feasibility Principle in Context.*

The feasibility principle helps implement statutes aimed at protecting human health and the environment.[121] As a result, government evaluation of risk to health and/or the environment generally accompanies or precedes application of the principle.[122]

---

[119] *See* Mathew D. Adler and Eric A. Posner, *Implementing Cost-Benefit Analysis When Preferences are Distorted,* 29 J. LEGAL STUD. 1105, 1116-1124 (2000) (discussing agency deviation from "textbook CBA").

[120] *See, e.g.,* National Ass'n of Metal Finishers v. EPA, 719 F.2d 624, 660 (3rd Cir. 1983), *reversed on other grounds,* Chemical Mfrs. Ass'n v. Natural Resources Defenses Council, 470 U.S. 137 (1985) (estimating closures of 21.5% of one category of facilities, 3.1% of another, and 3% of a third).

[121] *See, e.g.,* 29 U.S.C. § 651(b); 33 U.S.C. § 1251(a); 42 U.S.C. §§ 6902(a), 7410(b)(1).

[122] *See* David M. Driesen, *Getting Our Priorities Straight: One Strand of the Regulatory Reform Debate,* 31 ENVT'L L. REP. (Envt'l L. Inst.) 10003, 10006-10008 (2001) (describing the law governing listing of pollutants); John C. Dernbach, *The Unfocused Regulation of Toxic and Hazardous Pollutants,* 21 HARV. ENVTL. L. REV. 1 (a detailed treatment of listing decisions for toxic pollutants). *See, e.g.,* Ethyl Corp. v. EPA, 541 F.2d 1, 10 (D.C. Cir. 1976) (discussing agency examination of lead's health effects prior to regulation); Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 616-23 (1980) (plurality opinion) (discussing information found in OSHA's analysis of benzene's health effects prior to regulation).

For example, the standards for toxic substances in the workplace at issue in *Donovan* come about after a priority setting exercise under a statutory provision directing OSHA to consider the "urgency of the need for mandatory safety and health standards."[123] This provision tends to focus the agency upon risks it thinks significant and allows it to set priorities among those significant risks.[124]

The toxic standard setting provision appears in a statute that seeks to "assure so far as possible every working" person a "safe and healthful working environment."[125] As a result, the provision containing the feasibility constraint includes an additional potential determinant of the stringency of regulation, a health-based component. This provision requires OSHA to set standards (when feasible) to assure that no employee suffer material impairment.[126] This health-based component requires evaluation of risk and constrains agency discretion, creating both demands for and restraints upon stringency.[127]

The demand for stringency comes from the prohibition on permitting pollution that materially impairs health. If feasible, the agency must eliminate material health impairment.[128] This demand for stringency also implies a restraint upon stringency. OSHA may not regulate substances that do not impair health or do so only in trivial

---

[123] *See* 29 U.S.C. § 655(g); United Steelworkers of America v. Auchter, 763 F.2d 728, 738 (3rd Cir. 1985) (reviewing agency claim that this provision justified failure to extend hazardous material warning requirements beyond the manufacturing sector); AFL-CIO v. OSHA, 965 F.2d 926, 984-85 (11th Cir. 1992) (reviewing agency claim that this provision justifies limiting air contaminants rulemaking to substances requiring a more protective limit than existing standards afford).

[124] *See* American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 509 n. 29 (1981) (identifying this provision as the appropriate locus for concerns about choosing among health and safety priorities in a world of finite resources).

[125] 29 U.S.C. § 651(b).

[126] *See* Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 479 (D.C. Cir. 1974) (the Secretary of Labor must establish standards that insure no material impairment of health); Society of Plastics Indus., Inc. v. Occupational Safety and Health Administration, 509 F.2d 1301, 1308 (2nd Cir. 1975) (the Secretary of Labor has a "duty . . . to protect the workingman").

[127] Hodgson, 499 F.2d at 479 & n. 28 (accepting delay in lowering asbestos standard only because record supports prediction that no harm is reasonably expected during the transition period).

[128] *See, e.g.,* Auchter, 763 F.2d at 738-79 (the Secretary must extend hazardous material warnings to all threatened workers unless doing so is not feasible in a relevant industry); Building and Const. Trades Dep't, AFL-CIO v. Brock, 838 F.2d 1258, 1270-73 (D.C. Cir. 1988) (requiring OSHA to consider smoking control measures and a stricter exposure limit in asbestos rulemaking).

ways.[129] It also implies that OSHA should not regulate pollutants causing material impairment at levels more stringent than necessary to assure the health and safety of each worker, even if more stringency is feasible.[130]

While this health-based restraint would prevent stringent regulation to no purpose at all, it might provide little constraint of regulation of substances that posed risks of serious health impairments. For example, many carcinogenic substances have no known safety threshold.[131] This concern may have motivated the Supreme Court plurality decision in *Industrial Union Dep't, AFL-CIO v. American Petroleum Institute*[132] (the *Benzene* decision), which requires OSHA to findings of "significant risk" in order to regulate under this section.[133]

Even absent findings of significant risk, however, the feasibility principle would limit the stringency of standards.[134] The requirement of a formal finding of significance, however, forces the agency to defend a particular level of regulation in court as involving significant risk, even when no data exist about the level in question.[135] Some courts have interpreted the significant risk requirement as an anti-precautionary principle.[136] This requirement, however, does not require application of

---

[129] *See* AFL-CIO v. OSHA, 965 F.2d 962, 973 (11th Cir. 1992).

[130] *See* id. at 976-77 (reversing rule that failed to adequately explain why the particular standard protects health); Brock, 838 F.2d at 1269-70 (reversing ban on spraying asbestos products when no benefit would accrue). *See also* Florida Peach Grow. Ass'n v. United States Dep't of Labor, 489 F.2d 120, 133 (5th Cir. 1974) (reversing an emergency standard when insufficient evidence supports finding of a grave danger from farmworker exposure to pesticides).

[131] *See, e.g.,* American Iron & Steel Inst. v. OSHA, 577 F.2d 825, 832 (3rd Cir. 1978) (no scientific data demonstrates a safe level for exposure to carcinogens). *Cf.* Chlorine Chemistry Council v. EPA, 206 F.3d 1286, 1290-91 (D.C. Cir. 2000) (a rare case in which a cancer threshold has been established).

[132] 448 U.S. 607 (1980) (plurality decision).

[133] Id. at 652 (OSHA must show that "it is at least more likely than not that . . . exposure to 10 ppm of benzene presents a significant risk of material health impairment").

[134] *See* United Steelworkers of America v. Auchter, 763 F.2d 728, 739 (3rd Cir. 1985) (accepting decision to exclude chemicals posing "potential" but not "identifiable" hazards from its list of substances triggering warning requirements without discussing significant risk idea).

[135] *See Benzene,* 448 U.S. at 652 (OSHA must show that "it is at least more likely than not that . . . exposure to 10 ppm of benzene presents a significant risk of material health impairment").

[136] *See* id. at 662 (agency must show significant risk "on the basis of substantial evidence"). *See, e.g.,* Texas Independent Ginners Ass'n v. Marshall, 630 F.2d 398, 406-

(continued...)

CBA, as *Donovan* makes clear.[137] Once the agency finds a risk significant, it must stringently prevent it, subject to the feasibility constraint.[138] It need not compare the degree of significance to the amount of cost.[139] This does not involve some sort of free form balancing; but a requirement to protect health subject to a feasibility constraint. With or without significant risk findings, the statute would prevent regulation of clearly trivial risks and avoid widespread plant closures in regulating non-trivial risks.[140]

In the environmental context (as distinguished from the occupational),[141] technology-based standards usually follow, rather than coincide with, determinations about the nature of threats from pollution. Technology-based standards often become the principle means of limiting the pollution of particular types of facilities in order to achieve goals for the ambient environment.

The Clean Air Act[142] provides an example of technology-based standards following assessment of health and environmental risks. The Act requires EPA to create a "criteria" document summarizing the relevant science.[143] EPA relies upon this compendium of scientific information to set national ambient air quality standards (NAAQS) for "criteria" pollutants (named after the "criteria" document collecting the scientific information) protecting public health the environment.[144]

---

[136](...continued)
409 (5th Cir. 1980) (refusing to approve EPA regulation of cotton dust on basis of indirect evidence of health hazard). *Cf.* National Cottonseed Products Ass'n v. Brock, 825 F.2d 482, 486-87 (D.C. Cir. 1987) (declining to apply the significant risk standard to monitoring requirements); Daniel A. Farber, *Probabilities Behaving Badly: Complexity Theory and Environmental Uncertainty,* 37 U.C. DAVIS 145 (2003) (arguing that some environmental problems may conform to "power laws" that make catastrophic outcomes likely enough to justify a precautionary approach).

[137] American Textile Mfrs. Ass'n v. Donovan, 452 U.S. 490, 510-512 (1981).

[138] Id. at 506-09.

[139] Id.

[140] *See* AFL-CIO v. OSHA, 965 F.2d 962, 972-73 (11th Cir. 1992) (OSHA must determine which health impairments are material *and* which risks are significant).

[141] *Cf.* Forging Industry Ass'n v. Secretary of Labor, 748 F.2d 210, 214-15 (4th Cir. 1984) (vacating standard for noise based, in the majority's view, on non-work-related hazards).

[142] 42 U.S.C. §§ 7401-7671q.

[143] *See* National Lime Ass'n v. EPA, 627 F.2d 416, 431-32 n. 48 (D.C. Cir. 1980) (discussing the criteria document for particulate issued in 1971).

[144] *See* American Trucking Ass'ns v. Browner, 531 U.S. 457, 465-71 (2001); Natural (continued...)

Scientists generally agree that ample evidence supports EPA's view that the handful of ubiquitous pollutants regulated under this provision have serious health and environmental effects.[145]

As the term "ambient" suggests, these NAAQS standards govern the concentration of pollutants in the air surrounding us.[146] Those pollutants, however, come from sources of pollution, such as factories, "stationary" sources in the jargon of the Act, and "mobile sources," such as cars.[147] The Clean Air Act requires states to develop emission standards regulating at least the stationary sources to meet the federal ambient standard (the NAAQS), with aid from some federal emission standards, especially for mobile sources.[148]

The Act relies heavily upon technology-based emission standards as the principle means of meeting the ambient standards. One might think of the technology-based regulation as the first cut at meeting the NAAQS, since states have an obligation to make more cuts than the particular technology-based provisions require, if needed to meet the NAAQS.[149]

The toxics provisions of the CAA follow a similar model of separating listing of pollutants from technology-based standard setting and using technology-based standards as the first cut at moving toward the goal of protecting public health. Congress listed 189 hazardous air pollutants for regulation in the 1990 Amendments.[150] These pollutants are typically associated with risks of extremely serious problems, such as cancer, neurological damage, and birth defects.[151] This Congressional listing followed two decades of agency lethargy, during which EPA

---

[144](...continued)
Resources Def. Council v. EPA, 902 F.2d 962, 972-73 (D.C. Cir. 1990); Lead Indus. Ass'n v. EPA, 647 F.2d 1130 (D.C. Cir. 1980); American Petroleum Inst. v. Costle, 609 F.2d 20 (D.C. Cir. 1979).

[145] *See, e.g.* NATIONAL RESEARCH COUNCIL, RETHINKING THE OZONE PROBLEM IN URBAN AND REGIONAL AIR POLLUTION (1991) (National academy of science review of the literature on ozone). In addition to ozone, EPA has established NAAQS for sulfur dioxide, particulate matter, carbon monoxide, and nitrogen oxide. *See* 40 C.F.R. pt. 50.

[146] *See* Ohio v. EPA, 784 F.2d 724, 230 (6th Cir. 1986) (distinguishing between plant emissions and measurement of ambient air around the plant).

[147] *See* 42 U.S.C. § 7411(a)(3); Arnold Reitze, *Mobile Source Air Pollution Control,* 6 ENV. LAW. 309 (2000).

[148] *See, e.g.,* 42 U.S.C. §§ 7410-7412; 7511; 7521.

[149] *See* 42 U.S.C. § 7410.

[150] *See* 42 U.S.C. § 7412(b).

[151] *See* WILLIAM H. RODGERS JR., ENVIRONMENTAL LAW TREATISE § 3.98 at 231 (1994).

listed only 7 hazardous air pollutants for regulation.[152] Congress required EPA to complete a round of technology-based rulemaking for all major sources of the listed pollutants and to follow up with health-based regulations eliminating residual risk.[153]

The Clean Water Act[154] (CWA) has an even more demanding goal of eliminating discharges into the "waters of the United States."[155] It sets a more modest interim goal of protecting fish, wildlife, and recreation in and on the water.[156] The CWA authorizes EPA to list pollutants regulated by the Act, directing the agency to figure out which sorts of pollution interfere with water quality necessary to provide for recreation, habitat, and other values associated with good water quality.[157] It also requires states to set water quality standards, subject to EPA review.[158] These water quality standards are analogous to ambient air quality standards in the Clean Air Act in focusing upon pollution in the environment, rather than the amount of pollution any particular facility releases.[159] While the CWA bars some especially dangerous pollutants outright,[160] it relies upon technology-based standard setting for major sources of water pollution as the principal means of meeting the CWA's goals for most pollutants and of meeting water quality standards.[161] The 1972 Federal Water Pollution Control Act[162] established the technology-based program for conventional pollutants and a health-based program for toxic pollutants.[163] But EPA abandoned the health-based program in favor of a technology-based program for toxic pollutants as well, and Congress subsequently ratified its

---

[152] *See* Thomas O. McGarity, *Executive Oversight at EPA*, 1991 L. & CONTEMP. PROBS. 127, 192.

[153] *See* 42 U.S.C. § 7412(d),(e),(f)(2).

[154] 33 U.S.C. §§ 1251-1387.

[155] *See* 33 U.S.C. § 1251(a)(1).

[156] *See* 33 U.S.C. § 1251(a)(2).

[157] *See* 33 U.S.C. § 1314(a)(2).

[158] *See* 33 U.S.C. § 1313.

[159] *See* 33 U.S.C. § 1313(a) (referring to standards for intrastate and interstate waters).

[160] *See* 33 U.S.C. § 1311(f) (outlawing discharge of radiological, chemical, or biological warfare agents, high-level radioactive waste, or any medical waste).

[161] *See* 33 U.S.C. §§ 1311, 1314.

[162] Pub. L. 92-500, 86 Stat. 816, *codified as amended at* 33 U.S.C. §§ 1251-1387. I have referred to this statute as subsequently amended by its more common colloquial name, the Clean Water Act, above. But for purposes of discussing the 1972 amendments, I prefer to use the formal name of those particular amendments.

[163] *See* Hercules, Inc. v. EPA, 598 F.2d 91, 97 n. 1, 101 (D.C. Cir. 1978).

decision.[164] This reliance upon technology-based rulemaking came about, in part, because of the failure to promulgate standards under a provision requiring regulators to link specific discharges to specific conclusions about health and environmental effects.[165] Furthermore, these technology-based standards offer a first cut at meeting water quality goals, with states, and to a lesser extent, the federal government, having a residual responsibility to regulate pollution sources to meet water quality goals not attained through the federal technology-based program.[166]

The environmental statutes' reliance upon technology-based emissions standards to meet goals for ambient level environmental quality has several implications for consideration of risk. First, consideration of risk precedes setting of standards that actually mandate that pollution sources reduce their output of pollutants, often by many

---

[164] *See* Hercules, 598 F.2d at 101.

[165] *See* William L. Andreen, *The Evolution of Water Pollution Control in the United States-State Local, and Federal Efforts, 1789-1972: Part II,* 22 STAN. ENVT'L L. J. 215, 266 (2003) (explaining that experience in the impossibility of translating water quality standards into precise limits on effluent discharges motivated the switch to a technology-based approach under the 1972 FWPCA); Natural Resources Defense Council v. EPA, 790 F.2d 289, 293-94 (3rd Cir. 1986) (describing how the 1977 Amendments codified a consent decree by applying best available technology standards to pollutants regulated under the decree); Latin, *supra* note 24, at 1307-09 (describing the substitution of best available technology for an ample margin of safety standard to cure a paralyzed risk based program). Latin points out that a cost-benefit approach would be even more difficult than the failed approach the technology-based program replaced. Id. at 1309.

Under the Resources Conservation and Recovery Act (RCRA), EPA has sought to apply a technology-based approach under a statutory provision directing it to "minimize" health and environmental risk. *See* Hazardous Waste Treatment Council v. EPA, 886 F.2d 355, 362, 365 (D. C. Cir. 1989) (stating that the statute does not preclude this approach). Subsequent regulations, however, rely, to some extent, upon risk-based elements. *See* Horsehead Resource Development Corp., 16 F.3d 1246, 1266 (D.C. Cir 1994) (allowing escape from monitoring requirement if polluter can demonstrate the safety of products of incomplete combustion); Chemical Waste Management, Inc. v. EPA, 976 F.2d 2, 11-12 (D.C. Cir. 1992) (allowing dilution in lieu of treatment).

[166] *See* 33 U.S.C. §§ 1311(b)(1)(C), 1312. For an authoritative and thorough look at the problem of state calibration of limits to meet water quality standards *see* Oliver Houck, *The Clean Water Act TMDL Program V, Aftershock and Prelude,* 32 ENVTL. L. REP. (Envt'l L. Inst.) 10,385 (2002); Oliver Houck, *TMDLs IV: The Final Frontier,*29 ENVT'L L. REP. ((Envt'l L. Inst.) 10,469 (1999); Oliver A. Houck, *TMDLs III: A New Framework for the Clean Water Act's Ambient Standards Program*, 28 ENVTL. L. REP. (Envt'l L. Inst.) 10,415 (1998); Oliver A. Houck, *TMDLs, Are We There Yet?: The Long Road Toward Water Quality-Based Regulation under the Clean Water Act*, 27 ENVTL. L. REP. (Envt'l L. Inst.) 10,391 (1997); Oliver A. Houck, *TMDLs: The Resurrection of Water Quality Standards-Based Regulation Under the Clean Water Act,* 27 ENVTL. L. REP. (Envt'l L. Inst.) 10,329 (1997).

years.[167] Second, agencies consider the harms that actually matters to people, the harms that overall levels of pollution in the environment create. People are exposed to the pollutants in the ambient air and in the water they use. These levels typically reflect small marginal contributions from thousands of pollution sources that cumulatively can create serious problems.[168] Overall risk is always much higher than the risk posed by the marginal reductions proposed for a single group of pollution sources.[169] Indeed, large risks can appear to disappear altogether if disaggregated into units small enough to raise modeling problems.[170] Third, agency consideration of risk typically occurs occasionally, but not many times a year, as it probably would if the law required government agencies to assess the marginal risk avoided from each group of sources it regulated.[171] Fourth, consideration of risk in conjunction with emission standards would require evaluation of the combined effects of the target polluters' emissions or effluent with the chemicals in the surrounding environment.[172] This divorce of risk assessment from technology-based standard setting makes it possible to set standards for large groups of sources at once. Technology-based standard setting provisions usually anticipate agency promulgation of

---

[167] *See, e.g.,* 42 U.S.C. §§ 7511, 7511a.

[168] *See, e.g.,* RODGERS, *supra* note 151, § 4.1, p. 254 (1994) (discussing thousands of industrial sources of water pollution); Patricia Ross McCubbin, *Amending the Clean Air Act to Establish the Democratic Legitimacy for the Residual Risk Program,* 22 VA. ENVT'L L. J. 1, 2, 40 n. 169 (2003) (referring to tens of thousands of industrial sources of air pollution and the need to address the cumulative risks they create).

[169] *See* Driesen, *supra* note 4, at 593 (explaining the reasoning behind this). *See also* THE PRESIDENTIAL/CONGRESSIONAL COMMISSION ON RISK ASSESSMENT AND RISK MANAGEMENT, FRAMEWORK FOR ENVIRONMENTAL HEALTH RISK MANAGEMENT 9-14 (1997) (recommending more consideration of aggregate risk).

[170] *See* Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 805 (9th Cir. 1980) (Congress authorized technology-based standards to free agency from necessity of linking particular discharges to water quality benefits, because of the failure of past efforts to enforce water quality standards); Latin, *supra* note 24, at 1282 (science has been unable to link particular sulfur dioxide discharges with particular manifestations of harm); William W. Buzbee, *Standing and the Statutory Universe,* 11 DUKE ENVT'L L. & POL'Y FORUM 247, 272-73 (2001) (discussing the difficulty of linking permit violations to particular harms stemming from overall ambient conditions).

[171] *See, e.g.,* 42 U.S.C. § 7509(d) (requiring review of national ambient air quality standards every five years); 33 U.S.C. § 1313(c)(1) (requiring hearings every three years to determine whether water quality standards need revision). *Cf.* 42 U.S.C. § 7412(e)(1) (setting out a schedule effectively requiring continuous rulemaking activity establishing technology-based emission standards over a ten year period).

[172] *See* McGarity, *Strategies, supra* note 2, at 165 (a balancing of costs and benefits would require consideration of media-quality).

standards for entire categories of industry in a single rulemaking.[173] This allows for much more effective regulation than case-by-case standard setting for thousands of pollution sources would permit.[174] Consideration of benefits would defeat this wholesale approach, at least as applied to efforts to address ambient pollution levels through national emission and discharge limits.[175] If it were possible to measure the marginal benefit of a particular quantity of reduction from a discrete set of sources at all, it could not be done on a wholesale basis.[176] A uniform quantity of reductions would not produce uniform benefits.[177] Rather, the amount of benefit from a given airshed or watershed would depend on the particular characteristics of the receiving air and water, which vary regionally.[178] Hence, any standard setting establishing discharge or emission limits would have to proceed on a plant-by-plant inquiry, thereby eliminating the enormous economies of scale and transaction cost reduction associated with wholesale standards.[179]

---

[173] *See, e.g.,* 42 U.S.C. § 7412(c) (requiring a schedule for categories of pollution sources). *Cf.* 42 U.S.C. §§ 7475(a)(4), 7479(3) (requiring case-by-case controls for new and modified sources).

[174] *See* E.I. du Pont de Nemours v. Train, 430 U.S. 112, 132-33 (1977) (claiming that individual consideration for each discharger would be impracticable).

[175] *See* Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 387 (D.C. Cir. 1973) (discussing the difficulty, if not impossibility, of quantifying the benefit to ambient conditions from New Source Performance Standards).

