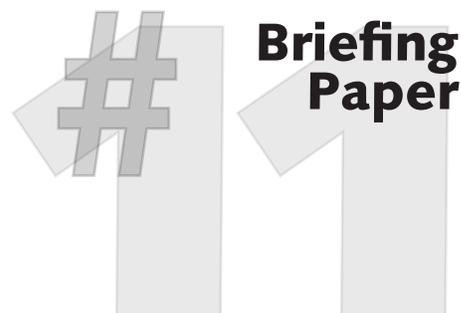


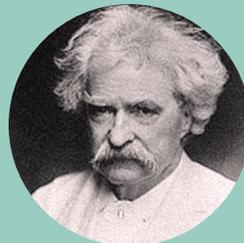
Pipeline Safety New Voices Project

Cost Benefit Analysis



We know what you're wondering: Why on earth are we doing an entire briefing paper on cost/benefit analyses? They are boring number exercises better left to accountants and actuaries, aren't they? What does it have to do with pipeline safety? Turns out that before PHMSA can pass any new regulations regarding pipeline safety the proposed regulations have to go through a fairly unique cost/benefit analysis.

Here are some things we hope you'll wonder after you read this paper: What data does PHMSA use to develop the required cost/benefit analyses? Is it reliable? Is it biased? When there are so many aspects of pipeline safety that aren't required to be reported by operators, how can PHMSA determine what the possible benefits of a new regulation truly are? How is it that when PHMSA calculates the benefits of a proposed regulations, they not only put a dollar value on the life of a person saved by the regulation, but also assumes that the value of that human life that will be saved by that regulation decreases over time? How does PHMSA decide whose cost estimates to use?



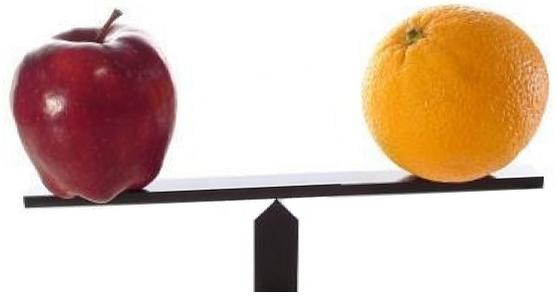
Figures often beguile me, particularly when I have the arranging of them myself; in which case the remark attributed to Disraeli would often apply with justice and force: 'There are three kinds of lies: lies, damned lies, and statistics.' - *Mark Twain*

Cost/Benefit Analysis – What is it and what role does it play in PHMSA rulemaking?

Undertaking a cost/benefit analysis (CBA) requires the identification and valuing of the costs and benefits of a given action to determine whether the proposed action is a cost-efficient means of accomplishing the benefits. It doesn't take much analysis to realize that the outcomes of a cost/benefit analysis can be strongly influenced by the values one places on the two inputs: costs of the action, and benefits of the action. CBA works most effectively when the costs and benefits of an action can each be easily identified and monetized. But it is not so tidy or easy when trying to value environmental, health and safety factors, as in the pipeline safety field. Economic valuation of a healthy child, a clean river, or a safe neighborhood is difficult to undertake. When one complicates the analysis further, by understanding that it must be layered in with the probability of certain kinds of pipeline failures in certain locations, or in certain types of weather, and with the understanding that those probabilities must be estimated based on what is frequently incomplete or unverified data, and the process gets very complicated very quickly.

The Statutory Framework

The federal pipeline safety statutes require the Secretary of Transportation to undertake a risk assessment, including a cost/benefit analysis (CBA), before promulgating any pipeline safety rule, including those identified as “minimum safety standards.” 49 USC 60102. The Secretary may issue regulations only “upon a reasoned determination that the benefits of the intended standard justify its costs.” There are three statutory exceptions to the cost/benefit analysis: 1) a negotiated rulemaking, or other rulemaking including the adoption of industry standards that receives no significant adverse comment within 60 days; 2) based on a recommendation of $\frac{3}{4}$ of the Technical Standards committee(s); or pursuant to the general “good cause” exception in the APA (5 USC 553(b)(3)(B)). 49 USC 60102 (b)(6). This CBA requirement was inserted into the pipeline safety statutes in the 1996 reauthorization bill, during the period when Speaker Gingrich’s “Contract with America” called for all regulation to be subject to a CBA.



We don’t normally do this in briefing papers, but here’s the text of the relevant part of the pipeline safety statutes [the provisions in blue are some of those that we’ll discuss in more depth below]:

49 USC 60102 * * *

(2) Factors for consideration.—When prescribing any standard under this section or section 60101(b), 60103, 60108, 60109, 60110, or 60113, the Secretary shall consider—

(A) relevant available—

- (i) gas pipeline safety information;
- (ii) hazardous liquid pipeline safety information; and
- (iii) environmental information;

(B) the appropriateness of the standard for the particular type of pipeline transportation or facility;

(C) the reasonableness of the standard;

(D) based on a risk assessment, the reasonably identifiable or estimated benefits expected to result from implementation or compliance with the standard;

(E) based on a risk assessment, the reasonably identifiable or estimated costs expected to result from implementation or compliance with the standard;

(F) comments and information received from the public; and

(G) the comments and recommendations of the *Technical Pipeline Safety Standards Committee*, the *Technical Hazardous Liquid Pipeline Safety Standards Committee*, or both, as appropriate.

