Competitive Enterprise Institute
1899 L Street, NW • 12th Floor • Washington, DC 20036
202.331.1010 • www.cei.org
Advancing Liberty – From the Economy to Ecology
March 17, 2011 **No. 173**

Clearing the Air on the EPA's False Regulatory Benefit-Cost Estimates and Its Anti-Carbon Agenda

By Garrett A. Vaughn[*]

The U.S. Environmental Protection Agency (EPA) recently initiated a multi-pronged campaign to restrict the nation's emissions of greenhouse gases (GHGs), particularly carbon dioxide (CO_2) from the use of fossil fuels, under the Clean Air Act Amendments of 1990 (CAAA). The EPA's anti-carbon campaign threatens to greatly undermine future U.S. economic growth and job creation, while doing virtually nothing to restrict global CO_2 emissions. In fact, the EPA's campaign may actually *stimulate* global CO_2 emissions by handing a competitive advantage to the more carbon-intensive economies of China, India, and several other countries. In doing so, the EPA's anti-carbon agenda takes direct aim at the U.S. manufacturing sector's reliance on stable, reliable, affordable energy supplies.

The EPA's anti-carbon agenda has three main prongs:

1. Standards for energy-using equipment, *e.g.*, the recently proposed mileage standards for new medium- and heavy-duty vehicles;
2. Regulating the CO_2 emissions of facilities that provide essential forms of energy throughout the U.S. economy, such as electric utilities and petroleum refineries; and
3. Restricting the ability of states to issue air permits necessary for large power and industrial projects, such as the EPA's recent action to strip Texas of that state's authority to issue air permits.[1]

Each prong of the agenda will make energy more expensive for Americans to use, directly or indirectly.

In August 2010, using many of the same accounting tricks and gimmicks discussed in an April 2006 Manufacturers Alliance/MAPI report,[2] the EPA once again claims that its past clean air enforcement has provided more than $30.00 of benefits for every dollar of cost,[3] thereby

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[*] *Garrett A. Vaughn is an independent economic consultant specializing in energy and the environment. He retired in 2009 from the Manufacturers Alliance/MAPI, where he held the position of Economist and Council Director. He has also served as an economist on the staff of the U.S. Senate Judiciary Committee (Antitrust and Monopoly Subcommittee), Federal Communications Commission, and American Petroleum Institute.*

implying that its future regulations of CO_2 (and other GHG) emissions under the CAAA will perform the same dubious magic. Yet, during the last Congress, the EPA implicitly contradicted its own claim of enormous net benefits (gross benefits less costs) from its direct regulations already on the books, by supporting cap-and-trade" legislation as a more efficient way to restrict GHG emissions than direct regulation.

If the Obama administration actually believed the EPA's enormous net benefit estimates, it would have gone immediately to direct regulation and not put the Democratic Party's congressional majorities in the 2010 mid-term elections in jeopardy by pressing for House and Senate votes on cap-and-trade. The specter of EPA regulation served as a threat precisely because members of Congress and the administration understand well that EPA regulations actually impose costs far in excess of benefits, the EPA's official claims to the contrary notwithstanding.

Continued Inflated Net Benefit Estimates for EPA's Clean Air Regulations. In August 2010, the EPA released a report claiming an astounding $1.3 trillion in 2010 for the monetized direct net benefits (direct gross benefits less costs) from its enforcement of the CAAA[4]—an amount nearly twice the U.S. military spending of $0.7 trillion in 2010 (including expenditures for Iraq and Afghanistan).[5] The EPA's August 2010 report is reminiscent of the extravagant claims made by the agency in its October 1997 report—discussed in the April 2006 MAPI paper—that assessed the benefits and costs of clean air regulation from 1970 through 1990. The October 1997 EPA report estimated that the regulatory net benefits for 1990 (the latest year covered by the report) amounted to more than $1.2 trillion (in 1990 dollars, or about $2.0 trillion in 2010 dollars).[6] That amount, if accurate, would equal more than a fifth of this nation's gross domestic product (GDP) for 1990.