[176] *See, e.g.,* Portland Cement Ass'n v. Train, 513 F.2d 506, 508 (D.C. Cir. 1975) (relating the cost of control to the associated benefits at the time of promulgating a new source performance standard is a "practical impossibility").

[177] *See* La Pierre, *supra* note 63, at 777-78 (since states have different levels of ambient air quality and different mixtures of sources, meeting health based standards requires different mixes of control in different regions).

[178] *See, e.g.,* Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 806 n. 7, 807 (9th Cir. 1980) (describing how the effects of dumping fish entrails would vary with location of discharge and currents in the receiving water); National Asphalt Pavement Ass'n v. Train, 539 F.2d 775, 784 (D.C. Cir. 1976) (a firm definition of significant contributions to an ambient air problem would be "meaningless," because the significance would vary with topography, distribution of pollution sources, stack height, and meteorology).

[179] Defeat of a wholesale approach has been a major industry objective for thirty years. *See* La Pierre, *supra* note 63, at 812-13 (in over 250 suits [prior to 1977], industry has challenged EPA's authority to set national uniform effluent limits under the Clean Water Act). This probably reflects the reasonable hope that defeating national limits would lead to case-by-case decisions that would delay or defeat regulation altogether. *See* McGarity, *Strategies, supra* note 2, at 164 n. 20 (case-by-case standard setting implies "enormous" administrative costs); Cerro Copper Products Co., v. Ruckelshaus, 766 F.2d 1060, 1067-68 (continued...)

If Congress required assessment of the risks associated with various marginal reductions (as in CBA), then the agency would confront the paralyzing challenge of modeling interactions of pollutants in numerous regions or sites.[180] In general, divorce of risk assessment from consideration of cost is crucial to national standard for industries that contribute to ambient pollution on the basis of interaction with other pollutants.

### *D. Normative Defense of The Feasibility Principle.*

If one believes, as many CBA proponents do, that environmental regulators should consider the distribution of costs and benefits of environmental regulation, the feasibility principle has much to recommend it.[181] This approach focuses regulators' attention on significant costs and avoids wasting resources considering finely calibrated responses to costs having minor impacts on society.

This approach relies primarily upon information about the distribution of costs to separate significant from insignificant costs. When economic losses become concentrated in ways that devastate individuals, they can have drastic effects, even if the total amount of cost is low. Conversely, widely distributed costs can have minor effects, even if total aggregate costs are high. This "concentration" principle suggests that the distribution of costs can tell us a lot about their significance.[182]

---

[179](...continued)
(7th Cir. 1985) (declining to allow a polluter to escape pretreatment standards in advance of the municipal plant's compliance with discharge requirements, because of Congressional desire for economies of scale through national pre-treatment standards). *Cf.* Cerro, 766 F.2d at 1069 (noting that EPA does allow variances in pre-treatment standard based on the capabilities of municipal treatment facilities).

[180] This would also be true of efforts to regulate non-point source pollution and other smaller sources that increasingly deserve regulatory attention. While it is not clear that a traditional regulatory approach will work for these sources, *see* NEIL GUNNINGHAM AND DARREN SINCLAIR, LEADERS AND LAGGARDS: NEXT GENERATION ENVIRONMENTAL REGULATION (2002) (thoughtfully discussing approaches to regulating smaller sources), any approach that relies on CBA will face the problem of modeling benefits that depend even more completely than industrial source pollution did, upon interactions with the surrounding environment. Indeed, this approach would be even worse for "third generation" problems, since non-point and other smaller pollution sources are so numerous.

[181] *See, e.g.,* SUNSTEIN, RISK AND REASON, *supra* note 2, at 74-76 (discussing the need to take equity into account).

[182] *See* Adam Babich, *Too Much Science in Environmental Law,* 28 COLUM. J. ENVTL. (continued...)

Reliance upon the feasibility principle tends to produce high employment. As a general rule, environmental regulations not closing plants may increase employment.[183] Regulations often force companies to hire more workers or pay contractors to install and operate pollution controls or to redesign processes to prevent pollution.[184] Indeed, more stringent and costly regulation may force more pollution-control related hiring than less stringent and costly regulation, as long as the regulation does not make plants unprofitable and lead to shutdowns.[185]

Increased expenditures (short of those causing shutdowns) may maximize net employment, even after considering the possible negative impacts of taking resources away from something else to pay for pollution control.[186] Pollution control hiring may redistribute money from managers, stockholders, or customers to employees. If employees earn less than managers and stockholders and losses to customers are widely distributed, this redistribution may significantly improve the lives of unemployed people who gain the new pollution-related jobs without significant harm to others.

---

[182](...continued)
L. 119, 135-36 (2003) (asking why we should allow deaths so that other might build "multi-million dollar mansions"); Thomas J. Kniesner & W. Kip Viscusi, *Why Relative Economic Position Does not Matter,* 20 YALE J. ON REG. 1, 23 (2003) (statistical tools do not adequately capture distributional consequences).

[183] *See* EBAN GOODSTEIN, THE TRADE-OFF MYTH: FACT AND FICTION ABOUT JOBS AND THE ENVIRONMENT 171 (1999) (environmental regulation supports blue-collar jobs). *Contra* SUNSTEIN, RISK AND REASON, *supra* note 2, at 136 (asserting that private expenditures on regulation decrease employment). Sunstein fails to cite any authority to support that view, even though economists have studied the impact of environmental regulation on employment extensively. *See, e.g.,* Richard D. Morgenstern, William A. Pizer, and Jhih-Shyang Shih, *Jobs Versus the Environment: An Industry Level Perspective,* 43 J. ENVT'L ECON. & MANAGEMENT 412 (2002).

[184] *See* Lisa Heinzerling & Frank Ackerman, *The Humbugs of the Anti-Regulatory Movement,* 87 CORNELL L. REV. 648, 669 (2002) (environmental regulation is big business employing people who make and install pollution control technology).

[185] *See generally* Driesen, *supra* note 4, at 575 n. 132 (explaining that inefficient allocation does not coincide with lower employment, but that the question of whether a particular pollution control expenditure generates more employment than a foregone opportunity would requires empirical investigation).

[186] *See* Ralph C. Cavanagh, *Least-Cost Planning Imperatives for Electric Utilities and Their Regulators*, 10 HARV. ENVTL. L. REV. 299, 315 (1986) (explaining how energy conservation jobs can employ more people than the substitute expenditure of constructing power plants).

Often costs imposed on companies become distributed so widely that they have little real impact on human lives.[187] Profitable industries can absorb some costs without any major impact on consumers or workers.[188] Costs distributed widely might properly be characterized as de minimus even when they seem quite large.[189] One hundred million dollars a year, for example, may seem like a lot of money to an individual. But that cost distributed among one hundred million people equals just a dollar a year. A regulation costing one hundred million dollars a year may distribute that cost among hundreds or thousands of regulated firms.[190] And each of these firms may spread these costs over its entire customer base through modest price increases. One hundred million dollars sounds like a high number, because most of us think in terms of individual incomes and not industry cash flows. But such a small amount of money may have impacts so trivial as to merit little consideration.

Furthermore, firms can creatively compensate for or avoid costs.[191] Indeed, when environmental regulation has been demanding, firms have often engaged in innovative changes to avoid the cost of regulation.[192] This conforms to the induced innovation hypothesis that

---

[187] *See* Shapiro & McGarity, *supra* note 4, at 741 (individual impact of costs on consumers and stockholders is likely to be insignificant as compared to hardship imposed upon workers and families by occupational hazards).

[188] *See, e.g.,* American Frozen Food Inst. v. Train, 539 F.2d 107, 139-40 (D.C. Cir. 1976) (predicting "no significant impact" upon frozen food industry, because the industry would probably raise prices to pass on costs of effluent controls); Lignite Energy Council v. EPA, 198 F.3d 930, 933 (D.C. Cir. 1999) (New Source Performance Standards for utility and industrial boilers will only modestly increase electricity prices); American Textile Mfrs. Ass'n v. Donovan, 452 US. 490, 532 (1981) (OSHA predicted that price rises would cover the costs of a standard much more stringent than the one it promulgated).

[189] *See* SUNSTEIN, RISK AND REASON, *supra* note 2, at (suggesting that a claim that those who bear the costs of regulation can do so easily might justify a departure from the principle that benefits should justify costs).

[190] *See, e.g.,* Weyerhauser v. Costle, 590 F.2d 1011, 1047 (D.C. Cir. 1978) (regulating almost 200 pulp and paper mills); Ford Motor Co. v. EPA, 718 F.2d 55, 58 (3rd Cir. 1983) (regulating 4700 integrated plants).

[191] *See* GOODSTEIN, *supra* note 183, at 44 (explaining that "markets adjust" to regulation by "uncovering substitute methods of production and . . . cheaper clean-up technologies").

[192] *See* Nicholas A. Ashford, *Compliance Costs: The Neglected Issue of Technological Innovation*, EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK MAGAZINE 30-33 (1999); David M. Driesen, *Does Emissions Trading Encourage Innovation,* 33 ENVT'L L. REP. 10094, 10103-04 (2003) (providing detailed examples of innovative responses to stringent regulation).

economists use to model innovation, which posits that firms will tend to innovate to avoid using scarce and expensive production factors.[193] For years, many industries considered ozone depleting substances essential to their businesses and paid large amounts of money to obtain them.[194] Many of these companies switched to soap and water, saving lots of money, when phaseouts began to raise the price and threaten the future availability of these chemicals.[195] High costs for polluting industries can sometimes improve the business prospects of cleaner competitors, rather than lead to any net losses at all. And emissions trading, even if it does not encourage major innovation as many have argued, makes possible a lot of tweaking to avoid costs.[196] Cost avoidance behavior further reduces the impact of costs upon people's lives.

By contrast, regulations that force a plant owner to shutdown decrease employment, at least in the short run. This can concentrate severe economic losses on small numbers of workers who can ill afford them.[197] This sort of loss can have a devastating impact on workers' lives, leading to depression, a terrible feeling of loss, and an inability to cope economically, especially if unemployment or very severe underemployment proves permanent.

Regulations shutting down plants may not decrease net employment. If demand remains constant, employment may shift to less polluting enterprises producing equivalent goods or services.[198] Nevertheless, such regulations can impose significant hardships upon the individual workers who lose their jobs. Environmental regulations, which have historically included a combination of health-based

---

[193] *See* Richard G. Newell, *et al., The Induced Innovation Hypothesis and Energy-Saving Technological Change,* 114 Q. J. ECON. 941 (1999) (examining evidence regarding induced innovation in energy efficiency and describing the hypothesis); Timothy F. Malloy, *Regulation by Incentives: Myths, Models, and Micromarkets,* 80 TEX. L. REV. 531, 546 (2002) (linking induced innovation to traditional regulation); Driesen, *supra* note 192, at 10097-98 (high cost regulation tends to induce more innovation under the induced innovation hypothesis).

[194] *See* PARSON, *supra* note 52, at 19-22 (discussing uses of CFCs).

[195] *See* Driesen, *supra* note 192, at 10103; OZONE DEPLETION IN THE UNITED STATES: ELEMENTS OF SUCCESS (Elizabeth Cook, ed. 1996); PARSON, *supra* note 52, at 4 (production and use of ozone-depleting chemicals has fallen at 95 percent with only modest associated cost).

[196] *See* Driesen, *supra* note 192, at 10106 (discussing tweaking and innovation).

[197] *See* Schroeder, *supra* note 9, at 1504 (linking the feasibility principle to avoidance of "substantial social dislocation.").

[198] Hahn & Sunstein, *supra* note 12, at 1493 n. 16 (pointing out that costly regulation may increase employment in the long run, by making capital more expensive than labor).

standards and technology-based regulation, has produced a small net increase in employment.[199] The feasibility principle may help account for this positive record.

While firms often can systematically distribute regulatory costs widely or avoid them altogether, harms from pollution often devastate randomly selected individuals.[200] Cancer, for example, can lead to a long slow painful death for some unfortunates. Birth defects can ruin the lives of children born with them and afflict their parents with enormous burdens. Asthma can make its victims gasp for air, send asthmatics to hospital emergency rooms in summer, and force children from the playground on hot days.[201] As these examples demonstrate, we should think of most pollution control programs as efforts to ameliorate concentrated harms.

Furthermore, while imposition of regulatory costs tends to spawn cost avoidance behavior, some of which can be very socially productive, pollution can impose burdens that one cannot easily escape.[202] Since people must breathe, they cannot escape air pollution. Of course, relatively wealthy individuals can choose among the cleanest areas and escape some of the worst effects of pollution. But others have fewer options.

Many pollution sources concentrate their impacts upon particular regions or communities, often communities of color.[203] Concentrations

---

[199] *See* Frank Ackerman & Rachel Massey, *Prospering with Precaution: Employment, Economics, and the Precautionary Principle* (2002) (available at http://www.ase.tufts.edu/gdae/policy_research/PrecautionAHTAug02.pdf).

[200] *See* Mark Geistfeld, *Reconciling Cost-Benefit Analysis With the Principle that Safety Matters More than Money,* 76 N.Y.U. L. REV. 114, 177 (2001) (emphasizing the disruptive impact of physical injury upon victims as a feature implicating normative judgments about distribution).

[201] *See* CALIFORNIA AIR RESOURCES BOARD AND OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT STAFF REPORT: PUBLIC HEARINGS TO CONSIDER AMENDMENTS TO AMBIENT AIR QUALITY STANDARDS FOR PARTICULATE MATTER AND SULFATES, 9-22, *at* http://www.arb.ca.gov/research/aaqs/std-rs/pm-final/pm-final.htm (2002) (air pollution causes hundreds of thousands of asthma attacks in Southern California, two thousand of which require emergency room visits).

[202] *See generally* Ackerman & Heinzerling, *supra* note 2, at 1568 (people expect government to protect them from risks they cannot avoid, rather than their own choices to engage in risky behavior).

[203] COMMISSION FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES (1987); Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics,* 103 YALE L. J. 1383 (1994); Brian D. Israel, *An Environmental Justice Critique of Risk Assessment,* 3 N.Y.U. ENVT'L L. J. 469; Eileen

(continued...)

of facilities can exacerbate pollution's tendency to single out individuals for devastating consequences by making those consequences much more likely in communities of color (which may also experience disproportionate poverty).

At the same time, the feasibility principle limits the discretion of agencies to forego environmental improvements that do not concentrate costs in ways that lead to plant shutdowns, which may involve massive job losses. It should make some decisions relatively easy.[204] This relative ease matters a lot, because major environmental problems typically stem from many sources of individually minor pollution that add up to a significant problem. Most environmental statutes regulate large numbers of facilities in a wide variety of industries for this reason. If every regulation led to a protracted general debate, standard-setting would grind to a halt and pollution would increase markedly.[205]

This relative ease also helps regulators keep up with the economic dynamics of pollution increases.[206] Pollution tends to increase with rising consumption and population, so that a regulatory system always has to run just to keep in place.[207] The clearest example of this involves automobile pollution.[208] In spite of requirements to drastically reduce the tail-pipe emissions of cars, car emissions have only modestly declined.[209] Increased driving has wiped out much of the improvement.[210] This is not an indictment of technology-based regulation. It does show, however, that pollution control regulators have a lot of work to do just to stay in place, especially since regulators are reluctant to regulate consumer behavior (such as driving habits). For the most part, government does not

---

[203](...continued)
Gauna, *An Essay on Environmental Justice: The Past, the Present, and Back to the Future,* 42 NAT. RESOURCES J. 701 (2002); Gerald Torres, *Environmental Justice: The Legal Meaning of a Social Movement,* 15 J. L. & COMM. 597 (1996).

[204] *See* Wagner, *supra* note 23, at 94-96 (technology-based standards promulgated at three to ten times the rate of the alternatives).

[205] *See* Weyerhauser Co. v. Costle, 590 F.2d 1011, 1037 (D.C. Cir. 1978) (describing how concerns about special interest using economic variance provisions as tools for unjustified avoidance of pollution reduction led to limits on their use and reliance on small business loans to ease compliance difficulties).

[206] *See generally* DAVID M. DRIESEN, THE ECONOMIC DYNAMICS OF ENVIRONMENTAL LAW (2003).

[207] ID. at 9-10,137-38.

[208] *See* Arnold W. Reitze, Jr., *Mobile Source Air Pollution Control,* 6 ENVT'L LAWYER 309 (2000).

[209] *See* DRIESEN, *supra* note 206, at 128.

[210] *See* Id.

regulate consumption or population increases, so the regulatory system must make up for pollution increases due to those factors just to avoid slipping backwards.[211] This dynamic further supports the need to avoid making each regulation into an occasion for protracted analysis and litigation.[212]

Ease of regulation also matters because of the extraordinary ability of special interests to resist regulation.[213] Any company converting natural resources to products for human consumption can extract profits from the entire society to finance resistance to environmental regulation.[214] The regulated company can then hire a battalion of lawyers and other experts to fend off regulation.[215] This has predictable consequences. Regulated firms provide the overwhelming majority of significant written comments in rulemaking, meet with regulators incessantly, ask the elected beneficiaries of their campaign contributions to hound EPA when it seeks to regulate them, litigate often, and frequently resist enforcement.[216] Environmental regulation always takes place on an uneven playing field, in spite of strong efforts by a handful of environmental organization to counterbalance regulated firms' influence.[217] This does not mean that the environment always loses. But it does mean that regulated firms seize nearly every opportunity for obstruction available to them, so that ease of regulation matters to its success.[218]

---

[211] *See* ID. at 89.

[212] *See generally* Latin, *supra* note 24, at 1292-93 (discussing need for environmental regulation to function effectively in spite of resistance from regulated industry).

[213] *See* DRIESEN, *supra* note 206, at 114-116; Houck, *BATs, supra* note 78, at 462 (industry has challenged virtually every regulation the EPA has issued under the major environmental statutes).

[214] DRIESEN, *supra* note 206, at 114 (explaining how consumers of gasoline and electricity indirectly finance anti-environmental lobbying).

[215] ID.

[216] *See* Houck, *supra* note 78, at 462 (industry has challenged virtually every regulation the EPA has issued under the major environmental statutes).

[217] *See, e.g.,* Sierra Club v. Costle, 657 F.2d 298, 386-391 (D.C. Cir. 1981) (detailing industry lobbying effort).

[218] *See* Latin, *supra* note 24, at 1292-93 (advocates of regulatory reform must take into account the adversarial nature of environmental decision-making); Thomas O. McGarity, *Some Thoughts on 'Deossifying' the Rulemaking Process,* 41 DUKE L. J. 1385 (1992) (documenting the moribund nature of rulemaking and arguing that this is a serious problem); Frank M. Cross, *Shattering the Case for Judicial Review of Rulemaking,* 85 VA. L. REV. 1243 (1999) (arguing against judicial review of agency regulations, partly because

(continued...)

The feasibility constraint focuses analytical attention on costs likely to be significant, in the sense of having a distribution likely to have a serious impact on people's lives. It avoids lavishing administrative resources on calibrating responses to what one might call de minimus costs.

The feasibility principle offers an appropriate response to problems characterized by de minimis cost and concentrated harms. It calls for stringent regulation.[219] On the other hand, it constrains regulation when the costs concentrate in ways likely to produce greater than de minimis impacts.

### *E. The Problem of Giving Agencies Meaningful Guidance.*

I will argue in the next section that the feasibility principle provides more meaningful guidance to agencies than CBA does. Here, I set the stage for this comparison by discussing the extent to which the feasibility principle provides meaningful guidance to administrative agencies.

The feasibility principle does not provide a "determinate criterion,"[220] a verbal formulation that tells an agency precisely what standard to set in every situation. In this respect, it differs not at all from other verbal formulations employed to govern standard setting by administrative agencies, including formulations based on CBA.

---

[218](...continued)
of its capacity to thwart realization of public law goals). *Cf.* William S. Jordan III, *Ossification Revisited: Does Arbitrary and Capricious Review Significantly Interfere with Agency Ability to Achieve Regulatory Goals Through Informal Rulemaking,* 94 N.W. U. L. REV. 393 (2000) (disputing the ossification claim); DRIESEN, *supra* note 206, at 118 (showing that Jordan's argument does not defeat the ossification claim).

[219] *See generally* Martha C. Nussbaum, *The Costs of Tragedy: Some Moral Limits of Cost-Benefit Analysis,* 29 J. LEGAL STUDIES 1005, 1021-22 (2000) [hereinafter, Nussbaum, *CBA*] (listing the capability of living, having bodily health, and being able to live in relation to the world of nature as basic entitlements); MARTHA NUSSBAUM, WOMEN AND HUMAN DEVELOPMENT: THE CAPABILITIES APPROACH (2000) (explaining how these and a handful of other basic capabilities are essential to are essential to life); Cass R. Sunstein, *Incommensurability and Valuation in Law,* 92 MICH. L. REV. 779, 841-42 (1994) (to make a sensible evaluation of a regulation, we need to know a great deal more than the raw dollar value of costs and benefits).

[220] The phrase comes from a reversed District of Columbia Circuit decision, incorrectly holding that the nondelegation doctrine requires that Congress establish a "determinate criterion" to govern agency regulation. *See* Whitman v. American Trucking Ass'n, 531 U.S. 457, 472 (2001).

But in many cases, the feasibility principle seems rather determinative. When the projected cost of a regulation does not seem likely to cause plant closures, the feasibility principle requires the most stringent regulation that the technology constraint allows. This should be a measurable number determinable from examination of technology.[221] In practice, however, technological evaluation involves some judgment. It is rarely possible to test all technological options at all facilities, so administrative agencies must frequently make judgments about what is feasible based on data from a handful facilities and some kind of model.[222] Still, given the limited capacity of words of general applicability to capture all future situations under them, the feasibility principle provides a lot of guidance when only the technological constraint is at issue.

The cost constraint, however, appears much less precise. The cost constraint amounts to a presumption against "widespread" plant shutdowns. This does allow a few marginal plants to shut down.[223] But the term "widespread" certainly raises a significant question. It does not

---

[221] *See* Note, *supra* note 67, at 1727 (describing the capability of the most advanced emission-control system affordable by industry as a "reasonably determinable fact").

