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Judicial Review of Cost-Benefit Analysis under NEPA

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I. INTRODUCTION

Cost-benefit analysis has long played an important but controversial role in the decisionmaking process leading to approval of public works projects undertaken by the United States. Agencies involved in the development of water and related resources, such as the Army Corps of Engineers and the Bureau of Reclamation, use cost-benefit calculations to determine whether a particular project is economically feasible. If the anticipated benefits exceed the projected costs, an agency is justified in recommending the project, since theoretically there will be a net economic gain to society.

Until recently, federal courts have refused to review agency cost-benefit procedures and conclusions, leaving the supervisory responsibilities to Congress and the agencies. This deference to agency cost-benefit determinations has been grounded both on legal and pragmatic considerations. Legally, it is consistent with the courts' general policy against reviewing matters within an agency's special expertise. From a practical standpoint, courts have been reluctant to join in the continuing theoretical debate among economists and administrators over the merits of various cost-benefit techniques. Because of the courts' "hands off" approach, critics of the pro-development bias in agency cost-benefit calculations have been forced to take their case to Congress and the individual agencies.

1. For a description of cost-benefit analysis, see text accompanying notes 18-36 infra.
2. See notes 37-44 and accompanying text infra.
5. See notes 18-26 and accompanying text infra.
Adoption of the National Environmental Policy Act of 1969 ("NEPA") and subsequent judicial interpretation of the "action-forcing" provisions in section 102, have reopened the question of whether courts should review cost-benefit analysis. NEPA is an environmental full-disclosure law, which requires all federal agencies planning projects that will substantially affect the environment to consider the possible environmental effects. The Act does not expressly require administrative agencies to undertake cost-benefit analysis while preparing proposals for new federal projects. But in the leading case interpreting NEPA, Calvert Cliffs' Coordi-

7. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal Government shall—
(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;
(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter 11 of this chapter, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;
(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—
(i) the environmental impact of the proposed action,
(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) alternatives to the proposed action,
(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.
Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of Title 5 (United States Code), and shall accompany the proposal through the existing agency review processes; . . . .

Id. § 4332. Use of the term "action-forcing" to describe these sections originated in the Senate hearings on the bills which eventually became NEPA. Hearings on S. 1075, S. 237, and S. 1752 Before the Senate Comm. on Interior and Insular Affairs, 91st Cong., 1st Sess. 116 (1969).
nating Committee, Inc. v. AEC, the Court of Appeals for the District of Columbia held the Act mandated a "rigorous balancing of costs and benefits" which would ensure that "the optimally beneficial action is finally taken." The Calvert Cliffs' decision left many questions unresolved, because the court failed to elaborate on the type of cost-benefit balancing required under NEPA. Calvert Cliffs' may be read as requiring all federal agencies to undertake the type of rigorous cost-benefit analysis previously conducted only in the water resource field. The decision also suggests that agency cost-benefit techniques, once thought to be immune from judicial review, are now open to court scrutiny under the broad mandate of NEPA. In the NEPA litigation since Calvert Cliffs', federal courts, at the urging of environmental lawyers, have been forced to redefine their role in overseeing cost-benefit analysis.

Both the possibilities and the problems of expanding judicial oversight in the cost-benefit area were illustrated in a decision handed down by the District Court for the Southern District of Texas. In Sierra Club v. Froehlke, the court enjoined construction of the Trinity channelization and Wallisville reservoir projects until an adequate environmental impact statement ("EIS") could be prepared. The court concluded, inter alia, that NEPA mandates judicial review of cost-benefit calculations prepared by the Corps of Engineers to justify project approval. The court reasoned that the Corps' procedures tended to intertwine environmental and non-environmental values so that claimed environmental benefits were quantified in economic terms; at the same time, the procedures failed to quantify or consider certain environmental costs. Hence, the court found it could not "bypass an examination of the benefit-cost analysis, at least insofar as it is relevant to environmental considerations." The decision concluded with extensive guidelines for preparation of a new EIS.

The Trinity/Wallisville decision was seen as a victory for environmentalists eager to open the cost-benefit area to court review. But the very thoroughness of the decision raises doubts.

8. 449 F.2d 1109 (D.C. Cir. 1971).
9. Id. at 1128.
10. Id. at 1123.
12. Id. at 1363.
13. Id. at 1363-83.
whether, as a practical matter, courts should have an ongoing role in the review of agency cost-benefit determinations. The decision spans one hundred one pages in the reporter, including twenty four pages of introductory material, twenty pages bearing directly on cost-benefit analysis, and numerous technical exhibits. Such detail is not typical of NEPA litigation, nor is it a sufficient reason to avoid a court's judicial responsibilities. Nevertheless, the Trinity/Wallisville case may cause federal courts to hesitate before looking behind an agency's cost-benefit declarations.

This Comment analyzes the approach which courts have taken toward the review of cost-benefit determinations under NEPA. The underlying issue of whether NEPA mandates substantive judicial review of agency impact statements will not be considered directly, since it has been discussed extensively by courts and commentators. This writer agrees with those circuit courts of appeals which have held NEPA requires courts to review an agency's impact statement on the substantive merits.

15. See cases cited in note 17 infra.

The Eighth Circuit position that agency compliance with NEPA
This Comment contends that NEPA does not require a federal agency not involved in water resources development to develop refined cost-benefit projections as a part of an impact statement. Requiring wholesale adoption of cost-benefit quantification would be contrary to the purpose of the EIS, would pose great theoretical difficulties, and would encourage agencies to use the statement for project justification, rather than for environmental auditing. Where water resources agencies must prepare detailed cost-benefit evaluations for other purposes, however, these analyses should be included in the EIS and subjected to limited judicial review. Persons and agencies entitled to receive information about a project under NEPA's authority are entitled to know the factual basis for a decision to proceed with the project, including any cost-benefit determinations. Similarly, to conduct the point-by-point review of agency decisionmaking processes required by NEPA, federal courts must ascertain that environmental values have been given full consideration during agency cost-benefit calculations.

Part II of this Comment is a brief overview of the economic, political and legal framework for cost-benefit analysis. Part III describes the development of the judicial gloss on NEPA requiring inclusion of cost-benefit "balancing" in project impact statements. This part also explores the desirability of patterning NEPA "balancing" on the model of cost-benefit analysis traditionally conducted for water resource projects. Part IV analyzes the various judicial approaches toward substantive review of traditional cost-benefit analysis under NEPA. It suggests recent improvements in the guidelines for water resource cost-benefit analysis will make it easier to open such analysis to limited NEPA review.

is reviewable on the merits has been adopted in five other circuits. EDF v. Corps of Engineers, 492 F.2d 1123, 1139 (5th Cir. 1974); Sierra Club v. Froehlke, 486 F.2d 946, 951-53 (7th Cir. 1973); Silva v. Lynn, 482 F.2d 1282, 1283 (1st Cir. 1973); Conservation Council v. Froehlke, 473 F.2d 664, 665 (4th Cir. 1973); Calvert Cliffs' Coordinating Comm., Inc. v. AEC, 449 F.2d 1109, 1115 (D.C. Cir. 1971). The Sixth Circuit has implicitly approved substantive review. EDF v. TVA, 492 F.2d 466 (6th Cir. 1974), affg per curiam 371 F. Supp. 1004, 1013 (E.D. Tenn. 1973). Appellate panels in the Ninth Circuit have reached contradictory results. Compare EDF v. Armstrong, 487 F.2d 814, 817 (9th Cir. 1973) (permitting substantive review), with Jicarilla Apache Tribe of Indians v. Morton, 471 F.2d 1275, 1279-80 (9th Cir. 1973). Of the appellate courts that have considered the issue, only the Tenth Circuit has consistently opposed substantive review. National Helium Corp. v. Morton, 486 F.2d 995, 1001-03 (1974), affg 455 F.2d 650, 656 (10th Cir. 1971). In light of the lingering confusion on this point, the issue should be settled by the United States Supreme Court.
II. COST-BENEFIT ANALYSIS: AN OVERVIEW

Cost-benefit analysis has been the subject of numerous works in the fields of economics and public administration. A brief summary of the economic, political and legal context will nevertheless be helpful in evaluating the current judicial concern with cost-benefit techniques.

A. Economic Considerations

Cost-benefit analysis is used by government agencies to determine whether a proposed public investment will result in an efficient allocation of resources. Traditionally, the aim of cost-benefit analysis has been to identify and measure all the economic costs and benefits which will be derived from a project. After they are expressed in monetary terms, the costs and benefits to be realized in the future are discounted to their present value by applying an appropriate interest rate. This discounting procedure reflects the assumption common to all private and public investment decisions that a current investment should yield at least a given minimum rate of return in the future. Once the present worth

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19. The problem of identifying and monetizing environmental costs and benefits is especially troublesome. See note 24 and accompanying text infra.

