A Brief Argument for the Inclusion of an Assessment of Increased Market Share in the Determination of Civil Penalty Liability for Environmental Violations: Letting Corporations Share the Regulatory Burden of Policing Their Markets

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A BRIEF ARGUMENT FOR THE INCLUSION OF AN ASSESSMENT OF INCREASED MARKET SHARE IN THE DETERMINATION OF CIVIL PENALTY LIABILITY FOR ENVIRONMENTAL VIOLATIONS: LETTING CORPORATIONS SHARE THE REGULATORY BURDEN OF POLICING THEIR MARKETS†

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I. INTRODUCTION

The United States Environmental Protection Agency (EPA) is charged with protecting the United States from those who pollute the land, air, and water for, among other reasons, economic gain.¹ Inherent in the EPA's function is the obligation to enforce, through judicial or administrative action, the regulations² which govern the amount of pollutants released into our nation's environs. The ability to deter effectively pollution through burdensome civil penalties is based on simple financial considerations: it should be more cost efficient to

† The opinions expressed in this Article are solely those of the authors and do not necessarily reflect the views of their respective employers.

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¹ See 42 U.S.C. § 4321 (1988) (delineating the congressional declaration of purpose for the organization of the EPA); Statement of Organization and General Information, 40 C.F.R. §§ 1.1, 1.3 (1993) (setting out the authority, purpose, and functions of the EPA). The EPA, under the Reorganization Plan 3 of 1970, became the primary agency for controlling and abating pollution. Prior to the reorganization, antipollution efforts were shared by many different agencies including, but not limited to, the Department of the Interior, the Department of Health, Education and Welfare, and the Department of Agriculture. See 42 U.S.C. § 4321 (1988).

comply with environmental regulations than it would be to pay fines for non-compliance. The EPA's enforcement policy relies on the assumption that appropriate civil penalties, at the very least, negate any economic benefit gained from non-compliance. This assumption, however, appears flawed. Current civil penalties, when assessed, do not fully account for all of the economic gains made by illegal corporate activity because they omit considerations of increased market share. This Article addresses the EPA's civil penalty policy and proposes improvements in the methodology used to determine liability. These proposals are advanced with the hope that the EPA, state and local environmental enforcement agencies, citizens' groups, and corporate America all will embrace the suggested proposals.

Section II of this Article discusses the policies behind the EPA's use of civil penalties as a means of deterring non-compliance with environmental regulations. Section III examines the methodologies used to determine the amount of civil penalties owed by a non-compliant source. Section IV offers a critique of the EPA's current civil penalty assessment program. Section V recommends corrections to the assessment formula and offers suggestions as to how to reformulate penalty assessment methods so as to account for increased market


4 See Keith Schneider, $11.1 Million Pollution Fine Too Soft?, N.Y. TIMES, June 3, 1993, at D22. The article describes the controversy over the penalty amount assessed against Louisiana-Pacific, a major polluter, after a highly publicized press conference involving EPA Administrator Carol Browner and Attorney General Janet Reno. The penalty, $11 million, was the largest ever assessed under the Clean Air Act. Id. Critics, however, charged that the “penalty was minor compared with the enormous market advantage the company had gained by breaking environmental laws.” Id. In fact, Louisiana-Pacific, the nation's largest manufacturer of wood-fiber construction products, in a somewhat brazen but honest statement, indicated that the penalty would not affect its earnings. Id. Jonathan Turley, a professor of law at George Washington University, said that Louisiana-Pacific's behavior, and the resulting fines, are a “prime example of how a company can dominate a market by avoiding the costs of complying with environmental laws” Id. (emphasis added). The article goes on to say that by falsifying information, and failing to comply with environmental regulations, Louisiana-Pacific was consistently ahead of others in the market because they avoided the cost and time associated with installing pollution control equipment. See id.

5 It is not the intention of the authors to criticize environmental enforcement agencies for the work that they have accomplished. Indeed, the EPA's record-setting fines and penalties continue to increase every year. See U.S. GENERAL ACCOUNTING OFFICE, GAO/RCED-91-166, 5 ENVIRONMENTAL ENFORCEMENT (1991) [hereinafter ENV. ENFORCEMENT] (reporting that assessed penalties in 1989 totalled $35 million while assessed penalties in 1990 totalled $61 million). Rather, it is the authors' intention to criticize the construct within which the enforcement program is run.
share. Section V also provides an analysis of the penalty assessment proposal, specifically aimed at both citizens' groups and corporate parties, that details the benefits of reformulating civil penalty criteria.

II. THE GOALS OF THE EPA'S CIVIL PENALTY PROGRAM

A. Background

Federal environmental statutes contain various enforcement tools including: (1) notices of violation; (2) administrative compliance orders; (3) administrative orders that assess civil penalties; (4) criminal sanctions; (5) judicial penalties and injunctive relief; and (6) citizen suit provisions. Federal enforcement powers developed in the early 1970s when Congress became concerned that states were not enforcing environmental violations to the fullest extent. This Congressional concern precipitated enactment of federal environmental statutes that contained enforcement measures which, among other things, gave the EPA the power to assess monetary penalties.