[222] *See* La Pierre, *supra* note 63, at 820 (finding rejection of agency's technological analysis has been the 'primary ground" for judicial rejection of effluent limitations). *See, e.g.,* Appalachian Power Co., v. EPA, 135 F.3d 791, 805 (D.C. Cir. 1998) (discussing the use of a statistical model to set New Source Performance Standards); Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 809 (9th Cir. 1980) (describing EPA's use of a model plant to estimate feasibility of controls upon discharges from the fishing industry); Reynolds Metals Co. v. United States, 760 F.2d 549, 559-63 (4th Cir. 1985) (rejecting an industry challenge to agency sampling that justified the performance standards set, including EPA reliance on data from another industry); American Iron and Steel Institute v. EPA, 526 F.2D 1027, 1048-49 (3rd Cir. 1975) (approving of agency uses tests at two plants were generally sufficient in light of impracticability of considering conditions at each regulated plant); National Lime v. EPA, 627 F.2d 416 (D.C. Cir. 1980) (reversing EPA's NSPS, because agency failed to show why its model plants were fairly representative of the industry as a whole).

[223] CONG. RESEARCH SERVICE, 93d Cong., 1st Sess., 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 170 (EPA need not determine economic impact of a plant upon a single community or plant) (Comm. Print 1973); Pac. Fisheries, 615 F.2d at 818 (Congress contemplated the closure of some marginal plants under BAT standards); E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 127 n. 17 (1977) (effluent limitations under section 301(b) of the Clean Water Act may go beyond limits within an individual owner's economic capability); Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 478 (D.C. Cir. 1974) (Occupational Safety and Health Act does not "guarantee the existence of individual employers"); United Steelworkers of America v. Marshall, 647 F.2d 1189, 1272 (D.C. Cir. 1980) (showing of technological infeasibility for a few operators will not defeat a standard).

tell us how many plant shutdowns pose a problem triggering a constraint on the stringency of regulation.[224]

But this ambiguity only arises when agencies predict at least some plant closures. Historically, government agencies often finds that the costs of available technological options pose no likelihood of plant closures.[225] This may seem surprising to some, but historically environmental regulations have imposed tiny costs compared to big items like labor, material, and transportation costs.[226] So, the cost constraint unambiguously allows strict regulation in many situations. Still, the cost constraint does not provide precise guidance when EPA predicts plant closures from imposition of available technology.

Agency practice, however, suggests that the concept of avoiding widespread plant closures does provide some consistency in decision-making, usually confining the number of plant closures to a rather narrow range. The number of plant closures usually ranged from 0 to 3% in cases where the courts mentioned the number of plant closures.[227] While

---

[224] *See* Cass R. Sunstein, *Is Cost-Benefit Analysis for Everyone,* 53 ADMIN. L. REV. 299, 312 (2001) (as costs increase, the number of companies who cannot comply with regulation increase).

[225] *See, e.g.,* Cerro Copper Products Co. v. Ruckelshaus, 766 F.2d 1060, 1064-65 (7th Cir. 1985) (agency predicts no plant closures or job losses from requirements demanding 90% reduction in pollution); Kennecott v. EPA, 780 F.2d 445, 456-57 (4th Cir. 1985) (after "careful analysis" EPA concluded that compliance costs would close no plants); American Frozen Food Inst. v. Train, 539 F.2d 107, 139-40 (D.C. Cir. 1976) (predicting "no significant impact" upon frozen food industry, because it would probably raise prices to pass on costs of effluent controls); American Petroleum Inst. v. EPA, 661 F.2d 340, 356 (5th Cir. 1981) (finding of no significant impact reversed as insufficiently explained). *See also* American Dental Ass'n v. Martin, 984 F.2d 823, 825 (7th Cir. 1993) (Posner J.) ($813 million dollar a year rule is "clearly not enough to break the multi-hundred-billion-dollar a year healthcare industry"); National Greed and Feed Ass'n v. OSHA, 866 F.2d 717, 727 (5th Cir. 1989) (cost estimate of less than 1% of after tax profits, but with significantly higher costs for some industry segments); Forging Industry Ass'n v. Secretary of Labor, 773 F.2d 1436, 1442 (4th Cir. 1985) (cost of compliance equals less than .0148 percent of sales and .1932 percent of profits); Lignite Energy Council v. EPA, 198 F.3d 930, 933 (D.C. Cir. 1999) (New Source Performance Standards for utility and industrial boilers will only modestly increase electricity prices); United Steelworkers of America v. Marshall, 647 F.2d 1189, 1282 (D.C. Cir. 1980) (even if industry could not pass on costs in raised prices as predicted, cost would amount to roughly 2 percent of industry profits).

[226] *See* Ackerman & Massey, *supra* note 199, at 4 (because environmental protection is not very expensive, companies relocate to seek proximity or lower labor costs, not laxer environmental controls); Jaffe*, supra* note 74, at 158 (labor, raw material, energy, and other costs overwhelm any effect that environmental regulation might otherwise have on competitiveness).

[227] *See, e.g.,* National Wildlife Federation v. EPA, 286 F.3d 554, 564 (D.C. Cir. 2002)

(continued...)

few or no closures have been the norm, EPA expected a few regulations of exceptionally dirty (and marginal) industries to close up to 14% of an industry grouping.[228] Since industry would tend to attack plant closures in court, this sample of agency practice provides a reasonably good proxy for the whole of it. These numbers likely exaggerate the number of plant closures, since agencies regularly overestimate compliance costs.[229]

Many decisions under feasibility-based statutory provisions close no plants at all. This raises the possibility that agencies often shirk their duty to maximize emission reductions up to the point where widespread closures occur.

Congress addressed this problem through use of a "follow-the-leader" principle. Legislative history to the Clean Water Act and judicial interpretation of the Occupational Safety and Health Act calls for implementing agencies, at a minimum, to require the reductions that the

---

[227](...continued)
(EPA chose an option closing 2 plants over an option closing 4); American Pac. Fisheries, 615 F.2d 794, 808 (9th Cir. 1980) (28 out of 172 plants expected to close); Weyerhauser v. Costle, 590 F.2d 1011, 1047 (D.C. Cir. 1978) (agency projected that 8 out of 270 mills would close in another case); American Paper Institute v. Train, 543 F.2d 328, 339 (D.C. Cir. 1976) (predicting closure of 7-10 out of 188 mills); American Federation of Labor v. Brennan, 530 F.2d 109, 120 (3rd Cir. 1975) (Secretary of Labor rejects safety standard that would be impossible for 47% of all power press operators and would eliminate many presses because of cost); National Grain & Feed Ass'n v. OSHA, 858 F.2d 1019, 1040 (5th Cir. 1988) (standard predicted to cause 183 grain elevators to have "negative net income," but that represents less than 1% of the industry); Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 250 (5th Cir. 1989) (predicting that BAT limitations under Clean Water Act would close 14% of all indirect discharging chemical plants and reduce industry employment by 1.2%). *Cf.* American Iron & Steel Inst. v. v. EPA, 526 F.2d 1027, 1054 (3rd Cir. 1975) (agency projects a 14% closure rate for integrated steel plants, but claims that these plants are so marginal that they would likely close anyway even without regulation); Ford Motor Co. v. EPA, 718 F.2d 55, 58 (3rd Cir. 1983) (a worst case estimate that 56 out of 4700 integrated plants might close their in-house electroplating operations).

[228] *See* American Iron & Steel Inst. v. v. EPA, 526 F.2d 1027, 1054 (3rd Cir. 1975), *judgment amended,* 560 F.2d 589 (3rd Cir. 1977) (agency projects a 14% closure rate for integrated steel plants, but claims that these plants are so marginal that they would likely close anyway even without regulation); Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 250 (5th Cir. 1989), *clarified on rehearing,* 885 F.2d 253 (predicting that BAT limitations under Clean Water Act would close 14% of all indirect discharging chemical plants and reduce industry employment by 1.2%).

[229] *See* Thomas O. McGarity & Ruth Ruttenberg, *Counting the Cost of Health Safety and Environmental Regulation,* 80 TEX. L. REV. 1997, 1998 (2002) (*ex ante* cost estimates have been higher than actual costs incurred, sometimes by orders of magnitude); Winston.Harrington; Richard D. Morgenstern, and Peter Nelson, *On the Accuracy of Regulatory Cost Estimates*, 19 J. POL'Y ANALYSIS AND MANAGEMENT 297 (2000).

best-controlled plant in an industry have achieved.[230] Congress has tended to assume that pollution sources can achieve what the leading companies achieve without shutting down, or that shutdowns of the most antiquated plants are justified. Reviewing courts, however, have allowed industry to secure remands of standards on the basis of claims that the agency has not adequately demonstrated that some subset of industry can regularly achieve what the leaders can achieve.[231] Congress responded to the resulting problem of inadequate stringency with some codification of this follow the leader principle. Thus, the 1990 Amendments to the Clean Air Act require existing sources of hazardous air emissions to meet the limits the average of the best performing 12% achieve, regardless of cost.[232] On the other hand, Congress has authorized EPA to avoid shutdowns that might occur through a follow the leader approach when it determines that the physical characteristics of the laggard plant varies significantly from those of the leading plants. These subcategorization provisions and practices allow avoidance of plant shutdowns, if there is some physical reason why regulators should not treat plants alike,

---

[230] *See* E.I. du Pont de Nemours v. Train, 430 U.S. 112, 131 n. 131 (1977) (BPT limitations should be based upon the average of the best performers); Wagner, *supra* note 23, at 103-04 (technology-based standards create a level playing field by treating all companies in the same class the same); EPA v. National Crushed Stone Ass'n, 449 U.S. 64, 76-77 (1980) (disallowing a general variance from BPT standards based on economic capabilities as inconsistent with the follow the leader approach); Kennecott v. EPA, 780 F.2d 445, 448 (4th Cir. 1985) (EPA's best practicable control technology reflects the average of the best performers within an industry category or subcategory, but best available technology should be based on the achievement of an optimal "pilot plant"); Industrial Union Dep't, AFL-CIO v. Hodgson, 499 F.2d 467, 477 (D.C. Cir. 1974) (Occupational Safety & Health Act allows a laggard in protecting the health and safety of workers to go out of business); Amer. Meat Instit. v. EPA, 526 F.2d 442, 453 (7th Cir. 1975) (citing legislative history making best practicable levels for water pollution controls consistent with those achieved by the "average of the best existing" performers, at a minimum).

[231] *See, e.g.* National Lime, 627 F.2d 416 (D.C. Cir. 1980) (reversing EPA's NSPS, because agency failed to show why its model plants were fairly representative of the industry as a whole). *See also* Natural Resources Defense Council v. Thomas, 805 F.2d 410, 420-24 (D.C. Cir. 1986) (declining to interpret the feasibility principle as requiring a strict follow the leader approach in the context of clean air act mobile source regulation).

[232] *See, e.g.,* Cement Kiln Recycling Corp. v. EPA, 255 F.3d 855, 857-58, 861-67 (D.C. Cir. 2001) (reversing EPA failure to follow a follow-the leader provision in feasibility-based standards for hazardous air pollutants); Nat'l Lime Ass'n v. EPA, 233 F.3d 625, 629 (D.C. Cir. 2000) (recognizing a strict follow the leader requirement in Clean Air Act provisions governing waste combustion).

notwithstanding the desire for a level playing field.[233] In spite of the robustness of the cost and technology restraints, I have framed the cost constraint weakly as a "presumption", not a rule, against widespread plant closures. This formulation reflects the failure of the legislation to specifically require avoidance of widespread plant closures, while suggesting such a prohibition through the feasibility principle.[234]

This presumption, however, functions much like an iron clad rule. Any time an agency predicts that its regulation will cause widespread closure of facilities, it will face enormous pressure to soften that regulation. The agency itself may shy away from such consequences before any pressure is brought to bear, because its staff understands that plant closures can involve hardships for workers, even if only temporary.[235] Indeed, EPA has regularly refrained from regulating at all and engaged in quite indefensible statutory interpretations to avoid shutdowns under health-based statutory provisions that seemed to require shutdowns when needed to fully protect public health.[236] For this reason, it is fair to reframe the feasibility principle as a very strong presumption against widespread plant closures.

This presumption, however, gives rise to an obvious question. Under what circumstances should the agency overcome the presumption? Because the political constraints on agency shutdown of plants are so formidable, this obvious question matters little in practice. One should distinguish between marginal problems with any proposal and problems going to the heart of the matter. But this question still deserves an answer.

The follow the leader principle provides one possible answer to this. Equity between competitors and the creation of a healthy dynamic of improved pollution control over time may require risking widespread shutdowns to avoid putting the leaders in pollution control at a competitive disadvantage. Another possible answer is that elected

---

[233] *See, e.g.,* American Iron & Steel Inst. v. EPA, 568 F.2d 284, 297-300 (3rd Cir. 1977) (adjudicating dispute about subcategorization).

[234] *See, e.g.,* American Textile Mfrs. Ass'n v. Donovan, 452 U.S. 488, 530-31 n. 55 (1981) (OSHA interpretation of the feasibility principle as protecting the industry's long-term profitability is consistent with the statute's plain meaning, but the court does not decide whether OSHA could shut down an industry),

[235] *See, e.g.,* Portland Cement Ass'n v. Train, 513 F.2d 506, 508 (D.C. Cir. 1975) (EPA administrator eschews standards that would be "greater than the industry could bear and survive.").

[236] JOHN M. MENDELOFF, THE DILEMMA OF TOXIC SUBSTANCE REGULATION 2 (1988). *Cf.* McGarity, *supra* note 152, at 192-93 (overly broad mandates cannot be the exclusive cause of underregulation).

officials, rather than administrative agencies, should decide when to shut down an industry, since only elected officials can handle the trade-offs appropriately. Congress has, for example, coupled pollution reduction programs with assistance to workers likely to be displaced and to small businesses that might have trouble paying for pollution control.[237] This sort of creative solution to tough dilemmas lies beyond the authority of agencies. In any event, the feasibility principle provides significant guidance, but does not provide a determinative criterion for setting standards

I do not claim that this feasibility principle offers a perfect ideal for regulation.[238] I make a more modest claim. The feasibility principles reflects a reasonable Congressional judgment about how agencies should address the cost of environmental regulation. One should note that this principle exists alongside law that provides for important exceptions to the feasibility principal. First, statutes contain delisting provisions to avoid regulation of pollution that obviously has no significant effect on public health or the environment.[239] Second, agencies themselves do not list pollutants in the first place without scientific information linking them to potentially serious health or environmental effects.[240] Third, Congress, states, and EPA may choose more demanding requirements for particular substances than the feasibility principle might induce (albeit not under statutory provisions embodying the feasibility principle). This

---

[237] *See* Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 252 n. 336 (5th Cir. 1989) (Congress initially established a low cost loan problem to aid small business compliance with the Clean Water Act); Daniel F. O'Sullivan, Legislative Note, *The Clean Air Act Amendments of 1990: Permits and Enforcement-The Guts of the New Law,* 18 U. DAYTON L. REV. 275, 278-79 n. 16 (1992) (describing employment and business assistance provision in 1990 Clean Air Act Amendments); Effluent Guidelines and Standard; Electroplating Point Source Category; Pretreatment Standards for Existing Sources, 44 Fed. Reg. 52590, 52594 (Sept. 7, 1979) (explaining that Small Business Administration loans would likely greatly reduce the plant closures otherwise expected from its regulation of electroplating).

[238] *Cf.* Shapiro & McGarity, *supra* note 14, at 729 (the technology-based approach to regulation is "far from perfect."); DRIESEN, *supra* note 206, at 193-201 (arguing that existing law does too little to advance technology, because it relies too much on rate-based standards, sets standards too lax to make innovation attractive, and makes agencies assume the burden of proving technological feasibility).

[239] *See, e.g.,* American Forest & Paper Ass'n v. EPA, 294 F.3d 113 (D.C. Cir. 2002) (litigating EPA action on a delisting petition under section 112 of the Clean Air Act).

[240] *See, e.g.,* Essex Chemicals v. Ruckelshaus, 486 F.2d 427, 429 n. 1 (1973) (Clean Air Act requires New Source Performance Standards for categories that "may contribute significantly to air pollution which causes or contributes to endangerment of public health or welfare.").

means that opportunities exist to overcome a problem with the feasibility principle, its failure to demand widespread shutdowns when justification for such drastic action may exist.

Congressional adoption of the feasibility principle does provide some meaningful guidance for decision-makers, even though it leaves some latitude for agency discretion. This modest claim suggests that the feasibility principle serves both democratic values and hopes for sensible regulation reasonably well. The principle has more to offer than many advocates of regulatory reform have realized.

## III. COST-BENEFIT ANALYSIS

This part explains CBA. It also reviews some of the principle rationales economists and legal scholars have offered for it.

### *A. CBA: A Description.*

Cost-benefit analysis is a form of analysis. Most scholars recommending CBA for environmental, health, and safety regulation argue that agencies should "consider" CBA.[241] They generally say little or nothing about how precisely CBA should influence outcomes under technology-based provisions (or any other statutory provisions). A mandate to consider CBA does not provide any guidance about the content of decisions.[242] An agency can, in principle, consider CBA, and conclude that the duty to protect public health is paramount and the costs should be ignored. Conversely, it could conclude that the existence of any cost at all should wholly defeat any environmental regulation. The requirement to consider an analysis, of any kind, does not provide meaningful guidance about how the agency should respond to the analysis.

One should distinguish CBA from a cost-benefit criterion. A requirement that agencies set costs equal to benefits would constitute a CBA criterion and would provide some guidance for decision-makers if coupled with some methodologies for estimating benefits.[243] This would require agencies to choose the standard that matched projected costs and

---

[241] *See, e.g.,* Adler & Posner, *supra* note 14, at 195 (describing CBA as a "decision procedure" not as a criterion).

[242] *See* Posner, *supra* note 1, at 1164 (CBA is just a device for analyzing and reporting information; it generally "does not compel any particular regulatory response").

[243] *See* Driesen, *supra* note 4, at 577 (pointing out that allocative efficiency posits setting costs equal to benefits).

benefits, and preclude more or less stringent standards. Similarly, a requirement that costs not grossly exceed benefits would provide some guidance, limiting stringency in some fashion.[244] While it would provide no guidance at all about how to choose among several different requirements that provided benefits equal to or less than cost, it would provide some vague guidance in how to treat options that would generate costs exceeding benefits. In addressing those options, the agencies should determine whether the accedence is gross, and reject stringent options that would generate costs far in excess of benefits.

Some scholars seem to regard any cost-sensitive analysis or criteria as CBA.[245] Under this view, feasibility analysis would constitute a form of CBA.[246] This article rejects this view. For analysis of costs that does not seek to quantify the "benefits" (really incremental harm reduction) of regulation should not qualify as CBA.[247] Most participants in the regulatory process and environmental specialists would reject the view that any cost-sensitive analysis involves CBA.[248]

Well-informed precise legal scholars usually define CBA as analysis comparing the costs of regulation to its "benefits" with emphasis on quantifying both factors.[249] This article will employ this definition.

The analysis of regulatory costs necessary for CBA resembles feasibility analysis. The analyst must begin by identifying technically feasible pollution control technologies.[250] The analyst then estimates the

---

[244] *Cf.* American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490, 506 (1981) (rejecting a similar criterion).

[245] *See* CROSS, *supra* note 23, at 81 (discussing Justice Breyer's overly broad conception of CBA).

[246] *See* Texas Independent Ginners Ass'n v. Marshall, 630 F.2d 398, 413, n. 50 (5th Cir. 1980) (conflating feasibility and cost-benefit analysis prior to correction in the Supreme Court *Donovan* decision); Turner Co., Div. of Olin Corp. v. Sec'y of Labor, 561 F.2d 82 (7th Cir. 1977) (same).

[247] *See, e.g.* AFL-CIO v. OSHA, 965 F.2d 962, 982 n. 26 (11th Cir. 1992) (analysis of economic feasibility does not entail cost-benefit analysis).

[248] *See, e.g.,* American Dental Ass'n v. Martin, 984 F.2d 823, 825 (7th Cir. 1993) (Posner J.) (OSHA may not compare costs to benefits in establishing feasibility standards under the Occupational Safety Health Act).

[249] *See, e.g.,* Ackerman & Heinzerling, *supra* note 2, at 1553 (CBA demands reduction, as far as possible, of the advantages and disadvantages of environmental regulation to "dollars and cents") Geistfeld, *supra* note 200, at 120 (claiming that CBA deems regulation desirable if benefits outweigh costs); CROSS, *supra* note 23, at 81 (defining CBA as including "at least some attempt" to quantify costs and benefits for purposes of comparison).

[250] *See* McGarity & Ruttenberg, *supra* note 229, at 2003, 2005 (explaining that EPA (continued...)

cost of deploying these technologies.[251] These steps allow the analyst to estimate the cost of achieving a given level of emission reductions. The analyst must then determine what pollution reductions these technologies would achieve, just as a regulator setting a technology-based performance standard would. This makes it possible to estimate the amount of emission reductions associated with a particular cost, the first step in correlating costs and benefits for a particular regulation.

The point that any cost estimate must begin with technological assessment is important, because some regulatory reformers make arguments that appear to stem from a failure to understand this point. For example, Richard Pildes and Cass Sunstein write that a technology-based approach fails to focus attention on "what levels or reduction are appropriate", but instead focuses "on the nearly impenetrable question of what technologies are now available."[252] If this question of technological availability is impenetrable, then both CBA and feasibility analysis are in trouble, because they both require assessment of the existence, capabilities, and cost of available technologies. Feasibility-based regulation requires regulators to set levels based on the capabilities of technology and to figure out the cost of employing the technology to evaluate whether the cost makes widespread plant closures unlikely. Cost-benefit analysis requires assessing the capabilities of technology in order to arrive at cost estimates and to quantify the amount of reduction associated with that cost, the first step in arriving at a benefits estimate. Furthermore, a cost-benefit criterion and the feasibility principle both provide guidance in choosing the appropriateness of levels of reductions; they just reflect different views about the proper criterion for determining appropriateness. Only a cost-blind approach can avoid the question of technological availability.[253] Fortunately, the task of determining what technologies are available has proven relatively easy.[254]

---

[250](...continued)
guidelines require costing of pollution control technologies, including the sometimes negative cost of pollution prevention).

[251] Ackerman & Heinzerling, *supra* note 2, at 1557 (costs can be estimated by researching available technologies and business strategies for compliance).

[252] Pildes & Sunstein, *supra* note 14, at 99-100.