20. The process of discounting has been described as "recognizing the
of all costs and benefits is known, the decisionmaker may either compute the ratio of the figures or a net amount (benefits minus costs). An agency theoretically is justified in proposing a project only if its anticipated economic benefits exceed its anticipated costs.\footnote{21}

Even this simple description is sufficient to expose important theoretical problems which trouble many economists and administrators. One commentator has offered a succinct summary of the questionable assumptions underlying cost-benefit analysis:

> [Cost-benefit analysis] assumes that the costs to be incurred are reasonably predictable; that the benefits are also reasonably predictable; that both are well-defined and are quantifiable in monetary terms; that the discount rate to be used is uniquely determinable; and that there are real alternatives against which the results can be compared.\footnote{22}

Other theoretical problems become apparent when decisionmakers are asked to incorporate intangible values such as environmental amenities into this type of analysis. For example, cost-benefit calculations have traditionally employed a single criterion—economic efficiency—to measure costs and benefits. Use of this criterion assumes that the public investment occurs in a purely competitive market and ignores external effects such as environmental pollution.\footnote{23} Even if decisionmakers attempt to incorporate environ-

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\footnote{21}{Joskow, Cost-Benefit Analysis, supra note 18, at 22. For example, if the appropriate discount rate is 5 per cent, \$1.05 one year from now is only worth one dollar today. Otherwise stated, \$1.05 one year in the future discounted to today is equal to one dollar. There is no other way to take account of costs and benefits which do not accrue in the present. All future figures must be discounted to today if a proper calculation of net benefits is to be obtained. \textit{Id.} Selection of an appropriate interest rate and project life span has been a key concern of environmental groups in challenging resource projects. A project's costs may be reduced by giving it a longer life span or lower interest rate. \textit{See} Prest & Turvey, supra note 18, at 697-700; notes 166, 172, 175 and accompanying text infra.}

\footnote{22}{Joskow, Cost-Benefit Analysis, supra note 18, at 22.}

\footnote{23}{Until recently, the economic efficiency criterion took the form of a "national income" objective in government cost-benefit analysis. That is, a project's costs and benefits were evaluated entirely on the basis of whether they contributed to or subtracted from the national income. \textit{The President's Water Resources Council Policies, Standards and Procedures in the Formulation, Evaluation, and Re-}
mental factors, such factors are difficult, if not impossible, to quantify in monetary terms. Finally, it has been argued that cost-benefit analysis consistently underestimates the costs represented by technological change, the growing demand for environmental amenities, and the interdependence among various government investments and private resource use. Such serious weaknesses in the theoretical framework have prompted economists to caution politicians and administrators, "to discern this confusion behind the impressive facade that benefit-cost practitioners have been building the last twenty years."

Because of such criticisms, agencies involved in developing water resources have recently expanded the range of factors considered in cost-benefit determinations. On October 25, 1973, new Principles and Standards for Planning Water and Related Resources (hereinafter "Principles and Standards") went into effect.
fect, after being proposed by the Water Resources Council. These Principles and Standards omit all references to cost-benefit ratios, calling instead for the preparation of four “public information accounts” evaluating a project’s “beneficial and adverse effects.” The two principal accounts describe the effects of alternative plans upon the main objectives of “national economic development” and “environmental quality.” Values for the national economic development account are expressed in monetary terms, so that a net benefit figure may still be computed. Values for the environmental quality account may be expressed in quantitative or qualitative terms. Two additional accounts, “regional economic development” and “social well-being,” reflect secondary objectives and may mix economic and qualitative evaluations.

While these new guidelines are an improvement over previous cost-benefit standards, it is doubtful that they will effect substantive changes in agency decisionmaking. By establishing more than one criterion for project approval, the guidelines do force agencies to articulate the trade-offs being made among the four objectives.
The reasoning of the decisionmaker in choosing a particular plan and his value judgment in selecting a particular mix of objectives are thus opened to public scrutiny. On the other hand, the new guidelines may only change the form of project justification, supplementing the traditional monetary analysis of economic benefits and costs with a narrative of other project effects. The Principles and Standards provide, for example, that the "benefit-cost balance" in the national economic development account must ordinarily be greater than unity for the project to be approved. In addition, the value of multiobjective analysis is limited because it is used to test alternative plans for a given project, rather than to rank alternative projects. Finally, the new guidelines are equally susceptible to the problems of agency abuse which have plagued traditional cost-benefit evaluations.

Since the new Principles and Standards are so closely related to the cost-benefit analysis previously conducted by the water resource agencies, the remainder of this article employs the term "cost-benefit analysis" to describe both the single and multiobjective approaches.

B. Political Considerations

Cost-benefit analysis has been developed in the evaluation of water resource projects. As early as 1902, the Army Corps of Engineers was required to consider the commercial benefits and costs of navigation projects it proposed to Congress. The Corps' pres-
ent responsibilities for cost-benefit analysis were first set out in the Flood Control Act of 1936:

[I]t is the sense of Congress . . . that the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs . . . .

Following passage of the 1936 Act, other agencies involved in water resource development gradually incorporated cost-benefit studies into their project justifications. To enhance net benefits, agencies began experimenting with measurements of "indirect benefits" or "intangible benefits." These practices prompted publication of a series of documents intended to standardize federal cost-benefit techniques. The most recent guidelines were described above.

Although federal guidelines for cost-benefit analysis have changed, consistent patterns of agency behavior have been apparent. First, the inherently flexible cost-benefit techniques have often been manipulated by analysts to assure favorable project evaluations: "[T]here is serious doubt whether federal agencies can objectively evaluate projects they will later be asked to build. Numerous examples of inflated benefit estimates, as well as double- and

39. One commentator has described the attempted measurement of secondary benefits in this manner:

The Bureau of Reclamation in particular began to make play with "secondary" or "indirect" benefits, evaluating such things as the increased attendance to be expected at motion-picture theaters in an area affected by a reclamation project (at a figure amounting to thirty-nine per cent of the expected admission fees); a process which, carried to its logical conclusion throughout the life of, say, a dam designed to last half a century or more, has implications at which the mind boggles. Several agencies evoked so-called intangible benefits, such as those afforded by the provision of facilities for recreation, and a variety of attempts were—and continue to be—made to put some kind of dollar value on them.

Hammond, Convention and Limitation in Benefit-Cost Analysis, supra note 18, at 197-98 (citation omitted). Under the new cost-benefit guidelines, "secondary benefits" are included in the national economic development account as "Increases in output resulting from external economies." Even though the economic methodology is admittedly undeveloped, agencies are urged to include as benefits any anticipated increases in productivity or output of firms related to direct users of the project outputs. PRINCIPLES AND STANDARDS, supra note 27, at 24797, 24799. In addition, certain intangible benefits such as recreation are given monetary values and treated as direct output increases. Id. at 24803.
40. See, e.g., S. Doc. No. 97, supra note 23, which has since been replaced by PRINCIPLES AND STANDARDS, supra note 27.
41. PRINCIPLES AND STANDARDS, supra note 27.
over-counting in government cost-benefit analyses, seem to justify
this skepticism."\textsuperscript{42} Second, cost-benefit analysis has been used pri-
marily to weed out inefficient projects, rather than as a tool to
rank the desirability of demonstrably "efficient" projects. Political
considerations rather than economic efficiency dictate which proj-
ects an agency will recommend from among those with cost-benefit
toxygen in excess of 1.0. Chief among the political determinants ap-
tears to be the need for regional economic development.\textsuperscript{43}

A third agency pattern has been the use of favorable cost-bene-
fit determinations as a selling point with Congress. For exam-
ple, a recent House report on a Mississippi River public works proj-
dict observed, "The very favorable benefit cost ratio indicates the
investment in the project is sound."\textsuperscript{44} While cost-benefit analysis
is not the only consideration leading to project approval, such an-
alysis is regarded by Congress, the public, and even the courts as
an objective evaluation of a project's impact. In view of the theo-
retical shortcomings and potential for abuse, this reliance appears
to be misplaced. But in a decisionmaking environment flooded
with raw data, it is not surprising that agencies and Congress
would rely upon such indicators to justify project approval.

C. Legal Considerations

Prior to NEPA, federal courts consistently refused to review

\textsuperscript{42} Note, Cost-Benefit Analysis, supra note 18, at 1104, relying, inter alia,
on Carlin, The Grand Canyon Controversy: Lessons for Federal Cost-
Benefit Practices, 44 LAND ECON. 219, 227 (1968), and Tarlock &

\textsuperscript{43} See Wildavsky, supra note 18, at 63; Note, Cost-Benefit Analysis,
supra note 18, at 1105-06.

\textsuperscript{44} H.R. REP. No. 1475, 92d Cong, 2d Sess. 28 (1972), quoted in Sierra
versely, a marginally favorable ratio can be a stumbling block in
Congress. Nebraska's Norden Dam project, for example, encountered
opposition in the Senate Committee on Interior and Insular Affairs,
when it was revealed that the ratio of direct benefits to costs was
only 1.21 to 1, while the ratio of total benefits to costs was 1.53 to 1.
\textit{Hearing on O'Neill Unit, Mo. River Basin Project, Nebraska, Before
the Senate Subcomm. on Water and Power Resources of the Comm. on
Interior and Insular Affairs, 92d Cong., 2d Sess. 8 (1972).} Senator
Hatfield objected that this ratio of direct benefits to costs was com-
puted at a 3 percent interest rate and that the "project would not qual-
ify under the 5\% percent, let alone the 7 percent" discount rate
contemplated by Congress. Id. at 33. Senator Anderson, a supporter
of the Norden Project, recalled that he had "pointed out at one time
Hoover Dam couldn't possibly be built on a cost-benefit ratio." Id.
Concerning the discount rate problem, see note 20 and accompanying
text supra.
agency or Congressional use of cost-benefit analysis. In the leading case, *Oklahoma ex rel. Phillips v. Guy F. Atkinson Co.*,\(^4\) the United States Supreme Court upheld the constitutionality of a statute authorizing construction of a reservoir on the Red River in Texas and Oklahoma. The Court said, "it [is not] for us to determine whether the resulting benefits to commerce as a result of this particular exercise by Congress of the commerce power outweigh the costs of the undertaking."\(^5\) The Court's reluctance to scrutinize cost-benefit techniques was consistent with its general policy against interference with decisions committed to Congressional or agency discretion. Once the Court established that building the reservoir was a proper exercise of Congress' power to regulate commerce, the decision to build the reservoir was a question of legislative policy, not constitutional law.\(^6\) Subsequent cases, including some post-NEPA decisions, continued to regard cost-benefit techniques as outside the range of judicial review.\(^7\)

Without the stimulus of NEPA, federal courts probably would not have questioned the position of judicial deference to agency cost-benefit analysis set out in *Oklahoma ex rel. Phillips v. Guy F. Atkinson Co.*\(^8\) Ironically, neither NEPA's language nor its legislative history suggests that an agency must undertake cost-benefit analysis in evaluating a project's environmental effects. Instead, the cost-benefit balancing requirement is a product of creative lawmaking by federal courts seeking to implement NEPA's broad policies of environmental preservation. The next section analyzes the wisdom and feasibility of requiring cost-benefit analysis

\(^{45}\) 313 U.S. 508 (1941).