Civil penalty provisions in federal environmental laws typically range from $5,000 to $25,000 per violation and may be assessed against persons, facilities, and "owners and operators" of facilities. The EPA's goals in measuring and assessing penalties are threefold. The EPA seeks to deter non-compliance of government regulation; looks to provide an equitable regimen for actors in the regulated community; and desires to bring about the most expeditious resolution of environmental problems. To further these goals, the EPA has formulated guidelines to use in implementing its penalty assessment program. All enforcement actions taken, either through administrative or judi-

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6 Environmental Law Institute, 5 ENVIRONMENTAL LAW AND PRACTICE, § 22.01, 22–6 (Donald W. Stever and Eliza A. Dolin eds., 1994) [hereinafter PRACTICE MANUAL].
7 Id. at 22–24.
10 See PENALTY POLICY, supra note 3, at 35,083 (listing the goals, and offering explanations, of EPA's enforcement policies).
11 Id.
12 Id.
13 See ENVIRONMENTAL PROTECTION AGENCY, GM-22, GENERAL ENFORCEMENT POLICY COMPENDIUM, A FRAMEWORK FOR STATUTE-SPECIFIC APPROACHES TO PENALTY ASSESSMENTS: IMPLEMENTING EPA'S POLICY ON CIVIL PENALTIES (February 16, 1984) [hereinafter
cial avenues, must conform with stated penalty assessment program goals and their implementing guidelines.¹⁴

B. Deterrence¹⁵

First and foremost, the EPA's civil penalty assessment program is designed to prevent environmental violations from occurring, and, if they do occur, to prevent repetition of violations.¹⁶ For penalties to be effective as deterrent measures, alleged violators must suffer repercussions in such a manner that violators find themselves disadvantaged economically as a direct result of noncompliance.¹⁷ If this were not the case, those companies that had previously complied with the environmental regulations would face competitive disadvantages.¹⁸ Thus, at the very least, the EPA should structure every civil penalty assessment in such a manner to negate all of the economic benefits that have accrued to companies during the period of their violations.¹⁹

In addition to the elimination of any economic advantage gained by violators, the deterrence goals require that additional penalties be assessed. If the EPA fails to assess these additional penalties, the deterrence factor is weakened. Recouping the economic benefit alone merely places violators in the same position as they were before they failed to comply with the applicable environmental regulations.²⁰ Significant deterrence and regulatory equity require that violators be left in a worse position than if they had spent time and money to comply with the environmental regulations in the first place. This policy encourages compliance in the regulated community. The regulated community realizes that non-compliance results in a loss of economic benefits and additional fines analogous to punitive damages.


¹⁴ See PENALTY POLICY, supra note 3, at 35,084 (stating that deviations are allowed on an individual basis). All deviations must be accompanied by documentation supporting and clarifying the reasons for the variation in penalty assessment. Id.

¹⁵ See BLACK'S LAW DICTIONARY 405 (5th ed. 1979) (defining deterrent as "anything which impedes or has a tendency to prevent").

²⁰ See id. at 35,075.
The additional fines levied against violators reflect the seriousness of the offense. When evaluating the seriousness of an offense the EPA will look at several factors: (1) the amount of pollutants discharged; (2) the toxicity of the pollutants; (3) the sensitivity of the environment in which pollutants were released; (4) the length of time during which the violation occurred; and (5) the size of the violations. These “gravity” fines are consistent with congressional intent. Most environmental statutes contain provisions which factor into the penalty equation an amount that reflects the level of damage done to the environment. The Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA), the Clean Air Act, the Federal Water Pollution Control Act (Clean Water Act), the Emergency Planning and Community Right-to-Know Act (EPCRA), and the Resource Conservation and Recovery Act (RCRA) all contain language that mandates an evaluation of the extent of environmental violations. Thus, the statutes require something further than a mere recoupment of the economic benefit gained through noncompliance. The statutes mandate additional penalties to increase the likelihood that penalties will deter not only violating parties but also other members of the regulated community.

C. Establishment of a Level Economic Playing Field

The EPA’s civil penalty assessment program is also designed to promote an equitable system of regulation. Under the current sys-

21 See id. at 35,074 (stating that the EPA labels this as the “gravity component” of the penalty).
22 See id.
24 See Clean Air Act § 113(e)(1), 42 U.S.C. § 7413(e)(1) (Supp. IV 1992) (stating that penalty assessment criteria should include the “seriousness of a violation”).
26 See EPCRA § 325(b)(1)(C), 42 U.S.C. § 11045(b)(1) (1988) (declaring that the Administrator must take into account, inter alia, the “extent and gravity of the violation”).
28 See PENALTY POLICY, supra note 3, at 35,083.
29 See id. (explaining that the deterrence function of civil penalties serves dual functions). As a specific deterrent the penalties are used to prevent a violator from making repeat violations. Id. As a general deterrent the penalties are designed to put others in the regulated community on notice that violations of the law are an economically inefficient manner in which to run a corporation. Id.
30 FRAMEWORK, supra note 13, at 35,074.
tem of regulation, pollution control requirements are necessary for every similarly situated source in a regulated community. Therefore, all sources are required to expend capital on mechanisms designed to conform to environmental regulations. If sources fail to comply with applicable regulations, the EPA assesses fines. The assessed fines are in addition to the capital expenditures needed to purchase and install the pollution control mechanisms already in use by others in the regulated community. Penalties should conform to a certain set of standards while remaining elastic enough to account for individual circumstances. Consistency, uniformity, and flexibility in the application of the penalty assessment program, decrease the likelihood that the parties will challenge enforcement actions on grounds of arbitrariness and capriciousness. The lack of rigidity in the penalty assessment program allows the EPA, upon a clear showing by violators, to take into account any mitigating factors.

In addition to reducing an initial penalty assessment, mitigating factors may be used to increase a preliminary determination of the appropriate penalty amount. Once an "initial penalty target figure" is determined by the case development team, the EPA initiates formal settlement negotiations. The target figure—the amount which the EPA initially feels it is obligated to recover—may later be adjusted to take into account any other relevant information that comes to

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33 See FRAMEWORK, supra note 13, at 35,074; PENALTY POLICY, supra note 3, at 35,083.