[253] *See*, *e.g.* Hercules, Inc. v. EPA, 598 F.2d 91, 111 (D.C. Cir. 1978) (statutory provision requiring an ample margin of safety from toxic pollutants does not require consideration of cost or technological feasibility).

[254] I do not mean to suggest that this task does not have its fair share of difficulties. *See, e.g.,* Parson, *supra* note 52, at 92 (discussing the problem of agency reliance on regulated industry for information about the capabilities of technology); Houck, *supra* note
(continued...)

Most advocates of CBA seem to envision quite comprehensive analysis, although they rarely specify precisely what they think CBA should analyze.[255] Hence, CBA might well include comparison of the costs of regulation to the profits of plants to estimate the employment impacts of regulation, as feasibility analysis does.[256] Cass Sunstein, for one, has explicitly stated that CBA should include information about whether regulation will lead to lost jobs.[257] Certainly anybody who considers the distribution of costs important (as many CBA proponents do these days) would want to consider this important aspect of distribution. CBA requires an additional intricate step, the estimation of the value of regulatory benefits. The analysis of "benefits" focuses on trying to quantify the value of the averted harm from the decrease in emissions the particular regulation will bring.[258]

The attempt to quantify averted harm (benefits) relies heavily upon quantitative risk assessment.[259] Quantitative risk assessment usually involves the extrapolation of potential consequences of regulation from very incomplete data about the health effects of pollution, the amount of exposure people experience, and potential environmental effects.[260]

---

[254](...continued)
78, at 462 (industry has challenged virtually every regulation the EPA has issued under the major environmental statutes). But these difficulties are much more minor than those facing regulators trying to determine what level of regulation protects public health or the environment, and far easier than quantifying the benefits of a particular regulation. *See generally* Wagner, *supra* note 23, at 94-96 (technology-based standards promulgated at three to ten times the rate of the alternatives); Houck, .

[255] Cass R. Sunstein, *Congress, Constitutional Moments, and the Cost-Benefit State,* 48 STAN. L. REV. 247, 293 (1996) [hereinafter, *Constitutional Moments*](calling for a "disaggregated qualitative description of proposed government action"); McGarity, *Regulatory Analysis, supra* note 23, at 1253-1254 (identifying executive orders mandating CBA with "comprehensive" rationality); MCGARITY, REINVENTING RATIONALITY, *supra* note 23 (discussing in detail CBA guided by a vision of comprehensive rationality); SUNSTEIN, RISK AND REASON, *supra* note 2, at 106-07 (define CBA as a "full accounting" of the consequences of "risk reduction").

[256] *See* McGarity, *Cost-Benefit State, supra* note 1, at 15 (more "ambitious" cost assessments may consider the impact of regulation upon employment).

[257] SUNSTEIN, RISK AND REASON, *supra* note 2, at 111.

[258] *See* Driesen, *supra* note 4, at 560-62.

[259] McGarity, *Cost-Benefit State, supra* note 1, at 12 (CBA in the health and environmental context "begins with quantitative risk assessment); *See* NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS (1983).

[260] *See* McGarity, *Cost-Benefit State, supra* note 1, at 13 (discussing data gaps rendering risk assessments incomplete and inaccurate); Thomas O. McGarity, *Politics by*
(continued...)

Extrapolating the number of cancer cases, for example, that a particular regulation of a carcinogen would avoid involves hundreds of debatable inferences from incomplete data, often data limited to other species or much higher doses of a chemical than most people need worry about.[261] Since we do not know enough about the mechanisms of cancer to know how to properly make these extrapolations, the creation of assumptions involves "intuitive toxicology," which reflects more policy judgment than science.[262] For many non-carcinogenic effects an estimate of quantitative impacts is simply impossible.[263] At best, the outcome of most quantitative risk assessment involves very questionable estimates of the number of cases of some illnesses (such as cancer) coupled with a listing of effects that cannot be quantified, but may prove quite serious (such as birth defects).[264]

---

[260](...continued)
*Other Means: Law, Science, and Policy in EPA's Implementation of the Food Quality Protection Act,* 53 ADMIN. L. REV. 103, 120-192 (2001) (describing in detail the data gaps and judgments needed to assess risk under the Food Quality Protection Act).

[261] *See, e.g.,* Shapiro & McGarity, *supra* note 14, at 732-33 n. 21 (discussing the uncertainties and the data undergirding regulation of vinyl chloride); Houck, *supra* note 78, at 415 (describing the process of deriving risk assessments for human beings from animal studies as involving "more guesswork than a television game show"); Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 572 (1992) (the National Academy of Sciences has identified 50 "inference options," where a policy decision must be made to extrapolate a risk assessment from limited data); Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613, 1625 (1995) (discussing the problem of extrapolating human health effects from high dose animal experiments).

[262] *See* McGarity, *supra* note 82, at 2348 (poor understanding of carcinogenesis hinders characterization of a dose-response curve to use for extrapolation); Babich, *supra* note 182, at 142-145 (most risk assessment does not consist of good reliable science, because scientifically rigorous testing of human health effects is unethical); Clayton P. Gillette & James E. Krier, *Risk, Courts, and Agencies,* 138 U. PENN. L. REV. 1027, 1064 (1990) (risk assessment is not a "neutral science" or "well-mastered art"); Synthetic Organic Chemical Mfrs. Ass'n v. Brennan, 503 F.2d 1155, 1159 (3rd Cir. 1974) (extrapolation from findings of carcinogenicity in animals to conclusions about humans "is not really a factual matter."). *Cf.* SUNSTEIN, RISK AND REASON, *supra* note 2, at 7 (characterizing public responses to risk as "intuitive toxicology" and suggesting, wrongly, that CBA reliably distinguishes between big and large problems).

[263] *See* McGarity, *Cost-Benefit State, supra* note 1, at 13 (discussing lack testing vehicles for many ecological or health risks); Ellen K. Silbergeld, *The Risks of Comparing Risk,* 3 N.Y.U. ENVTL. L. J. 405, 413-14 (1995) (book review); *Regulatory Reform: Hearings Before the Senate Comm. On Government Affairs,* 104th Cong. 122 (1995) (statement of Linda Greer, Ph.D. Senior Scientist, Natural Resources Defense Council).

[264] NATIONAL RESEARCH COUNCIL, SCIENCE AND JUDGMENT IN RISK ASSESSMENT
(continued...)

CBA proponents contemplate comparison of costs to benefits. To facilitate comparison, analysts attempt to place a dollar value on the averted harms, such as deaths and illnesses.[265] The methodologies for doing this involve numerous highly questionable value assumptions.[266]

Most CBA proponents expect agencies to compare the non-quantified benefits to costs, not just the quantified ones.[267] But they have nothing to say about how this could be rationally done.[268] Critics of CBA charge that environmental harms, especially those least amenable to quantification, receive short shrift in any process employing CBA.[269]

---

[264](...continued)
(1994) [hereinafter NRC, JUDGMENT]; NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS 3 (1983) (calling for disclosure of the substantial uncertainties undergirding risk assessments); John S. Applegate, *The Perils of Unreasonable Risk: Information, Regulatory Policy, and Toxic Substances Control,* 91 COLUM. L. REV. 261 (1991); Hornstein, *supra* note 261; Thomas O. McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Quality Questions: Regulating Carcinogens at EPA and OSHA,* 67 GEO. L. J. 729 (1979); Wagner, *supra* note 261; Houck, *supra* note 78, 414-15 (laws requiring risk assessment demand more specificity than science can deliver); McGarity, *supra* note 82, at 2351-52 (pointing out that policy judgment is necessary to choose a model of responses to doses of a chemical, when data do not reveal the shape of the dose response curve; and noting non-quantified health effects in rulemaking on arsenic).

[265] *See* Posner, *supra* note 15, at 1144 (CBA reduces advantages and disadvantages of a decision to a "numerical metric"). *Cf.* Appalachian Power Co. v. Train, 545 F.2d 1351, 1361 (4th Cir. 1976) (rejecting industry demand that EPA quantify benefits of a particular effluent reduction, because "such benefits cannot be reduced to dollars and cents.").

[266] *See* Ackerman & Heinzerling, *supra* note 2; Lisa Heinzerling, *Discounting Life,* 108 YALE L. J. 1911 (1999); Lisa Heinzerling, *Discounting Our Future,* 34 LAND & WATER L. REV. 39 (1999); Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENVTL. L. REV. 189 (2000); MARG SAGOFF, THE ECONOMY OF THE EARTH (1988) (arguing that reliance upon preferences makes no sense); Armatya Sen, *The Discipline of Cost-Benefit Analysis*, 29 J. LEGAL STUDIES 931 (2000); Henry Richardson, *The Stupidity of Cost-Benefit Analysis,* 29 J. LEGAL STUDIES 971 (2000); Shapiro & McGarity, *supra* note 14, 734-35 (criticizing use of "wage premiums" as basis for dollar estimates of the value of human life and application of discount factors); McGarity, *supra* note 82, at 2353-54 (discussing EPA's failure to make adjustments to value of deaths to take into account numerous relevant factors, because of lack of adequate data and policy agreement about how to do so); McGarity, *supra* note 2, at 171 (arguing that "wage premiums" are not set by willingness to accept risk, but by the unemployment rate and the level of desperation of currently employed workers).

[267] *See, e.g.,* SUNSTEIN, COST-BENEFIT STATE, *supra* note 1, at 20.

[268] *See, e.g.,* Sunstein, *supra* note 82, at 2274, 2282-83 (mentioning non-quantified benefits, but then only addressing some, and those only by indicating ways of trying to quantify them).

[269] *See, e.g.,* FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE
(continued...)

One final point, CBA does not present information in the sense of known observed facts about pollutants or the consequences of regulation.[270] Instead, it presents a set of projections several steps removed from facts.[271] The distance separating estimate from fact becomes especially great when regulators seek to quantify the harms a proposed regulation averts.[272] The known facts may involve little more than the tabulation of tumors in laboratory rodents of various types exposed to high levels of some suspected carcinogen.[273] When the analyst projects a dollar value for the health benefits of regulation to human beings (for example), that dollar value is not a fact and indeed draws attention from the relative paucity of factual information available for risk assessment. The benefit estimate is an extrapolation, that must, of necessity, rely upon unproven assumptions to get from such a thin factual base to such a sweeping conclusion about the effects of a particular regulation on human beings.

Subsequent discussion will rely upon one point the foregoing should make abundantly clear. CBA is a much more complicated form of analysis than feasibility analysis.[274] CBA involves all of the steps needed

---

[269](...continued)
PRICE OF EVERYTHING AND THE VALUE OF NOTHING 207 (2004) (the Office of Management and Budget treats monetized benefits as "absolute upper limits, and gives the back of the hand to unquantified values."); Ackerman & Heinzerling, *supra* note 2, at 1579-1580 (discussing tendency to ignore problems resisting quantification); Shapiro & McGarity, *supra* note 14, at 733 n. 26 (discussing "the economist's tendency to `dwarf soft variables' that do not lend themselves to precise quantitative analysis); Lawrence Tribe, *Ways Not to Think About Plastic Treas: New Foundations for Environmental Law,* 83 YALE L. J. 1315, 1318-19 (1974) (pressure to base solutions to problems on "hard" data in order to appear objective can cause policy analysts to overlook "fragile" values).

[270] *Cf.* SUNSTEIN, RISK AND REASON, *supra* note 2, at 294 (suggesting, wrongly, that a book defending cost-benefit analysis places science at the center of risk regulation law).

[271] *See* McGarity & Ruttenberg, *supra* note 229, at 2000 (describing both benefits and cost estimates as projections).

[272] Id. (describing the benefit analysis as "laden with uncertainties" and not dependent "to any large degree upon empirical analysis").

[273] NRC, JUDGMENT, *supra* note 264, at 2 (discussing reliance on high dose toxicity testing in animals); Guidelines for Carcinogen Risk Assessment, 51 Fed. Reg. 33,992, 33,994 (Sept. 24, 1986) (discussing reliance upon data about increased incidence of tumors in rodents as dosages increase). *See, e.g.,* Occupational Exposure to Methylene Chloride, 56 Fed Reg. 57,036, 57, 071-72 (Nov. 7, 1991) (to be codified at 29 C.F.R. pt. 1910, 1915, 1926) (discussing evidence of methylene chloride causing lung and liver tumors in rodents);

[274] *Accord* Ackerman & Heinzerling, *supra* note 2, at 1581; Wagner, *supra* note 23, at 96 (work associated with promulgating technology-based standards is several times (continued...)

to perform a feasibility analysis and many additional, complicated, and controversial, steps.

[274](...continued)
simpler than work associated with cost-benefit or science-based standards).

### *B. The Economic Theory Supporting CBA.*

The idea of CBA for environmental, health, and safety regulation comes from neoclassical economic theory.[275] That theory posits that in a perfectly efficient market the costs consumers pay to obtain goods and services will equal the benefits they receive from them.[276] Economists apply this approach by analogy to government regulation, treating government regulation, not as harm avoidance, but as a type of transaction purchasing a benefit.[277] Neoclassical economic theory posits that allocatively efficient regulation requires that the cost of environmental regulation equal the benefits derived from it.[278]

This theory uses consumer "preferences" to measure the value of benefits, whether those benefits derive from a consumer purchase or a government regulatory program.[279] Neoclassical theory posits that rational perfectly informed consumer preferences tell us the value of a given good or service, and that this is the appropriate guide for economic analysis. Consumers "reveal" these preferences by their willingness to pay a cost for a benefit, or by their willingness to accept payment for a loss. A standard criticism of economic efficiency claims that gross disparities between willingness to pay and willingness to accept measures renders CBA radically indeterminate.[280] In practice, CBA proponents

---

[275] *See* Driesen, *supra* note 4, 577-79 (describing the theory); WILLIAM J. BAUMOL & WALLACE E. OATES, THE THEORY OF ENVIRONMENTAL POLICY 23 (1975); E.J. MISHAN, COST-BENEFIT ANALYSIS (1982).

[276] *See* Driesen, *supra* note 4, at 578-79, 582-83.

[277] *See* McGarity, *Strategies, supra* note 2, at 167 (view of regulation as a by product of "market failure" leads to policy of intervention based on willingness to pay). *Cf.* Ackerman & Heinzerling, *supra* note 2, at 1556-1557 (CBA rests on analogizing government to business production decisions).

[278] *See* BAUMOL & OATES, *supra* note 275, at 23 (misallocation of resources fixed by charging a price equal to social cost).

[279] *See* Driesen, *supra* note 4, at 578-79 (explaining the theory by which private preferences become the constituents of efficiency).

[280] *See, e.g.,* Driesen, *supra* note 4, at 589-92 (by accepting willingness to pay measures, CBA transfers rights to polluters and diminishes the value of health and environmental protection); McGarity, *Strategies, supra* note 2, at 170-71 (discussing the reasons for discrepancies between willingness to pay and willingness to accept); MISHAN, *supra* note 275, at 171 (noting wealth limits price somebody will pay for a good but the price she may demand for foregoing a good "can be infinite."); JULES COLEMAN, MARKETS, MORALS, AND THE LAW 71 (1988) (reconciling this point with the Coase theorem); Duncan Kennedy, *Cost-Benefit Analysis and Entitlement Problems: A Critique,* 33 STAN. L. REV. 387 (1981) (arguing that the outcomes of CBA are indeterminate in

usually choose willingness to pay for environmental benefits as the measuring rod, which decreases the value of benefits from what a willingness to accept criterion would indicate.[281]

The theory that the cost of each regulation should never exceed its benefits as revealed through study of consumer preferences has not fared well, even among active supporters of regulatory CBA. Many supporters of regulatory CBA believe that the distribution of cost matters.[282] And taking the distribution of costs seriously is inconsistent with insisting that the total costs not exceed the total benefits of each regulation.[283]

Supporters of CBA have also questioned CBA's reliance upon "preferences."[284] They have pointed out that people do not always choose what's good for them, even when well informed. Some people have a revealed "preference" for addictive drugs. Does it follow that we should encourage drug use if the costs of providing the narcotics is low enough?[285] And it's not clear, as a philosophical matter, why preferences should determine public policy.[286]

A debate about the value of economic efficiency has raged in the legal academy.[287] This article will not enter into this wider debate in a general way. Rather, this article focuses upon the reasoning of scholars

---

[280](...continued)
theory).

[281] *See* SUNSTEIN, RISK AND REASON, *supra* note 2, at 222 (willingness to pay is the generally employed measure); McGarity, *Strategies, supra* note 2, at 170 (explaining that the price a pollution victim will pay to avoid pollution is much lower than what a company would have to pay her to give up her right to be free of pollution).

[282] *See, e.g.,* Sunstein, *Constitutionalism, supra* note 14, at 462; Adler & Posner, *supra* note 14, at 168.

[283] *See, e.g.,* Adler & Posner, *supra* note 14, at 195 (rejecting the notion that benefits in excess of costs indicates that a project is a good one, even *prima facie*).

[284] *See, e.g.,* Adler & Posner, *supra* note 119, at 1106 (explaining why they and many academic commentators find preferences a poor basis for government policy).

[285] *See* Mozaffar Qizilbash, *The Concept of Well-Being,* 14 ECON. & PHIL. 51, 63 (1998) (choosing heroin does not necessarily make one better off).

[286] *See* MARK SAGOFF, THE ECONOMY OF THE EARTH (1988).

[287] *See, e.g.,* Jules L. Coleman, *Efficiency, Utility and Wealth Maximization,* 8 HOFSTRA L. REV. 509 (1980); Michael B. Dorff, *Why Welfare Depends Upon Fairness: A Reply to Kaplow and Shavell,* 75 S. CAL. L. REV. 847 (2002); Jules L. Coleman, *The Grounds of Welfare,* 12 YALE L. J. 1511 (2003) (book review)*;* Douglas A. Kysar, *Law, Environment, and Vision,* 97 N. W. U. L. REV. 675 (2003); JULES L. COLEMAN, MARKETS, MORALS AND THE LAW (1988); MARK SAGOFF, THE ECONOMY OF THE EARTH (1988); Martha T. McCluskey, *Efficiency and Social Citizenship: Challenging the Neoliberal Attack on the Welfare State,* 78 INDIANA L. REV. 783 (2003).

who reject economic efficiency as a rationale for CBA of government regulation, but embrace CBA nonetheless.

### *C. The Job Loss Scenario*.

The goal of avoiding job loss figures prominently among the justifications for CBA. Conservative think tanks, a few judges,[288] and prominent academics such as Kip Viscusi, Cass Sunstein, Harvard Law Professor and Justice Stephen Breyer, and John Graham (former head of Harvard Center for Risk Analysis and current head of the Office of Information and Regulatory Affairs in the Office of Management and Budget) all claim that environmental regulation kills people.[289] In explaining how this could occur, they focus upon a scenario with job loss at the heart of it. They claim that government regulation reduces wealth. This reduction in wealth, they say, can lower life expectancy, since a correlation exists between wealth and health. To illustrate this claim, they discuss a correlation between loss of employment and suicide.[290] Many of these writers claim that the richer is safer argument justifies CBA.

Professor McGarity has shown that the richer is safer argument is generally specious.[291] While the poor live less long than others, marginal differences in income have little effect upon health.[292] The correlation between wealth and health virtually disappears at incomes exceeding $20,000.[293] Moreover, environmental regulation, even costly

---

[288] *See* International Union, UAW v. OSHA, 938 F.2d 1310, 1326-27 (D.C. Cir. 1991) (Williams, J., concurring) (arguing that costly regulation can kill more people than it saves by reducing wealth); American Dental Ass'n v. Martin, 984 F.2d 823, 826 (7th Cir. 1993) (costs of rule for medical establishment will raise costs and decrease demand for medical services, and may therefore kill people).

[289] *See* Ackerman & Heinzerling, *supra* note 2, at 1561 (discussing John Graham's characterization of regulation as "statistical murder."); SUNSTEIN, RISK AND REASON, *supra* note 2, at 136-141; STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION 23 (1993) (claiming that costs of environmental cleanup can deprive individuals of income and lead to poor diet, heart attacks, and suicide); Aaron Wildavsky, Searching for Safety 61 (1988); Robert Hahn, Randall Lutter & W. Kip Viscusi, DO FEDERAL REGUATIONS REDUCE MORTALITY? (2000).

[290] *See, e.g.,* SUNSTEIN, RISK AND REASON, *supra* note 2, at 125 (associating job loss from regulation with suicide, and crime).

[291] *See* McGarity, *supra* note 1, at 42-49.

[292] *See* id. at 46 (correlation between wealth and health virtually disappears at incomes over $20,000).

[293] *See* id. *See also* Paul Krugman, *For Richer: How the Permissive Capitalism of the*

(continued...)

environmental regulation, does not necessarily diminish wealth.[294] Yet, commentators continue to employ these arguments in debates about safety, health, and environmental regulation.[295]

In spite of this refutation of the richer is safer argument, academics repeat it, usually without even considering Professor McGarity's response. Perhaps an intuition about the plausibility of suicide or health decline in the face of job loss explains this continued faith, if not the failure to respond to cogent criticism from one of the field's leading scholars. Indeed, Cass Sunstein has framed the richer is safer hypothesis as the view that people who "have less money **and** who are unemployed, tend to live shorter lives."[296] In this way, the job loss possibility has figured prominently in justifications for CBA. The influence of the job loss scenario on policy arguments for CBA among policy-makers is even greater[297]. For that reason claims about job loss have become a staple of corporate lobbying and the claims of the think tanks regulated companies finance.[298] The job loss scenario figures both

---

[293](...continued)
*Boom Destroyed American Equality,* N.Y. TIMES, October 20, 2002, Magazine, at 67, 76 (the United States citizens have a lower life expectancy than citizens of many countries with lower per capita incomes).

[294] *See* McGarity, *supra* note 1, at 45-48.

[295] *See, e.g.,* Geistfeld, *supra* note 200, at 126 (assuming that complete pursuit of safety would prove so expensive that it would make no money at all available for pursuing health and safety through non-regulatory programs). Geistfeld has no argument, empirical or otherwise, showing that a thorough going pursuit of health protection would have this consequence. Nor does Kip Viscusi, whom he cites. *See* W. Kip Viscusi, *The Dangers of Unbounded Commitment to Regulate Risks*, *in* RISKS, COSTS, AND LIVES SAVED: GETTING BETTER RESULTS FROM REGULATION, 135 (Robert W. Hahn, ed., 1996). Of course, this article focuses on feasibility limited regulation, not thorough-going pursuit of health protection.