\(^{46}\) *Id.* at 528.

\(^{47}\) Hence, the court dismissed plaintiffs' contention that the reservoir project would not substantially reduce flooding with these comments:

> For us to inquire whether this reservoir will effect a substantial reduction in the lower Mississippi floods would be to exercise a legislative judgment based on a complexity of engineering data. It is for Congress alone to decide whether a particular project, by itself or as part of a more comprehensive scheme, will have such a beneficial effect on the arteries of interstate commerce as to warrant it.

*Id.* at 527. The Court's refusal to analyze Congressional motives or reasonableness in funding the project followed previous decisions involving the Boulder Dam Project, *Arizona v. California*, 283 U.S. 423, 455-56 (1931), and the Wilson Dam, *Ashwander v. TVA*, 297 U.S. 288, 329-30 (1936).

\(^{48}\) *Yalobusha County v. Crawford*, 165 F.2d 867, 868 (5th Cir. 1947); *United States v. West Virginia Power Co.*, 122 F.2d 733, 738 (4th Cir. 1941) *cert. denied*, 314 U.S. 683 (1941); for post-NEPA cases see notes 120, 124 *infra*.

\(^{49}\) 313 U.S. 508, 527 (1941).
in order to comply with NEPA, in light of the economic, political and legal considerations described above.

III. NEPA'S COST-BENEFIT REQUIREMENT

A. The Statutory Requirements and Calvert Cliffs'

NEPA establishes a national policy of environmental non-degradation and restoration. Section 101(b) describes environmental values which are to guide federal actions, including the right to safe and aesthetic surroundings, attainment of the widest range of beneficial uses of the environment without degradation, and preservation of environmental diversity. Section 102 was added to implement these policies by establishing operational requirements for federal agencies. Subsection 102(2)(A) requires federal agencies to use a "systematic, interdisciplinary approach" in planning and decisionmaking. Subsection 102(2)(B) requires agencies to develop methods and procedures to ensure that unquantified environmental values are considered along with economic and technical factors. Subsection 102(2)(C) requires each federal official responsible for proposing legislation or other major federal actions significantly affecting the environment to prepare a detailed environmental impact statement. The law applies to all federal agencies, regardless of whether they are required to consider environmental effects in their decisionmaking prior to NEPA.

51. 42 U.S.C. § 4331(b).
Environmentalists and courts concerned with implementation of NEPA soon recognized the close relationship between the analyses required for NEPA compliance and those traditionally conducted to justify resource development. *Environmental Defense Fund v. Corps of Engineers* was among the first decisions to consider the sufficiency of an agency's impact statement under section 102(2). The District Court for the Eastern District of Arkansas enjoined the Corps of Engineers from further construction of the Gillham Dam across the Cossatot River, pending preparation of an adequate impact statement. Among the plaintiffs' criticisms was the defendant officials' failure to comply with subsection 102(2)(B), because they had developed no procedures for incorporating environmental values into the cost-benefit analysis submitted under Senate Document 97. The plaintiffs contended that the project might have a benefit-cost ratio below 1.0, if all environmental costs were given a monetary value. Although the court agreed that subsection 102(2)(B) required quantification of environmental values, it said such computations were not technically feasible. Therefore, the court concluded it was sufficient for the Corps to include a statement that environmental values could not be quantified at the present time in its amended impact statement.

While the *Gillham Dam* decision suggested agencies already using cost-benefit analysis must quantify environmental factors in monetary terms, *Calvert Cliffs' Coordinating Committee Inc. v. AEC* arguably imposed a requirement to conduct cost-benefit analysis upon all federal agencies. In *Calvert Cliffs* the Court of Appeals for the District of Columbia held AEC rules governing construction permits and operating licenses for nuclear power plants did not comply with NEPA's requirement to consider environmental values at every stage of the decisionmaking process. The court sought to implement NEPA's broad mandate to consider environmental values through the procedural requirements imposed upon federal agencies under subsections 102(2)(A)-(C). Re-

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56. 325 F. Supp. at 757; S. Doc. No. 97, note 23 supra.
57. 325 F. Supp. at 758.
58. 449 F.2d 1109 (D.C. Cir. 1971).
59. Petitioners challenged four procedural rules of the AEC adopted to implement NEPA and specific application of the rules in the granting of a construction permit for the Calvert Cliffs Nuclear Power Plant in Maryland. Id. at 1116, n.14. The court held each of the rules to be inadequate under NEPA, but did not review any single decision of the AEC. Instead the proceedings were remanded to the AEC for revision of the stricken rules. *Id.* at 1128-29.
lying on subsections 102(2)(A) and (B), the court said federal agencies must employ a "finely tuned and 'systematic' balancing analysis" in evaluating a project's environmental impact.

NEPA mandates a case-by-case balancing judgment on the part of federal agencies. In each individual case, the particular economic and technical benefits of planned action must be assessed and then weighed against the environmental costs; alternatives must be considered which would affect the balance of values . . . . The point of the individualized balancing analysis is to ensure that, with possible alterations, the optimally beneficial action is finally taken.61

The fulcrum for the "case-by-case balancing" contemplated in Calvert Cliffs' is the "detailed statement" which officials responsible for projects are required to prepare under subsection 102(2)(C). Calvert Cliffs' indicates this statement should cover, "the impact of particular actions on the environment, the environmental costs which might be avoided, and alternative measures which might alter the cost-benefit equation."62

The major difficulty with Calvert Cliffs' is its failure to elaborate on the type of balancing required under NEPA. This ambiguity has prompted varying interpretations from NEPA commentators. On the one hand, Calvert Cliffs' and the Gillham Dam decision were read to require the type of rigorous cost-benefit analysis conducted in the water resource area.63 The contrary view is typified by the testimony of Frederick Anderson before the 1972 Senate hearings on NEPA:

Perhaps the court should have stated explicitly that it was not advocating the wholesale importation into certain Federal decisions of vigorous cost-benefit analysis, such as that which has been developed for water resource projects. Thus it could have conveyed the more common sense notion of "trading off" that it had in mind.64

In the absence of a clear Congressional mandate, the task of defining the role of cost-benefit analysis under NEPA has fallen to federal courts and to the agencies.

60. Id. at 1113.
61. Id. at 1123.
62. Id. at 1114.
63. Note, Cost-Benefit Analysis, supra note 18, at 1097-98; see also, Note, Evolving Judicial Standards, supra note 24, at 1600-01.
64. Joint Hearing on National Environmental Policy Act Before the Senate Comm. on Public Works & Senate Comm. on Interior and Insular Affairs, 92d Cong., 2d Sess. 442-43 (1972) [hereinafter cited as Joint Hearing on NEPA]; See also, Comment, 2 ENV. L. REP. 10003 (1972).
B. The Decisions Since Calvert Cliffs’

In a recent Fifth Circuit case, the Environmental Defense Fund argued that section 102(2)(B) of NEPA requires full quantification of costs and benefits:

The claimed violation of subsection 102(2)(B) is based upon the absence of any rational articulation of a “scheme of values” for the economic, technical and environmental factors that were considered in deciding to recommend the construction of this project. Plaintiffs contend that without some established scale by which to measure, no one can determine how benefits and detriments within each of these broad general groupings were “traded off” in reaching the decision to recommend construction.65

Despite such contentions, federal courts have uniformly dismissed the argument that NEPA mandates cost-benefit analysis in a project’s impact statement. Some courts have rejected the need for cost-benefit analysis outright, while others have retained Calvert Cliffs’ ambiguous “balancing” language, without elaborating on the method for comparing benefits and costs. Though rarely articulated, there are sound policy reasons for opposing a requirement that an agency conduct traditional cost-benefit analysis in preparing an impact statement. Instead, NEPA decisions provide the procedural and substantive contours for a “balancing” procedure distinct from the type of cost-benefit analysis conducted by water resource agencies.

Federal courts have responded to the argument that NEPA “balancing” equates with traditional cost-benefit analysis in a variety of ways. On occasion, they have had little patience with plaintiffs seeking to question agency cost-benefit determinations. In Environmental Defense Fund v. Armstrong,66 for example, a California district court flatly rejected the plaintiffs’ attempts to secure review of the Corps of Engineers’ economic analysis for the New Melones Dam project. The court indicated, “we find no requirement in the NEPA that any such cost-benefit analysis be conducted or included in the EIS.”67 In Farwell v. Brinegar,68 the plaintiffs unsuccessfully contended that NEPA required the Department of Transportation to conduct a cost-benefit analysis for a proposed highway segment. Although the court enjoined the

65. EDF v. Corps of Engineers, 492 F.2d 1123, 1133 (5th Cir. 1974).
68. 3 Env. L. Rep. 20881 (W.D. Wis. 1973).
freeway construction because of deficiencies in the impact statement, it dismissed the plaintiffs' cost-benefit contention: "NEPA requires only that the EIS discuss and balance the environmental costs and benefits of the proposed action and its alternatives." According to these two courts, an agency need merely discuss possible adverse environmental effects in order to satisfy its responsibilities on the impact statement.

