**Summary of Testimony of**
**John DeCicco, Senior Fellow of Environmental Defense**
**before the Subcommittee on Energy and Air Quality, Committee on Energy and Commerce**
**Regarding Discussion Draft on Alternative Fuels, Infrastructure, and Vehicles**
June 7, 2007

- Global warming is the most urgent environmental problem of our time. Environmental Defense believes that a strong global warming policy will deliver substantial oil savings to improve energy security.

- Environmental Defense believes the discussion draft in its current form would make it much more difficult to mitigate the dangers of climate change. We oppose the draft based on four serious concerns:

    - It destroys California's ability to lead other states and the nation in climate protection through its pathbreaking greenhouse gas (GHG) standards for vehicles and fuels.

    - It restricts the Environmental Protection Agency's (EPA) authority to regulate GHGs as air pollutants under the Clean Air Act (CAA), as recently clarified by the U.S. Supreme Court in *Massachusetts v. EPA*.

    - It sets stringency levels for fuels and vehicles regulation that fall far short of what is needed to ensure an appropriate sector contribution to climate protection.

    - It may undermine the development of climate legislation that is truly comprehensive and effective.

- Nonetheless, Environmental Defense believes the draft does offer helpful steps toward a new paradigm for managing carbon from vehicles and fuels. The Low Carbon Fuel Standard combined with the Vehicle Lifetime Carbon Emission metric could be building blocks for integrating the sector into a comprehensive climate policy.

**John DeCicco ▪ Environmental Defense**

**Testimony regarding the**

**Discussion Draft on Alternative Fuels, Infrastructure, and Vehicles**

**Subcommittee on Energy and Air Quality ▪ Committee on Energy and Commerce**

**U.S. House of Representatives**

**June 7, 2007**

## SUMMARY

Thank you, Mr. Chairman and members of the committee, for this opportunity to provide comments on your committee's Discussion Draft on Alternative Fuels, Infrastructure, and Vehicles as released on June 1. My name is John DeCicco and I am a senior fellow specializing in automotive issues with Environmental Defense's National Climate Campaign. Environmental Defense is a national nonprofit organization founded in 1967 that today represents more than 400,000 members. We link science, economics and law to create innovative, equitable and durable solutions to society's most urgent environmental problems.

Global warming is the most urgent environmental problem of our time. The goal of our National Climate Campaign is comprehensive climate legislation that places a mandatory, declining cap on greenhouse gas (GHG) emissions economy-wide, enacted during this Congress. We have previously praised this Committee's commitment to leadership in enacting such legislation. We detailed our vision for it in our March 19, 2007 submission in response to the Committee's solicitation of input. And we have appreciated your pledge to "do no harm" to the Earth's climate as Congress develops legislation under the mantle of energy security.

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Therefore, it is with deep regret that we state our staunch opposition to the discussion draft that is the subject of today's hearing. Its fatal flaws include:

- Destructive provisions that remove California's ability to lead other states and the nation in climate protection through its pathbreaking GHG standards for vehicles and fuels, and

- A regressive restriction of Environmental Protection Agency's authority to regulate greenhouse gases as air pollutants under the Clean Air Act (CAA), as recently clarified by the U.S. Supreme Court in *Massachusetts v. EPA*.

- Stringency levels for fuels and vehicles regulation that fall far short of what is needed to ensure an appropriate sector contribution to climate protection.

- Setting up weak and poorly enforceable programs for vehicles and fuels that will undermine the development of climate legislation that is truly comprehensive and effective.

The draft does offer helpful steps toward a new paradigm for managing carbon from vehicles and fuels; its low-carbon fuel standard and vehicle lifetime carbon emissions metric can be building blocks for integrating the sector into a comprehensive climate policy. Nevertheless, its overwhelming problems mean that Environmental Defense will vigorously oppose the draft in its current form.

## GUIDING PRINCIPLES

To help the committee understand our comments on the discussion draft, we will first briefly lay out some principles that guide our analysis. The basis for these principles and more in-depth explanations of Environmental Defense's recommendations for climate policy are given in our March 19, 2007 submission to the Committee.[1]

### Strong Climate Policy Equals Strong Energy Security Policy

One overarching principle pertains to the fact that strong, carbon-based vehicle and fuels policies will deliver substantial oil savings. In fact, we believe that clear carbon targets will result in more robust oil savings than policies justified solely under the banner of energy security and lacking a rigorous framework for evaluating progress and keeping the policy on track. Carbon is an ideal metric -- indeed, perhaps the most reliable and unambiguous measure -- for defining policies that will yield large benefits for both the environment and energy security.