(3) Risk assessment.—In conducting a risk assessment referred to in subparagraphs (D) and (E) of paragraph (2), the Secretary shall—

(A) identify the regulatory and nonregulatory options that the Secretary considered in prescribing a proposed standard;

(B) identify the costs and benefits associated with the proposed standard;

(C) include—

- (i) an explanation of the reasons for the selection of the proposed standard in lieu of the other options identified; and
- (ii) with respect to each of those other options, a brief explanation of the reasons that the Secretary did not select the option; and

(D) identify technical data or other information upon which the risk assessment information and proposed standard is based.

(4) Review.—

(A) *In general.—The Secretary shall—*

- (i) submit any risk assessment information prepared under paragraph (3) of this subsection to the Technical Pipeline Safety Standards Committee, the Technical Hazardous Liquid Pipeline Safety Standards Committee, or both, as appropriate; and*
- (ii) make that risk assessment information available to the general public.*

(B) *Peer review panels.—The committees referred to in subparagraph (A) shall serve as peer review panels to review risk assessment information prepared under this section. Not later than 90 days after receiving risk assessment information for review pursuant to subparagraph (A), each committee that receives that risk assessment information shall prepare and submit to the Secretary a report that includes—*

- (i) an evaluation of the merit of the data and methods used; and*
- (ii) any recommended options relating to that risk assessment information and the associated standard that the committee determines to be appropriate.*

(C) *Review by secretary.—Not later than 90 days after receiving a report submitted by a committee under subparagraph (B), the Secretary—*

- (i) shall review the report;*
- (ii) shall provide a written response to the committee that is the author of the report concerning all significant peer review comments and recommended alternatives contained in the report; and*
- (iii) may revise the risk assessment and the proposed standard before promulgating the final standard.*

(5) *Secretarial decisionmaking.—Except where otherwise required by statute, the Secretary shall propose or issue a standard under this Chapter¹ only upon a reasoned determination that the benefits of the intended standard justify its costs.*

(6) *Exceptions from application.—The requirements of subparagraphs (D) and (E) of paragraph (2) do not apply when—*

- (A) the standard is the product of a negotiated rulemaking, or other rulemaking including the adoption of industry standards that receives no significant adverse comment within 60 days of notice in the Federal Register;*
- (B) based on a recommendation (in which three-fourths of the members voting concur) by the Technical Pipeline Safety Standards Committee, the Technical Hazardous Liquid Pipeline Safety Standards Committee, or both, as applicable, the Secretary waives the requirements; or*
- (C) the Secretary finds, pursuant to section 553(b)(3)(B) of title 5, United States Code, that notice and public procedure are not required.*

Executive Order requires Cost Benefit Analyses on “significant” rules

In addition to the statutory requirement, PHMSA must also undertake a CBA of sorts when it proposes a “significant” rule. Under Executive Order 12866, issued by President Clinton, the federal Office of Information and Regulatory Affairs (OIRA) is responsible for determining which agency regulatory actions are “significant” and, in turn, subject to interagency review. “Significant regulatory actions are defined in the Executive Order as those that:

- Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive order.

The Executive Order requires that significant regulatory actions be reviewed by OIRA before they are published in the Federal Register or otherwise issued to the public. The Executive Order also requires agencies to provide an explanation of the need for the regulatory action and an assessment of potential costs and benefits. OIRA generally designates between 500-700 regulatory actions as significant each year. “ <http://www.reginfo.gov/public/jsp/Utilities/faq.jsp> Those regulations determined to be economically significant – typically the ones with a > \$100 million economic impact, require a somewhat more detailed analysis of costs, benefits and alternatives.

President Obama in Executive Order 13563 expanded upon President Clinton’s order by also directed agencies to undertake regular retrospective reviews of existing regulations to determine their continuing necessity and cost efficiency.

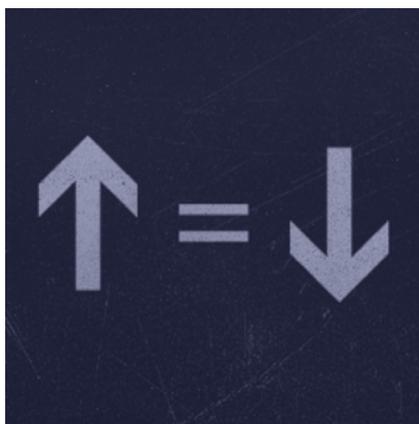
Implementation of the CBA requirement

So, the long story is that the Secretary has to undertake a CBA before issuing any regulation, and that analysis must meet OIRA requirements for economically significant proposals. The CBA and the regulation have to be submitted to the PHMSA Technical Safety Committee(s) for review, in addition to the normal publication and comment periods. And, the Secretary must make a “reasoned determination that the benefits of the intended standard justify its costs.” That sounds a lot like it could be an effective veto for expensive safety regulations. Is that how it works in practice?