Numerous other courts have relied on the Calvert Cliffs' balancing language without describing the type of balancing which agencies are required to perform. A series of cases in the Eighth Circuit typifies this second approach. Among the first decisions to consider the balancing requirement was an appeal of the Gillham Dam dispute. Following the Corps of Engineers' submission of a 200-page impact statement, the District Court for the Eastern District of Arkansas dissolved its earlier injunction against further construction of the Gillham Dam. The Eighth Circuit affirmed, noting that in the impact statement, "[t]he economic benefits and environmental impact of each alternative are developed in great detail." After holding the district court should have subjected the EIS to substantive review on the merits, the Eighth Circuit reviewed the record itself and concluded the statement was adequate. The court said its review "necessitated a balancing on the one hand, of the benefits to be derived from flood control, and on the other, of the importance of a diversified environment." While the decision offers no standards for future "balancing" decisions, it does suggest Calvert Cliffs' requires a trading off of economic and environmental factors, rather than formal monetary calculations.

A month later, in Environmental Defense Fund v. Froehlke, the Eighth Circuit held an impact statement filed by the Corps of Engineers for the Cache River channelization project was not sufficiently detailed to meet the standards of NEPA. Because the impact statement was "too vague, too general and too conclusionary," it could not "form a basis for responsible evaluation and criticism." The court criticized the EIS for failing to discuss fully

69. 3 Env. L. Rep. at 20886.
70. EDF v. Corps of Engineers, 470 F.2d 289 (8th Cir. 1972). The lower court's decision granting an injunction against construction of the Gillham Dam is discussed in text accompanying notes 55-57 supra.
72. Id. at 297.
73. Id. at 301.
74. 473 F.2d 346 (8th Cir. 1972).
75. Id. at 348.
the alternatives to the proposed action as required by subsection 102(2)(C)(iii) and for omitting analysis of the costs and benefits of delayed construction to acquire land to mitigate the loss of natural resources. The court also rejected a claim that the Corps' cost-benefit determinations under section 701a of the Flood Control Act\textsuperscript{76} were reviewable. However, it noted: "[T]he relief requested by the plaintiffs under § 701a is partially available under NEPA. To fully comply with NEPA, the Corps must reappraise the costs and benefits of the project in light of the policies of environmental protection found in NEPA.\textsuperscript{77} Hence, the Cache River court perceived NEPA cost-benefit review as entailing different considerations from that traditionally conducted for water resource projects. But once again the court offered no criteria to guide future NEPA cost-benefit "reappraisals."

In a third case, involving a Corps statement for the Truman Dam project in Missouri, the plaintiffs asked the district court to make detailed findings of fact concerning the inadequacies of the cost-benefit ratios.\textsuperscript{78} Plaintiffs contended, \textit{inter alia}, that "much of the recreational and socio-economic discussion in the EIS is without any scientific or factual basis.\textsuperscript{79} The court did not agree that substantive judicial review under NEPA extends to agency cost-benefit analysis. Instead, it reasoned the primary purpose of an impact statement is to alert decisionmakers to environmental objections concerning the project. Critics should therefore concentrate on shaping the final impact statement.\textsuperscript{80} While an EIS "must adequately state legitimate conflicting views in regard to benefit-cost calculations . . ., \[t\]he ultimate resolution of benefit-cost questions is for the decisionmakers rather than the courts.\textsuperscript{81} The court concluded the impact statement discussed cost-benefit considerations sufficiently and refused to halt the project.

As the Truman Dam case demonstrates, courts in the Eighth Circuit have a strong sense of what NEPA "cost-benefit balancing" is not, but they have not yet explained what it is.\textsuperscript{82} There is agreement that it should not involve traditional cost-benefit techniques.

\begin{footnotes}
\item[77.] 473 F.2d at 356.
\item[78.] EDF v. Froehlke, 368 F. Supp. 231 (W.D. Mo. 1973), \textit{aff'd sub nom.} EDF v. Callaway, 497 F.2d 1340 (8th Cir. 1974).
\item[79.] 368 F. Supp. at 235.
\item[80.] \textit{Id.} at 238.
\item[81.] \textit{Id.} at 237-41.
\item[82.] \textit{Id.} at 241.
\end{footnotes}
But the lower courts' sole guidance has been the Cache River dictum to "reappraise the costs and benefits of the project in light of the policies of environmental protection found in NEPA."83 Other appellate courts adopting substantive review have been equally ambiguous on the question of how to review cost-benefit balancing.84

C. NEPA Does Not Require Full Quantification

Although rarely articulated by the courts, there are strong reasons for holding NEPA does not require cost-benefit quantification. First, nothing in the history of NEPA or the Calvert Cliffs' decision suggests either Congress or the Court of Appeals for the District of Columbia intended NEPA to require rigorous cost-benefit analysis. The legislative history of section 102 is meager with only two references to the pivotal subsection 102(2)(B).85 These references indicate Congress' concern that the systematic interdisciplinary approach required in subsection 102(2)(A) be supplemented with methodology to identify and evaluate the full costs—environmental and non-environmental—of federal activities. The sole mention of cost-benefit analysis in the legislative record was a discussion of the role of the Council on Environmental Quality, created by another section of NEPA.86 "[S]ubsection (B) cannot be fairly read to command an agency to develop or define any general or specific quantification process."87 Instead, this subsection calls

83. 473 F.2d at 356.
84. See cases cited note 17 supra.
85. The history of section 102 is described in Note, Cost-Benefit Analysis, supra note 18, at 1093-94. The author points out subsection 102(2)(B) is mentioned only twice in the committee reports and Congressional Record. Id., n.19.
86. The passage concerned the way in which the CEQ might monitor environmental values:

One way in which this might be done would be to develop a sophisticated method of cost and benefit analysis—in which the total (and often not strictly economic) consequences of Federal activities may be assessed. The environmental auditing function of the Council falls squarely within the functions specified in this subsection.

87. EDF v. Corps of Engineers, 492 F.2d 1123, 1133 (5th Cir. 1974). The court reasoned:

The provisions of subsection (B) requiring the agency affected to "identify and develop methods and procedures" to insure that the environmental qualities are "given appropriate consideration along with economic and technical considerations," order no more than that an agency search out, develop and follow procedures reasonably calculated to bring
only for the development of methods and procedures to assure that environmental values are considered at every stage in the agency decisionmaking process.

The Calvert Cliffs' decision is consistent with this interpretation. Calvert Cliffs' was the culmination of a series of decisions requiring federal agencies to balance environmental factors against the economic and technical factors they have traditionally weighed. Thus, previous federal cases had required the Federal Power Commission to "consider" environmental effects under a provision of the Federal Power Act. In Calvert Cliffs', the term "balancing" is used synonymously with the "consideration" of environmental impact required by section 102(2)(B). The Calvert Cliffs' "balancing" language should therefore fairly be read as incorporating into NEPA the previous decisions' notion of "considering" or "trading off" environmental and non-environmental effects.

A second reason for not requiring cost-benefit quantification is the difficulty of quantifying environmental amenities and values. From the beginning, agency and industry leaders have expressed the belief that a literal reading of the Calvert Cliffs' cost-benefit balancing requirement would impose an impossible burden. Environmental effects of projects have historically been the most difficult to describe in quantitative, let alone monetary, terms. Courts have therefore been justified in rejecting environmentalists' demands for quantification of all values weighed in a decision to

environmental factors to peer status with dollars and technology in their decision making.

Id.

88. See Comment, 2 Env. L. Rep. 10003 (1972), and testimony of Frederick Anderson, Joint Hearing on NEPA, supra note 64, at 442-43.
    The method of determining B/C ratios under NEPA is much broader than under Senate Document No. 97. Costs which a court might determine should be included in the NEPA standards, might not be included under the Congressional standards of Senate Document No. 97. . . . [T]he NEPA B/C ratio, rather than itself being the determining or deciding factor in cases brought under NEPA, is to be used only to enable the court and other decision makers to determine whether all environmental factors of a project have been given full and adequate consideration.
91. See, e.g., testimony of John Nassikas, Federal Power Commission Chairman, Joint Hearing on NEPA, supra note 64, at 387.
92. See note 24 and accompanying text supra.
REVIEW OF COST-BENEFIT

proceed with a project. In examining the adequacy of an EIS filed by the Corps of Engineers for its Tennessee-Tombigbee navigation project, a Mississippi district court denied plaintiffs' contention that computer analysis of costs and benefits should be included in the impact statement:

Methods and procedures . . . are sufficient if they do effectively measure life's amenities in terms of the present state of the art. Although computers may some day be used to quantify ecological elements more precisely, . . . a valid ecosystems analysis may be achieved by an interdisciplinary team of scientists conducting a rigorous examination of the area affected by the project. 93

In affirming this decision, the Court of Appeals for the Fifth Circuit said of subsection 102(2)(B):

Plaintiffs concede that compliance with this subsection does not require that every environmental amenity be reduced to an integer capable of insertion in a “go—no go” equation. They must further acknowledge that many environmental values cannot be fixed within a given project area, and that others are bound to vary in value from place to place and time to time. 94