For the reasons elaborated below, this discussion draft risks harming the climate under a rationale of improving energy security. Moreover, its weak framework and lack of market-based measures cast doubt on how much it will actually enhance energy security. No harm will be done to energy security -- in fact, energy security is likely to be far better achieved -- if this draft is set aside and the committee turns its attention to developing comprehensive climate legislation following the principles articulated here. That is the course of action we at Environmental Defense heartily recommend.

**Principles for Effective Climate Policy**

Environmental Defense is a member of the U.S. Climate Action Partnership (USCAP),[2] a coalition of leading corporations and environmental groups that is advocating prompt enactment of national legislation for mandatory, market-based reduction of U.S. GHG emissions over the shortest period of time reasonably achievable. The USCAP *Call For Action* articulates a set of principles that Environmental Defense fully endorses.

We highlight here the principle of **environmental effectiveness**: that climate protection requires immediate action with policies stringent enough to achieve the necessary reductions within timeframes that prevent an unacceptable level of GHG concentrations. USCAP recommends a mandatory emissions reduction pathway, specifying the levels at which an economy-wide GHG cap should be set with a range of short- to long-term targets. We advocate the more stringent end of this range, with the targets shown in Table 1.

Another key principle is that of **fairness**. As full committee Chairman John Dingell has stated, all sectors and industries must contribute to emissions reduction. Numerous considerations go into assessing fairness, including the relative contributions of emitting sectors, equity and environmental justice, cost-effectiveness, economic wherewithal, competitiveness and the

**Table 1. The More Stringent Levels for an Economy-Wide Cap, from USCAP *Call For Action***

| Year: | Cap relative to current levels: |
|---|---|
| 5 years from enactment | 100% |
| 10 years from enactment | 90% |
| 15 years from enactment | 70% |
| 2050 | 20% |

co-benefits of reductions from a given sector (such as the substantial national security co-benefits of transportation sector GHG reductions).

Environmental Defense believes that a useful starting point for defining an auto sector contribution to meeting an economy-wide carbon cap is given by the Climate Protection Targets developed below in Table 2, although we take care to point out that we in no way wish to pre-judge Congress's ultimate role in deciding fair allocations. According to EPA's latest GHG inventory report, transportation contributes 28% to total U.S. emissions on a direct basis.[3] The automobile sector (including cars and light trucks) is responsible for 60% of transportation emissions, or roughly 17% of the economy-wide total. The actual impact of motor fuel use on GHG emissions is greater, however, because upstream emissions add an additional 20% - 30% to the direct emissions as given in the inventory. For that reason, fuel-fuel-cycle (FFC) accounting -- as the discussion draft proposes for its low-carbon fuel standard -- is an appropriate way for estimating sector targets. On a FFC basis, the U.S. auto sector emitted 434 million metric tons of carbon (MMTc) in 2005, compared to direct emissions of 327 MMTc as given in EPA's inventory.[4]

Although we have not done an analysis for all transportation fuels, we analyzed the auto sector, for which the discussion draft also provides the most specific regulatory targets. Using an average emissions factor based on the GREET model,[5] Table 2 gives limits for the auto sector proportional to the more stringent USCAP targets from Table 1, along with the reductions necessary to achieve these limits relative to a business-as-usual (BAU) projection through 2050.[6] We refer to these targets, given in the second to last row of Table 2, as our "Climate Protection Targets" for the sector.

**Table 2. U.S. auto sector carbon emissions: business-as-usual (BAU) projection and Climate Protection Targets proportional to the more stringent USCAP targets**

| (emissions values in MMTc*) | 2005 | 2015 | 2020 | 2025 | 2050 |
|---|---|---|---|---|---|
| BAU projection | 434 | 502 | 551 | 605 | 849 |
| USCAP percentage limits (stringent – lenient) | | 100% – 105% | 90% – 100% | 70% – 90% | 20% – 40% |
| **Auto sector Climate Protection Targets** | | **434** | **390** | **304** | **87** |

*Million metric tons of carbon-equivalent greenhouse gases, evaluated here on a full fuel cycle basis.