34 See FRAMEWORK, supra note 13, at 35,075 (noting that violations result in deferred costs when a violator fails to install equipment needed to meet pollution control standards).

35 See id. at 35,078.

36 PENALITY POLICY, supra note 3, at 35,084.

37 See id. (listing mitigating factors). The factors include: (1) the amount of cooperation shown by the offender in an attempt to bring about the fastest resolution of the problem possible; (2) the amount of negligence, or intentional disregard for the law, shown in committing the offense; (3) the ability of the violating party to pay a levied fine; (4) whether or not the violator has engaged in a history of non-compliance; and (5) any other unique factors that distinguish the violator's case. Id.

38 See id. (explaining how the initial target figure is used by the EPA). The penalty target figure becomes part of the complaint when an administrative action is filed. In a judicial action, however, the target figure is used as a base figure which becomes the preliminary settlement goal. The figure remains confidential to the case settlement team and, as a general rule, is not revealed to the alleged violator. The case settlement team may use its discretion if it feels that revealing the target goal would expedite the settlement process. Id.
light.\textsuperscript{39} Consistent implementation of the penalty assessment program discourages protracted litigation.\textsuperscript{40} This, in turn, promotes the third goal of the EPA's penalty assessment program, which is to provide an immediate response to environmental infractions.

D. \textit{Swift Resolution of Environmental Problems}

Finally, the EPA's civil penalty assessment program is designed to prompt violators to conduct remedial efforts in the fastest possible manner.\textsuperscript{41} To achieve this goal, the EPA undertakes two different, but related, types of actions. To encourage violator-initiated remedies, the EPA provides incentives for immediate compliance and disincentives for delayed compliance after the commission of a violation.\textsuperscript{42} Incentives may take any form\textsuperscript{43} and may include a reduction in the gravity component of the penalty based upon the timeliness of the response to the EPA's notice of violation.\textsuperscript{44} Self-reporting, which ensures a more immediate environmental response, lowers violators' penalty assessments.\textsuperscript{45} Furthermore, the EPA will generally reduce penalties if violators undertake corrective actions before the institution of litigation or administrative actions by the EPA or the United States Attorney's Office.\textsuperscript{46} Disincentives include an adjustment of the initial penalty target figure upwards if violators engage in protracted settlement negotiations while violations continue.\textsuperscript{47} The EPA also has a number of enforcement actions that the agency may undertake in order to ensure compliance.\textsuperscript{48} These actions include, but are not limited to, administrative compliance offers, temporary restraining orders, and permanent injunctions. These tools, however, may not be as useful as, or may be more cumbersome than, the aforementioned economic incentives.

\begin{itemize}
\item \textsuperscript{39} See ENV. ENFORCEMENT, supra note 5, at 5 n.1.
\item \textsuperscript{40} PENALTY POLICY, supra note 3, at 35,084.
\item \textsuperscript{41} See FRAMEWORK, supra note 13, at 35,074.
\item \textsuperscript{42} See id.
\item \textsuperscript{43} See PENALTY POLICY, supra note 3, at 35,084. The incentives, however, cannot allow the offender to maintain the economics derived from the noncompliance. \textit{Id.}
\item \textsuperscript{44} \textit{Id.} (explaining under what circumstances the EPA will consider lowering a penalty amount).
\item \textsuperscript{45} \textit{Id.} (listing degree of cooperation as a factor that may mitigate penalty).
\item \textsuperscript{46} \textit{Id.} An action is deemed to have commenced when an Assistant United States Attorney files a complaint or when a violator files a response to an administrative complaint. \textit{Id.} at n.1.
\item \textsuperscript{47} \textit{Id.} (advising EPA case development teams to inform the alleged violator of this policy before the settlement negotiations commence).
\end{itemize}
E. Calculating the Benefit Component to Achieve the Goals of the EPA's Penalty Assessment Program

In order to give full effect to the goals of the penalty assessment program, the EPA devised a model for calculating and establishing civil penalties for the violation of environmental regulations. The model's specific and primary goal is to estimate the economic benefits gained through noncompliance of environmental regulations. On a secondary level, the calculations, based on computer generated formulas, seek to ensure uniformity throughout different regions and different industries. Through the model, the EPA also seeks consistency in the enforcement of different environmental statutes.

III. CIVIL PENALTY ASSESSMENT METHODOLOGY

A. Introduction to the BEN Model

The centerpiece of the EPA's civil penalty assessment program prevents violators from benefitting financially as a result of their failure to comply with environmental regulations. In order to determine the amount of financial gain achieved by violators' non-compliance, the EPA utilizes a computer model that estimates economic benefits that have accrued to any violators during periods of violation. The computer model, commonly referred to as the BEN model, provides a uniform quantitative analysis of environmental violations.

The EPA adopted the BEN model because of the advantages that the model provides over other methods of civil penalty assessment. For example, the BEN model does not require that EPA case development teams engage in financial research or numerical estimations. Using the BEN model also allows violators to take active roles in the

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49 See EPA, BEN: A MODEL TO CALCULATE THE ECONOMIC BENEFIT OF NON-COMPLIANCE, USER’S MANUAL (June 1990) [hereinafter “USER’S MANUAL”] (detailing the use of the BEN model computer program).
50 Id.
51 FRAMEWORK, supra note 13, at 35,080-81.
52 Id. at 35,075.
53 Id.
54 BEN is an acronym for “economic benefit.”
55 See PENALTY POLICY, supra note 3, at 35,085.
56 Id.
penalty assessment process by voluntarily submitting financial data and, thus, conserves the EPA's resources. As a result, the EPA's time and resources are not wasted on repetitive calculations. In addition, because the BEN model uses standard variables, and because penalties determined by the BEN model are always relative to other penalties that are assessed, adjudicatory bodies are more likely to defer to the EPA's assessment. Standard variables also provide and maintain a high degree of consistency.