Third, cost-benefit calculations should not be required for NEPA compliance because this would invite agencies to use the EIS for project justification, rather than for evaluation of potentially adverse environmental impacts. If Calvert Cliffs’ requires rigorous balancing of environmental, technical and economic considerations in an impact statement, agencies will be tempted to load up the statements with developmental benefits. This clearly contradicts the Congressional intention that the EIS involve a factual analysis of environmental costs and benefits. Of course, some discussion of the economic and technical benefits is necessary in order to acquaint EIS readers with the project. But a complete quantitative explanation of the balancing decision would distract the agency and the statement commentators from their environmental auditing duties. 95

94. EDF v. Corps of Engineers, 492 F.2d 1123, 1133 (5th Cir. 1974). The absence of methods to quantify environmental values has often been used by courts to fend off plaintiffs demanding more rigorous cost-benefit analysis. According to one such court, “[a]t present there does not appear to be any method of calculating such values, nor do the plaintiffs offer any suggestions to resolve the problem. All that the EIS need do to comply with NEPA is to note that such a deficiency exists.” Cape Henry Bird Club v. Laird, 359 F. Supp. 404, 414 (W.D. Va. 1973), relying on EDF v. Corps of Engineers, 325 F. Supp. 749, 758 (E.D. Ark. 1971).
95. A closely related issue is whether the EIS should serve as the entire decision document or as one component of the record which an agency
Finally, reducing the agency decision to a single calculation or calculations would add an unnecessary distortion to the decision-making process by implying that a project decision can be completely rational. In reality, any government decision to commit resources to further a policy goal involves a trading off of tangible and intangible considerations. The purpose of an EIS is to highlight environmental values which were previously invisible to agency decisionmakers and make explicit the trade-offs involved. To require precise estimates of costs and benefits would invite the

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96. One commentator has said of Calvert Cliffs' balancing test:

If all the language means is that the decisionmakers must consider the broadest alternatives in doing the best job they can, massing the most information, and consider it all, all to the good. But if it means the result has to be totally rational, that each agency has to make every governmental decision in accord with the strict dictates of the scientific method, then again it is requiring the impossible.

Roger C. Cramton, Joint Hearing on NEPA, supra note 64, at 395. Cramton, chairman of the Administrative Conference of the United States, stressed the role of political compromise, intuition and accommodation in decisionmaking.

We may ultimately have armies of economists, statisticians, systems analysts who consider the alternatives and try to develop information on them. But once you determine as accurately as you can, what the effects will be on fish and wildlife, and what benefits will be gained by the project, it is fundamentally a political judgment about what is the social good, what is the best outcome, and on that . . . the politicians . . . have the final decisions.

Id. at 400. Cramton's conclusion that decisionmaking should be left to the agencies does not necessarily follow from these premises. If agencies are unwilling or unable to weigh the full gamut of competing considerations, the courts are well-situated to provide limited substantive review.
same type of agency manipulation already prevalent in the water resource field. 97

D. Standards for NEPA "Cost-Benefit Balancing"

The Calvert Cliffs' balancing requirement requires an explicit, well-reasoned and fully-documented "trading off" of environmental, economic and technical values in a project EIS. Thus far, federal courts have been primarily concerned with the procedural requirements for "NEPA cost-benefit analysis." If NEPA is to have its intended effect in altering agency's decisions which affect the environment, courts must begin to elaborate standards for substantive review of balancing decisions.

1. Procedural Standards

Courts have developed three general principles governing discussion of costs and benefits in the impact statement. First, judicial interpretation indicates an EIS must present all of the environmental data necessary to make a reasoned judgment on a project. 98 In addition to the contemplated action, NEPA requires elaboration of the environmental risks incident to all reasonable alternatives, including any alternatives which may be outside the agency's specific authority. 99 In preparing the EIS, agencies must follow the procedural mandates of sections 102(2)(A) and 102(2)

97. See note 42 and accompanying text supra.
98. The major legal issue under subsection 102(2)(C) is the proper interpretation of the requirement that an impact statement be "detailed." For a comparison of various judicial tests, see Sierra Club v. Froehlke, 359 F. Supp. 1289, 1341-42 (S.D. Tex. 1973) (EIS must discuss "all possible significant effects on the environment"). One court has said the detail required is, "that which is sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved." EDF v. Corps of Engineers, 492 F.2d 1123, 1136 (5th Cir. 1974). Cf., Natural Resources Defense Council v. TVA, 367 F. Supp. 128, 133 (E.D. Tenn. 1973) (EIS need not discuss environmental costs and benefits where topic "permeates the entire document").
(B). That is, they must utilize an interdisciplinary approach and attempt to develop methods and procedures which give appropriate values to "previously unquantified environmental amenities." 

Second, an EIS must include some discussion of the economic and technical considerations associated with each alternative. Mere conclusory statements about the economic benefits of a certain alternative are not enough. The rationale for this requirement was described in a decision enjoining the TVA's construction of the Tellico Dam in Tennessee:

Although comprehensive in scope, the draft statement's cost-benefit analysis consists almost entirely of unsupported conclusions. As a result a non-expert reader is denied the opportunity to intelligently evaluate TVA's conclusions. In addition, it is impossible to determine the thoroughness of the research upon which TVA based the conclusions, or the relative merit.

While the EIS should not be the agency's basic decisionmaking document, it should reveal the basis for the trade-offs to agencies and individuals to whom it is circulated.

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104. The agency must also "explicate fully its course of inquiry, its analysis and its reasoning." Ely v. Velde, 451 F.2d 1130, 1139 (4th Cir. 1971). Thus, the complete formal impact study represents an accessible means for opening up the agency decision-making process and subjecting it to critical evaluation by those outside the agency, including the public.

The scope of the requirement to summarize economic consider-
ations in the EIS is underscored by SCRAP v. United States.108
Plaintiffs sought a declaration that the Interstate Commerce Com-
m ission had failed to comply with NEPA in authorizing railroad
rate increases on shipments of recyclable commodities. The court,
speaking through Judge J. Skelly Wright, held the EIS to be in-
sufficient because it failed to present a rigorous analysis justifying
the disparities between rates charged for primary and secondary
(recyclable) materials. The court required a new statement in-
cluding an analysis of the rate structure’s impact on the movement
of recyclable commodities.108 The SCRAP opinion perceived that
the agency’s duty to quantify values in the decisionmaking process
to the extent feasible extends to non-environmental values under
consideration.

As a third basic principle, courts have required water resource
agencies developing cost-benefit ratios for other purposes to in-
clude and explain the ratios in the impact statement.107 This is
necessary, since the cost-benefit ratios do play a significant role
in a final agency determination. As one court explained, “if the
purpose of an EIS is to advise Congress of all environmental con-
sequences of a proposed action, then the EIS should contain a sec-
tion which first explains how the benefits and costs are calculated,
and then detail what items are included as a benefit or a cost and
the valuation of each.”108 To avoid making the benefit-cost ratio
the focal point of the EIS, it may be summarized and attached
to the statement. In addition, courts have required agencies to
include legitimately conflicting views concerning the cost-benefit
calculations in the final EIS submitted with a project.109

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108. OKLA. L. REV. 239 (1973): “I know of no solid evidence to support
the belief that requiring articulation, detailed findings or reasoned
opinions enhances the integrity or propriety of administrative de-
cisions.”

106. Id. at 1301-06.
107. Montgomery v. Ellis, 364 F. Supp. 517, 521-22 (N.D. Ala. 1973); Si-
erra Club v. Froehlke, 359 F. Supp. 1289, 1365-67 (S.D. Tex. 1973);
EDF v. TVA, 339 F. Supp. 806, 809 (E.D. Tenn. 1972), injunction dis-
1973).
109. EDF v. Froehlke, 368 F. Supp. 231, 241 (W.D. Mo. 1973); Cape Henry
Bird Club v. Laird, 359 F. Supp. 404, 420 (E.D. Va. 1973); see also
Committee for Nuclear Responsibility, v. Seaborg, 463 F.2d 783, 787
(D.C. Cir. 1971); McPhail v. Corps of Engineers, 3 Env. L. Rep.
These judicial standards for the balancing decision have also been recommended by the Council on Environmental Quality ("CEQ"), in its guidelines for federal agencies under NEPA. Initially, in response to *Calvert Cliffs*, the Atomic Energy Commission ("AEC") had adopted regulations and supplemental guidelines which called for a more rigorous, quantitative balancing of costs and benefits. The AEC's willingness to comply with the decision was laudatory, but its rigid interpretation of the "cost-benefit" requirement did little to advance the goals of NEPA. Instead, the guidelines it adopted after two years of study concentrate on identification of environmental impacts and description of the basic "trade-off" decisions. Although some agencies continue to ex-


112. One *Calvert Cliffs* commentator observed:

> The Commission's concept of cost-benefit analysis does little to further the objectives of NEPA, which was intended to induce the analysis of second order, longer-range consequences of decision making. The issue in power plant siting conflicts is seldom the loss of a commercial fishery, although that is important. The more significant question is whether the plant will cause the long-term deterioration of an ecosystem and thus threaten our basic life support systems, and the AEC's proposed cost-benefit guidelines do little to encourage consideration of these questions.