A key point, as elaborated later in our comments, is that such targets could be applied to derive vehicles and fuels regulations. These regulations could take the form of conventional mile-per-gallon or GHG-per-mile emissions standards, or use the draft's concept of vehicle lifetime carbon emissions, in conjunction with a strengthened low-carbon fuel standard.

Also pursuant to the broader principles of fairness and cost-effectiveness, **it is important for transportation policies to engage all actors in the sector**: the vehicles industry, the fuels industries and consumers. We believe that practical considerations mean that the auto and fuels industries are the appropriate points of regulation for a sector policy. This leads to the concept of **treating the vehicle and fuel as a system**. Such an approach has served the country well in its success with control of conventional air pollution. The committee's discussion draft takes a useful step in this direction with its proposed carbon-based metrics for both vehicles and fuels.

Another critical lesson from the nation's successes on air quality -- which this committee has been instrumental in leading through its development of the original Clean Air Act (CAA) and the 1990 Amendments -- is **the importance of California's leadership**. Preserving such state leadership is another bedrock principle that guides our assessment of proposed climate legislation. This principle is shared by all leading environmental organizations in the United States, and as we detail below, it represents the foremost reason that we staunchly oppose this draft.

## WHY WE OPPOSE THIS DRAFT

Our opposition to the discussion draft is based on four serious concerns:

- its destructive provision to undermine California's leadership by taking away the state's ability to adopt GHG standards for vehicles and fuels;
- its limitation of EPA's authority to regulate GHGs as an air pollutant covered under the CAA as recently clarified by the U.S. Supreme Court in *Massachusetts v. EPA*.
- stringency levels for fuels and vehicles regulation that fall far short of what is needed and, in particular, fail to approach our recommended Climate Protection Targets.
- that by setting out a weak and poorly enforceable program for vehicles and fuels, the draft undermines the development of comprehensive and truly effective climate legislation such as this committee has professed it wishes to pursue.

Existing law, as confirmed by the Supreme Court, gives EPA substantial authority to control GHGs from new vehicles and engines. Since 1970, the combination of EPA's federal authority to clean up vehicles for conventional pollution and California's special authority to press for more rapid advances has produced huge health and environmental benefits. Simply maintaining existing law would allow EPA, California, and states adopting California standards the ability to achieve similar great strides in reducing global warming pollution from vehicles and fuels.

Yet this discussion draft proposes to overturn the Supreme Court's ruling and strip EPA and the states of their ability to act under the Clean Air Act. Instead, the draft would restrict future control authority to the Department of Transportation under a statute that does not even

provide for consideration of the need to reduce GHG emissions in determining "maximum feasible fuel economy" levels. We elaborate below on these most damaging provisions of the draft.

**This Discussion Draft Unacceptably Destroys State Leadership on Climate Protection and Restrict EPA's Authority to Regulate Greenhouse Gases**

Our first critical concern is that this draft proposes to eviscerate California's special authority under section 209(b) of the Clean Air Act to adopt emission standards that qualify for a waiver where those emission standards concern greenhouse gases. In other words, this would foreclose EPA granting a waiver to California for its AB 1493 (Pavley) motor vehicle GHG emission regulations that the California Air Resources Board (CARB) initially adopted in September 2004 and formally adopted in 2005.

This discussion draft would also proposes to limit EPA's authority as specified in the U.S. Supreme Court's *Commonwealth of Massachusetts v. EPA* decision of April 2, 2007 to promulgate motor vehicle GHG emission standards under section 202(a) of the CAA. Since these provisions would devastate key public health and welfare provisions of the CAA, we strenuously oppose this proposal.

Since the 1970's, the Clean Air Act has recognized the special status that California as the state that pioneered state motor vehicle emission regulations in the 1960's. The California Air Resources Board (CARB) has a reputation, indeed world-wide, reputation, as a highly professional agency that has advanced the development of technologies and strategies for reducing all major air pollutants. California's emission standards have set the pace for the United States and many other countries. Further, CARB has been a leader in the development of motor vehicle emission standards with periodic amendments that the federal government gradually has adopted.