Furthermore, the formula used by the BEN model allows violators to provide input into the penalty assessment process. Aside from the standard variables that are repeatedly used, violators provide financial information to input into the other variables used to determine liability. Thus, to a certain extent, violators will help determine appropriate fines. A violators' ability to influence the penalty assessment process also lends itself to judicial deference. Violator participation eliminates a significant amount of time that would otherwise have been spent defending the accuracy and equity of civil penalty assessment calculations.

The BEN model is used to calculate the accrual of economic benefits resulting from a delay in installing pollution control equipment or from a failure to utilize and support pollution control equipment already in place. As a general rule, EPA personnel must use the BEN model when the "rule-of-thumb" method estimates penalties exceeding $10,000. If the period of non-compliance is substantially lengthy, the rule-of-thumb method usually underestimates the economic benefit gained from non-compliance. The BEN model should be used when environmental non-compliance involves postponed or ignored pollution-related capital expenditures. The BEN model should also be used when the rule-of-thumb method produces penalties the accuracy of which is disputed by violators.

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58 Id.
59 Id.
60 Id.
61 See id.
62 See id.
63 See FRAMEWORK, supra note 13, at 35,078.
64 See id. at 35,079.
65 See id. at 35,075.
66 Guidance, supra note 57, at 35,085.
67 See FRAMEWORK, supra note 13, at 35,076 (detailing the process used in the rule-of-thumb method of economic benefits). Under the rule-of-thumb method, the economic gains of a violator are estimated at "5% per year of the delayed one-time capital cost from the period from the date of violation began until the date of compliance was or is expected to be achieved"). Id.
68 Id. at 35,075.
69 Guidance, supra note 57, at 35,085.
70 Id.
B. BEN Model Methodology

The BEN equation uses thirteen different variables to estimate the economic benefits of non-compliance with federal environmental laws. Of the thirteen variables, eight can adopt standard value measures. The other five variables require the EPA to input information regarding the dates of non-compliance, the date of compliance, the penalty payment date, the dollar amount that the company would have expended had it provided for pollution control measures on time, and the delayed costs involving capital investments.

The formula used in the BEN model is based upon certain assumptions about the lack of pollution control expenditures and the resultant delayed compliance. The BEN model originates from the premise that violators will eventually comply, or have finally complied with, any applicable regulations and will install necessary equipment to guarantee compliance. The BEN model then assumes that violators should have installed, but did not, the same pieces of equipment in the

69 See Robert H. Fuhrman, The Role of EPA's BEN Model in Establishing Civil Penalties, 1991 Envtl L. Rep. (Envtl. L. Inst.) 10,246, 10,253 (giving an example of a BEN Model Calculation). The thirteen factors are: (1) case name, statute and profit/nonprofit status; (2) initial capital investment; (3) one-time nondepreciable expenditure; (4) annual expenses; (5) first month of non-compliance; (6) compliance date; (7) penalty payment date; (8) useful life of pollution control equipment; (9) marginal income tax rate for 1986 and before; (10) marginal income tax rate for 1987 and beyond; (11) annual inflation rate; (12) discount rate: corporate equity rate; and (13) low interest financing and corporate debt rate. Id.; see also BLACK'S LAW DICTIONARY (5th ed. 1979) (defining the economic terms above). "Capital investment" is the buying price of a capital asset. Id. at 189. "Discount rate" is the "percentage of the face amount of commercial paper which a holder pays when he transfers such paper to a financial institution for cash or credit." Id. at 418.

70 The required input variables are the avenue by which the violators can influence the final penalty assessment.

71 See generally Fuhrman, supra note 69.

72 But see Jasbinder Singh, EPA's Narrow Definition of Economic Benefit Vastly Increases Its Economic Benefit Estimate, 1993 Envtl L. Rep. (Envtl. L. Inst.) 10,121, 10,121-22 (arguing against the current BEN assumption that the violator uses the same piece of equipment to ultimately comply as it would have used had it complied on time). Singh argues that the BEN model does not accurately reflect a situation in which there are differing circumstances that result in different compliance costs for on-time compliance costs and delayed compliance costs. Id. at 10,122. For example, technology, in the years of non-compliance, could have improved pollution control mechanisms while reducing their cost. Thus, the cost of installing pollution control equipment after being notified of a violation would not be the same expenditure if the source had complied on time—it would be cheaper. See id. Singh, however, fails to take into account the importance of maintaining a level playing field in the regulated community. Non-compliant sources' costs must be measured against the costs of those in the regulated community who did comply with the law on time. Even if pollution control mechanisms are cheaper to purchase after delayed compliance, the non-compliant source's penalty should reflect the costs that the compliant sources incurred when they purchased the pollution control mechanisms on time. See id.
year that they should have been in compliance.\footnote{See id. at 10,121 (reducing the current BEN assumptions to a mathematical formula). Singh shows that the year of compliance is represented by \( T \); the date compliance should have occurred is \( T-n \) (\( n \) representing the length of delay); the compliance cost is \( C_1 \) in year \( T \); and the compliance cost in \( T-n \) is \( C_2 \). See id. Singh correctly points out that \( C_1 = C_2 = C \) (\( C \) being the compliance cost) because the model assumes that same piece of equipment is installed in both \( T \) and \( T-n \). See id. (emphasis in original).} The time value of money is calculated for the delayed expenditure, and added to annual operating costs not expended, yielding the economic benefit. The BEN model's formula determines the economic benefit by estimating the capital involved in buying equipment to bring violators into compliance with environmental regulations, estimating the amount of capital that would have been involved in buying equipment without delay, discounting the cash flows, subtracting the discounted values to arrive at the economic benefit, and then adjusting upwards the value of the economic benefit at the time the penalty is to be paid.\footnote{Id.}