[296] SUNSTEIN, THE COST-BENEFIT STATE, *supra* note 1, at x [emphasis added].

[297] Perhaps the strongest evidence of this is the title of the regulatory reform vehicle introduced in the 104th Congress to create a thorough-going cost-benefit state, the Job Creation and Wage Enhancement Act of 1995, H.R. 9, 104th Cong. (1995).

[298] *See Impact of Kyoto Agreement on Emission Reduction: Before the House Government Reform and Oversight Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs*, 105th Cong. (1998) (statement of William O'Keefe, executive vice president and chief operating officer of the American Petroleum Institute (API)) (claiming that significant carbon dioxide reductions over a decade would cost more than a million jobs); *Impact of Global Trade on Trade Agreements*: *Before the Committee on Senate Governmental Affairs, Subcommittee on Oversight of Government Management*, 110th Cong. (2003) (statement of Franklin J. Vargo, Vice President, International Economic Affairs National Association of Manufacturers) ("regulatory systems" retard
(continued...)

in neoclassical efficiency-based arguments for CBA and in the alternative justifications that this article focuses upon.[299]

*D. Arguments of CBA Supporters Who Reject its Neoclassical Foundation*

A number of scholars claim to reject the neoclassical foundation for CBA, but recommend it on new grounds, nonetheless.[300] These scholars have in common a view that the distribution of cost matters.[301]

These proponents of soft CBA often embrace cost-benefit **analysis**, rather than a cost-benefit **criterion**. They claim that agencies should conduct and "consider" CBA.[302] Their writing often says nothing about what this consideration should consist of or how CBA should interact with the feasibility principle, or for that matter, any other criteria found in regulatory statutes. I will refer to this feature of their writing as the "indeterminancy feature."[303]

But these scholars sometimes ameliorate this indeterminancy feature through proposal of a presumptive criterion, which I will call the presumptive position. They propose that an agency explain "how" the

---

[298](...continued)
growth and destroy jobs); Sharon Begley, *Too Much Hot Air (Global Warming Policy)*, NEWSWEEK, Oct. 20, 1997, at 49 (industry and conservative think tanks estimate that implementing the Kyoto Protocol would produce the loss of 600,000 jobs). *Cf.* Bruce D. Fisher, *The Ethical Consumer: A Rejecter of Positive Law Arbitrage*, 25 SETON HALL L. REV. 230, 238, n. 22 (1994) (environmental regulation may become a scapegoat for companies laying off workers for other reasons).

[299] *See, e.g.,* Hahn & Sunstein, *supra* note 12, at 1493 (arguing that expensive regulation may increase unemployment and hence poverty). *Cf.* id. at 1493 n. 16 (noting, only in the footnote, that high regulatory costs may increase employment).

[300] *See* SUNSTEIN, COST-BENEFIT STATE, *supra* note 1, at 25-26 (questioning neoclassical assumptions and then stating that the "strongest arguments" for CBA reflect "common sense, informed by behavioral economics and cognitive psychology."); Sunstein, *Constitutional Moments, supra* note 255, at 253 (CBA would be undesirably if it lead to implementation based on economic efficiency concepts rooted in willingness to pay). *Cf.* Sunstein, *Relative Position, supra* note 15, at 331 (criticizing regulations as having high costs not justified by corresponding benefits).

[301] SUNSTEIN, COST-BENEFIT STATE, *supra* note 1, at 8-9; Sunstein, *Constitutional Moments, supra* note 255, at 290 (discussing environmental law's "distributive" goals approvingly).

[302] *See, e.g.,* Hahn & Sunstein, *supra* note 12, at 1498 (CBA is a tool and a procedure, not a rigid formula to determine outcomes); Adler & Posner, *supra* note 14, at 195 (describing CBA as a "decision procedure" not as a criterion).

[303] *Cf.* Chemical Mfrs. Ass'n v. EPA, 870 F.2d 177, 204 (5th Cir. 1989) (explaining that requirement that agency consider costs and benefits did not yield any particular test).

benefits exceed costs.[304] If costs outweigh benefits, a presumption against "proceeding" should apply.[305] The agency could overcome the presumption against the promulgation of regulation on distributional or some other grounds.[306] And a recent book by Professor Sunstein goes further, suggesting that courts should invalidate regulations producing costs greatly exceeding benefits.[307] This position presumes that a cost-benefit criterion should apply, but allows for some exceptions on distributional grounds. This proposal converts CBA from a consideration into a criterion presumptively determining the results of regulation.

A survey of some of the most prominent rationales these CBA proponents advance follows. My main goal here involves giving the reader a sufficient understanding of the principal points these writers make to ground an analysis of the question of whether they have adequately explained a preference for CBA or a cost-benefit criterion over a preference for the feasibility principle.

*1. Overall Well-Being* – Matthew Adler and Eric Posner claim that CBA tends to advance "overall well-being."[308] While this may seem similar to the standard neoclassical claim that CBA advances optimal pollution levels, Adler and Posner claim that their theory provides a new rationale for CBA.[309] And their argument contains qualifiers that one would not find in a completely neoclassical position.[310]

They argue that regulation's effect on "overall well-being" is "morally relevant," but not necessarily decisive.[311] Distributive or deontological considerations (among others) may matter more than a regulation's impact on overall well- being.[312]

They also argue that CBA often, but not always, advances the goal of overall well-being, if predicated upon desires rather than

---

[304] *See* Hahn & Sunstein, *supra* note 12, at 1498.

[305] Id. at 1498.

[306] Id. at 1498-99.

[307] SUNSTEIN, RISK AND REASON, *supra* note 2, at 119-120.

[308] *See* Adler & Posner, *supra* note 14, at 194-95.

[309] *See* id. at 177 (claiming that CBA does not depend upon the goal of maximizing unrestricted preferences).

[310] *See generally* Matthew D. Adler, *Risk, Death, and Time: A Comment on Judge William's Defense of Cost-Benefit Analysis,* 53 ADMIN. L. REV. 271, 271 (2001) (declaring support for CBA, but stating that this support is "more tentative" than Judge William's support).

[311] *See* Adler & Posner, *supra* note 14, at 194, 196.

[312] Id.

preferences.[313] They claim that a regulation enhances overall well-being if the beneficiaries of regulation receive "welfare gains" exceeding the "welfare losses" of those who pay for regulation. They only offer a rudimentary definition of overall well-being: They do not explain precisely what it means to say that "welfare gains" exceed "welfare losses" to others when the "losses" involve death, illness, and ecological destruction.[314] But they do explicitly defend the notion that comparison of one person's welfare gains to another's losses is possible.[315]

Adler and Posner claim that their conception of CBA differs from that of traditional economics.[316] They do not believe that government should base its valuation of costs and benefits upon the "unrestricted preferences" of consumers.[317] Rather, they would base valuation of costs and benefits upon estimates of "desire" for (or against) regulation.[318] They embrace agnosticism about the precise content of desire, and therefore desire-based measurement of costs and benefits, but they reject using willingness to pay and willingness to accept payments as the

---

[313] *See* id. at 194-95.

[314] Adler & Posner suggest that overall well-being arises from a positive sum of welfare equivalents, defined as payments sufficient to make the recipient or payor as well off after the project as before (absent distributive concerns) under the right theory of individual well being. *See* Adler & Posner, *supra* note 119, at 1106-07. This proposal itself is not a conceptual definition. It seems to amount to a kind of Kaldor-Hicks efficiency transposed. But Adler and Posner reject Kaldor-Hicks efficiency. Id. at 1106; Adler & Posner, *supra* note 14, at 190-91. *Cf.* Posner, *supra* note 1, at 1156 (finding it "unlikely" that CBA would pass a pragmatic test if "Kaldor-Hicks efficiency has no social value").

In a subsequent article, however, Matthew Adler sketches a theory of how one gets from individual welfare to overall well-being. Matthew D. Adler, *Beyond Efficiency and Procedure: A Welfarist Theory of Regulation,* 28 FLOR. ST. U. L. REV. 241, 289-302 (2000). But he employs an objectivist approach to these comparisons that would not approximate the dollar-based comparisons of CBA. I have argued elsewhere that compensation for death or serious illness adequate to actually compensate a welfare loss is impossible. *See* Driesen, *supra* note 4, at 588-89. Adler and Posner do not explain how characterizing these losses as welfare equivalents solves this problem. Nor do they explain how a welfare gain can exceed a loss without a solution to this.

[315] Adler & Posner, *supra* note 14, at 204-209.

[316] Id. at 196.

[317] Id. at 196.

[318] Id. at 198-199 (explaining the writers' concept of desire).

measuring rod.[319] They define desire in terms of having an attitude favoring or disfavoring a project.[320]

A major puzzle in this overall well being theory involves the question of whether his theory supports CBA in a significant number of cases involving environmental, health, and safety regulation. Adler and Posner suggest that it does.[321] They argue that CBA might by sufficiently accurate in tracking "the welfare effect of projects . . . **given its relative cheapness and transparency**" to justify its use.[322] This suggests that the judgment about CBA's value involves a subsidiary judgment that CBA is more transparent and cheap than, say, the feasibility principle (or feasibility analysis).[323] The relative cheapness point is simply wrong, as this article has already demonstrated.[324] CBA is much more expensive and difficult than feasibility analysis.[325] The transparency claim will receive more extended treatment as we proceed.

They also argue that CBA more accurately approximates overall well-being than a feasibility-based "procedure."[326] They equate a

---

[319] *See* id. at 196-97 (rejecting willingness to pay and willingness to accept as presupposing a "preference-based view of welfare). They are not alone in doing so. *See, e.g.,* Nussbaum, *supra* note 219, at 1028-29 (rejecting willingness to pay on a variety of grounds).

[320] Adler & Posner, *supra* note 14, at 198-99.

[321] Id. at 194-195.

[322] Id. at 195 (emphasis added).

[323] *See* id. at 168 (feasibility analysis will typically be costlier than CBA).

[324] *Cf.* id. at 232 n. 179 (doubting that the criterion of technological feasibility is cheaper and easier to implement correctly than CBA).

[325] *See generally* Sunstein, *Constitutional Moments*, *supra* note 255, at 300 ("calculation of both costs and benefits can be enormously difficult"). They seem to recognize the fragility of this point later in the article and rest their case, in part, on an "assumption" that CBA and other multidimensional procedures only involve the direct costs of information-gathering and processing. Adler & Posner, *supra* note 14, at 232-33. This assumption ignores the long history of CBA creating a very expensive opportunity cost, the continuation of death and illness during a protracted disputes about the accuracy of CBA and the total defeat of all regulation, good or bad, for a very long time under statutory provisions heavily dependent upon it. *See* Driesen, *supra* note 4, at 601-604; DRIESEN, *supra* note 206, at 212; McGarity, *supra* note 82, at 2343 (CBA "thoroughly stymied government action" under both FIFRA and TSCA); William J. Nicholson & Philip J. Landrigan, *Quantitative Assessment of Lives Lost Due to Delay in the Regulation of Occupational Exposure to Benzene,* 82 ENVTL. HEALTH PERSP. 85, 185 (1989) (suggesting that delay in regulating occupational exposure to benzene causes 30-490 cases of leukemia). Even without opportunity cost, however, CBA is much more expensive than feasibility analysis.

[326] *See* Adler & Posner, *supra* note 14, at 225, 231-32.

feasibility requirement with a concern for job security, an analysis this article agrees with.[327] They object to this on the grounds that the feasibility requirement rejects shutting down an industry, even when the benefits to "consumers and citizens" would justify the closure.[328] Thus, their view about the relative accuracy of CBA in tracking general welfare better than a feasibility principle relies, in part, upon a premise that CBA will lead to desirable shutdowns of an industry that a feasibility approach would reject.

*2. Priority-Setting*. – Almost all regulatory reformers claim that CBA improves priority setting.[329] Specifically, they argue that CBA will encourage regulators to reallocate resources to better address high priority health and safety issues.[330] I have questioned the view that CBA reallocates resources from one environmental, health, or safety problem to another elsewhere.[331] CBA of particular regulatory standard setting decisions does not influence priority setting, at least under a common sense understanding of priority setting.[332] CBA in this context (which is where it is employed) involves the use of CBA as an aid in making choices about how much pollution reduction to make from a particular industry. Priority setting, however, usually refers to "selection," the choosing of items to place on an agenda, or "ordering," decisions about which actions on the agenda an agency should accomplish first.[333] But CBA of standards does not address either selection or ordering, except in the rare case where CBA led to the conclusion that an entire regulatory activity should be dropped altogether.[334] Normally, however, CBA

---

[327] Id. at 231-32.

[328] Id. at 232-33. *See also* Sunstein, *Everyone, supra* note 224, at 312 (arguing that a cost-benefit "requirement" might be more protective than a feasibility requirement in cases where the benefits outweighed the costs of shutting down facilities).

[329] *See, e.g.,* Hahn & Sunstein, *supra* note 12, at 1490 (suggesting that CBA might cure poor priority setting). *See also* BREYER, *supra* note 289 (finding a serious problem of priority setting, but not recommending CBA as a remedy).

[330] *See, e.g.,* Tommy O. Tengs and John D. Graham, *The Opportunity Costs of Haphazard Social Investments in Life-Saving,* in RISKS, COSTS, AND LIVES SAVED: GETTING BETTER RESULTS FROM REGULATION ch. 8 (Robert W. Hahn ed., 1996).

[331] *See* Driesen, *supra* note 122.

[332] *See* id.

[333] Id. at 10004-10008.

[334] *See* id. at 10011-10020.

influences agency decisions about regulatory stringency, not priority setting.[335]

Regulatory reformers, however, consider CBA a form of priority setting, because they imagine that stringency determinations divert resources from some health and safety priorities to others.[336] Thus, they suggest, for example, that stringent regulation of toxic substances involves investment of monies that might be better spent on vaccinating children or automobile safety.[337] As Professor McGarity points out, the reformers do not explain how reductions in stringency lead to fuller funding of their preferred health and safety priorities.[338] The argument for priority setting rests on the point that in theory reduction in stringency of one regulation could free up resources to spend on other health and safety priorities, and that increases in stringency could reduce the resources for alternative priorities.

*3. Democracy and Rationality*. – Regulatory reformers make a group of arguments that sound in democracy and/or rationality. Cass Sunstein, and Stephen Breyer, for example, argue that public hysteria unduly influences regulation.[339] Professors Sunstein and Kuran have described a psychological process by which the masses become convinced that a pollutant is harmful, even though no evidence supports that belief. Sunstein seems to assume that hysteria's influence explains anomalies he finds in regulatory decisions.[340] Sunstein and other regulatory reformers argue that CBA checks responsiveness to this hysteria.[341]

Conversely, Sunstein argues that CBA aids democratic accountability. Sunstein uses the term "democratic accountability" in an idiosyncratic way. He does not mean to suggest the bureaucrats should

---

[335] *See* id. at 10018.

[336] *See* BREYER, *supra* note 289, at 67 (suggesting that money saved from laxer regulation could fund mammograms, prenatal care, and childhood vaccinations).

[337] *See, e.g.,* Geistfeld, *supra* note 200, at 122 (using a vaccination example).

[338] *See* McGarity, *supra* note 1, at 34-35, 39-49, 50-54. *See also* Driesen, *supra* note 122, at 10017.

[339] BREYER, *supra* note 289; Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation,* 51 STAN. L. REV. 683, 753 (1999).

[340] *See, e.g.,* RISK AND REASON, *supra* note 2, 156-159 (linking public hysteria to the outcry that forced the Bush administration to reinstate the standard for arsenic approved by the National Academy of Sciences).

[341] *See* Kuran & Sunstein, *supra* note 339, at 753; Williams, *supra* note 1, at 753.

do what people want.[342] Quite to the contrary, he views CBA as a useful impediment to fulfilling public desires, which he views as frequently hysterical.[343] Instead, he claims that CBA would make the basis for decisions transparent and thereby aid democratic "accountability."[344] He does not explain precisely why CBA would aid either transparency or accountability or what he means by democratic accountability in the context of administrative rulemaking.[345]

Eric Posner echoes this accountability theme and gives it more specific content. He claims that CBA ensures that "elected officials maintain power over agency regulation."[346] CBA, writes Posner, converts a relationship based on asymmetric information to one based on "full information."[347] In particular, CBA provides the elected officials with information that they can use to figure out whether the proposed regulation is in their interest.[348] He claims that CBA performs this function even when the elected official has no interest in the project's efficiency.[349]

Sunstein claims that CBA would reduce special interest influence on legislation.[350] While he does not define special interests, he apparently intends to include environmental groups and industry in this rubric.[351]

Again, Eric Posner provides a theory supporting Sunstein's assertion. Professor Posner argues that government possession of CBA will lessen special interest groups' ability to gain influence over politicians by surprising officials with new information that the special

---

[342] *See* Posner, *supra* note 1, at 1190 (responding to the hysteria argument by arguing that there "is no warrant for imposing" CBA "in the teeth of public opinion" demanding "inefficient regulation").

[343] *See* SUNSTEIN, RISK AND REASON, *supra* note 2, at (rejecting a concept of democracy rooted in government responsiveness to citizens' demands and arguing that government should resist ill-informed demands).

[344] *Cf.* McGarity, *supra* note 260, at 202-20 (identifying transparency with open public process and candid explanation of assumptions used in risk assessment).

[345] *Cf.* Hahn & Sunstein, *supra* note 12, at 1496 (stating that requiring that an agency justify regulations flunking a cost-benefit test would promote transparency and accountability).

[346] *See* Posner, *supra* note 15, at 1141.

[347] *See* id. at 1143.

[348] *See* id. at 1143.

[349] *See* id. at 1147.

[350] *See* SUNSTEIN, RISK AND REASON, *supra* note 2, at 107.

[351] *See* SUNSTEIN, COST-BENEFIT STATE, *supra* note 1, at 9; Hahn & Sunstein, *supra* note 12, at 1502-03 (referring to "public interest groups" as interest groups).

interests possess.[352] By better informing officials, CBA presumably will partially innoculate them against special interest claims.

Finally, several CBA proponents claim that CBA will make decision-making more "rational" and less "ad hoc."[353] They consider regulations irrational and ad hoc primarily because they generate uneven ratios of dollars spent to lives saved.[354] Paradoxically, most of these reformers recognize that environmental regulation might rationally require significant expenditures to protect the environment itself and prevent non-fatal illnesses, which would suggest that decisions with high dollars per life saved ratios might by quite rational, but predicated on harms that do not involve significant likelihood of death.[355] Furthermore, Lisa Heinzerling and Richard Parker have shown that the data from which they derive their central conclusions suffers from gross defects.[356] Nevertheless, the "soft" cost-benefit advocates use this extremely limited and questionable data to suggest that regulation without CBA consists primarily of ad hoc responses to public hysteria and special interest pressure.[357] Conversely, they suggest that CBA involves technocratically rational decisions insulated from interest group pressure.

*4. Absolutism*. – Sunstein claims that "many" statutes "forbid balancing" and "call for absolutism."[358] Sunstein suggests statutes that

---

[352] *See* Posner, *supra* note 15, at 1174.

[353] *See, e.g.,* SUNSTEIN, RISK AND REASON, *supra* note 2, at 99-132 (arguing that CBA seeks to increase the influence of scientific fact in risk regulation).

[354] *See, e.g.,* Sunstein, *Constitutional Moments, supra* note , at 257-260. *See also* BREYER, *supra* note 289, (using this same critique to justify insulating regulatory decisions from democratic processes); Driesen, *Priorities*, *supra* note 122, at 10008-10014 (describing Sunstein and Breyer's argument in detail).

[355] *See* SHAPIRO & GLICKSMAN, *supra* note 6, 81-82 (showing that a regulation listed as having the worst dollars per lives saved ratio focused on environmental, not health, benefits). *Cf.* John Broome, *Cost-Benefit Analysis and Population,* 29 J. LEGAL STUD. 953, 956 (2000) (reporting an estimate that climate change induced deaths constitute only 18 percent of the harm it will cause).

[356] Parker, *supra* note 74; Lisa Heinzerling, *Regulatory Costs of Mythic Proportions,* 107 YALE L. J. 1981 (1998). *See also* McGarity, *supra* note 1, at 36 (showing that Robert Hahn left out regulations generating enormous benefits in order to manufacture a conclusion that government's own estimation of costs and benefits shows that regulation is too costly).

[357] *See, e.g.,* SUNSTEIN, RISK AND REASON, *supra* note at 78-98 (suggesting that hysteria tends to rule environmental policy absent CBA).

[358] Sunstein, *Constitutional Moments, supra* note 255, at 300.

statutes defined in terms of "health or technology" are "absolutist."[359] While Sunstein does not explain precisely what he means by absolutism, I will assume that he would describe a statute that forbids consideration of cost as absolutist. But the statutes Sunstein cites authorize or require consideration of costs most of the time. For example, the Clean Air Act, as explained above, contains numerous provisions requiring consideration of cost, often as part of technology-based setting of specific emission standards.[360]

Some of Sunstein's more careful later writing refers to the Clean Air Act provision for setting the NAAQS and the Delaney Clause, which once wholly prohibited introduction of carcinogenic additives to food, as examples of absolutism.[361] We should therefore understand Sunstein as objecting to statutory **provisions** that forbid consideration of cost as absolutist, rather than as claims about whole statutes.

Sunstein has also recently recognized that absolutism may be justified in some circumstances. He argues that the Endangered Species Act, which does not permit consideration of costs in many circumstances, for example, might be justified.[362] For present purposes, the main point is that Sunstein argues that avoidance of absolutism, which apparently means cost-blindness, justifies CBA.

## IV. CBA AND THE FEASIBILITY PRINCIPLE.

The advocates of CBA who agree that environmental law should take distribution into account have not adequately explained why they prefer CBA to the feasibility principle. I will argue here that the feasibility principle works well enough in terms of these reformers' own criteria for regulation to make their support for CBA difficult to understand.

### *A. Job Loss and Richer is Safer*

---

[359] Id. at 300.

[360] *See, e.g.,* 42 U.S.C. §§ 7411(a), 7412(d).