In September 2004, CARB adopted motor vehicle GHG emission standards under state statutory authority AB 1493 (Pavley). Under the federal CAA, other states have the option of adopting the California standards. To date, eleven other states have adopted the California criteria pollutant and GHG standards, and several others are considering adoption. This GHG regulation is an important part of California's comprehensive initiative under AB 32, its Global Warming Solutions Act of 2006, to reduce GHG emissions from all State sources. Pursuant to AB 32 and an Executive Order of Governor Schwarzenegger, CARB is now in the process of developing a low carbon fuel standard, embarking on an essential extension of its proven vehicle and fuel pollution control strategies to address the new challenge of climate protection.

Under its motor vehicle GHG emission regulations, auto manufacturers can come into compliance with the regulation's GHG standards not only by improving powertrain efficiency, but also by producing vehicles that use low-carbon fuels. Thus, biofuels, for example, that are produced with low or negative net carbon emissions due to plant growth absorption of atmospheric carbon, or electricity that is generated with low carbon inputs, such as wind and solar power, provide alternative compliance strategies for auto makers.

That these California initiatives are powerful tools in encouraging automaker and fuel provider innovations should be evident. Indeed, a perusal of the committee's discussion draft indicates how much we have all learned from the actions that California has been taking under AB 1493 and 32 over the last five years. Certainly, it is essential to have national legislation that promotes low carbon fuel research, fosters production and use of low carbon fuels where carbon intensity is assessed on a full fuel cycle basis and removes obstacles to expansion of low carbon fuel infrastructure. However, such legislation can and should move forward without eviscerating

the authority of the nation's premier state vehicle emission reduction laboratory that has done so much historically to foster development of low emission technologies and is now doing so much to reduce motor vehicle GHG emissions on a full fuel cycle basis.

Further, by eliminating California's authority under section 209(b) to adopt motor vehicle GHG emission standards, the draft would constrain California's ability to provide leadership, not only for that state, but for other states that then have the option of adopting that program as well as for other countries that look to CARB for regulatory wisdom, and not only today, but tomorrow and in future decades. Preserving California's leadership in this regard is an important way that U.S. policy can account for the global dimension's of climate change.

Section 209(b) of the CAA establishes California as a unique state laboratory in our federalist system to devise technologically advanced motor vehicle emission programs that will benefit public health and the environment. California is now serving the country well as it moves forward with its GHG regulations for vehicles and fuels. Federal agencies responsible for developing motor vehicle standards relating to GHG emissions can only benefit from the California experience. Auto makers have challenged the California GHG regulations in federal court in California and Vermont, one of the states that has adopted the California program. A federal court trial of the GHG regulations in Vermont has just been completed with post-trial briefs now in preparation. Auto manufacturers are having their day in court to contest these regulations. They are also aggressively urging EPA not to grant California a section 209(b) waiver. This is their right. However, the Congress should not eviscerate California's authority to move forward with a state-based motor vehicle GHG emissions reduction program just as it is engaged in a crucial undertaking to address the country's status as the largest emitter of GHGs in the world at a time

when the International Panel on Climate Change has achieved a scientific consensus on the increasing role of anthropogenic GHG emissions in global warming.

**This Draft Falls Short of What Is Needed to Limit GHG Emissions from Vehicles and Fuels**

As given above in Table 2, a concerted effort must be made to limit GHG emissions from vehicles and fuels in order for the sector to make an appropriate contribution to climate protection. We have examined the discussion draft's proposed regulations for Alternative Fuels Standards (AFS), its Low-Carbon Fuel Standards (LCFS), its Corporate Average Fuel Economy (CAFE) standards, and its Vehicle Lifecycle Carbon Emissions (VLCE) reporting requirements. These critical components of the draft do provide measurable results for reducing GHG emissions. However, as we elaborate in this section, the draft falls far short of the Climate Protection Targets we articulate above.

*Analysis of the draft's LCFS*

The LCFS is a crucial building block for effective climate policy, and we welcome inclusion of an LCFS in the discussion draft even though its levels need to be stronger. Similarly, the VLCE metric can serve as a useful building block for a stronger policy framework that could regulate vehicles and fuels together as a system, with stringency levels derived so as to ensure sector targets consistent with a strong economy-wide climate protection program.