113. In the Senate hearing on *Calvert Cliffs*, CEQ Chairman Russell Train cautiously assessed the AEC response:

> We view the provision for a cost-benefit type analysis in the new AEC NEPA procedures as being responsive not only to the court's decision but also relevant to the provision in section 102(2)(B) . . . . At the same time, we do not propose now that these AEC procedures be applied across the board to all proposed Federal programs and actions. We see NEPA as permitting flexibility as to how the assessment of the economic and technical benefits of proposed action takes place and is evidenced. We will want evidence that such benefits have been weighed against the environmental costs and that a reasonable range of alternatives that would affect this balance has been considered. But as to just how this is done and which parts are shown in the section 102(2)(C) environmental impact statement is a matter still under study.


114. For required contents of impact statements under the CEQ guidelines, see 38 Fed. Reg. 20553-54 (1973).

2. \textit{Substantive standards}

While the above criteria help define the NEPA balancing process, they do not assure that the trade-offs will lead to changes in substantive agency decisions. An agency may formally follow all of the balancing procedures and still arrive at an ecologically unsound conclusion. For this reason, courts must be willing to review NEPA cost-benefit balancing on the merits, once procedural requirements have been satisfied. A number of courts have held NEPA does mandate a limited form of substantive review,\footnote{116}{See cases cited note 17 supra.} but they have not yet identified the sources of enforceable rights under NEPA. One commentator\footnote{117}{Note, Substantive Review, supra note 16.} has suggested that agency determinations might be measured against the following standards: (1) the policy goals set out in NEPA's section 101;\footnote{118}{Section 101(b) directs agencies to improve programs so that the nation will fulfill its responsibilities as trustee of the environment for succeeding generations; assure Americans of safe, healthful and pleasing surroundings; attain the widest range of environmental benefits without degradation; preserve the national heritage and promote diversity; achieve a balance between population and resource use; and promote recycling of materials. 42 U.S.C. § 4331(b) (1970). The Note argues these goals are sufficiently concrete to provide enforceable standards. Note, Substantive Review, supra note 16 at 190–94. See also Arnold, The Substantive Right to Environmental Quality Under the National Environmental Policy Act, 3 Env. L. Rep. 50028 (1973).} (2) agency objectivity;\footnote{119}{Agency bias or bad faith in considering an EIS will invalidate the decision. D.C. Federation v. Volpe, 459 F.2d 1231 (D.C. Cir. 1971), cert. denied, 405 U.S. 1030 (1972). See Note, Substantive Review, supra note 16, at 194–99.} and (3) the accuracy of an agency's cost-benefit analysis for non-NEPA purposes.

The next section discusses whether the last-cited factor—an
agency's cost-benefit analysis for purposes other than the impact statement—should be subject to substantive review under NEPA. This Comment has thus far shown NEPA does not require agencies outside the water resources field to undertake cost-benefit analysis. It does not necessarily follow, however, that cost-benefit analysis conducted by water resource agencies for other purposes should be immune from judicial scrutiny under NEPA. Part IV, then, analyzes the narrow question of whether the cost-benefit analysis conducted by water resource agencies should be included in a NEPA review.

IV. JUDICIAL REVIEW OF NON-NEPA COST-BENEFIT ANALYSIS

A. The Conventional Wisdom

Environmental groups have often argued that the Calvert Cliffs' balancing requirement necessitates judicial review of agency cost-benefit analysis conducted by water resource agencies. Few courts have been receptive to this idea. In preliminary proceedings in the Gillham Dam case, the Environmental Defense Fund urged judicial scrutiny of economic calculations conducted under the mandate of section 701a of the Flood Control Act of 1936. The court rejected this contention on two grounds. First, since Congress had already appropriated money for the project, the court said it lacked the authority to enjoin expenditure of the funds. Second, in language reminiscent of pre-NEPA cases, the court regarded the calculation of cost-benefit ratios as a legislative, rather than a judicial, function: "The methods of calculating cost-benefit ratios are innumerable and in many cases esoteric. The Court's judgment as to sound procedures in this regard might well not be in accord with the judgment of Congress." This rationale has been generally repeated by other federal courts without further elaboration.

122. 325 F. Supp. at 740.
123. Id.
Even where substantive review of NEPA decisions has been undertaken, courts have sought to distinguish the full review of cost-benefit ratios sought by plaintiffs from the "partial review" available under NEPA. In Environmental Defense Fund v. TVA,\textsuperscript{125} for example, the plaintiffs called two expert witnesses who testified about the inadequacies of cost-benefit calculations prepared by the Corps of Engineers for the Tellico Dam project. The testimony was that the claimed navigation and flood control benefits, the discount rate, the project life and the secondary benefits were all arbitrarily determined.\textsuperscript{126} While the court reviewed on the merits the decision to proceed, it refused to review these economic factors. Instead, the court adopted the Cache River formulation\textsuperscript{127} that substantive review entails only reappraisal of "the costs and benefits of the project in light of the policies of environmental protection found in NEPA."\textsuperscript{128} In the Tellico Dam case, the court reasoned it should scrutinize only environmental benefits claimed by an agency in determining whether the NEPA balance struck was arbitrary or capricious.\textsuperscript{129}

The Cache River dictum has also been interpreted as supplanting any review rights created under section 701a. In affirming a favorable review of an EIS filed for the Tennessee-Tombigbee Waterway project, the Court of Appeals for the Fifth Circuit agreed with the Cache River court that NEPA created an independent duty to reappraise costs and benefits.\textsuperscript{130} The court reasoned that since "NEPA requires a more comprehensive and pervasive weighing of costs and benefits than Section 701a contemplates, whatever rights may exist under that statute have been subsumed by NEPA insofar as our review of the Tennessee-Tombigbee project is concerned."\textsuperscript{131}

B. The Case for Judicial Review

The traditional justifications for avoiding cost-benefit review do

\textsuperscript{127} Id. at 1013-14.
\textsuperscript{128} EDF v. Froehlke, 473 F.2d 346 (8th Cir. 1972); see text accompanying notes 74-77 supra.
\textsuperscript{129} 473 F.2d at 356.
\textsuperscript{130} 371 F. Supp. at 1014.
\textsuperscript{131} EDF v. Corps of Engineers, 492 F.2d 1123, 1134 (5th Cir. 1974).
\textsuperscript{132} Id. Since no court has ever held that section 701a creates "review rights," it is misleading to suggest that such hypothetical rights are supplanted by a substantive NEPA review.
not withstand close analysis. First, it is not correct that a decision by Congress to authorize or appropriate money for a project immunizes it from judicial review. In Cache River, the Corps of Engineers conceded that limited substantive review on the merits is generally available, but argued such review was inappropriate because Congress had authorized the project in 1950 and appropriated money after the EIS was filed.\textsuperscript{132} The court rejected this argument calling attention to congressional rules which provide that an appropriations act cannot alter existing law.\textsuperscript{133} Therefore, unless Congress enacted a revised authorization bill exempting the project from NEPA's requirements, the appropriation bill could not override NEPA's substantive provisions.\textsuperscript{134}

Courts could use similar reasoning to reach agency cost-benefit analyses, since further funding of a project is contingent, in part, on a favorable cost-benefit determination. NEPA requires full consideration of environmental values in the agency decision process, including cost-benefit evaluations. Since Congress cannot use an appropriation bill to alter the substantive requirements of NEPA, courts should be able to enjoin further Congressional fund-

\textsuperscript{132} EDF v. Froehlke, 473 F.2d 346, 353 (8th Cir. 1972).


\textsuperscript{134} 473 F.2d at 355. The Cache River court relied on Committee for Nuclear Responsibility v. Seaborg, 463 F.2d 783, 785 (D.C. Cir. 1971), which considered the sufficiency of an EIS filed in connection with the underground nuclear test on Amchitka Island, Alaska. Congress had passed the authorization and appropriations bills after NEPA. The court held Congress could not repeal NEPA by implication. Although there was discussion of the impact statement in the legislative history, “Congress did not purport to make a binding determination on the issue whether the statement was in compliance with NEPA.” Id. at 786. The Cache River holding was narrower, since that project had been authorized prior to enactment of NEPA. See also EDF v. TVA, 468 F.2d 1164, 1182 (6th Cir. 1972); Ohio v. Callaway, 364 F. Supp. 296, 297 n.1 (S.D. Ohio 1973); EDF v. Corps of Engineers, 325 F. Supp. 749, 762–63 (E.D. Ark. 1971); cf., note 150 infra. But cf., Friends of the Earth v. Armstrong, 485 F.2d 1 (10th Cir. 1973), cert. denied, 94 S. Ct. 933 (1974), noted 54 B.U.L. Rev. 457 (1974).
A second, closely related objection to judicial review is that cost-benefit analysis is peculiarly a "legislative function." Two recent federal decisions have identified the fallacies in this argument. They reflect the growing judicial interest in overseeing administrative procedures and in implementing the broad policy goals which underlie NEPA. The plaintiffs in Sierra Club v. Froehlke sought to enjoin construction of the Trinity project, involving conversion of a 370-mile stretch of the Trinity River in Texas into a barge canal, and the Wallisville project, involving construction of a dam at the mouth of the Trinity River. At the time of the suit, construction on the Wallisville project was 82 percent complete, while the overall project was 72 percent done. Nevertheless, the District Court for the Southern District of Texas found Wallisville to be a component of the Trinity project. It delayed further construction pending completion, review and acceptance of the Trinity EIS. While this was sufficient to dispose of the case, the court went on to evaluate the Wallisville EIS previously submitted. It said the new impact statements for both projects would need substantial revision to comply with existing legal requirements.