The EPA's $1.3-trillion net benefit estimate for 2010 is even more astounding than it appears at first glance because that sum covers only a portion of the agency's clean air enforcement. A comprehensive estimate would also cover the net benefits from the Clean Air Act (CAA, which was amended by the CAAA).[7] The EPA subdivides the net benefits from its total clean air enforcement into two parts: (1) the benefits that would have occurred under the CAA even if Congress had not approved the CAAA in 1990; and (2) the "incremental" benefits attributable to the CAAA. The EPA's August 2010 report estimates only the "incremental benefits" from the CAAA.

Had the EPA's August 2010 report also covered the net benefits from the CAA, the report would have arrived at an obviously ludicrous amount. As already noted, the EPA's October 1997 report estimated the annual net benefit for 1990 from its enforcement of the CAA at an amount that was more than one-fifth of the nation's gross domestic product (GDP) for that year. Assuming the same rate of growth in CAA annual net benefits from 1990 through 2010 as the EPA estimated for 1975 through 1990, would have led the agency to estimate 2010 net benefits from both the CAA and the CAAA of more than $12 trillion (in 2010 dollars).[8] That amount would equal more than four-fifths of the United States' 2010 GDP—a sum far beyond any reasonable person's willing suspension of disbelief.

Hence, by claiming "only" the CAAA "incremental" net benefit of $1.3 trillion for 2010—instead of a much larger net benefit estimate for both CAA and CAAA enforcement—the EPA avoids reporting a literally unbelievable multi-trillion dollar estimate.

Aside from the implausible dollar totals of net benefits reported by the EPA, the agency's estimated ratio of gross benefits to costs (B-C ratio) also defies credibility. The EPA's August 2010 report claims a 31-to-1 B-C ratio for its CAAA enforcement in 2010[9]—indicating that U.S. citizens would willingly pay $31 out of their pockets if necessary rather than do without the resulting clean air benefits.[10] Stated another way, the EPA squeezes 97 cents of pure profit out of every dollar of gross "revenue."[11] If any U.S. manufacturer claimed that it could fashion products for which consumers would willingly pay sums that yield the manufacturer 97 cents of pure profit out of every revenue dollar, that manufacturer would be considered delusional—especially when the pure profit would come, not from a few fanatical customers in a niche market, but from purchases by every U.S. citizen that aggregate to an amount dwarfing the nation's defense spending.

For example, a member of the Baseball Hall of Fame may be able to transform a $10 baseball into a baseball for which a collector would willingly pay $310 merely by signing the player's name. The market for sports collectibles is much too thin, however, for such items to fetch sums that would dwarf U.S. defense spending.

More Job-Killing Standards for Energy-Using Products. The April 2006 MAPI paper discussed how the EPA greatly inflated its estimated B-C ratio for the standards on heavy-duty trucks and buses (current HD rule)—proposed in 2000 and taking first effect with the 2007 model year—restricting the emissions of particulate matter (PM) and nitrous oxides (NO_x, a lower-level ozone precursor).[12]

Among other things, the EPA has devised a regulatory cost accounting scheme that excludes from its estimated B-C ratio all of the many millions (or even billions) of dollars in "up-front" capital expenditures that manufacturers must make to prepare themselves for meeting the regulatory deadlines. The EPA's accounting scheme converts manufacturers' direct regulatory costs into "annualized costs." The upfront capital expenditures are spread out over a relatively few years soon after the regulation is proposed, such as, for example, spreading the up-front capital expenditures for the current HD rule (proposed in 2000) over 2007 through 2014. The EPA then declares the up-front capital costs "recovered" by 2014 through higher prices paid on compliant vehicles from 2007 through 2014, as regulatory costs get passed through to vehicle prices.