The draft develops its LCFS, specified as an annual average fuel carbon intensity standard, based on its AFS requirements for increasing volumes of qualifying alternative fuels, ramping up to 35 billion gallons by 2025 [§211(t)(3)(A)], plus assumptions about the carbon intensity of the alternative fuel pool [§712(b)(2)]. The results of our preliminary analysis of how these requirements translate to net carbon intensity of the motor fuel pool are given here in Table 3.

| Table 3. Preliminary estimates of overall motor fuel pool carbon intensity implied by the Discussion Draft* | | | | | |
|---|---|---|---|---|---|
| **Year** | **Gasoline demand** | **AFS requirement (billion gal/yr)** | **Alternative fuel carbon intensity (vs. gasoline)** | **Residual gasoline demand (billion gal/yr)** | **Overall carbon intensity reduction** |
| 2013 | 221.7 | 14 | 0.74 | 208 | 1.6% |
| 2014 | 225.2 | 15 | 0.72 | 210 | 1.9% |
| 2015 | 228.6 | 16 | 0.69 | 213 | 2.1% |
| 2016 | 232.2 | 17 | 0.68 | 215 | 2.4% |
| 2017 | 235.8 | 18 | 0.66 | 218 | 2.6% |
| 2018 | 239.5 | 19 | 0.64 | 221 | 2.8% |
| 2019 | 243.0 | 20 | 0.63 | 223 | 3.0% |
| 2020 | 246.8 | 21 | 0.62 | 226 | 3.3% |
| 2021 | 250.7 | 23 | 0.60 | 228 | 3.7% |
| 2022 | 254.4 | 26 | 0.57 | 228 | 4.4% |
| 2023 | 258.4 | 29 | 0.55 | 229 | 5.0% |
| 2024 | 262.4 | 32 | 0.53 | 230 | 5.7% |
| 2025 | 266.3 | 35 | 0.52 | 231 | 6.3% |

*Derived from EIA Annual Energy Outlook 2007 projections for light vehicle fuel only, assuming light vehicle fuel accounts for 68% of all motor vehicle and non-road fuel. Because these preliminary calculations assume volumetric (rather than energy-equivalent) substitution, net carbon intensity reductions will be lower if significant portions of the alternative fuel are ethanol (as opposed to, say, renewable diesel, which has greater rather than lower energy density vs. gasoline).

These estimates show that the draft will result in a 3.3% reduction in average fuel carbon intensity by 2020. This is but one-third of the level targeted by California's proposed LCFS for that year. By 2025, this draft's LCFS implies a 6.3% reduction in average fuel carbon intensity, and an extrapolation of its requirements (without additional carbon-based stringency requirements) suggests little additional reduction in average fuel carbon intensity by 2050. A much greater degree of fuel decarbonization in both near- and long-term is needed to meet sector Climate Protection Targets such as those we identify above in Table 2. Moreover, although we emphasize the need to protect the climate, we believe the draft's targets also fall far short of what can be done to enhance energy security, the ostensible goal of this draft.

In addition to the weakness of the draft's proposed LCFS levels, we raise a deeper question about how the levels are determined. The draft misses an important opportunity to ensure that the level of carbon intensity reductions sought from transportation fuels reflect what society

actually needs. Instead of tying the LCFS to today's necessarily limited determinations of feasibility, as driven in turn by the AFS provisions, the standards should be established based on the need to reduce emissions from the sector overall reflecting an appropriate balance of obligation between the fuels and vehicles industries.

*Analysis of the draft's CAFE standards plus LCFS*

The draft specifies CAFE standards reaching 36 mpg for cars by 2022 and 30 mpg for light trucks by 2025. These targets represent rough extensions, with application to cars, of the very limited degrees of fuel economy improvement recently required by the Bush Administration's recent light truck CAFE rules. Giving NHTSA the authority to restructure automobile standards based on attributes is helpful for improving the competitive fairness of the standards among automakers. Such a structure, however, along with the draft's provisions that would enable setting standards lower than the draft's targets, result in little confidence that even these weak levels will be attained.