C. The BEN Model's Failings

Industry attorneys criticize the BEN model on many fronts.\footnote{See, e.g. Singh, \textit{supra} note 72, at 10,121 (claiming that the model overestimates the economic benefit); Fuhrman, \textit{supra} note 69, at 10,246 (asserting that deficient methodologies heavily favor the EPA); Philip Saunders Jr., \textit{Civil Penalties and the Economic Benefits of Noncompliance: A Better Alternative for Attorney's Than EPAS BEN Model}, 22 Envtl L. Rep. (Envtl. L. lnst.) 10,003 (Jan. 1992) (claiming that standardized assumptions result in significant miscalculations of the economic benefit).} Not surprisingly, most of the criticisms of the BEN model claim that violators are being assessed too much.\footnote{See \textit{Fuhrman, supra} note 69, at 10,249; Saunders, \textit{supra} note 75 at 10,004; Singh, \textit{supra} note 72, at 10,123.} In reality, the opposite is true. If the foundation of the EPA's penalty assessment program were sound, and civil penalties deterred future violations, corporations would not continue to violate environmental regulations. Moreover, if the criticisms of the BEN model were accurate, and current civil assessments were inaccurate and overestimated—and thus more of a deterrent than necessary—there should have been a dramatic decrease in environmental violations. If, after all, penalties deter violations, overestimated penalties would serve as a greater deterrent. Although the reasoning of this argument is sound, its application to present day environmental enforcement is misguided. The fact is, there has not been a decline in the number of environmental violations.\footnote{\textit{Env. Enforcement, supra} note 5, at 5.} Furthermore, the lack of resources at the EPA provides companies with a
comfort level that allows them to risk non-compliance with environmental regulations.\textsuperscript{78}

Contrary to industry claims, the EPA's current civil penalty assessment program falls short of a full accounting of the economic gains made by environmental non-compliance because the program fails to account for the market share gains made during periods of non-compliance.\textsuperscript{79} As a result, corporations still find non-compliance with environmental regulations economically more efficient, offering a distinct advantage over their competitors who do comply.\textsuperscript{80} The economic benefits of non-compliance are directly related to the BEN model's failure to consider increases in market share that occur during periods of non-compliance.\textsuperscript{81} Thus, disregard for existing regulations not only damages the environment but also challenges the principles of the free market economy that ensure effective competition in the marketplace.\textsuperscript{82} Effective competition requires, inter alia, a reasonable degree of parity in the marketplace.\textsuperscript{83}

\section*{IV. The BEN Model’s Failure to Account for Increased Sales and Permanent Market Share Gained During Periods of Environmental Non-Compliance}

Without the promotion of parity in the marketplace through effective regulation, the regulated community cannot compete on a level playing field. Yet, without an assessment of increased market share in the EPA's civil penalty programs, companies that comply with environmental regulations and with the costs associated with the regulations, will face a competitive disadvantage. This provides a disincentive for companies to expend the initial capital costs involved in purchasing pollution control mechanisms.

The best comparative illustration of the ramifications of the current penalty policy is corporate America's view of federal environmental regulation's impact on international competitiveness. Most American companies feel that they face economic disadvantages vis-a-vis foreign competitors because of the stringent environmental regulations.

\textsuperscript{78} Id.
\textsuperscript{79} Id.
\textsuperscript{80} See generally Schneider, supra note 4 (demonstrating how a company can edge ahead of its competitors by avoiding the costs of compliance).
\textsuperscript{81} See Saunders, supra note 75, at 10,008.
\textsuperscript{82} WILLIAM G. SHEFARD, THE ECONOMICS OF INDUSTRIAL ORGANIZATION 16 (1990).
\textsuperscript{83} Id.
that pervade American industries. Such stringent regulations are uncommon in most other markets in the world.

American companies are placed at the very same competitive disadvantage by fellow domestic companies that ignore federal environmental regulations. It makes no difference whether foreign companies enjoy competitive advantages because of lax environmental regulations by their home states or whether American companies enjoy competitive advantages because of their failure to comply with applicable federal environmental statutes—the same competitive disadvantages result. American companies should be just as concerned with competitive advantages gained by domestic competitors who evade federal environmental regulations—and thereby increase market share by avoiding capital costs—as they are with international competitors who are not as heavily regulated.

A. The Benefits of non-Compliance

Without running afoul of antitrust law, companies seek to increase their market share as a means to achieve increased profits. A precursor to increased market share is the development of competitive advantages within the marketplace. Competitive advantages take various forms. Examples of competitive advantages include increased production rates, the development of new technologies, and the construction of more efficient facilities. There also exist, however, other, illegal means of acquiring competitive advantages in the marketplace. These illegal means include, among other things, price-fixing, collusion, and tying contracts. All of these means are prohibited under United States antitrust law.

In addition to antitrust violations, corporations in the marketplace may attempt to gain a competitive advantage over competitors by delaying compliance with, or ignoring altogether, laws that regulate

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84 See Richard B. Stewart, Environmental Regulation and International Competitiveness, 102 YALE L.J. 2039, 2046 (1993) (noting that the United States has the “most expansive liability rules for environmental pollution and among the most stringent regulatory requirements in the world,” resulting in a perceived lack of competitiveness in the international markets by U.S. companies). Stewart goes on to say that foreign countries’ lack of stringent environmental regulations could be seen as a form of unfair competition. Id. at 2049. The same argument could be made against those who profit off of their delayed compliance with environmental statutes.