Once "recovered," the EPA treats annualized up-front costs as $0.00 for each and every year starting with 2015. Finally, the EPA estimates a B-C ratio for a single 12-month period: the year 2030, for a regulation proposed exactly three decades earlier. The EPA treats the up-front capital costs—no matter how many millions or billions of dollars—as $0.00 in 2030 (having been fully "recovered" by 2014). Hence, in the EPA's unique method of estimating B-C ratios for its regulations, up-front capital expenditures become what economists term a "free good."

The EPA uses similar accounting techniques to inflate estimated benefits and minimize estimated costs for a proposed rule affecting many of the same vehicles that it announced, in conjunction with the U.S. Department of Transportation, in October 2010 (proposed HD rule). The proposed HD rule establishes mileage standards for the covered vehicles as a means to restrict these vehicles' future GHG emissions.[13] Manufacturers would have to start meeting the standards by the 2014 model year.

As it happens, the requirements of the current HD rule reach their zenith with the 2010 model year[14]—the very same year that the EPA announced the proposed HD rule that will work at cross purposes with the current HD rule. Many manufacturers have met the current rule's targets for PM and NO_x emissions by burning those pollutants under higher temperatures—a method that requires energy in order to burn the pollutants down to required levels, and hence *worsens* mileage.[15] The EPA leaves it to manufacturers to figure out a way for meeting its proposed mileage rule without also violating its current rule targeting PM and NO_x emissions.[16]

And, by setting a deadline for the 2014 model year, the EPA not only moves the goalposts for vehicle manufacturers. but also lays waste to its B-C analysis of the current HD rule, which the agency first released in 2000, when it proposed that regulation. The EPA's B-C analysis for the current HD rule assumed that affected manufacturers would "recover" their upfront capital expenditures by 2014 through higher consumer prices on compliant vehicles. With the proposed HD rule, compliant vehicles in the pipeline for 2014 have been effectively outlawed by the very same EPA, negating the potential of those vehicles to help fully "recover" manufacturers' up-front capital expenditures, as portrayed by the EPA's 2000 B-C analysis of the current HD rule. To add insult to injury, the EPA's B-C analysis for the proposed HD rule repeats the same flawed assumption of its B-C analysis for the current rule: that the proposed regulation will not affect vehicle sales. Under the basic law of demand, higher prices dampen down consumers demand for a product. The EPA admits that vehicle prices will increase as regulatory costs pass through to vehicle buyers but blithely dismisses the law of demand by assuming that the proposed rule will not affect vehicle sales.[17]

As discussed in the April 2006 MAPI paper, the EPA's B-C analysis of the current HD rule assumed that each year's vehicle sales would be exactly 12,800 units greater than the previous year's sales—regulation or no—from 2007 through 2030 (see the MAPI report's Table 6). The first deadline under the current HD rule was set for the 2007 model year. Did HD vehicle sales in 2007 exceed those of 2006 by approximately 12,800 units? In a word, no. Sales in 2007 plunged, in accordance with the law of demand, giving the industry an early start on the Great Recession.[18]

Oblivious to this recent history, the EPA once again claims the unique power to raise prices without affecting sales. That claims helps the EPA estimate a favorable B-C ratio for its proposed regulation but both Economics 101 and recent history point instead to another plunge in vehicle sales starting with 2014 (conveniently enough for the Obama administration, after the 2012 presidential election).

A Futile, but Expensive, Extension of the CAAA to Address Global Climate Change. The April 2006 MAPI report discusses the EPA's methods for grossly exaggerating

the net benefits of its regulations that target the types of pollutants which Congress had in mind for the CAA and the CAAA. The MAPI report did not anticipate that the EPA would attempt to extend the CAAA to cover CO_2 emissions—an outcome never intended by Congress when it amended the CAA in 1990. In 2010, however, the EPA announced its intention for using the CAAA to restrict this nation's GHG emissions. With the release of its August 2010 report, the agency implies that its forthcoming GHG regulations will also provide many dollars of benefits for every dollar of cost. Instead, however, using the CAAA to restrict this nation's GHG emissions cannot possibly provide U.S. citizens measurable benefits at a cost that is remotely affordable for several reasons.