Figure 1 (at end of this document) illustrates our estimates of the draft's impact on auto sector carbon emissions, shown in comparison to a business-as-usual (BAU) projection and the range of sector emissions limits proportional to the USCAP economy-wide targets given in Table 1. In this analysis, we assume that no further increases in LCFS or CAFE stringency are made after the latest targets given by the draft. As shown in the figure, the targets given in the discussion draft slow the growth in auto sector GHG emissions, with a temporary pause in growth over roughly 2020-25 at a level 12% higher than the current level. But these reductions amount to less than 40% of the reductions needed to be on track to meet the USCAP-based

Climate Protection Target for the sector in 2025. And they clearly fall far short of what is needed to put the sector on a path to deep reductions by mid-century.

Figure 2 shows the overall full-fuel-cycle GHG reductions we estimate for the discussion draft. It breaks down reductions by contribution from higher CAFE standards and contribution from the LCFS over the auto sector (light duty vehicle) motor fuels, and shows the additional reductions from the LCFS over other vehicles (non-light-duty and non-road). In 2015, about 60% of the total auto sector reduction of 18 MMTc is attributable to the LCFS. As the vehicle stock turns over and more efficient vehicles replace older ones, the portion attributable to the CAFE standards increases, and from 2030-2050 represents about 75% of the reductions, which reach 135 MMTc by 2030 and 200 MMTc by 2050. Because the discussion draft does not specify efficiency improvement requirements for non-light-duty vehicles, this latter portion of reductions is relatively small, reaching just under 14 MMTc by 2050.

**This Draft Risks Undermining the Development of Comprehensive Climate Legislation**

This draft could make it harder to build consensus later for an effective economy-wide carbon cap because it might set up expectations among other industries that they too should bear little of the burden of reducing emissions. Alternatively, other industries might come to fear that they would be saddled with a greater proportion of the burden, making the politics of building consensus that much harder. Thus, if this draft were to go into law, it could make it more difficult for Congress to enact the kind of comprehensive climate legislation that the committee's leadership has stated that it wishes to pursue.

Moreover, because its key provisions would lock in weak measures for a critical, nearly twenty-year period -- a period when strong and clear policy is absolutely essential for putting the

United States on a path to avoiding dangerous climate change -- enactment of the draft's proposals would make it much more difficult to manage the dangers of global warming. This is another way the discussion draft appears to fail the "do no harm" test with respect to climate policy.

**Enforceability Considerations**

Existing vehicle and fuels standards under the CAA are backed by strong certification, auditing and enforcement procedures. This draft's enforcement procedures are lacking by comparison. Of course, without a clearly defined environmental outcome metric (such as carbon), it is difficult to specify robust procedures for ensuring that a policy achieves its stated goals.

Certification, auditing and enforcement procedures of comparable quality to those that now cover fuels under the CAA will need to be developed for the LCFS. The evaluations, however, must go beyond fuel properties, since lifecycle assessment is needed to fully characterize a fuel's GHG impact. Fuels must have certified lifecycle GHG impact numbers for detailed, verifiable, tracking of fuel carbon intensity. This can be accomplished with an enhanced Identification Number system that builds upon what EPA is developing for the renewable fuel standard.

Any LCFS needs to take into account the environmental implications of the full life cycle of fuel production and be implemented in a way that avoids increasing conventional air pollution. Our current judgment is that in addition to climate change, issues related to land conversion, land management, and water impacts can, and should, be addressed through the metric of carbon.

The discussion draft does not cover aviation fuels. Air travel is rapidly growing and while aircraft efficiency has been increasing steadily, it does not come close to offsetting growth in GHG emissions, let alone limiting aviation emissions to appropriately safe levels. Although broader issues need to be addressed for incorporating aviation into under economy-wide carbon

cap, there is no doubt that the carbon intensity of aviation fuel will need to be reduced, and so the LCFS should be expanded to cover it.

Finally, fuel certifications under an LCFS must be based on actual operations, not modeling assumptions or plans regarding fuel production, and must be subject to high standards of monitoring and evaluation. Further analysis and development is needed for appropriate authorizing provisions to ensure that EPA has the requirements and authority it needs to administer an effective LCFS. Environmental Defense will be happy to provide additional advice to the committee in this regard.