85 See SHEPARD, supra note 82, at 62.

86 See id.


the particular market. For example, if there are two companies—company A and company B—in the same market that are both regulated under the Clean Air Act, the decision to comply with all applicable regulations may have significant economic implications. If company A chooses to comply with a regulation requiring the installation of new pollution control equipment, at a cost of one million dollars, the company may have to raise its product's price to help defray the cost of compliance. If company B chooses not to comply with the regulation, the company does not incur any compliance costs. At the same time, as a direct result of the noncompliance, company B does not feel the same need as company A did to raise its product's price to defray costs. Thus, company B, the non-compliant, is selling its product in the marketplace at a lower price. Or, alternatively, company B can sell its product at the same price as its competitors for an even greater profit. Additionally, by ignoring federal violations regulations, company B can avoid delays caused by mandatory permitting and construction requirements. Thus, company B gains a competitive advantage that will probably result in an increased share of the market.

The EPA's current civil penalty assessment program fails to account for illegally gained competitive advantages that account for increased market share. The EPA hopes to recoup all of the economic benefits gained through delayed compliance. Unfortunately, the EPA falls short of its goals because companies that avoid initial capital costs associated with required pollution control mechanisms do not have to pass those costs on. As a result, noncompliant's products may be, and probably are, sold at cheaper prices which allow noncompliant to increase the share of their markets.

Although companies are penalized above and beyond the costs of timely compliance with the applicable federal environmental regulations, as calculated by the BEN model, the increased profits from the increased market share, and/or additional sales, may alone support

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89 See Thomas G. Krattenmaker and Steven C. Salopp, Anticompetitive Exclusion: Raising Rivals Costs To Achieve Power Over Price, 96 YALE L.J. 209, 224 (1986). Krattenmaker and Salopp state:

Raising rivals' costs can be a particularly effective method of anticompetitive exclusion. This strategy need not entail sacrificing one's own profits in the short run; it need not require classical market power as a prerequisite for its success; and it may give the excluding firm various options in exercising its acquired power.

Id.

90 Sometimes a small difference in price is enough to win a contract bid. Consequently, the award of such a contract could result in profits in excess of any future fines levied by an environmental enforcement agency. This is true even if there is no corresponding increase in net market share.

91 See Stewart, supra note 84, at 2063.
these penalties. Thus, to comply, companies will not have to raise prices to offset costs to the same extent as those who originally complied because the noncomplying company will possess greater financial resources to pay fines and install pollution control equipment—assuming the amount of profits that resulted from the increased market share are large enough to cover the costs of the fines. Therefore, delayed compliance may be profitable for companies in those instances where ill-gotten profits—associated with illegal market share gains—allow companies to pay their fines, comply with applicable regulations, and maintain their current prices. Without having to pass on the costs of compliance to customers, as other companies had to do when they initially installed the required pollution control mechanisms, companies that acted illegally may preserve their ill-gotten increased share of the market.

B. Market Defined

In order to account accurately for violators' economic gains, market share must be incorporated into the EPA's civil penalty assessment program. This incorporation first necessitates a definition of the market in which violators operate. Market share is defined as "the percentage of a market that is controlled by a firm."92 Although market share is an easy concept to understand, market share is difficult to measure. There always exist questions raised by marketplace competitors involved in antitrust litigation about the products that companies are producing.93 Another frequently litigated issue concerns the precise nature of the market.94 For example, if a company produces fountain pens, the question arises whether the market includes all fountain pens or all writing utensils. Thus, in order to assess increased market share one must first determine the relevant market.

Defining the relevant market is an integral component of antitrust litigation.95 The development of antitrust regulation offers guidance as to how to best define the relevant market. One cannot accurately account for the benefits of environmental noncompliance without first defining the parameters in which the noncompliance takes place.96 In order to accurately describe a violator's market, an analysis is made

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92 BLACK'S LAW DICTIONARY 876 (5th ed. 1979).
93 See United States v. Aluminum Co. of Am., 148 F.2d 416, 424 (2d Cir. 1945) (holding that a definition of a defendant's market is necessary to define market power).
95 See Aluminum Co. of Am., 148 F.2d at 424.
96 See Areeda and Turner, supra note 94, at 346.
to determine the product’s geographic distribution, the dimension of
the product,97 and the dimension of production facilities.98

After the market is adequately defined, an estimation of the com­
pany’s market share is determined.99 Market share is indicative of a
 corporation’s competitiveness relative to other companies in the same
market.100 The most accurate way to determine a given market share
is to analyze the corporation’s production levels.101 To illustrate, as­
sume there are two, and only two, companies in a given market—one
company A and company B. In 1990, both companies produce and sell
widgets at the same price and both have a fifty percent share of the
market. In 1991, Congress requires installation of more modern pol­
lution control equipment at the companies’ widget facilities and man­
dates immediate compliance. Company A complies with the new regu­
lation at a cost of $750,000 but company B chooses to ignore the
regulation and continues to produce widgets without pollution control
equipment.

As a result of incurring costs for compliance, company A is forced
to raise its product’s price. The rise in cost that is passed along to
consumers decreases company A’s sales. Company B, whose product
is still at pre-regulation levels, sees sales increase. Their production
levels rise and their share of the market increases to sixty percent.
Company A drops its production levels and its market share drops to
forty percent.