Minimal, and possibly adverse, relationship between U.S. GHG emissions and global GHG emissions. The United States accounts for only a fraction of global greenhouse gas emissions. Restricting U.S. GHG emissions, therefore, can have only a slight impact on global GHG emissions at best. At worst, EPA regulations—however unintentionally—will stimulate additional GHG emissions from more carbon-intensive economies, such as China, which already emits more total CO_2 than the United States.

Most U.S. CO_2 emissions come from the use of fossil fuels—coal, oil, and natural gas—that meet around 85 percent of this nation's energy needs. Therefore, EPA regulations targeting GHG emissions cannot avoid increasing energy costs for U.S. companies and thereby handing a competitive advantage to their foreign competitors. In addition, regulatory restrictions on energy use by U.S. companies would soften world energy demand and lower energy prices for foreign companies, further stimulating GHG emissions in other countries. As a consequence, the EPA's unilateral anti-carbon agenda may have the perverse result of increasing global GHG emissions, not reducing them.

Dubious energy savings instead of (inflated) health benefits. Back in 2000, the EPA touted what is now the current HD rule by claiming numerous future specific health benefits for Americans would follow the gradual phasing in of the regulation—which would not be completed until 2030—as fleet operators replaced existing vehicles with new, cleaner, compliant vehicles. Indeed, health benefits account for the lion's share of total benefits claimed by the EPA in its August 2010 report for its overall enforcement of the CAAA. In the EPA's proposed HD rule, however, Americans' health benefits at best will be but a small fraction of total benefits that the agency perceives will come principally from:

1. The monetized value of the fuel savings to vehicle operators; and
2. The supposed monetized value of prevented U.S. CO_2 emissions in light of the "social cost of carbon" (SCC).

The SCC is an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year. It is intended to include (but not limited to) changes in net agricultural productivity, human health, property damages from increased flood riks, and the value of ecosystem services due to climate change."[19] Health effects to Americans account for only a small fraction of each SSC dollar.

The EPA's estimate of fuel savings—the first benefit category—depends on a dubious claim of an "energy paradox," a type of "market failure," which the proposed HD rule would supposedly

correct. Under this alleged failure, vehicle operators, despite their pursuit of profits, spend too little up front on vehicle fuel efficiency and thereby grossly inflate their future energy needs by many more dollars. The EPA admits, however, that if its perception of an "energy paradox" is flawed, then competition may very well lead operators to make the very same choices envisioned by the agency for its proposed HD rule—rendering the rule superfluous and thereby leaving $0 of actual energy savings and also $0 from alleviating carbon's alleged "social cost," since the rule would make no difference in carbon emissions.[20]

However, the proposed rule's most likely outcome is neither profitable energy savings for vehicle buyers nor a superfluous rule. Rather, the most likely result is energy savings far too small to offset the cost of building in more fuel efficiency. As a consequence, net costs covering both energy and capital equipment would increase for U.S. companies, handing a competitive advantage to their foreign competitors and stimulating the competitors' GHG emissions, as already noted.

If global GHG emissions still fall, despite more GHG emissions from foreign competitors, Americans would receive but a fraction of any resulting health and environmental benefits—the second major category of regulatory benefits enumerated by the EPA. After all, climate change does not respect man-made national boundaries. Once emitted, CO_2 rapidly disperses around the globe—affecting the concentration of CO_2 in China and India just as much as in the United States. Just as Americans account for only a fraction of global CO_2 emissions, Americans stand to gain only a fraction of any benefits that follow the EPA's unilateral actions to reduce this nation's CO_2 emissions.