## CONSTRUCTIVE ELEMENTS OF THE DISCUSSION DRAFT

Although, for the reasons stated, Environmental Defense will vigorously oppose this discussion draft in its current form, the draft does have constructive elements that can become building blocks for handling vehicles and fuels as part of comprehensive climate policy. The Low Carbon Fuel Standard (LCFS) combined with the Vehicle Lifetime Carbon Emissions (VLCE) metric can be combined to establish a carbon management framework that, properly administered, could guide the sector toward achieving deep GHG reductions. Moreover, using such a carbon-based framework to transform the sector will yield far greater reductions in petroleum dependence, and thereby do much more to enhance America's energy security, than the weak and poorly enforceable vehicles and fuels standards proposed in the discussion draft.

### The LCFS is a Crucial Tool for Decarbonizing Transportation Fuels

There is no doubt that "decarbonization" -- progressively reducing the full-fuel-cycle GHG emissions impact -- of motor fuels is essential for climate stabilization. For example, look-

ing at the likely doubling of VMT growth expected by mid-century along with even aggressive vehicle efficiency and advanced powertrain improvements,[7] we estimate that it will be necessary to have nationwide average motor fuel carbon intensity of roughly 25% of what it is today.

Performance-based policy is a market-based approach that sets enforceable, fuel-neutral milestones for both the near- and long-term, ensuring steady progress toward quantifiable targets that are needed to meet a carbon cap. The LCFS provisions in the discussion draft are therefore a step in the right direction. A LCFS is now under development in California, and Congress should follow that state's leadership in extending this essential policy tool nationwide, while at the same time preserving California's ability to lead with standards that are promulgated earlier and more stringently than corresponding Federal standards.

**VLCE is a Valuable Metric for Ensuring Progress**

The Vehicle Lifetime Carbon Emissions (VLCE) metric proposed in the draft, if properly designed and applied, could become another building block for effective climate policy. This metric integrates vehicle efficiency and alternative fuel use capability with the LCFS, thereby creating a mechanism for treating the vehicle and fuel as a system. Thus, the VLCE can be used to derive regulatory targets for both vehicles and fuels consistent with a necessary Climate Protection Target for the sector such as that which we give in Table 2.

The discussion draft specifies VLCE as only a reporting requirement. The concept, however, is potentially much more powerful than that, and can be developed into as a tool for administering performance-based regulatory policies for vehicles and fuels.

**Administering Vehicles and Fuels Standards under an Economy-Wide Carbon Cap**

As drafted, this draft hints at a future paradigm for handling both climate and energy impacts of America's transportation system more effectively than they have been handled to date. Unfortunately, the draft's core provisions retain existing energy policy paradigms which fail to create a long-term market signal under which promising new fuels can thrive. It is time to move beyond conventional approaches based on alternative fuels mandates and subsidies, and beyond setting standards based on technical considerations without regard to environmental need.

The LCFS is an ideal tool for moving forward in this regard if its levels were to be in line with transportation fuels sector carbon targets that are in turn derived from an economy-wide carbon cap. Such a standard would do much more to build a long-term business case and stimulate investments in low-carbon renewable fuels than arbitrary targets such as the 35 billion gallon AFS targeted for 2017 in the President's "20 in 10" proposal or targeted for 2025 by this draft. An LCFS, set to tighten in line with a declining economy-wide carbon cap and appropriate allocations of reduction requirements to the sector, would create a durable value basis for new fuels that fosters a robust market and transcends the price volatility of oil.

Performance-based regulation, evaluated using a carbon metric, can similarly be used to spur a transformation to more efficient, low-carbon vehicle technologies. Taken together -- that is, treating the vehicle and fuel as a system -- and administering the sector policy so as to meet a fair allocation under a declining economy-wide cap, the result would be a robust carbon management framework for vehicles and fuels that both protects the climate and enhances energy security.

**Figure 1. U.S. auto sector GHG emissions with Discussion Draft targets, in comparison to business-as-usual (BAU) projection and targets proportional to USCAP**