When the EPA finally brings an enforcement action against com­
pany B, the penalties will not account for the market share increase.102
Assuming, arguendo, that the value of the increased market share is
worth five million dollars to the company, the benefit calculation will
only account for the delayed compliance time and the gravity compo­
nent. Using the rule-of-thumb method, we can roughly estimate the
penalty that the BEN model would generate.103 The calculation would
be five percent per year from the date of violation until the date of
expected compliance.104 If the date of compliance is five years from the
date of violation the calculation would be twenty five percent (five

97 See id. (explaining that product dimension is the term used to describe other products that
could be substituted for the product in question).
98 Id.
99 See id.
100 Id. at 350.
101 Id.
102 See PENALTY POLICY, supra note 3, at 35,083.
103 See id.
104 The five percent seems to be a hypothetical discount rate (often used in economic models).
See id.
percent per year) multiplied by $750,000 (capital cost of compliance), or $187,500. Even with a gravity component of $100,000, which would bring the estimated penalty total to $287,500, the penalty assessment does not fully account for company B's true economic gain. If company B's increased market share, due to noncompliance, is worth $5,000,000,105 a penalty assessment of $287,500 will hardly serve as a deterrent. Company B will not only be able to pay the fine and absorb the cost of compliance, but will still maintain substantial profit margin over company A. Furthermore, because of the increased market share—valued at $5,000,000—company B can pay penalty assessment without having to raise its product's price. Thus, company B will maintain its position, illegally established, in the market. The penalties will be offset by increased sales, increased profits, and after coming into compliance, company B will still find itself with sixty percent of the market. Even if costs are eventually levelled, and the price of company B's product is roughly equivalent to the price of company A's product, market share will not necessarily decrease. Loss of market share will be stemmed by, among other things, goodwill and the value of long-term contracts.106 Thus, that delayed compliance, in this situation, is not financially injurious to company B. In fact, noncompliance appears to be profitable.107

V. IMPLEMENTING ANALYSIS OF MARKET SHARE INTO THE EPA'S PENALTY ASSESSMENT PROGRAM

A. Introduction

The above analysis demonstrates not only that the EPA's penalty assessment program108 fails to recoup full economic benefits, but that

105 See id. For increased market share to be a major factor in providing deterrence, and for recoupment of full economic gain from illegal activity, the value of the illegal market share will have to be larger than the current calculated penalties assessed by using the BEN model. If there is no increase in market share, or if the increase in market share results in nominal profits, then the current methodology is adequate.

106 One only has to look at Tylenol products to appreciate the nature of goodwill. Tylenol did not see any appreciable long-term loss of its market share due to the sabotage and poisoning of its products during the 1980s.

107 This assumes, of course, that the costs of environmental compliance are not de minimis. If such costs were de minimis, then competitors who have complied with environmental regulations would not be disadvantaged; their capital expenditures would not be increased to any significant degree because of costs associated with environmental compliance. See Stewart, supra note 84, at 2062 (explaining the costs of environmental compliance in the United States).

108 The criticism is equally applicable to state and local governments, as well as citizen groups that help enforce environmental laws by bringing suits for penalties and injunctive relief.
it also, in many cases, fails in its chief policy goal to act as a deterrent against future violations. To rectify this situation, the EPA's penalty assessment program must penalize companies in relation to the true economic benefit gained from noncompliance with environmental regulations. Accounting for increased market share will be a step in the right direction. This new assessment methodology will not only serve as a greater deterrent but will also protect companies in the marketplace that comply with environmental regulations. Providing equitable enforcement will protect the integrity of the marketplace in the regulated community. Additionally, equitable enforcement will achieve a truly level playing field for all businesses to compete. It is for these reasons that the business community, as well as environmental advocates, should urge the adoption of an increased market share component in the EPA's civil penalty assessment program.

Some argue that such a method cannot be implemented. Criticisms, however, belie the fact that market share analysis is already frequently used in antitrust litigation. Although it is beyond the scope of this Article to offer implementing legislation, skilled legislative drafters have a developed body of antitrust case law to use for guidance in formulating a particular market share analysis for environmental regulations.

B. The Creation of a Presumption That Increased Market Share is the Direct Result of non-Compliance

The EPA and other environmental enforcement agencies should presume, for the purpose of calculating the economic benefit component, that increased market share, since the inception of violations, resulted directly from non-compliance. Although the defendants could seek to minimize the economic benefit component figure by supplying financial data supportive of another conclusion, the figure's accuracy could be determined, in part, by requesting the same information from

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109 See Schneider, supra note 4, at D22.
110 See, e.g., Fuhrman, supra note 69, at 10,248 n.18 (claiming that the "calculation of the competitive advantage is fraught with difficulties"). This is the same article that stated unequivocally that "deficiencies of the BEN model heavily bias the calculations against the defendants." Id. at 10,246; see also Saunders, supra note 75, at 10,008 (stating that protracted litigation and quantitative complexities discourage implementation).
111 See LAWRENCE A. SULLIVAN, HANDBOOK OF THE LAW OF ANTITRUST 40 (1977) (stating that since United States v. Aluminum Co. of Am., 148 F.2d 416 (2d Cir. 1945), defining a geographic and product market has been consistently used in antitrust litigation).
other competitors in the market. Information could also be gleaned from trade associations in the industry. Information could be demanded pursuant to various information gathering provisions located in environmental statutes.\footnote{See, e.g., Clean Air Act § 114, 42 U.S.C. § 7414 (1988 & Supp. IV 1992) (setting out the Administrator's authority to require the submission of relevant information).} Courts will generally defer to an agency's findings if the agency's position is supported by a well reasoned, clearly articulated, and thoroughly documented analysis.\footnote{See Chevron U.S.A., Inc. v. Natural Resources Defense Council, 467 U.S. 837 (1984) (requiring courts to defer to agency interpretations).} Keeping this deference in mind, the EPA could add market share increase to the thirteen factors that the BEN model currently uses. Alleged violators would be allowed, as they are with other BEN factors, to supply information to aid in the EPA's findings.\footnote{See 42 U.S.C. § 7414(a)(1)(E) (1988 & Supp. IV 1992); 42 U.S.C. § 6928(d)(3) (1988).} Again, any increased market share, measured from the beginning of the period of non-compliance, would be presumed to result from non-compliance. In order to quantify the percentage of increase and arrive at a dollar penalty amount, the same percentage of increased profits, adjusted for inflation, would be used.