Under the CAAA's language, even hospitals, farms, and restaurants emit sufficient amounts of GHG's to become the targets of costly regulation. Carbon dioxide—a greenhouse gas that was naturally absorbed by every living plant and naturally exhaled by every living creature well before humans evolved—is fundamentally different than the sorts of air pollutants that Congress intended to cover when it amended the CAAA in 1990. Unlike CO_2, the air pollutants that Congress did have in mind can harm human health, even at relatively low concentrations. Hence, Congress wrote into the CAAA language that, if it were extended to cover CO_2, would require the EPA, as *The Wall Street Journal* rightly noted, "to regulate sources that emit more than 250 tons annually, which may be reasonable for conventional pollutants like NO_x or SO_x but this is a very low limit for ubiquitous CO_2, and so would capture schools, hospitals, farms, malls, restaurants, large office buildings and many others."[21] Ensnaring millions of U.S. enterprises into the EPA's regulatory web is a prescription for enormous costs in return for trivial—if any—benefits for Americans.

Conclusion. The EPA is aiming its regulatory arsenal against greenhouse gas emissions under the 1990 Clean Air Act Amendments, which were never intended to restrict such emissions—as the Obama administration itself implied when it urged Congress to enact cap-and-trade as its preferred alternative to direct regulation for restricting GHG emissions. Since the Senate declined to approve cap-and-trade as too expensive before the 2010 mid-term elections, the EPA is now trying to dress up the even more expensive alternative of direct regulation with the same inflated net benefit estimates prepared for true CAAA pollutants such as particulate matter and nitrous oxides.

