EPA's recent 'Final Action' on the BEN model

By Robert H. Fuhrman

As an economic consultant and expert witness in connection with more than 150 past environmental civil penalty cases, I read with great interest the Environmental Protection Agency's Aug. 26, 2005 Federal Register (FR) notice "Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases." Characterized as a final action and response to comments, the notice appears to be the end of the review process on EPA's "BEN model" that began in 1996. Undoubtedly, the notice will not satisfy all critics of EPA's program of economic benefit recapture.

EPA uses BEN to develop monetary fines for use in settlement negotiations. In disputes that proceed to trial, an expert witness testifying for the government may use BEN or an alternative analytical tool, such as customized spreadsheets. Not surprisingly, the financial methods used by the government's testifying economic experts in past trials were basically consistent with those imbedded in BEN.

Model description

BEN focuses on two types of economic savings that accrue from noncompliance: those a firm or a municipality obtained by delaying capital expenditures and those resulting from not operating and not maintaining pollution control equipment. EPA also believes that economic benefit may be produced by "illegal competitive advantages" (ICA) that BEN cannot calculate. (In its 1999 FR notice on BEN and elsewhere, EPA has identified increases in market share during periods of noncompliance as a possible indicator of ICA.)

BEN requires, at a minimum, the following information: (1) the dates of compliance, noncompliance and assumed penalty payment; (2) delayed costs, that is, delayed capital investments or one-time expenses; and (3) avoided costs, such as operations and maintenance expenses not incurred during purportedly noncompliant periods. In cases where relevant capital investments were completely avoided, such as when a facility shut down before returning to compliance, the nonincurred capital expenses may also be treated as avoided costs.

Other information may include the useful life of the pollution control equipment, an inflation rate, a "discount rate," and combined marginal federal and state tax rates. If the user chooses not to specify some of these, BEN defaults to specific standard values.

BEN is a discounted, after-tax cash flow model. It uses the information identified above to construct two different but related sets of cash flows: one representing "on-time" and the other reflecting "delayed" compliance. The way BEN is structured, a discount rate is used to determine the net present value of each of the two sets of cash flows as of the date of noncompliance, including the cost of replacing pieces of pollution control equipment at the end of their useful lives.

The difference between the present values of the two sets of cash flows is deemed by EPA to be the "economic benefit as of the date of noncompliance." According to EPA, this monetary value, when compounded forward to the projected penalty payment date, is the amount of economic benefit the violator obtained because of delayed or avoided compliance costs. A key component of the BEN methodology is that the same rate of interest is used both for discounting and adjusting the economic benefit forward in time.

Since late 1992, EPA has based this single rate on the "weighted average cost of capital" (WACC), an approach that blends the after-tax cost of debt with the cost of equity capital. EPA does not dispute that WACC is an expected (ex ante) rate of return, not an actual one (ex post) ascertained through hindsight. Without question, the most controversial aspect of BEN is its use of WACC both for discounting and compounding.

The actions EPA announced

Based on FR notices published in 1996 and 1999, public comments on those notices and a "peer review" conducted by "academic experts in financial economics" conducted between the spring of 2003 and January 2004, EPA has decided to make certain changes in BEN.

The referenced "peer review" was performed without public notification and public participation. However, the notice states that within the next few months EPA will put information related to this "peer review" on its computer models Web page. According to Jonathan Libber, EPA's BEN model coordinator, the agency is not prohibited from performing peer reviews without public notification and comment.

Some of the changes that EPA announced in its "final action" appear to be technical improvements. For example, the version of BEN presaged by the FR notice but not yet publicly available will have the flexibility to use alternative depreciation schedules, instead of just one schedule based on depreciation over seven years. Revised BEN will provide the option of using very different compliance scenarios in the on-time and delay cases where to do so may be justified. It will allow annual changes in state tax rates; consideration of valid pre-compliance expenditures and credits for salvaged capital equipment; and use of future inflation rates based on consensus-oriented forecasted rates, rather than simply using the same rate for both past and future inflation.

In recognition that the EPA Science Advisory Board is considering how notions of ICA should be considered in economic benefit recapture, the revised model, unlike the present one, will not contain any ICA-related screening questions. The notice does, however, include some discussion of ICA-related issues raised in previously provided public notices and comments. It is unclear whether EPA's responses to these comments provide a reasonable indication of what EPA will decide to do about ICA in the future.