[361] *See* Public Citizen v. Young, 831 F.2d 1108 (D.C. Cir. 1987) (holding that the Delaney clause absolutely bars carcinogenic food additives); Les v. Reilly, 968 F.2d 985 (9th Cir. 1992) (striking down EPA's policy of creating a de minimis exception to the Delaney clause for pesticides); American Trucking Ass'ns v. Browner, 531 U.S. 457, 464-471 (2001) (EPA may not consider cost in promulgating the NAAQS under the Clean Air Act). *Cf.* McGarity, *supra* note 260, at 116 (describing the political negotiations leading to partial repeal of the Delaney clause).

[362] *See* SUNSTEIN, *supra* note 1, at 68-69.

If one assumes that regulatory killing is a serious problem, which is a very dubious idea, then the feasibility principle offers a more targeted and effective solution than CBA. The richer is safer hypothesis relies upon the proposition that lower individual wealth causes more death and illness. Analysis of the cost of a regulation by itself does not tell one whether it increases or diminishes individual wealth. A regulation causes a shift in resources toward environmental, health, and safety priorities. Thus, for example, environmental regulation of a company making widgets, diverts resources from widget making to protection of public health and the environment. It does not directly diminish wealth. For example, suppose that a company earning ten million dollars must spend $100,000 annually on regulatory compliance. The company may increase wealth by hiring unemployed people to install pollution control equipment or figure out pollution prevention alternatives.[363] The loss of $100,000 might have some negative effect that might offset the increase in wealth from the added employment (unless the company avoided the projected cost through money saving innovation). The company might reduce the CEO's salary, limit dividends to shareholders, raise price for customers, or lower workers' salaries.[364] But the question of whether increased cost diminishes or increases the wealth of individuals depends primarily upon the distribution of costs, not their magnitude. If the CEO's salary gets reduced from 2 million to 1.9 million, this will not effect health.[365] Likewise, even the richer is safer crowd will not usually posit a health impact from a minor price increase spread over a large population, or a reduction in dividends. But a shutdown, with attendant job losses, might effect health or safety negatively under the richer is safer argument. Basically, the distribution of costs proves crucial to the richer is safer argument.

As I have explained, the feasibility principle focuses upon this distributional issue by asking whether widespread shutdowns are possible. And it provides a restraint designed to address that issue in the

---

[363] *See* Driesen, *supra* note 4, at 573; GOODSTEIN, *supra* note 183, at 41.

[364] *See* American Dental Ass'n v. Martin, 984 F.2d 823, 829 (7th Cir. 1993) (Posner J.) (industry subject to higher cost will raise prices and reduce output, thus shifting cost to customers and suppliers); American Frozen Food Inst. v. Train, 539 F.2d 107, 139-40 (D.C. Cir. 1976) (contemplating price rises for frozen food as a result of compliance with Clean Water Act requirements).

[365] *See* McGarity, *supra* note 1, at 46 (correlation between wealth and health disappears once income exceeds $20,000).

scenario most likely implicate the richer is safer argument, the situation of a regulation leading to significant numbers of lost jobs.

By contrast, the indeterminate position offers no response to the richer is safer argument, since it only posits analysis, not a particular response to the analysis. Moreover, CBA's analysis of job loss is radically ambiguous. Everything depends upon the framing of the analysis. If the agency employs a partial equilibrium analysis (an analysis focused on the immediate effects of a project) it may conclude that a regulation leading to plant closures triggers job losses.[366] But if the agency employs a "general equilibrium" analysis (analyzing the project's impact upon the economy as a whole) the job losses may disappear.[367] For competitors able to bear the increased cost without firing workers or using processes that do not trigger comparable regulations may hire more people to meet the demand the company shutting down operations can no longer meet. So a decision-maker considering a project that will shutdown plants may get a CBA projecting no net job loss or a projected job loss. It all depends upon the cognitive heuristics of government economists.

The presumptive position does not take a clear stance on the issue of job loss either. Indeed, the presumption against regulatory costs exceeding regulatory benefits might defeat regulation increasing employment, and thereby making people richer and safer. Furthermore, the presumption fails to presumptively stop regulation that would yield benefits exceeding costs, but would create unemployment implicating the richer is safer hypothesis.

The proponents of soft CBA have sketched out a flexible enough position to allow them to claim that they would address this problem as

---

[366] *See, e.g.,* AIR QUALITY STRATEGIES AND STANDARDS DIV., U.S. EPA, ECONOMIC ANALYSIS FOR THE PETROLEUM REFINERIES NESHAP 117-119 (1995) (included in the docket accompanying National Emission Standards for Hazardous Air Pollutants: Petroleum Refineries, 60 Fed. Reg. 43244 (August 18, 1995) (codified at 40 C.F.R. pts. 9, 59 and 63) (partial equilibrium analysis predicts the loss of 114 jobs from a decline in production induced by regulation);Effluent Guidelines and Standards; Electroplating Point Source Category; Pretreatment Standards for Existing Sources, 44 Fed. Reg. 52,590, 52,594 (Sept. 7, 1979) (EPA's analysis focuses on "the ability of individual plants to bear the cost of compliance").

[367] *See, e.g.,* EPA, ECONOMIC ANALYSIS, *supra* note 366, at 117-119 (partial equilibrium analysis left out potential gains in employment from operation and maintenance of pollution control technology and from producers of substitute products and potential losses from petroleum users and producers of complimentary products); Electroplating Effluent Guidelines, 44 Fed. Reg. at 52,594 (EPA's analysis did not consider economic growth from surviving firms that might take up the market share of those that could stay open and comply).

well as feasibility analysis does. But to support this claim, they would have to specify more precisely how to tailor a cost-benefit criterion toward that end. They certainly have given no reason to believe that the "cost-benefit state"[368] responds better to the richer is safer problem than the feasibility restraint. And it makes sense for Congress, rather than technocrats to decide how much emphasis job loss should receive as a general matter.

### *B. Overall Well-Being.*

Either Adler and Posner's concept of overall well-being or their exceptions to its hegemony can justify feasibility analysis better than CBA. Let's begin with the exceptions.

Adler and Posner recognize that deontological and distributive considerations may prove more significant than overall well being.[369] That view might well lead to the conclusion that CBA should not apply to risk regulation. After all, many scholars believe that the primacy many existing statutes give to avoiding death, illness, and ecological destruction does involve equitable and deontological principles.[370] Professor Adler agrees with this conventional view to some degree, for he states that CBA breaks down for actions involving death.[371] And the same reasoning might apply to illness and some types of ecological harms, such as elimination of species.[372] So, it is not too surprising that Alder, notwithstanding strong suggestions in his earliest articles that CBA should apply broadly,[373] later states that risk regulation may not be an appropriate area for CBA.[374] Adler and Posner's tentative and qualified

---

[368] *See generally* SUNSTEIN, THE COST-BENEFIT STATE, *supra* note 1; Mcgarity, *supra* note 1.

[369] *See* Adler & Posner, *supra* note 14, at 196.

[370] *See, e.g.,* Nussbaum, *CBA, supra* note 219, at 1021-22, 1024 (listing life, bodily health, and environmental protection as basic entitlements and arguing that "economic loss" unrelated to basic capabilities does not justify a failure to protect these basic entitlements).

[371] *See* Adler, *supra* note 310, at 272.

[372] *See* Adler, *supra* note 314, at 316 (discussing view that flourishing of endangered species, other animals, and ecosystems has intrinsic value "quite apart from human well-being").

[373] *See* Adler & Posner, *supra* note 14, at 238 (tentatively endorsing CBA's use for large projects, except where wealth differences from project winners and project losers are substantial enough).

[374] *See* Alder, *supra* note 310, at 273; Adler, *supra* note 314, at 319 (suggesting that

(continued...)

endorsement of CBA suggests that they themselves might accept the proposition that for at least some risk regulation, CBA is not justified.[375]

I have already spelled out in some detail a justification for the view that the feasibility principle handles distributive concerns well. Feasibility analysis has the virtue on focusing upon costs and harms that matter, because of their distribution.

One might wonder about whether the feasibility principle has any status as a moral principle. After all, it does not give avoidance of death or illness absolute primacy over all considerations. This, however, should not disqualify it as based on moral principle. After all, even the commandment not to murder (which is relevant to death causing pollution), does not apply regardless of countervailing considerations. Self-defense, for example, can justify murder.[376] But the narrowness of the exceptions to the injunction against murder suggests that only a few qualitative justifications will do. One cannot justify murder on the grounds that the person murdered has no value and irks the murderer, who is a wonderful person bestowing great gifts upon everyone she meets. Perhaps the moral imperative to avoid killing and causing illness as we produce useful and pleasant things should yield, at least initially, to some countervailing considerations, but not all. I cannot defend this view completely here, but I have said enough to show that Adler and Posner have not foreclosed the possibility that feasibility might be justified as better than CBA on distributive or deontological grounds, even under their own theory, for most, and perhaps all, environmental, safety, and health regulation.

My claim that the feasibility principle might better track overall well-being than a cost-benefit criterion requires a little more immersion in the particulars of Adler and Posner's views. In explaining how one might modify preferences to conform to an appropriate desire-based measure of well being, they suggest that people experiencing the

---

[374](...continued)
regulators may need to attend to deontological, perfectionist, or distributive criteria, not just overall well-being).

[375] *See* Adler & Posner, *supra* note 14, at 238-43 (describing their endorsement of CBA as "tentative"); Matthew D. Adler, *The Positive Political Theory of Cost-Benefit Analysis: A Comment on Johnston,* 150 U. PENN. L. REV. 1429, 1429 (2002) (CBA may lower overall well-being). *Cf.* Adler, *supra* note 314, at 312-13 (suggesting that a robustly deontological view of regulation is wrong, but admitting that he has not shown why that is so).

[376] *See* Oliver Wendell Holmes, Jr, *Theories of Punishment and the External Standard,* 31 *reprinted in* CRIME, LAW, AND SOCIETY (Abraham S. Goldstein and Joseph Goldstein eds. 1971).

consequences of a project must feel something for their desires to have any impact on overall well-being.[377] They label this the "affect requirement."[378] Most people's experience with the cost of pollution control might not meet the "affect" requirement. The concentration principle would suggest that few people strongly desire the avoidance of imposition of cost to achieve pollution reduction goals, at least so long as products they want do not disappear from the market (something the feasibility principle guards against). Many people may not have strong desires regarding minor changes in prices, the most probable effect of large regulatory burdens not running up against the feasibility principle's cost constraint.[379] This lack of affect might help explain why opinion polls indicate that most people believe that environmental policy should not take cost into account at all.[380] Indeed, since free market innovation and competition tend to lower prices over time, increased cost from environmental regulation often limits a drop in price, rather than actually raising prices in absolute terms.[381] When this drop occurs, desire to avoid the cost will prove almost non-existent, even if the total dollars involved are large.

Even for businesses that cannot pass on regulatory costs through price increases, the compliance requirement may produce a task for managers, rather than a direct experience having an affect that matters. Alternatively, it may produce a feeling of annoyance that bears little relationship to the cost of compliance. In some managers, it may even produce a positive feeling of contributing to social goals.[382]

---

[377] *See* Adler & Posner, *supra* note 14, at 203 (describing the "affect requirement" as something that perhaps must hold true in order for a desire to improve an individual's well being); Adler & Posner, *supra* note 119, at 1114 (suggesting that a preferences-based view might have to modified to require affect and experience).

[378] Adler & Posner, *supra* note 14, at 203.

[379] *See, e.g.,* Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 387-88 (D.C. Cir. 1973) (predicting small price changes from implementation of a new source performance standard). *Cf.* Adler, *supra* note 310, at 1333 (suggesting that only vivid experience influences welfare).

[380] See GARY C. BRYNER, BLUE SKIES GREEN POLITICS: THE CLEAN AIR ACT OF 1990 AND ITS IMPLEMENTATION 1 (1995) (70 percent of Americans believe that requirements cannot be too stringent and that improvements must be made regardless of cost).

[381] *See, e.g.,* David M. Driesen, *Sustainable Development and Air Quality: The Need to Replace Basic Technologies with Cleaner Alternatives,* 32 ENVT'L L. REP. (Envt'l L. Inst.) 10277, 10285 (2002) (discussing the decrease in electricity prices that followed the United Kingdoms replacement of 40% of its coal-fired generation with natural gas).

[382] Adler & Posner might reject this feeling's relevance to an assessment of overall well-being. They suggest that disinterested or morally motivated preferences should not

(continued...)

Adler and Posner also argue that objective good might matter to overall well-being, not just preferences.[383] Life, health, and good environmental quality rank high on philosophers' scale of objective value.[384] And an extensive literature questions the notion that our accelerating accumulation of goods really makes us better off, even if we show a preference for the goods we acquire by buying them.[385] Even if some goods and services (such as medicine) improve well-being, many purchases might fail to objectively improve the lives of purchasers (consider fatty foods and television). That failure implies that an appropriate desire-based measure of well-being might only count a fraction of environmental regulation's cost as having a negative influence upon overall well-being. This need to disregard much of regulation's cost (or even to treat some cost as improving overall well-being, because raising prices may improve people's lives by decreasing consumption of harmful products) suggests that CBA may not track overall welfare as well as a feasibility principle, which tends to focus on costs that have objective importance in pursuing benefits of great objective importance.

---

[382](...continued)
count. Adler & Posner, *supra* note 119, at 1112-13. This particular example, however, raises some issues under their theory, because this is not an abstract desire for or against a project. This is an aspect of the experience of a participant in the project feeling its effects. *Cf. See* Qizilbash, *supra* note 285, at 58-59 (arguing that the line between self-regarding and other-regarding desires is not bright). Some people may reject their view that moral and disinterested preferences are irrelevant to welfare. *See, e.g.,* Posner, *supra* note 1, at 1168 (questioning the exclusion of the value of fulfilling a duty from CBA).

One can argue that in theory even a widely distributed cost might have a horrific effect upon a particular individual. A small increase in the price of coca-cola might cause a poor person to spend her last ten dollars on a six-pack, just before she discovers that she has a life threatening illness that requires treatment requiring all her resources, plus the $10.00 she just spent on a six pack. But no regulatory analysis would ever predict this, and if it tried to, it would stop a lot regulation saving real lives because of fantasies very unlikely to come into fruition.

[383] *See* Adler & Posner, *supra* note 14, at 203-04; Adler & Posner, *supra* note 119, at 1114.

[384] *See* Nussbaum, *CBA, supra* note 219, at 1021-22 (listing life, bodily health, the ability "to live with concern for and in relation to animals, plants, and the world of nature" as "central human capabilities"). *See also* BRYNER, *supra* note 380, at 1 (70 percent of Americans believe that requirements cannot be too stringent and that environmental improvements must be made regardless of cost).

[385] *See, e.g.,* JOHN KENNETH GALBRAITH, THE AFFLUENT SOCIETY (1976); JULIET B. SCHOR, THE OVERWORKED AMERICAN: THE UNEXPECTED DECLINE OF LEISURE (1991).

Adler & Posner also argue that perhaps only well-informed desires track well being.[386] That principal could defeat the most important components of modern CBA.[387] For example, current estimates of the value of human life rely upon theories about the uninformed desires of workers.[388] Some economists have claimed that companies pay workers more to take high risk jobs. They derive dollar estimates of the value of human life from data about the claimed differential between high risk and low risk jobs.[389] But nobody claims that the workers accepting these "risk premiums" know whether or not the jobs they undertake will kill them, or even know the magnitude of the risk involved. A worker knowing that a job would kill him might well turn it down, suggesting, perhaps, an infinite value for life.[390]

The difference between current CBA practice and measurement of desires under Adler and Posner's views about well-being (if measurement is possible under Adler and Posner's theory)[391] seems vast, even respecting the most easily quantifiable items. All of these sources of substantial deviation between current monetization practices and the well-being theory's requirements suggest that feasibility analysis might track overall well being, as they define it, better than CBA.[392] Feasibility analysis measures some relevant welfare equivalents, while CBA profligately produces numbers deviating so far from a good estimate of well-being that they grossly mislead regulators. Furthermore, for reasons

---

[386] *See* Adler & Posner, *supra* note 119, at 1114; Adler & Posner, *supra* note 14, at 203.

[387] *Cf.* Adler, *supra* note ?, at 1401 (current formula for calculating death is incorrect).

[388] *See* Broome, *supra* note 355, at 958 (because people's preferences regarding risk are muddled and incoherent, it is implausible to accept their preferences as a proper valuation of their lives).

[389] *See, e.g.,*W. Kip Viscusi, *The Dangers of Unbounded Commitments to Regulate, in* RISKS, COSTS, AND LIVES SAVED 141-148 (Robert W. Hahn ed. 1996).

[390] *See* Driesen, *supra* note 4, at 588-89. *See also* Mathew D. Adler, *The Puzzle of "Ex Ante Efficiency": Does Rational Approvability Have Moral Weight,* 151 U. PENN. L. REV. 1255 (2003) (arguing against the moral relevance of preferences before the outcomes an individual's decision is known).

[391] Adler & Posner concede that their concept of welfare equivalents would prove difficult to calculate. *See* Adler & Posner, *supra* note 119, at 1115.

[392] Adler & Posner have claimed that regulators have made many adjustments that make CBA practice fit their theories better than "textbook CBA." *See* Adler & Posner, *supra* note 119, at 1118-1124. But it does not follow that these adjustments suffice to make them even approximate overall well-being, as Adler and Posner define it. Their claim that it "is likely to" represents a hunch, not a careful comprehensive comparison of actual CBA to the requirements of a specific theory of desire-based "welfare equivalents."

set out in the margin, most environmental problems may be indeterminate in principal with regard to overall well-being as Adler elaborates it.[393]

Professors Adler and Posner argue that CBA would lead to desirable regulation that allowed widespread job loss, which a feasibility criterion would reject. They do not explain why and how CBA would encourage more stringent regulation. The presumptive position certainly does nothing to encourage stringent regulation. For this position only requires that benefits exceed costs. If the benefits of a standard producing widespread shutdowns would produce benefits exceeding costs, so would a milder standard not requiring shutdowns. The presumptive position would not demand pursuing additional worthwhile benefits for greater cost. Hence, the presumptive position acts as a one-way ratchet reducing the stringency of regulation and does nothing to correct the problem of failing to shut down plants to achieve important environmental goals.

The indeterminate position would not necessarily lead to justifiable shutdowns of industry either. CBA operating as a decision-making procedure,[394] rather than a criterion, would presumably take place

---

[393] Professor Adler argues that interpersonal comparisons are problematic under views of well-being that rely upon the preferences used to produce dollar estimates in CBA. *See* Adler, *supra* note 314, at 295. So, Adler argues for an objectivist approach to interpersonal comparison. Id. at 297. Under his view, a project positively affects overall well-being if "everyone" would prefer experiencing losses under project to experiencing the losses associated with the status quo. *See* id. at 299 (explaining this in terms of letter symbols). Adler concedes that his approach is indeterminate in some cases, where everybody would not agree about whether it is better to incur the project's losses or those associated with the status quo. Id. at 300. This lack of agreement arguably will exist with respect to any environmental, health, or safety problem.

[394] Because their writing does not define a decision-making procedure, I have assumed here that agencies employing a cost-benefit decision-making procedure would consider CBA, but receive no statutory direction about what to do with it. But Eric Posner also discusses the possibility of using CBA as a reporting device, which might mean that it might not be part of agency decision-making. *See* Eric A. Posner, *Cost-Benefit Analysis as a Solution to the Principal-Agent Problem,* 53 ADMIN. L. REV. 289, 295 (2001) (suggesting the reporting of CBA to the public as a way of allowing them to evaluate the work of Congress, the President, and the administrative agencies). I have some reason to believe the authors actually meant that a regulation should be issued if the benefits are greater than the costs, although this is not a natural reading of their written argument. If they mean by this that a statute would stop a regulation estimated to generate costs in excess of benefits, at least presumptively, then they are recommending what I have called a cost-benefit criterion and the "decision-making procedure" locution simply adds confusion. *See* SUNSTEIN, *supra* note 1, at 21 (characterizing CBA as a procedural requirement as a requirement that agencies compile and disclose the analysis).

in the context of some statutory criterion,[395] which would likely control the question of whether plant shutdowns are allowed.

One could solve this problem by requiring that costs equal benefits.[396] This would require more stringent regulation when costs were too low relative to benefits and matches the demands of economic theory. No regulatory reformer, however, has proposed this and it is inconsistent with Adler and Posner's rejection of a distribution-blind economic efficiency rationale.

With or without CBA, a sufficiently vague statutory provision would permit an agency to shutdown an industry in order to pursue environmental goals.[397] It seems unrealistic to think that simply writing a CBA would encourage a legally unconstrained agency to shutdown plants, since this is a politically difficult act and CBA has usually been employed to reduce the stringency of regulation.[398] Moreover, Adler and Posner have not explained how an agency should determine when a shutdown is justified, taking into account distributional issues that they consider important. The feasibility principle has the advantage of including a fairly specific democratic judgment about that issue.

### *C. Priority Setting.*

---

[395] *See* Driesen, *supra* note 4, at 554-55 (explaining that CBA usually takes place under statutes not requiring cost-benefit decision-making).

[396] *See* id. at 582-83.

[397] I have found only one example of an agency subject to very little constraint choosing an approach that promised some shutdowns. In 1979, EPA chose a best practicable control technology standard that it estimated might shut down close to 20% of an industry subcategory. *See* Effluent Guidelines and Standards: Electroplating Point Source Category; Pretreatment Standards for Existing Sources, 44 Fed. Reg. 52,590, 52594 (September 7, 1979). In choosing this standard, the agency did not quantify the dollar value of environmental benefits or even quantify the amount of fish saved or illnesses avoided. Instead, it estimated the amount of effluent reduction avoided. Id. at 52,594. The third circuit held that this "limited cost-benefit analysis" justified the regulation. *See* National Ass'n of Metal Finishers v. EPA, 719 F.2d 624, 662 (3d Cir. 1983), *overruled on other grounds,* Chemical Mfrs. Ass'n v. NRDC, 470 U.S. 116 (1985).

[398] *See* Eric D. Olson, *The Quiet Shift of Power: Office of Management and Budget Supervision of Environmental Protection Agency Rulemaking under Executive Order 12291,* 4 VA. J. NAT. RES. J. 1, 55 (1984) (OMB has always used CBA to seek reduction in regulatory stringency). EPA employees generally claim that this remains true. But in recent years, some analysts have claimed that CBA has been used to encourage regulation. *See, e.g.,* SUNSTEIN, *supra* note 1, at 7 (discussing OMB "prompt" letters to encourage regulations). I cannot thoroughly address these competing claims in this article, but will address them in a forthcoming piece of the neutrality of CBA.