Despite its advisory nature, the court's discussion about the project's cost-benefit ratios was the most penetrating judicial in-

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135. In the Tennessee-Tombigbee Waterway case, the court said the cases cited note 134 *supra*, permitting judicial review, held only that subsequent legislative appropriations do not preclude review of the procedural sufficiency of impact statements. The court reasoned that since Congress had already determined the waterway should be built, it had become the ultimate decisionmaker and no further review was available on the merits of the decision. EDF v. Corps of Engineers, 492 F.2d 1123, 1140-41 (5th Cir. 1974). One of the cases upon which the Fifth Circuit relies, EDF v. Froehlke, 473 F.2d 346 (8th Cir. 1972), directly contradicts this interpretation. Further, if the premise is correct that Congress cannot alter NEPA's requirements by an appropriations bill, then it should not matter whether an agency recommendation is procedurally or substantively in error. Legislators voting for an appropriations bill should be able to assume that a project will be carried out under both the procedural and substantive mandate of NEPA unless they specifically grant an exemption. Such compliance includes full consideration of environmental values during the agency cost-benefit analysis.

136. See note 123 and accompanying text *supra*.


138. *Id.* at 1308-09.

139. *Id.* at 1331-32.

140. *Id.* at 1341-45, 1381-83.
quiry yet into this form of economic analysis. The judge was particularly adept in clearing the hurdles which had previously tripped courts faced with the problem. His analysis was premised on a broad reading of NEPA’s purpose: “protection of the environment is now viewed as paramount, and it is not to be placed on an equal footing with the usual economic and technical factors.” The court acknowledged that ultimate responsibility rested with Congress but maintained NEPA requires courts to see that environmental values are properly weighed throughout the decision process. The cost-benefit analysis conducted under section 701a accounted for environmental benefits but did not include environmental costs. “The result is that the meaning of the benefit-cost ratio, which is represented to the Congress, this Court and the public as being an objective evaluation of all quantifiable factors involved in these various projects, is open to considerable question.” The court was cognizant of the importance of a favorable cost-benefit ratio to the decision of an agency or Congress to undertake a project.

Having correctly recognized NEPA’s mandate for close judicial scrutiny, the court had no difficulty with the argument that courts should avoid consideration of cost-benefit theories because they are multitudinous and esoteric. The court measured the specific cost-benefit procedure employed by the Corps against NEPA and the Corps’ own NEPA regulations, pointing out specific deficiencies in the economic analysis as it impinged on environmental factors. While the court admitted having some difficulty with this task, its criticisms were aimed at the vague standards propounded by Congress and the agencies, not at conflicting theories. To

141. Id. at 1370.
142. Id. at 1365.
143. Id. at 1363.
144. Id. at 1363-64.
145. The Corps of Engineers’ analysis was based upon S. Doc. No. 97, supra note 23.
146. 37 Fed. Reg. 2525 (1972). These guidelines have since been revised. See note 115 supra. The court also referred to the Corps of Engineers’ published instructions for EIS preparation and proposed regulations for the Environmental Protection Agency to show the degree of detail necessary for NEPA compliance. 359 F. Supp. at 1366-67.
147. 359 F. Supp. at 1367-81.
148. What is of deep concern is the absence of definitive guidelines, procedures and common denominator terms to be used in quantifying and comparing environmental values with other values. Such expertise should be found most readily in the Congress, the CEQ and the agencies administering these programs.

Id. at 1383.
the extent that the court was seeking more specific guidance for quantifying environmental amenities, it was probably asking too much of administrators. But even if environmental costs are not quantifiable, the court recognized that agencies should not be able to "load up" the highly visible benefit-cost ratio with environmental benefits without fully reflecting environmental costs.

The justifications for judicial review in the Trinity/Wallisville decision find strong support in Montgomery v. Ellis. That case concerned the adequacy of an impact statement filed by the Soil Conservation Service for a stream channelization project on Blue-Eye Creek in Alabama. The District Court for the Eastern District of Alabama held the statement was insufficient in several respects, including its failure to set forth the basis for conclusions about costs and benefits and its arbitrary failure to employ a realistic interest rate and project life in computing costs and benefits. The court held it had the power to review an arbitrary and capricious agency determination under the Administrative Procedure Act ("APA") generally and a determination giving insufficient consideration to environmental values under NEPA. This conclusion was buttressed by Calvert Cliffs and Citizens to Preserve Overton Park v. Volpe. In the latter case, the United States Supreme Court held agency decisions are only rarely exempted from judicial review under the APA. The Court further held the Secretary of Transportation's approval of a highway project was reviewable under statutes requiring that highways be built through parklands only if no "feasible and prudent" alternative route exists and then only if "all possible planning to minimize


150. Because of the peculiar method of appropriations used by the Soil Conservation Service ("SCS"), the court sidestepped the problem of prior Congressional authorization. See notes 132-35 and accompanying text supra. SCS watershed projects are approved by Congressional committees, not by Congress itself. Since Congressional committees cannot exercise legislative or executive powers, committee approval of a watershed or channelization project cannot foreclose judicial review of the cost-benefit determination. Even if the project had received Congressional approval, the court said it would subject the cost-benefit analysis to substantive review. 364 F. Supp. at 532 n.7.

152. 5 U.S.C. § 701 et seq. (1970); see note 17 supra.
153. 449 F.2d 1109 (D.C. Cir. 1971).
harm" to the park has been done.\textsuperscript{157}

In \textit{Montgomery v. Ellis}, project approval hinged upon determination by the Secretary of Agriculture that "the benefits exceed the costs."\textsuperscript{168} The court reasoned that this standard, as well as NEPA's requirement to protect the environment "to the fullest extent possible,"\textsuperscript{169} presented justiciable standards for agency conduct analogous to those in \textit{Overton Park}. Since Congress has not specifically committed either of these decisions to agency discretion, the court could review arbitrary agency actions.\textsuperscript{160} The court further argued that fear of esoteric concepts should not deter a court from its judicial duty to prescribe the bounds of arbitrary agency action.\textsuperscript{161}

Regardless of whether the APA confers such authority,\textsuperscript{162} NEPA requires courts to review agency cost-benefit analysis. Once

\begin{itemize}
\item \textsuperscript{157} 23 U.S.C. § 138 (1970). The Court called the two highway statutes "clear and specific directives," 401 U.S. at 411, despite the fact that the statutory terms were obviously subject to differing interpretations in various fact situations.
\item \textsuperscript{158} 16 U.S.C. § 1005 (1970). The court cites several agency decisions under statutes granting the agencies discretionary authority which have been held to be reviewable under the APA. See, \textit{e.g.}, Barlow v. Collins, 397 U.S. 159 (1970). The court argues the \textit{mandatory} cost-benefit balancing requirement creates an even clearer case for APA review. 364 F. Supp. at 530-31.
\item \textsuperscript{159} § 102, 42 U.S.C. § 4332 (1970).
\item \textsuperscript{160} 364 F. Supp. at 532.
\item \textsuperscript{161} "Where the administrative decision . . . is highly out-of-line . . ., it is the court's function to reverse that determination. To do otherwise would be to abdicate the judicial responsibility to require compliance with the law." \textit{Id.} at 533. An eminent appellate court judge has offered a similar description of the role of reviewing courts under NEPA:
\begin{quote}
If the balance struck by the agency is within a zone of reasonableness, though it is not the one the court would itself have preferred, it will be sustained, and this is the traditional standard of administrative law. If the agency's decision, or even the decisional approach, is considered by the court to be obtuse or purblind, to be, in legal terms, outside the zone of reasonableness, the particular formula of judicial review will not be likely to preclude judicial inhibition or remand.
\end{quote}
\begin{itemize}
\item \textsuperscript{162} The argument for APA review of agency cost-benefit determinations is weaker in the case of water projects planned under § 701a of the Flood Control Act. 33 U.S.C. § 701a (1970). Unlike the Soil Conservation Service law, \textit{supra} note 158, the cost-benefit clause in § 701a is a statement of legislative policy, rather than a mandatory requirement for a department or agency head. Hence, it is doubtful that § 701a alone creates a reviewable standard for "agency action" as that term is used in the APA.
\end{itemize}
it is determined that agency decisions are reviewable on their merits, courts must consider alleged deficiencies in the economic evaluations of specific projects. While NEPA does not command agencies to undertake cost-benefit analysis in the traditional sense, it does open the sources of economic and technical justification to outside scrutiny. Where cost-benefit analyses are required by law, a rigorous examination of benefits and costs is necessary under NEPA to know whether a project decision is arbitrary or insensitive to threatened environmental amenities.

C. The Water Resource Standards and Substantive Review

Judicial review of non-NEPA cost-benefit analysis by water resource agencies, in the manner contemplated by Sierra Club v. Froehlke and Montgomery v. Ellis, should be facilitated by the new Principles and Standards for planning water resource projects. Though the standards are similar to previous cost-benefit guidelines, they do make a significant improvement by requiring agencies to explain their decisions. Rather than producing a single, numerical ratio to justify a project, an agency must explicate the trade-offs being made between economic and environmental values. Courts may thus review the agency's decision process to ascertain whether environmental values have been given proper consideration, instead of merely second-guessing calculations of specific costs and benefits. In the past, courts may have been reluctant, for example, to recompute the exact value of beneficial effects represented by an increased energy supply or enhanced recreational opportunities. But courts are well-equipped to consider whether environmental values have been arbitrarily ignored or undervalued in relation to such economic benefits.

163. Principles and Standards, supra note 27; see notes 27-36 and accompanying text supra.

164. In EDF v. Ruckelshaus, 439 F.2d 584 (D.C. Cir. 1971), Judge Bazelon observed:

As a result of expanding doctrines of standing and reviewability, and new statutory causes of action, courts are increasingly asked to review administrative action that touches on fundamental personal interests in life, health, and liberty. These interests have always had a special claim to judicial protection, in comparison with the economic interests at stake in a ratemaking or licensing proceeding.