Notes

[1] Editorial, "The EPA's War on Texas," *The Wall Street Journal*, January 3, 2011, p. A16, http://online.wsj.com/article/SB10001424052970203513204576047753548981910.html.
[2] Garrett A. Vaughn, "Regulatory Sleight of Hand: How the EPA's Benefit-Cost Analyses Promote More Regulation and Burden Manufacturers," Manufacturers Alliance/MAPI, April 2006.
[3] U.S. Environmental Protection Agency (EPA), *The Benefits and Costs of the Clean Air Act: 1990 to 2020*, Office of Air and Radiation Final Report, August 2010.
[4] Ibid., Table 7-5, p. 7-10. The EPA expresses its benefit and cost estimates in 2006 dollars. Adjusting those estimates to 2010 dollars shows a net benefit estimate of $1.3 trillion for 2010. The EPA shows three different sets of direct benefit estimates—Low, Central, and High—and only a single, Central estimate for direct costs. The $1.3 trillion estimate combines the Central estimates for direct benefits and direct costs. If the High direct benefit estimate is combined with the single Central direct cost estimate, the resulting net benefit estimate amounts to more than $4 trillion (in 2010 dollars)—nearly *six times* 2010 U.S. defense spending.
[5] U.S. Office of Management and Budget, *The President's Budget for Fiscal Year 2011*, p. 58.
[6] EPA, *The Benefits and Costs of the Clean Air Act, 1970 to 1990*, Office of Air and Radiation Retrospective Study, October 1997, Table 18, p. 56.
[7] EPA, *The Benefits and Costs of the Clean Air Act: 1990 to 2020*, Figure 1-1, p. 1-3. As shown in the EPA's schematic diagram (Figure 1-1), the $1.3 trillion estimate for 2010 corresponds to "B"—the "With-CAAA"—scenario, but does not include (the apparently much larger amount) of "A"—the net benefits attributable to the CAA, separate from the CAAA. The CAA is the regulatory edifice that underpins the CAAA.
[8] The EPA's report covering its CAA enforcement from 1970 through 1990 indicates a net benefit in 1975, the earliest year shown, of $344 billion and $1.222 trillion in 1990 (both amounts in 1990 dollars). This is consistent with an annual growth rate in net benefits of nearly 9 percent. If that same growth rate continued from 1990 through 2010, annual net benefits of CAA enforcement—separate from CAAA enforcement—would be somewhat in excess of $11 trillion, in 2010 dollars. Hence, the 2010 net benefits of the EPA's entire clean air enforcement—covering both the CAA and the CAAA—would be well above $12 trillion, in 2010 dollars.
[9] EPA, *The Benefits and Costs of the Clean Air Act: 1990 to 2020*, Table 7-5, p. 7-10. The 31-to-1 B-C ratio applies to the EPA's central case. The B-C ratios for the low and high cases are four-to-one and 88-to-one, respectively.
[10] EPA, *EPA Guidelines for Preparing Economic Analysis*, September 2000, p. 62. "From the perspective of economic theory, an appropriate measure of a policy's benefits is the sum of individual WTP [willingness-to-pay] estimates for that policy." Under the 31-to-one B-C ratio estimated by the EPA, out of every $31 of gross benefits, $30.00 of pure profit remains after paying the $1.00 cost—or 97 cents of pure profit per dollar of gross revenue.
[11] Although Americans may be willing to pay $31.00 for the clean air benefits engineered by the EPA for every dollar of cost, the EPA does not collect any revenue, unlike a private company for whose products consumers willingly pay. A private company claiming large profits must substantiate those claims to a variety of interested parties, including shareholders and regulators. The EPA, in contrast, never has to substantiate any of its B-C claims.
[12] Vaughn.
[13] EPA and National Highway Traffic Safety Administration (NHTSA), *Greenhouse Gas Emission Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, 75 FR 74152-74456, October 25, 2010.
[14] EPA, *Draft Regulatory Impact Analysis: Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*, Office of Air and Radiation, EPA420-D-00-001, May 2000, Chapter I, pp. 2-3.
[15] Robert Guy Matthews, "Trucking Firms Bemoan Stricter Emissions Rules," *The Wall Street Journal*, April 24, 2007, p. A6. According to Mathews, "Some loss of fuel economy was inevitable for engines to comply with the new standards. Certain parts of the engine must run at a higher temperature to burn off the [PM and NO_x] pollutants, and that requires more fuel."
[16] EPA and NHTSA, p. 313. The EPA attempts to pass off this problem as a minor matter. "A few effects of the program, such as the effects on other pollutants, are not included here," it said. However, it acknowledges, "[W]e plan to add the effects of other pollutants to the analysis for the final rules."
[17] Ibid., p. 350. "The Agencies are not projecting a change in fleet turnover characteristics due to this regulation." No change in fleet turnover means, in turn, no change in annual sales of new vehicles, since new sales drive fleet turnover. At the same time, the agencies state: "The analysis assumes that the full technology costs are passed along to vehicle buyers."

[18] James P. Miller, "Industrial Output Drops: Surprisingly Poor Showing Blamed on Downturn Hurting Auto Industry," *Chicago Tribune*, February 16, 2007, http://articles.chicagotribune.com/2007-02-16/business/0702160118_1_manufacturing-sector-ian-shepherdson-high-frequency-economics. According to Miller, "Because new clean-air rules obliged truckmakers to install a new generation of diesel engines in their vehicles affective Jan. 1, buyers ordered as many trucks as they could during late 2006; and January production slumped badly, as expected." The EPA's regulatory cost accountants do not appear to be among those who expected a bad production slump as a consequence of what is now the current HD regulation.

[19] The EPA assigned a dollar value to reductions in CO_2 emissions using recent estimates of the social cost of carbon (SCC). EPA and NHTSA, p. 350.

[20] Ibid., p. 314. The EPA states: "If trucks would have ended up installing technologies to achieve the fuel savings and reduced GHG emissions in the absence of this proposal, then both the costs and benefits of these fuel savings could be attributed to market forces, not the rules."

[21] *The Wall Street Journal*, "Terms of 'Endangerment': The EPA's Anti-Carbon Rule is an Admission that CO_2 Limits Hurt the Economy," September 3, 2009, p. A16.