There aren’t very many federal statutes in the health, safety and environmental fields that require the use of a cost/benefit analysis. In fact, more than 20 prohibit the use of a cost benefit analysis and instead require the use of technology- based standards (like in the Clean Air Act, effects-based standards (like in the Endangered Species Act), or a multi-factor balancing standard. There are only two health, environmental and safety statutes requiring a CBA, and the pipeline safety program is one of them. Here’s a link to a chart prepared by the Center for Progressive Reform showing the 20+ statutes and the standards used in each of them. http://www.progressivereform.org/articles/CPR_RegStandardsChart.pdf

Framework adopted in 1999

After the statute was changed in 1996 to incorporate the requirement for a CBA, PHMSA undertook to establish a protocol of sorts for how PHMSA/OPS analyses would be completed. See, [A Collaborative Framework for Office of Pipeline Safety Cost-Benefit Analyses](#). To its credit, one of the goals for the agency was to “describe cost-benefit analysis concepts and principles so as to be easily understood by stakeholders who are not economists,” and that in turn meant that the framework had to be understandable to the layperson as well. The Framework’s fourteen Guiding Principles (pages 4-5) outline a laudable process, involving the industry and other stakeholders, using best practice economic methods, and explicit description of any uncertainties and assumptions, etc. That being said, there is a great deal of room for opinion and estimation, and therefore potential for mischief, in a cost benefit analysis, and the outcomes can be strongly affected by small differences chosen in certain inputs: a discount rate (how much a dollar today is worth more than a dollar in 20 years), the dollar value of a hypothetical human life being saved, the estimate of benefits to be reaped by the imposition of a particular regulation, the cost of performing a maintenance or testing task in a proposed regulation, etc. Each of those decisions should be based on a set of accurate, reliable and unbiased data, since the outcome of the CBA, and therefore the ability of the Secretary to issue a regulation is at issue.



A few examples: The time period over which costs and benefits are monetized can have a big effect on the result. The results would be very different if the benefits of a task that was very expensive in the first couple of years were calculated over a long period, rather than a short period, and vice versa. The discount rate can dramatically change an outcome: the higher the discount rate, the lower the value of future benefits.

If PHMSA undertakes to expand the requirements for hydrostatic testing of older (pre-1970) gas pipelines, as the NTSB has recommended in the San Bruno report, the result of its CBA could vary wildly depending on the cost estimate it chooses to use. For example, here are some projected costs to hydrostatic testing a mile of pipeline from public documents:

- PHMSA's original projection of \$5,274/mile in its early 2000's notice of proposed rulemaking before adopting the original gas integrity management rule
- \$30,000-40,000/mile was the industry estimates made in response to that proposed rule
- PG&E's publicly stated estimates of upwards of \$500,000 per mile
- The Division of Ratepayers Advocates of the California PUC recently-filed industry-wide range of \$58,000 and \$124,000 /mile for interstate transmission and between \$250,000 and \$500,000 for intra-state transmission lines.

As you can see the number PHMSA chooses, and the process by which it chooses that number, quickly become very important.

The role of the Technical Advisory Committees

Under the statute, proposed rules and the risk assessment performed on them are to be submitted to the relevant Technical Advisory Committee (one for gas, one for liquids). The risk assessments must also be made available to the public. The Committees are to review the proposed rule and comment on it, and are to review the risk assessment performed, and “prepare and submit to the Secretary a report that includes—

(i) an evaluation of the merit of the data and methods used; and

(ii) any recommended options relating to that risk assessment information and the associated standard that the committee determines to be appropriate.”



The makeup of the Committees is established by statute: each is 15 members, 5 from government, 5 from industry, and 5 public. In addition, there are some particular skills that certain members of the committee should have. See [49 USC 60115](#). PHMSA publishes the roster and biographies of the Committee members [here](#). The risk assessments, including the cost benefit analyses, are typically published with proposed rules.

Conclusion

Cost benefit analyses don't have to be lies or damn lies. There will be arguments about their use in the regulatory field for a very long time, particularly where health, safety and the environment are at issue. But even setting aside the practical, legal and ethical arguments about whether they are properly considered in health and safety regulations, *if* they are to be used, they need to be based on reliable, unbiased data. Where estimates and assumptions are made, they need to be explicit and justified, as required by PHMSA's Framework report.

As you start reviewing proposed rules from PHMSA, pay particular attention to these analyses and the Committee's reviews. See if PHMSA has lived up to the guiding principles in the Framework. The inputs and explanations matter because the results matter.