Neither the feasibility nor a cost-benefit criterion affects priority setting, properly conceived.[399] Instead, both influence the stringency of a particular regulatory decision.[400]

But I invite the reader to put aside well justified skepticism about the reformers' argument for the sake of comparative analysis. Assume that the cost-benefit approach influences priority setting, because money spent on regulation would flow to some other health or environmental priority if the regulation is restrained or abandoned. The same approach would logically apply to analysis of the feasibility principle's effect upon priority setting. The feasibility would tend to give priority to feasible regulation. It would, on the other hand, constrain unfeasible regulation. Money would go to other health and safety priorities when the addressing the existing priority is not feasible. Given CBA proponents view that distribution of cost matters, this seems like a reasonable priority setting approach, especially since stringent regulations for one industry can compensate for lax regulation in another addressing the same overall environmental problem.[401] Certainly, the regulatory reformers have said nothing justifying a contrary conclusion.[402]

---

[399] *See* Driesen, *supra* note 122, at 10020 (CBA will not address a priority setting problem).

[400] *See* id. at 10018.

[401] *See* Driesen, *supra* note 4, at 585-87 (explaining why efficient individual regulations will not lead to efficient outcomes for problems involving some unregulated pollution sources and multiple regulations).

[402] Bruce Ackerman and Richard Stewart, while rejecting CBA, have argued that best available technology (BAT) regulation, which the feasibility principle governs, is "inconsistent with sound priority setting." *See* Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives,* 13 COL. J. ENVTL. L. 171, 174, 194 (1988). Their arguments reflect exaggeration of the stringency of the feasibility principle and other flaws. They equate the BAT with "regulating to the hilt," id. at 174, a locution overlooking the cost and feasibility constraints. They then argue that this "regulation to the hilt. . . may prevent an agency from dealing adequately with other more serious problems that come to scientific attention later." Id. at 174-75. But strict regulation does not prevent an agency from moving on to new problems. Indeed, lax regulation, which has been common, tends to force agencies to address the same problem over and over again, thus limiting efforts to get on with new problems. They also suggest that the large compliance and administrative costs flowing from "BAT" regulation, (which conforms to the feasibility principle), will force agencies to "limit the number of substances" they address. Id. at 175. This argument seems to eschew strict priority setting in favor of more comprehensive regulation. In any event, I have argued elsewhere that an equation of stringency with large amounts of administrative resources constitutes a fundamental error, since the complexity of standard setting has more to do with the complexity of the analysis necessary to reach a result than the stringency of the regulation.

(continued...)

Analysis of science should play a role in priority setting, and it does.[403] Rejection of CBA does not imply rejection of some comparative assessment of risk in deciding which problems to attack first or the consideration of scientific data in deciding whether a problem is worth addressing at all.[404] Existing statutory provisions governing priority setting provide for consideration of the magnitude of harms in choosing priorities, but they do not require CBA.[405] Regulatory reformers ignore these provisions when they write as if the relevant choices involved CBA and an utter failure to consider data.[406] This impression is wholly misleading.

### *D. Democracy and Rationality.*

I have already noted that the democratic arguments advanced for CBA seem odd, since Sunstein, especially, clearly views CBA as a counter-majoritarian check on government responses to an irrational public. By contrast, the public wants at least all feasible measures to be taken to protect the environment.[407]

The legislative history of relevant statutes suggest strongly that Congress put the feasibility principle in place to reconcile important public values.[408] The political debates in Congress ring with enthusiasm

---

[402](...continued)
Furthermore, the case studies they cite to support this observation involve health-based regulation that is supposed to be much more stringent than regulation governed by BAT and its feasibility principle. *See* id. at 175 n. 8. This suggests that their argument involves a broad-side at all standard-setting not involving emissions trading, the focus of their article, even though they frame it in terms of a feasibility-based standard-setting provision. Whatever the problems BAT creates for priority setting, Ackerman and Stewart might agree that "unfettered CBA" would be worse. Id. at 194.

[403] *See* Houck, *supra* note 78, at 428 (science should help determine priorities for pollution control expenditures).

[404] *See* Driesen, *supra* note 122, at 10018-19.

[405] For reviews of much of the relevant law *see* Driesen, *supra* note 122, at 10005-10008; John C. Dernbach, *The Unfocused Regulation of Toxic and Hazardous Pollutants,* 21 HARV. ENVTL. L. REV. 1 (1997).

[406] *See* Driesen, *supra* note 122, at 10004 (noting that regulatory reformers do not discuss existing priority setting mechanisms).

[407] See Bryner, *supra* note 380, at 1 (70 percent of Americans believe that requirements cannot be too stringent and that improvements must be made regardless of cost).

[408] *See generally* S. Rep. No. 91-1196, at 16 (1970), *reprinted in* COMM. ON PUBLIC WORKS, 93RD CONG., A LEGISLATIVE HISTORY OF THE CLEAN AIR ACT AMENDMENTS OF
(continued...)

for protecting public health and the environment, but also evince concern that regulation not produce significant unemployment.[409] Whatever one may think of the foibles of elected officials, they owe their office, at least in part, to their understanding of public desires. So, the constant public discussion of the imperative of protection public health and the environment, coupled with expressions of concern about job loss may well capture the most important public values bearing upon the tradeoffs in environmental regulation.

If people believe that the law should allow people to die when the costs of preventing it "outweigh" the monetized value a bureaucrat or economist assigns to the death, then a cost-benefit criterion would reflect a democratic decision. And CBA would provide a means of reaching the cost-benefit based decisions. Nobody except economists, corporate regulatory affairs people, and some other policy professionals believes in this sort of technocratic monetization as an appropriate guide to policy.[410] Republican strategist Frank Lutz advised Congressional allies not to refer to CBA in discussing environmental policy with the public, because, he pointed out, this is a concept of corporations, not ordinary people.[411] The

---

[408](...continued)
1970, at 401, 416 (1974) (discussing New Source Performance Standards); 116 CONG. REC. 37, 340 (1970), *reprinted in* STAFF OF SENATE COMM. ON PUBLIC WORKS, SUBCOMM. ON LABOR, 92ND CONG., LEGISLATIVE HISTORY OF THE OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970, at 432 (statement of Senator Williams) (explaining that OSHA requires consideration of full health protection and feasibility); 116 CONG. REC. 36,533 (1970), *reprinted in* STAFF OF SENATE COMM. ON PUBLIC WORKS, SUBCOMM. ON LABOR, 92ND CONG., LEGISLATIVE HISTORY OF THE OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970, at 393-94 (1971) (statement of Senator Pell) (describing OSHA as balancing worker and employee interests).

[409] 116 CONG. REC. 32,906 (1970), *reprinted in* LEGISLATIVE HISTORY OF THE CLEAN AIR AMENDMENTS OF 1970, at 240 (1971) (statement of Senator Griffin) (suggesting concern that standards for automobiles plays "economic roulette" with millions of jobs); 116 CONG. REC. 32,906-07 (1970), *reprinted in* LEGISLATIVE HISTORY OF THE CLEAN AIR AMENDMENTS OF 1970, at 240 (1971) (statement of Senator Muskie) (arguing that public health was of prime importance, but that industry should come back to Congress if standards prove impossible to meet); 116 CONG. REC. 36,511-12 (1970), *reprinted in* STAFF OF SENATE COMM. ON PUBLIC WORKS, SUBCOMM. ON LABOR, 92ND CONG., LEGISLATIVE HISTORY OF THE OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970, at 321-22 (1971) (statement of Senator Saxbe) (while we "want . . . safe work conditions", we must keep an eye on employer's competitiveness lest we deprive workers of their jobs).

[410] *See* McGarity, *supra* note 82, at 2355 (ordinary people would find the arcane debates about how to value human life in dollar terms "more than a bit bizarre.").

[411] *Cf.* Kenneth J. Arrow *et al.*, *Is There a Role for Benefit-Cost Analysis in* (continued...)

suggestion that a cost-benefit criterion aids democracy seems quite strange. And the suggestion that CBA absent democratic adoption of a cost-benefit criterion aids democracy appears even stranger.

*1. Transparency*. – Cost-benefit proponents claim that CBA aids transparency. On the surface, the claim that any analysis would aid transparency seems off the mark. **Disclosure** of analysis aids transparency, if the analysis played a role in the decision-making.[412] Undisclosed analysis would not aid transparency; nor would disclosure of analysis that played no role in a decision. But disclosure of analysis that played a role in a decision would aid transparency regardless of the form of analysis; disclosure of either CBA or feasibility analysis can aid transparency. So the claim that CBA aids transparency cannot justify a choice between feasibility analysis and CBA.

Disclosure of analysis that plays no role in a decision would do little to aid transparency. Thus, even the modest position that disclosed CBA might aid transparency requires some qualification. Current implementation of the feasibility principle may suffer from a lack of transparency, precisely because of the mismatch between analysis and criterion that the demand for CBA produces. While an agency must justify decisions taken under feasibility mandates in terms of feasibility, cost-benefit considerations will generally govern its negotiations with the Office of Management and Budget (OMB).[413] Thus, one cannot be sure that the announced basis for a decision coincides with the actual basis. If the agencies carried out no CBA and nobody demanded explanations for decisions in cost-benefit terms, this problem would vanish and transparency would increase.

Alternatively, one could abandon the uncertainty of the claim that CBA should be "considered" (a non-transparent position, by the way, since it does not disclose how it should influence decisions), and adopt the presumptive position that a cost-benefit criterion should usually control decisions. This would make the strongest case for the

---

[411](...continued)
*Environmental, Health, and Safety Regulation?*, 272 SCIENCE 221, 223 (1996) ("benefit-cost analysis is neither necessary nor sufficient for designing public policy"). The authors went on to urge consideration of available CBA without requiring agencies to abide by a strict cost-benefit test. Id.

[412] *See* McGarity, *supra* note 1, at 18-19 (equating transparency with disclosure of policy basis for assumptions undergirding risk assessment).

[413] *See* McGarity, *Oversight,* supra note 152, at 156-68; *Cf.* Olson, *supra* note 398*,* at 52-53 (while executive order 12,291 establishes CBA as the criteria for OMB review, critics charge that OMB only considers regulatory costs).

transparency advantages of CBA. But one would have to compare this case with the case for feasibility-based regulation based upon feasibility analysis.

The numbers in CBA's "benefits" analysis may have a negative effect upon transparency. The public may well think that these numbers provide the basis for policy, when, in fact, policy decisions generate the numbers.[414] The public, and even some policy makers and academics, may associate numbers with measurement, not with the sorts of policy judgment that generate "benefits" estimates for CBA.[415] The numerous policy decisions about the value of human life and other underlying variables underlying any CBA will only be transparent if disclosed and fully debated. The numbers in CBA indirectly express policy judgments that might appear as objective truths to the public.

More could be said about the relative transparency of CBA and alternative modes of analysis. But I have said enough to demonstrate that advocates of CBA have not explained why CBA is more transparent than feasibility analysis or any other form of analysis. Indeed, the regulatory reform literature gives the impression that the choice involved in deciding about CBA is a choice between analysis and no analysis. This is clearly wrong. Agencies engage in analysis with or without CBA.[416]

*2. Democratic Accountability.* – My claim that feasibility analysis embodies a democratic decision about the distribution of costs suggests that the feasibility principle provides a good method for political accountability. Congress and the President through legislation have made a highly visible choice in the feasibility provisions about how to consider the distribution of costs. In public debate about these provisions they have defined reasonable regulation as stringent protection of health and the environment tempered by feasibility constraints aimed at protecting jobs. The public can hold the legislators and President accountable for these decisions by declining to elect them.[417]

---

[414] *Cf.* Posner, *supra* note 1, at 1161 (if the cognitive quirks that worry Sunstein "infect market behavior, the prices on which" CBA "depends will not" dependably "discipline thought.").

[415] *See* Kniesner & Viscusi, *supra* note 182, at 5 (analysis of benefits relies upon estimates of wage premiums); W. KIP VISCUSI, RATIONAL RISK POLICY 45-68 (1998).

[416] Kennecott v. EPA, 780 F.2d 445, 456 (4th Cir. 1985) (discussing EPA's "careful analysis" of costs in a technology-based rulemaking).

[417] *See generally* Daniel A. Farber, *Statutory Interpretation and Legislative Supremacy,* 78 GEORGETOWN L. J. 281, 293 (1989) (noting the roots of the legislative supremacy principle in a social norm of democratic self-government).

By contrast, advocates of CBA frequently envision unelected executive branch officials or even judges imposing a requirement that cost not exceed benefits, absent special justification. Presumably, the executive branch officials will decide what sorts of distributional concerns count as special justification. Such low level administrative decisions usually attract little notice in newspapers, and may have very little influence upon elections, especially since Congressmen can claim credit for or disavow any controversial decisions as they wish.

Some regulatory reformers support Congressional legislation creating a presumption against regulations with costs exceeding benefits.[418] This proposal likewise does not indicate when the presumption should be overcome. This proposal consigns decisions about what counts as an equitable reason to overcome the results of a CBA to unelected White House officials. Any CBA will often consign decisions to largely unchecked discretion of the officials or private economists making the policy choices that generate the numbers in the CBA.[419] This bodes less well for political accountability than the reasonably specific legislative decision found in the feasibility principle.

Under any principle of law, there remains the problem of holding administrative agencies accountable for following legislative decisions. And, in practice, since legislative standards are not determinate, agencies will exercise some discretion within the bounds of the legislative decision.

Feasibility analysis provides a way of holding agencies accountable for conforming to the feasibility mandate. Agencies that look at the cost of regulation and discover that the cost would shut down an entire industry self-police to avoid a transgression of their mandate and the problems industry can create with the agency's overseers in Congress and the White House.[420] By the same token, if the agency carries out a good feasibility analysis, it should have difficulty justifying a failure to impose stringent regulation would force no shutdowns. Agencies retain discretion to decide what constitutes widespread plant closures, but the feasibility analysis should provide the information

---

[418] *See* SUNSTEIN, RISK AND REASON, *supra* note 2, at 119-120.

[419] *See* Driesen, *supra* note 4, at 587-601 (discussing discrepancies between agency and consumer evaluation of costs and benefits).

[420] *See, e.g.,* BP Exploration & Oil, Inc v. EPA, 66 F.3d 784, 795-96 (6th Cir. 1995) (EPA rejects technologically feasible option based on high costs and negative non-water environmental impacts of reducing discharges to zero); Texas Independent Ginners Ass'n v. Marshall, 630 F.2d 398, 403 (5th Cir. 1980) (OSHA considers a permissible exposure limit for cotton dust infeasible for ginning industry, because it would increase construction costs by 65% and increase costs by 50%)

necessary for Presidential political supervision of this policy choice, if that is desirable.

CBA would likewise help political officials hold agencies accountable for conformity with a mandate that costs not exceed benefits. Because of the numerous discretionary policy decisions inherent in deciding what the value of benefits are, this accountability will require extraordinarily transparent CBA. Otherwise, it will not exist.

Eric Posner, however, argues that CBA will facilitate accountability regardless of legislative policy criteria.[421] He argues that CBA, by providing "full information," would allow public officials to decide what agency actions are in the official's best interests.[422] This argument relies on a political accountability model that abandons the goal of a rule of law for administrative decision-making.[423] This argument might count as a good normative argument if one wants officials to shape administrative decisions to their individual interests, but appears less convincing if we want agencies held accountable for conforming to fairly specific decisions made visibly in Congress. The constitutional duty to "take care that the law be faithfully executed"[424] would seem to raise questions about a model that allowed executive branch officials to make ad hoc decisions about what outcome they favor for their own reasons. If we hold to the rule of law ideal, than the regulatory analysis should analyze the factors that the applicable legal rule makes relevant, not all factors. Congress often makes policy decisions by legislatively limiting the factors an agency may consider.[425]

While abandoning the rule of law ideal for administrative law will help Posner's argument, it may not suffice. Professor Posner's argument sounds in public choice theory.[426] The public official desires reelection and will therefore tend to choose the decision that will help her get reelected. For this reason, Posner's argument looks best if treated as an

---

[421] *See* Posner, *supra* note 15, at 1147 (government "principals" will want agencies to perform CBA even if they are "interested in goals other than efficiency").

[422] Id. at 1187-88.

[423] *Cf.* id. at 1141 (CBA should be judged by its utility in enhancing elected officials' control over administrative agencies).

[424] U.S. Const., art. II, § 3.

[425] *See* Citizens for Overton Park v. Volpe, 401 U.S. 402, 411-12 (1971) (inferring from requirement that highways should only go through park if no feasible and prudent alternative exists a presumption against putting highways through parks, rather than authorization for "wide-ranging balancing."). *See also* Chris H. Schroeder, *Rights Against Risks,* 86 COLUM. L. REV. 495, 513 (1986) (one of the purposes of a rule is to eliminate further consideration of some arguments or factual aspects from subsequent choices).

[426] *See generally* JERRY MASHAW, GREED, CHAOS, AND GOVERNANCE (1997).

argument for direct democracy for each decision, rather than democracy mediated through meaningful legal principles covering a range of cases. The notion of direct electoral response to administrative decisions overlooks the low visibility nature of many of these decisions, but may work for some high visibility cases. Posner, however, does not explain why analysis of any kind matters very much to an official viewing each administrative decision as an opportunity to maximize future performance at the polls. An agency can identify the stakeholders in a regulatory decision without CBA. And the official seeking to maximize her standing with influential stakeholders needs to know how the stakeholders perceive the stakes and how much influence they might wield in future elections. The agency's perception of costs and benefits has little relevance.

Eric Posner's equation of CBA with full information also appears naive. Even if the analysis contained all of the assumptions and data that underlie it, high level decision-makers may not have time to read all of that. If decision-makers rely on just the numbers and little more, which busy top level people may well do, they will be quite poorly informed, especially about known facts. And industry can always surprise these officials with new information or information that EPA considered too suspect to rely upon, thereby taking advantage of the lack of scientific and engineering expertise at OMB, a place that economists and political appointees dominate.

All of this suggests that CBA may not improve regulatory accountability at all.[210] No reason exists to think that CBA provides for more accountability than feasibility analysis.

*3. Special Interest Influence*. – Regulatory reformers assert that CBA should lessen special interest influence. On the surface, it seems plausible to argue that any form of analysis may lessen special interest influence. Posner claims that CBA will ameliorate special interest pressure by disclosing full information to decision-makers, thus lessening possibilities for special interests to surprise officials and gain converts. Of course, feasibility analysis would have the same effect, lessening the possibility of surprise about information relevant to a feasibility decision. But the point that analysis can lessen surprise does not explain a preference for CBA over feasibility analysis.

Posner's argument does not address the problem of special interest influence over the content of regulatory analysis. Both feasibility

analysis and CBA rely upon industry information about technologies and their cost.[427] This has regularly caused overestimation of cost.[428]

CBA, however, offers a wealth of opportunities for regulated industry to manipulate and debate benefits estimates.[429] Careful scientific examination of facts usually does not resolve the issues of how to quantify a regulation's impact on life, health, and the environment.[430] But debating the relevant issues of risk assessment and economic methodology generally requires enormous technical sophistication.[431] Industry can bring many more hired experts to the table than either environmental groups or government.[432] Indeed, industry employs more toxicologists than either the government or universities. Thus, industry enjoys a great advantage in manipulating benefits numbers under an approach emphasizing CBA. Regulatory reform advocates typically ignore the scholarship documenting this problem.

Regulatory reformers view the public interest in environmental protection as a "special interest."[433] CBA does minimize public influence over regulatory decisions. It makes the decision-making so complex and the potential for delay so enormous that the process tends to overwhelm the resources of environmental organizations, who have many fewer professionals and much smaller consulting budgets than industry.[434] Cost-benefit regulation has been the norm for many years under the Toxic Substances Control Act (TSCA) and the Federal Insecticide Fungicide and Rodenticide Act (FIFRA).[435] The experience under these statutes shows that industry can and does paralyze agencies that must resolve hundreds of technically complex issues that cannot be resolved in a

---

[427] *See* McGarity & Ruttenberg, *supra* note 229, at 1998.

[428] Id.

[429] *See* Hornstein, *supra* note 13, at 436-37 & n. 395 (explaining why risk assessment, which CBA uses to measure benefits, has created strategic incentives to manipulate and withhold scientific information).

[430] *See* Wagner, *supra* note 261.

[431] *See* Robert R. Kuehn, *The Environmental Justice Implications of Quantitative Risk Assessment,* 1996 U. ILL. L. REV. 103, 129-133.

[432] *See* id.

[433] *See, e.g.,* Hahn & Sunstein, *supra* note 12, at 1502-03.

[434] *See* McGarity & Ruttenberg, *supra* note 229, at 1998 (explaining that environmental organizations do not have the resources to second guess high industry cost estimates).

[435] *See* 7 U.S.C. § 136; Environmental Defense Fund v. EPA, 548 F.2d 998, 1012-18 (D.C. Cir. 1976) (proponent of a pesticide must show that its benefits outweigh its risks); Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991) (holding that EPA must apply a cost-benefit test under TSCA).

clearly defensible way under a cost-benefit criterion.[436] Of course, a failure to regulate produces a complete victory for the industry. CBA reduces the influence of advocates of the public interest in environmental protection, but enhances the influence of regulated companies.[437] It certainly does not provide more insulation from special interest influence than feasibility analysis.

Both CBA and feasibility analysis can reduce the influence of public hysteria on environmental decision-making. The feasibility analysis brings the costs of regulation to the fore just as much as CBA does, and the feasibility principle restrains regulation, preventing shut downs that Sunstein's hysterical public might demand. Since CBA can paralyze regulatory systems, surely CBA proponents are right to suggest that CBA responds more thoroughly to any problems rooted in public hysteria than the existing regulatory system. The problem is that it also throttles response to legitimate public concerns not rooted in hysteria.

Industry generally supports CBA and environmentalists generally oppose it. While CBA can be defended (if this is a defense) as minimizing environmentalist influence on administrative decision-making, the suggestion that it reduces industry influence is utterly specious.[438] By portraying CBA as minimizing special interest influence generally, advocates of CBA create a very misleading picture of neutrality.[439] The major new point here is that other forms of analysis can reduce special interest influence at least as effectively as CBA.