Without reviewing the mechanics of the forthcoming version of BEN, it is hard to evaluate EPA's proposed changes regarding equipment replacement cycles. The current version of BEN allows the user to specify the number of replacement cycles to be considered in calculating civil penalties.

The revised BEN will calculate the "lease value" of the pollution control equipment after the end of the first cycle. At some point, the lease value will be the same in both the on-time and delay cases, thus addressing problems in previous versions of BEN that consider replacement cycles that end in different years in the on-time and delay cases. (This practice is seemingly in conflict with the assumption that pollution control requirements continue indefinitely in both cases.)

Assuming that the lease values are correctly calculated from a financial perspective, one may still be troubled by BEN's implicit assumptions that (1) future control requirements will be neither more stringent nor more lax than current ones and (2) the costs of replacement cycles in the two cases will differ only because of inflation and the time value of money. Technological and regulatory factors may invalidate either or both of these assumptions. Needless to say, one should not expect some future EPA administration to send refund checks to violators inappropriately penalized.

EPA's continued reliance on WACC

Given the content and attitudes expressed in EPA's 1996 and 1999 FR notices on BEN and the fact that the Aug. 26 notice is not a final rulemaking that could be challenged in court, it is not surprising that EPA will continue to base BEN's discount and compounding rates on WACC.

The recent FR notice explains BEN's reliance on WACC as follows: "The appropriate discount rate for economic benefit calculations is a company's opportunity costs of capital, reflecting the financial costs for pollution control investments or the value of investment opportunities foregone because of pollution control purchases."

Among other problems, this statement does not consider (1) whether the violator actually needed to raise both debt and equity capital to pay compliance costs and (2) whether, if it had paid for pollution controls "on time," the violator would have foregone investment rates of return equivalent to WACC.

Consider, for example, the most recent balance sheet General Electric (GE) filed with the Securities and Exchange Commission. As of June 30, 2005, GE had more than $12 billion in cash and other short-term investments. GE and many smaller, less profitable corporations have sufficient cash on hand to pay their incremental pollution control expenses without both further borrowing and issuance of common stock. The returns obtained on such cash amounts generally approximate commercial paper rates of return that are dramatically lower than WACC.

In recent years, several judicial decisions have flat-out disagreed with EPA's logic. In *U.S. v. WCI Steel* (N.D. Ohio 1999), the court found the after-tax risk-free rate associated with short-term Treasury bills to be the appropriate interest forward rate to use in economic benefit calculations and rejected WACC for this purpose. In *U.S. v. The New Portland Meadows LLC* (D. Ore. 2003), the court implicitly rejected calculations based on WACC and concluded that "Treasury's short-term cost of capital ... results in a more reasonable estimate of economic benefit."

In *U.S. v. Allegheny Ludlum Corp.* (2004), the Third Circuit held that the WACC-based financial methodology accepted by the lower court in that case "may so vastly overstate the economic benefit to ALC of its improper discharges, that it does not 'level the playing field,' and that it constitutes an *abuse of discretion*." 366 F.3d at 169 (emphasis added).

The risk-free rate approach

Because of differences in the potential variability of cash flows for historical and future time periods, a competing approach is to calculate economic benefit by (1) adjusting all past costs forward to the present based on compounding at the after-tax risk-free rate and (2) discounting all future costs to the present based on a risk-adjusted rate.

Suffice it to say, I disagree with EPA's claim that using the risk-free rate for compounding in economic benefit cases is incorrect because this method is used in tort damage cases and BEN does not deal with tort damages. EPA's argument is superficial and does not address whether Congress wanted EPA to remove expected or actual amounts of economic benefit obtained because of noncompliance.

The FR notice states that EPA "feels" the distinction between *ex ante* and *ex post* perspectives is not important. However, in the notice, EPA provides no analytic support for this sentiment that is grounded in broadly accepted economic or financial theory. In so doing, EPA glosses over a major methodological issue that in some cases can involve hundreds of thousands of dollars, if not more.

Final thoughts

Even assuming that BEN is correctly revised, one should not slavishly rely on the results of this model. In settlement negotiations, BEN results frequently reflect an initial bargaining position. Lawyers need to be able to scrutinize the inputs to the model for their reasonableness, to understand how the model functions and to think through the scenarios it considers.

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