This Article proposes a three step formula to account for the economic benefit derived from increased market share due to environmental noncompliance. First, to determine the value of the increased market share, divide the illegal annual profits by the annual rate of return in a given year, or $\text{IMS} = \frac{\text{IP}}{\text{ROR}}$. To continue with the Company B example,\footnote{See text, supra, at 24–25.} $5,000,000$ (value of increased market share) $= 500,000 / 10\% \text{ ROR}$. To adequately utilize this formula, however, the amount of illegal profits must be determined. The illegal profit figure (IP) is the average\footnote{Averaging, or some other measure of centrality, such as mean or median, can be used.} profit made for five years prior to the beginning of the illegal conduct and the average profits for the years immediately preceding the return to compliance. The lower earlier profits are then subtracted from higher profits. The EPA, using provisions such as section 114 of the Clean Air Act,\footnote{See Clean Air Act, 42 U.S.C. § 7414 (providing for recordkeeping, inspections, monitoring, and entry).} would gather information from trade associations and other competitors in the market place in an attempt to verify the valuation of the illegal increase in market share. The illegal profits are then divided by the rate of return representative of the years during which the violations continued.

\[\text{IMS} = \frac{\text{IP}}{\text{ROR}}.\]
The second equation determines the value of the illegal benefit over the course of the violation, in the same way that the BEN model calculates the time value of money not spent on required control equipment. The calculation is the simple addition of any profits during the period of violations in excess of typical profits before the violations. In the Company B example, the illegal excessive profits averaged $500,000 a year for each of the five years of violation, creating a sum total of $2,500,000. This illegal profit plus the illegal market share value of $5 million, equals a $7.5 million economic benefit gained from increased market share and increased sales.

C. Corporate Suits to Supplement Citizens' Suits

Many environmental statutes contain provisions for citizens' suits. Most citizens' suits are filed from information gleaned under the Freedom of Information Act (FOIA). FOIA allows environmental groups to examine information submitted to the EPA in mandated filings. To date, corporations have not actively engaged in litigation under FOIA's disclosure provisions. Incorporating increased market share into the EPA's penalty assessment program, however, may change companies' lack of activity over these provisions. Corporate America could find itself prosecuting more violators of environmental regulations. If a company suspects that another company is not complying with environmental regulations, the complying company would have a strong motivation to bring an action against the violator if the complying company believed that the penalty assessed would promote parity in the marketplace.

As a public policy matter, this policy proposition has far-reaching implications. The proposition serves three purposes: it increases the deterrent factor of the EPA's civil penalty assessments; it ensures a level playing field for those corporations who comply with environ-

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119 See FRAMEWORK, supra note 13, at 35,076.
123 See generally Boyer and Meidinger, supra note 120, at 864-66.
124 These suits, of course, would be subject to Rule 11 to prevent frivolous filings.
mental regulations; and it potentially eases the EPA's enforcement burden. These three factors should have widespread appeal.

The EPA should approve of the modified penalty assessment program because the regulated community would take a greater role in policing the competitors in its own markets. Corporate America should also support the modified penalty assessment program because the program would prevent illegal gains in the marketplace while protecting those companies that have incurred costs associated with regulatory compliance. These benefits would occur without any significant increase in government regulation. Not only is the marketplace left in much the same way that it exists now, but its very foundation is also strengthened; equity in the regulated community may finally be achieved. Lastly, citizens' groups will embrace the modified penalty assessment program because the inclusion of increased market share in penalty assessments will lead to greater penalties and more effective deterrence.

VI. CONCLUSION

In order to effectuate its policy goals of deterrence, the EPA must address the inadequacies of its civil penalty assessment program. Although the EPA's goals are admirable, they are frequently not realized. Too often companies, by delaying compliance, profit at the expense of the environment and other companies similarly situated in the same market that have complied with environmental regulations.

In order to protect the marketplace and the environment, the EPA must take steps to determine accurately the true benefits of non-compliance with federal environmental regulations. These steps should include an assessment of increased market share and would address the problems inherent in the current methodology. Although such an assessment would place additional administrative burdens on the EPA, these burdens would be minimized by the fact that corporations would be gathering and supplying much of the information needed to assess market share. This process is no different from the processes used in determining other factors utilized in the BEN model. Additionally, administrative burdens would be offset, or even reduced, by the presumption discussed in Section V(B) and by increased enforcement by the regulated community. In the alternative, the burdens would be reduced by the additional monies collected vis-a-vis increased fines in those jurisdictions where penalties fund the enforcement agency. Even if there exist additional administrative burdens,
they should never be allowed to prevent the protection of either the environment or the marketplace.

It is imperative, for the sake of environment and the regulated community, that the EPA reassess its civil penalty assessment program. The need to incorporate a civil penalty assessment program that accounts for increased market share is evidenced by companies' continued disregard for environmental regulations. The BEN model is currently not strong enough to deter the violation of environmental regulations. The policy recommendations in this Article offer alternatives that come at the expense of neither legitimate businesses nor the environment, but rather at the expense of companies who seek to gain an economic advantage over their competitors through non-compliance.