Id. at 597-98 (footnotes omitted). Judge Bazelon's remarks are reminiscent of Justice Frankfurter's warning about the dangers of deferring to administrative expertise in RCA v. United States, 341 U.S. 412 (1951). In that case, the Court refused to set aside Federal Communications Commission standards for the transmission of color television. Frankfurter expressed strong doubts:
Substantive review of agency cost-benefit analysis would involve two basic inquiries. A reviewing court should first ascertain whether the final cost-benefit document accounts for all of the significant costs and benefits which will result from the proposed project. A full analysis of economic costs and benefits is no less important now that agencies must also evaluate a project's impact on an environmental objective. Projects still must generally show a net dollar benefit in the "national economic development" account to be recommended. Overvaluing economic benefits or undervaluing economic costs therefore could result in agency recommendation of a project without the required net dollar benefit. In addition, the reviewing court should examine whether all of the environmental costs and benefits are fully described in the "environmental quality" account. One potential abuse in creating such a separate account is the temptation to "double count" certain benefits such as recreation by treating them both as an economic development benefit and as an environmental benefit. Finally, the choice of interest rate and project life span for discounting purposes are variables subject to agency manipulation.

Surely what constitutes the public interest on an issue like this is not one of those expert matters as to which courts should properly bow to the Commission's expertness. . . . Prophesy of technological feasibility is hardly in the domain of expertness so long as scientific and technological barriers do not make the prospect fanciful. In any event, this Court is not without experience in understanding the nature of such complicated issues. We have had occasion before to consider complex scientific matters.

Judge Leventhal, also of the District of Columbia Circuit, has written a vigorous defense of "independent" judicial review of agency decisions under NEPA. *Inter alia*, he maintains "[r]eview to ensure balance, coupled with restraint on the part of the reviewer, requires a generalist who can penetrate the scientific explanation underlying a decision just enough to test its soundness." Leventhal, *supra* note 159, at 529. He offers a number of constructive suggestions for expediting and improving judicial review of environmental decisions. *See also* Sive, *Some Thoughts of an Environmental Lawyer in the Wilderness of Administrative Law*, 70 COLUM. L. REV. 612 (1970).

165. See note 34 and accompanying text *supra*.

166. See note 20 *supra*. The new guidelines provide, "[t]he discount rate will be established in accordance with the concept that the Government's investment decisions are related to the cost of Federal borrowing." *Principles and Standards, supra* note 27, at 24822. Interest rates are to be equivalent to the estimated average cost of federal borrowing as reflected in the average yield on interest-bearing marketable federal securities having periods to maturity comparable to a 50-year investment. *Id.* By creating a sliding interest standard, these guidelines appear to remove the question of discount rates for new projects from agency discretion and court review. But
The two decisions permitting judicial review of non-NEPA cost-benefit analysis show how such review can illuminate and eliminate imbalances in the economic analysis.⁶⁷ Though they preceded the new Principles and Standards, the cases considered abuses still possible under the revised format. The decision enjoining construction of the Wallisville reservoir project focused on the problem of fully accounting for benefits—both environmental and economic—without reflecting environmental costs.⁶⁸ As an example, in the commercial fishing area, the analysis included a $29,000 annual benefit for fresh-water fishing, but did not account for estimated salt-water fishing losses of $500,000 annually. The statement included benefits for fishing at the proposed reservoir but did not contain information concerning persons who would continue to fish if the Trinity River were left a free-flowing stream.⁶⁹ It also contained recreation benefits based upon visitation statistics at other Corps projects, but there were no less estimates of individuals currently using the site as a wilderness area.⁷⁰

The Wallisville decision was critical of the use of recreation benefits and an altered project life span to enhance the benefit-cost ratio. The Corps estimated increases of 9,100,000 man-days of general recreation and 4,900,000 man-days of hunting and fishing, while the Fish and Wildlife Service and National Park Service made estimates of 3,000,000 and 937,000 respectively. These and other recreational benefits were then used to justify a project whose main purpose was non-recreational.⁷¹ The record also showed the Corps had altered the project life to achieve a more favorable cost-benefit comparison. The benefit-cost ratio for the full Trinity project was originally calculated on a one-hundred

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⁶⁷. Examples of other cases where substantive judicial review of cost-benefit analysis might have produced opposite results may be found in Note, Substantive Review, supra note 16, at 199-207; Note, Environmental Law—Substantive Judicial Review Under the National Environmental Policy Act of 1969, 51 N.C.L. Rev. 145 (1972).
⁶⁹. Id. at 1368-69.
⁷⁰. Id. at 1378.
⁷¹. For the Wallisville project alone, the costs of recreational facilities equalled only about 3.5% of the total costs, but recreational benefits accounted for 18.4% of the total. Similarly, for one reservoir that was part of the Trinity project and had as its primary purpose flood control and water supply, recreational facilities represented 12% of the project costs but 70% of the claimed benefits. Id. at 1379.
year life span, then reduced to a fifty year basis when the Bureau of the Budget noted the latter was the normal life span for Corps projects. This dropped the benefit-cost ratio from 1.4 to 1 down to 0.74 to 1, prompting the Corps to defer construction of certain navigation features.172

In Montgomery v. Ellis,173 the impact statement submitted by the SCS indicated the project had a benefit-cost ratio of 1.05 to 1. The court criticized the statement for failing to specify the basis of its cost-benefit determination. An affidavit by plaintiff's economist stated the erroneous inclusion of any benefits or the failure to include any costs would reduce the ratio below unity.174 The court also took judicial notice that the current interest rate was well above the 3¼ percent used by the SCS and the normal project life was fifty years, not one hundred years as used in the statement. Again referring to the economist's affidavit, the court said even a slight increase in interest rate or shortening of the project life span would reduce the benefit-cost ratio below unity.175

After a determination that an agency has accurately described the costs and benefits, the second inquiry should be one made generally of all impact statements: Was the agency's decision to proceed arbitrary or did it give insufficient weight to environmental values?176 On the basis of the written decision record required by the Principles and Standards, a court may judge whether the decision is "arbitrary or capricious," an "abuse of discretion," or a "clear error of judgment."177 A non-NEPA cost-benefit determination should therefore be reversible under NEPA if it reflects a lack of objectivity in evaluating environmental costs. Such lack of objectivity may be reflected in an agency's refusal to take into account local opposition to a project, use of the economic analysis

172. Id. at 1374.
174. Id. at 521-22.
175. Id. at 529.
176. See EDF v. Corps of Engineers, 470 F.2d 289, 300 (8th Cir. 1972). As a practical matter, substantive review of cost-benefit analysis under the Principles and Standards, and the impact statement will be virtually identical since both documents require a trading off of economic and environmental values. Requiring an agency to prepare an EIS, in addition to regular cost-benefit analysis, does force that agency to look at environmental quality as a paramount value, not just one of several to be factored into a multiobjective approach.
177. These phrases are used interchangeably to describe the scope of review to be conducted under the Administrative Procedure Act. See Note, Substantive Review, supra note 17, at 180-81 & n.35.
as a “promotional document,” or undue influence of the factor of previous investment in the project on the current decision to proceed.\footnote{178} The substantive requirements of section 101(b) also provide standards for testing whether environmental values have been accorded sufficient weight.

V. CONCLUSION

NEPA and the decisions permitting substantive review of agency decisionmaking have reopened the issue of whether cost-benefit analysis should be subject to judicial review. Much confusion in this area could be eliminated by distinguishing between the “cost-benefit balancing” required by NEPA and the cost-benefit analysis normally conducted in connection with water resource projects. Thus far, courts have uniformly rejected the argument that NEPA mandates full quantification of environmental, economic and technical costs and benefits. This Comment has shown there are sound policy reasons for rejecting full quantification, though these arguments have rarely been articulated by the courts. Instead, courts should review project impact statements to see that they include a full description of alternatives, together with the environmental risks and economic costs and benefits which would result. Most importantly, the impact statement must reveal the agency has balanced the described costs and benefits in a manner giving full weight to the environmental values at stake.

In the case of water resource agencies, where cost-benefit analysis is already an integral part of the decision process, this economic analysis should be summarized in the impact statement and subjected to substantive judicial review. Such review is necessary because the cost-benefit document is central to the decision process and embodies agency trade-offs between competing environmental and economic values. As with impact statements generally, the review should be limited in scope. Courts should ascertain first

\footnote{178. These tests of agency objectivity are suggested in Note, Substantive Review, supra note 16, at 194-99, 206-07. The author there recommends criteria for substantive review of cost-benefit balancing based on three abuses perceived under previous cost-benefit methods: lack of specificity; imbalance in the cost-benefit ratios; and influence of previous agency investment on the decision to proceed. \textit{Id.} at 199-207. Under the standards for review recommended here, the first two criteria would be incorporated into the procedural inquiry, concerning whether all costs and benefits have been accurately assessed. The third suggested criterion would be subsumed by the second inquiry, concerning the objectivity of the agency decision based upon the cost-benefit document.}
whether all significant costs and benefits are accurately accounted for and second whether the agency decision to proceed was arbitrary or ignored important environmental considerations. The new Principles and Standards should promote such substantive review, since they require full explication of both economic and environmental factors. The Principles and Standards also open to judicial scrutiny the reasoning behind an agency's choice of objectives and its decision to proceed with a given plan.

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