*4. Rationality and Ad Hoc Decision-Making* . – The comparison between the feasibility principle and CBA provides an opportunity to test regulatory reformers' suggestion that CBA rationalizes decision-making, while the alternatives to it are invariably ad hoc. My claim is fairly simple. All forms of analysis and reasoning fail to make the reasons for precise decisions about environmental regulation wholly obvious and

---

[436] *See* McGarity, *supra* note 82, at 2343 (CBA "thoroughly stymied government action" under both FIFRA and TSCA). *See also* Asbestos Information Ass'n/North America v. OSHA, 727 F.2d 415, 424-426 (5th Cir. 1984) (rejecting emergency asbestos standard, because the actual number of lives "uncertain" and likely to be less than the 80 lives predicted by OSHA).

[437] *Cf.* Jason Scott Johnson, *A Game Theoretic Analysis of Alternative Institutions for Regulatory Cost-Benefit Analysis,* 150 U. PENN. L. REV. 1343, 1354 (2002) (explicit statutory cost-benefit requirements may enhance politicization of costs).

[438] *See* Shapiro & McGarity, *supra* note 14, at 736-39 (explaining in detail why industry has been willing to lobby vigorously against regulation passing a cost-benefit test).

[439] *See* McGarity, *Oversight,* supra note 152, at 156-68 (discussing in detail delays and weakening of rules under executive orders requiring CBA); Olson, *supra* note 398 (same).

transparent. Likewise, all forms of analysis can become less ad hoc through adoption of standardized assumptions, albeit at the cost of becoming less responsive to context. Regulatory reformers' suggestion that CBA produces less ad hoc and more rational regulation than available alternatives collapses once one compares it to a concrete alternative instead of grand generalizations about 1970's environmentalism.[440]

Neither the feasibility principle nor a cost-benefit criterion will determine the outcome of a regulation with precision. This will hardly surprise careful students of administrative law, for no verbal criterion of sufficient generality to govern a variety of cases produces determinate results. For this reason, the Supreme Court rightly reversed the District of Columbia Circuit's holding that the non-delegation doctrine requires legislation to set out a determinate principle in *Whitman v. American Trucking Ass'ns.*[441]

Advocates of CBA seem to assume that CBA provides some sort of determinate criterion for decision-making, while feasibility analysis does not. But CBA conceived only as a decision-making procedure provides no guidance at all as to policy outcomes. Analysis becomes an input into decision-making and nothing more.

The presumptive position does not provide determinate results either.[442] That position posits that costs must not exceed benefits absent a persuasive reason why they should. This does not tell us which of several options yielding benefits exceeding costs agencies should choose. It only presumptively eliminates some options in a few cases. Furthermore, the rule does not tell us when distributive and other consequences should trump the conclusion that costs exceed benefits in those few cases where the presumptive position might eliminate some options.

The feasibility principle provides much clearer guidance than this, even though it also conforms to the rule that no verbal formula can determine the results in all cases. As I have explained, in the many cases where available controls would not cost so much as to shut down facilities, it tells the agency to maximize pollution reductions, which is in principal somewhat determinate. It also issues a clear command not to

---

[440] *Cf.* SUNSTEIN, RISK AND REASON, *supra* note 2, at 10-18 (describing 1970's environmentalism in very general terms, but failing to delve into the types of analysis undertaken during the 1970s).

[441] 531 U.S. 457, 472-76 (2001).

[442] *See* JOHN WARGO, OUR CHILDREN'S TOXIC LEGACY: HOW SCIENCE AND LAW FAIL TO PROTECT US FROM PESTICIDES 127 (1996) (describing a balancing statute, namely FIFRA, as providing EPA with "infinite discretion").

shut down entire industries. Unlike the presumptive position, the feasibility principle provides meaningful bounds to decision-making respecting not only maximum stringency, but also minimum stringency.

This analysis, however, gives the presumptive position too much credit by assuming that it at least presumptively limits the stringency of regulation. Cass Sunstein has conceded that CBA by itself is completely devoid of content. CBA, in principle, is radically indeterminate.[443] If one values a human life as infinite (by applying willingness accept criteria to perfect information), then CBA performs as an overly elaborate analysis leading to a wholly health protective result, at least in cases of predicted death. If one assumes that humans consume resources in excess of their value, then no environmental protection should exist. The valuation methodologies determine the results. And thus defense of CBA as a general construct is meaningless.

Even if one just accepts the prevailing valuation methodologies as given, however, the presumptive position remains indeterminate. The National Academy of Sciences has recommended that risk assessments present a range of values to reflect the uncertainties pervading risk assessment. In practice, this range is usually so large that it fails to significantly narrow the possible outcomes.[444] Indeed, Cass Sunstein concedes that a wide benefits range "does not do a great deal to discipline judgment."[445] And experts in the area have demonstrated that a very wide benefits range is the norm, not the exception.[446]

Regulatory reformers lament the inconsistencies they see in existing regulatory decisions. They claim that CBA offers a cure. In order to make that claim appear plausible, they posit new and improved CBA. The CBA gains consistency through generic decisions regarding the value of human life, the appropriate modeling assumptions, and other

---

[443] *See* Cass R. Sunstein, *Regulating Risk After ATA*, 2001 SUP. CT. REV. 1, 14 (statute requiring cost-benefit balancing might violate the nondelegation doctrine, because it grants so much deference to EPA).

[444] *See* Parker, *supra* note 74, at 1411 (pointing out that the range of uncertainty frequently would "vitiate the relevance of numerical ranges.")

[445] Sunstein, *supra* note 82, at 2257.

[446] *See, e.g.,* McGarity, *supra* note 1, at 53 (risk estimates can vary by five to ten orders of magnitude), 56 ("in the health and environmental area . . . nearly all regulations of any consequence involve uncertainties that . . . overwhelm the analysis"). *See also* Ass'n of Pac. Fisheries v. Environmental Protection Agency, 615 F.2d 794, 809 (9th Cir. 1980) (agency need not balance cost of compliance against effluent reduction benefits with pinpoint precision, because precise quantification of many of these benefits is impossible); American Petroleum Inst. V. EPA, 540 F.2d 1023, 1038 (10th Cir. 1976), *cert. denied,* 430 U.S. 922 (1977) (the value of benefits cannot be determined).

key variables.[447] But feasibility analysis can gain more consistency through standardizing assumptions as well. One can solve the problem of not knowing how many plant shutdowns involve widespread shutdowns by choosing a percentage of shutdowns to tolerate. In both cases, of course, standardization encounters obstacles. It's not always clear that a standardized solution makes sense in all cases and the choices made in standardization decisions can prove very contentious and difficult.[448] Any form of analysis can become more consistent through adoption of standardized assumptions.

Selection of a single approach to extrapolation of benefits estimates from limited data, however, conflicts with the key National Academy of Science recommendation for producing transparent scientifically honest analysis - reporting of benefit ranges with identification of the key assumptions that could influence outcomes.[449] Feasibility analysis can become more consistent without having to give up honest analysis, since the standardization of the number of tolerated plant closures would be a pure policy decision that does not purport to summarize facts. So, standardization of feasibility analysis offers more promise for honest government.

More fundamentally, by comparing new and improved CBA to the current regulatory system with all of its foibles, regulatory reformers repeat an error Howard Latin flagged long ago, comparison of ideal efficiency to existing systems.[450] The proper analysis either clarifies theory by idealizing both approaches or pragmatically considers the foibles of both approaches symmetrically.

Regulatory reformers have not begun to explain why a cost-benefit criterion, let alone CBA, would solve the problem of inconsistent regulatory results better than the relatively clear feasibility principle. This matters, because claims of inconsistent regulatory results motivate substantially all of the soft CBA school's advocacy for CBA.

---

[447] *See* Pildes & Sunstein, *supra* note 14; Sunstein, *Constitutional Moments, supra* note 255, at 257-60.

[448] *See* Latin, *supra* note 24, at 1324-37 (describing how an appellate court decision and then disagreement from an incoming administration defeated an effort to bring uniformity to risk assessment in the 1970s); McGarity, *supra* note 1, at 25-26 (discussing the value of diverse views about risk assessment and the contentious nature of efforts to choose among them).

[449] *See* NRC, JUDGMENT, *supra* note 264, at 12 (recommending disclosure of major sources of uncertainty and quantification of the degree of uncertainty in risk assessment).

[450] *See* Latin, *supra* note 24, at 1272 (comparisons between demonstrated inefficiencies of uniform standards and theoretical advantages of "fine-tuning" reform cannot "lead to development of wise regulatory policy.").

Even if CBA does not cure the inconsistencies that motivate the call for it, perhaps it can aid in better explanation of decisions. The soft-CBA schools assumes that environmental decision-making is irrational, and that CBA must therefore be better.

No reasoning supporting the choice of a numerical regulatory limit under a statutory verbal standard can prove wholly satisfactory. One might be able to explain why a superhighway has a speed limit of 65 miles per hour (mph) and not 5 mph. But the explanation of why the limit is not 70 mph or 60 mph will always be less than wholly clear. No agency can convincingly explain why it decided to forego the added safety of a 60 mph limit or the added convenience of a 70 mph limit. This might help justify the law confining courts to arbitrary and capricious review of agency actions, instead of asking judges to determine whether the agency is right; and the judicial gloss of heightened deference to agencies in the case of highly technical rulemakings.[451]

CBA generally provides no means of satisfactorily explaining any level of regulation, because it provides no means of rationally explaining how to balance costs with unquantified benefits. Most ecological and many health effects resist quantification altogether.[452] Regulatory reformers recognize this and urge agencies to consider them anyway. No regulatory reformer, however, has ever explained how an agency is to justify in a non-arbitrary manner the judgment that a non-quantifiable effect outweighs (or does not outweigh) a given cost. *Corrosion Proof Fittings v. EPA*[453] illustrates the problem. This case overruled EPA's asbestos ban, which addressed one of the most obvious public health disasters we have ever faced.[454] The *Proof Fittings* court concluded that the agency's decision to give the non-quantifiable effect of asbestosis a significant weight in its decision rendered its rulemaking arbitrary and

---

[451] *See, e.g.,* National Wildlife Federation v. EPA, 286 F.3d 554, 564 (D.C. Cir. 2002) (allowing agencies judgment to forego four plant closures to stand in spite of the lack of a precise explanation of why 2 plant closures is acceptable, but 4 is not). *Cf.* Pierce, *supra* note 25, at 1257-1265 (discussing the difficulty of providing a satisfactory rationale for selection of a number for NAAQS standards).

[452] *See, e.g.,* Parker, *supra* note 74, at 1388, 1391-98 (discussing unquantified benefits in various rules).

[453] 947 F.2d 1201 (5th Cir. 1991). For a critique of *Corrosion Proof Fittings, see* Thomas O. McGarity, *The Courts and the Ossification of Rulemaking: A Response to Professor Seidenfeld,* 75 TEX. L. REV. 525, 541-49 (1997).

[454] *See* Driesen, *supra* note 4, at 596-597 (discussing the massive damages from asbestos-related illness).

capricious.[455] We now know from subsequent jury awards that the value of this unquantifiable benefit is enormous.[456] If the agency cannot quantify the number of asbestosis cases, how can it explain why the benefit justifies the costs its regulatory analysis reveals? And for that matter, how can EPA (or the court) justify a decision to give up the ban if a serious health effect has an unknown magnitude? In fact, one can view both the court and EPA's decision as arbitrary. Since data limitations preclude quantification of almost all environmental effects and many health effects of great importance, this poses a serious problem.

CBA disguises many other issues of rational justification for benefits estimates. Perhaps the most difficult involves choosing among all of the risk assessment assumptions. These sorts of decisions have no firm scientific basis and will therefore require very subtle and difficult policy judgment that agencies will have difficulty explaining.[457] In practice, agencies may have difficulty justifying particular estimates of the number of deaths and illnesses avoided by a particular regulation in light of large data gaps.[458]

Cass Sunstein suggests that agencies have much more difficulty coping with judicial review under a cost-benefit approach than they do under a feasibility approach.[459] This might suggest that agency decisions under a cost-benefit criterion will be more arbitrary (if agencies reach decisions at all) than decisions under a feasibility standard. After all, a ruling upholding a decision suggests that the reasoning, it not completely convincing, was at least non-arbitrary. And the ruling in *Corrosion Proof*

---

[455] Corrosion Proof Fittings v. EPA, 947 F.2d at 1219.

[456] *See* Driesen, *supra* note 4, at 596 (discussing the dollar amounts of damages awarded for asbestosis).

[457] McGarity, *supra* note 82, at 2348 (poor understanding of carcinogenesis hinders characterization of a dose-response curve to use for extrapolation); Babich, *supra* note ?, at 142-145 (most risk assessment does not consist of good reliable science, because scientifically rigorous testing of human health effects is unethical); Gillette & Krier, *supra* note 262, at 1064 (risk assessment is not a "neutral science" or "well-mastered art"); Synthetic Organic Chemical Mfrs. Ass'n v. Brennan, 503 F.2d 1155, 1159 (3rd Cir. 1974) (extrapolation from findings of carcinogenicity in animals to conclusions about humans "is not really a factual matter.")

[458] *See, e.g.,* Corrosion Proof Fittings, 947 F.2d at 1219 (agency could not provide an estimate of the number of deaths from asbestosis and ban on asbestos would avoid).

[459] *See generally* Sunstein, *Everyone*, *supra* note 224, at 312-313 (increased possibility of judicial reversal may justify not using CBA).

*Fittings* would suggest that non-arbitrary decisions under CBA might often prove impossible.[460]

Proponents of soft CBA have given no reason to suspect that CBA or their cost-benefit criterion outperforms feasibility analysis in terms of rationality or consistency. Comparing CBA to feasibility analysis and considering specific concrete statutory criteria makes the failure of the reformers' analysis apparent.[461]

### *E. Absolutism*

The foregoing discussion should establish that one cannot justify CBA as a rejection of absolutism, at least as a substitute or supplement to technology-based standards.[462] The feasibility principle already embraces substantial constraints that reflect a lack of absolute dedication to immediate achievement of full health protection.

This article establishes that the feasibility principle involves a Congressionally chosen balance between competing concerns about costs and benefits.[463] But it does so in a way that relieves the agencies from the responsibility to constantly rebalance.

This leaves open the issue of whether CBA should supplant health-based standards that do not involve consideration of costs. While that issue lies beyond this article's scope, I have discussed that issue elsewhere.[464] Of course, rejection of health-based standards cannot justify choosing CBA over the feasibility principle.

The issue of how and when to take costs into account poses difficult issues. Proponents of soft CBA do not set out clear ideas about how to resolve these issues. Ultimately, they punt and assign the resolution of these issues to bureaucrats. These issues are hard enough

---

[460] *See* Driesen, *supra* note 4, at 596-99.

[461] *Cf.* Adler & Posner, *supra* note 14, at 194 (the argument that CBA is better than an alternative cannot be made independently of . . a comparison to its rivals).

[462] Richard Posner would justify CBA simply as a mechanism to compel a "decision maker to confront the costs of a proposed action. *See* Posner, *supra* note 1, at 1157. But this does not justify CBA when the alternative is a cost-sensitive procedure like feasibility assessment.

[463] *See* Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1036-37 (D.C. Cir. 1978) (Congress, in authorizing some plant shutdowns under the FWPCA, decided that the "health and safety gains" for future generations would "outweigh" some economic dislocation for the present generation).

[464] *See* David Driesen, *Should Congress Direct the EPA to Allow Serious Harms to Public Health to Continue?: Cost-Benefit Tests and NAAQS Under the Clean Air Act,* 11 Tulane Envt'l L. J. 217 (1998).

for elected representatives to resolve. The view that bureaucrats should resolve the key issues of when and how to consider costs not only seems profoundly anti-democratic, it also offers a recipe for either paralysis or wide-ranging ad hoc decisions.

### *F. Comprehensive Calibration*

Comprehensive consideration of everything does not provide a mechanism for finely calibrated administrative decisions.[465] Yet, regulatory reformers implausibly suggest that agencies consider everything through CBA, and that this consideration will somehow discipline and add coherence to agency decisions.

A radically indeterminate position, that one consider CBA can, in theory, accommodate the distributional concerns at the heart of the feasibility approach. (Indeed, it could accommodate any theory of the good life one could mention). Nothing prevents a decision-maker from giving plant closures substantial weight under a cost-benefit approach. But the indeterminate position does not address distributional concerns or any other normative concern in a clear way.[466]

The presumptive position does not address the distributional concern as well as the feasibility principle either. For the presumptive position assumes that the magnitude of costs generally dictates the presumptive result, when the distributional issue is more important, by far, than questions of aggregate costs and benefits.

But the more profound problem with this response involves a failure to cope with the democratic theory problems with the cost-benefit position. Congress should make key decisions about distributional issues, like whether agencies should countenance widespread plant closures and whether they should allow preventable concentrated harms to continue in more run-of-the-mill situations. Assigning administrative agencies the responsibility to play God, not only to decree the value of human life, but also to measure "overall well-being," and then to determine whether distributional or deontological issues has primacy makes no sense.[467]

---

[465] On the general vision of comprehensive rationality underlying CBA *see* MCGARITY, REINVENTING RATIONALITY, *supra* note 23.

[466] *See* Adler, *supra* note 314, at 269 (claiming procedures are not a moral criteria). *Cf.* id. at 335 & n. 277 (arguing that CBA is one component of the "morally best procedure", assuming [wrongly] that "CBA is not too expensive").

[467] In fairness, Adler and Posner recognize that information costs may make administrative measurement of well-being impossible. But they do not seriously confront the problem of statutory criterion in their work. Nor do they confront the problem of

(continued...)

Government agencies cannot effectively engage in such open-ended policy-making, and should not.[468] Unlike elected representatives, they know little about public "desires." Absent some clear affirmative decision-making by Congress, agencies must not only exercise some troubling discretion and engage in difficult technical analysis, it must revisit fundamental political value issues with each decision. Supervision by scientifically ignorant OMB economists trained to value efficiency over everything the public really values only makes this problem worse, not better.[469] We elect people to make at least clear general policy decisions, not to pass them on to agencies.

Even a Congressional decision to choose the presumptive position does not constitute a clear position. People want to know, did Congress favor environmental protection or not? And if it adopted a more nuanced position, what limits did it place on pursuing environmental objectives. The feasibility principle addresses these questions forthrightly; the presumptive position supplies a general framework disguising radical indeterminancy and delegation of key decision-making to unelected technocrats.

CBA appears more rational to some, because they imagine that it uses assessment of the magnitude of risk to calibrate a proportional response. The feasibility principal alone does not use risk assessment-based calibration. The analysis provided above, however, casts doubt upon the desirability, feasibility, and even the coherence of such calibration. If one knows from the distribution of costs and the sorts of harms involved that the benefits of regulation qualitatively outweigh the costs (as one does, when the feasibility principle is not triggered), then seeking to quantify the value of harms involves a huge waste of resources. This waste also involves a serious opportunity cost, because

---

[467](...continued)
political legitimacy. Hence, one is left with the impression that Adler and Posner expect agencies to approximate overall well-being as best they can through some sort of regulatory analysis. *Cf.* Kniesner & Viscusi, *supra* note 182, at 24 (suggesting that link between numbers and "revealed preferences" is essential to their legitimacy); Posner, *supra* note 1, at 1157 (recommending consideration of CBA may seem like a "cop-out", as it leaves government without a decision rule).

[468] *See* McGarity, *Oversight, supra* note 152, at 194 (political conflicts that reduce precision of legislation can hamper agency implementation).

[469] *See* McGarity, *supra* note 1, at 57 (OMB opposition to phase-out of lead contributed to two decade delay).

people die and get ill and ecosystems decline, sometimes irretrievably, while the debate about proper valuation goes on.[470]

Furthermore, the huge error band in risk assessment and the existence of important, but wholly unquantifiable, health and environmental consequences means that proportional calibration is impossible. For ambient pollution, the problem of calibration loses coherence when applied to most standard-setting, because the magnitude of the risk shifts with factors other than the pollution from targeted plants.

Of course, some rough calibration is possible and goes on all the time, even without CBA. Congress phases out some pollutants, rather than subjecting them to a feasibility principle.[471] And, conversely, Congress and agencies decline to regulate pollutants that pose no significant risk. But calibration proportional to risk in each rulemaking undertaken makes no sense, once the problem is properly understood. And CBA proponents have not explained how a cost-benefit criterion calibrates response even in principle, for the criterion of benefits exceeding costs does not tell us anything about minimum stringency.

Finally, once one recognizes, as the soft CBA scholars do, that distribution of costs matters, then we need a political decision about how to take this into account. The feasibility principle provides this, the CBA-based prescriptions do not.

A full comparison of CBA to the analysis undergirding findings of significant risk, existing priority setting outside the CBA framework, and health-based standard setting lies beyond the scope of this article. But this article's analysis has important implications for that debate. First of all, because consideration of scientific information bearing upon risk preceded the introduction of CBA into the system, the health-based (or effects-based) alternative to CBA involves analysis of relevant science. Second, evaluation of CBA must compare it to analysis undergirding existing risk-based decisions that do not involve CBA. Third, that evaluation must idealize both forms of decisions to clarify theory or compare the foibles of both symmetrically to clarify good pragmatic judgments. Fourth, this consideration must take into account the problems of scale involving differences between marginal analysis and analysis of overall risks that reflect interactions of chemicals in the environment. Thus, this article contains important lessons for other aspects of the regulatory reform debate.

---

[470] *See* Thomas O. McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA,* 67 GEORGETOWN L. J. 729, 736-37 (1979) (discussing effects of delay on health).

[471] *See, e.g.,* 42 U.S.C. § 7671c(a),(b).

## V. CONCLUSION

None of the advocates of soft CBA have explained why one should prefer CBA to the feasibility principle. The feasibility principle provides a reasonable, democratic choice about how to consider the distribution of cost. It ingeniously manages a balance between costs and benefits without requiring agencies to engage in extraordinarily problematic comparisons between values that are never objectively and reliably quantifiable.

More generally, the regulatory reformers' arguments about the value of CBA collapse when they must confront a real alternative. Far too often, they have written as if the alternative to CBA is no analysis at all. But the regulatory system always involved substantial analysis, serious consideration of cost, evaluation of relevant science, and a set of mechanisms to set priorities. We should welcome responsible proposals to improve any of these features. But framing the debate as one between absolutism and rationality grossly distorts what is at stake, and makes it easy to prescribe medicine worse than the disease.