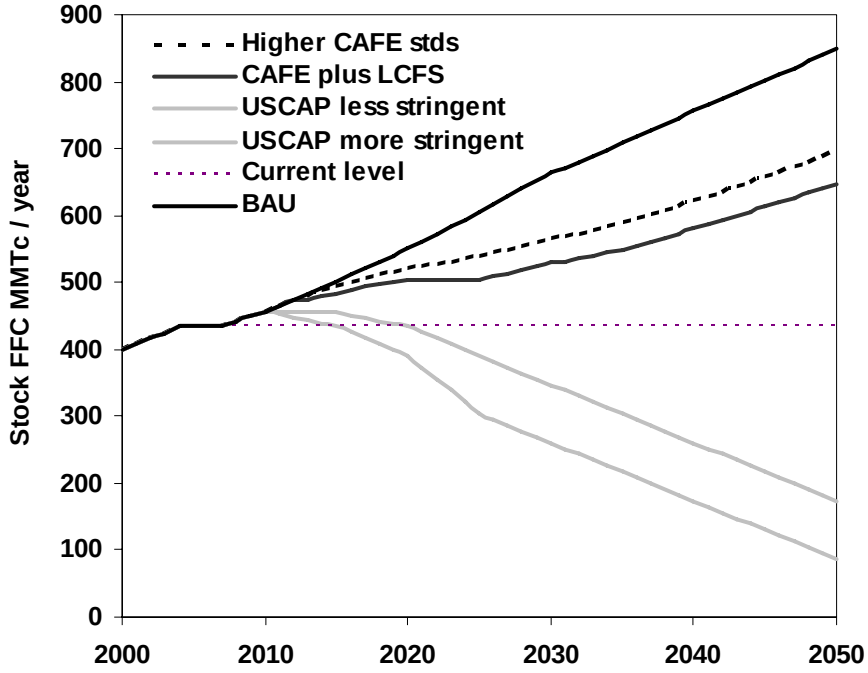
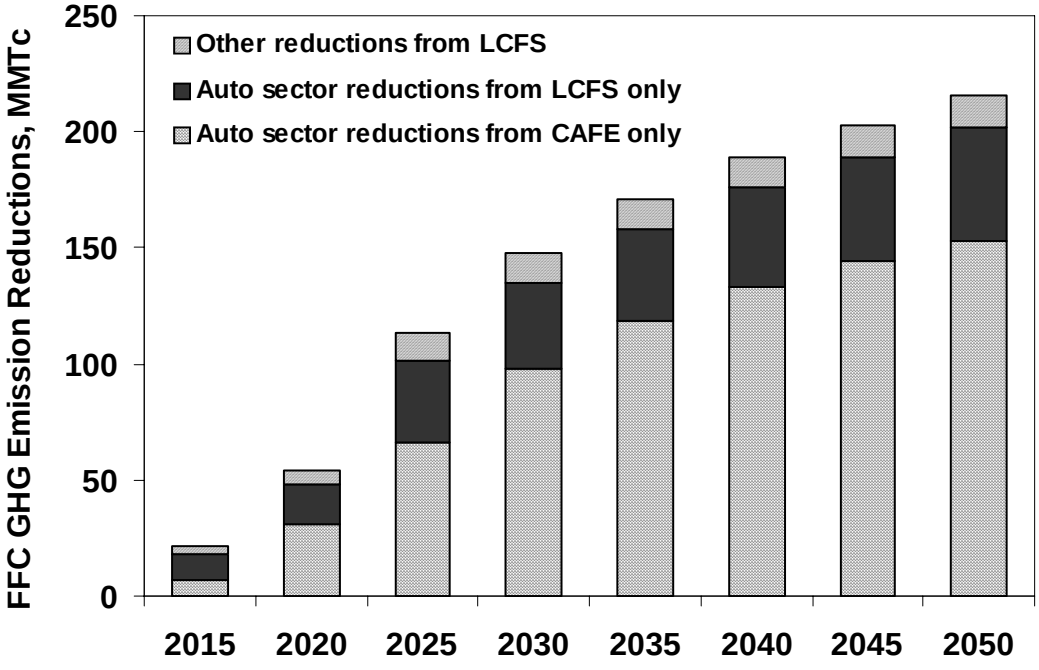



**Figure 2. Total GHG emissions reductions implied by Discussion Draft standards**



# ENDNOTES

[1] See "Toward a Fair and Effective Climate Policy for the United States," Environmental Defense response to the U.S. House of Representatives Committee on Energy and Commerce and Subcommittee on Energy and Air Quality, March 19, 2007.

[2] See www.us-cap.org.

[3] U.S. EPA (2007), Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005.

[4] Note that we are using carbon (C) rather than $CO_2$ mass basis numbers here; the corresponding $CO_2$-equivalent numbers would be higher by a factor of 44/12 (3.667).

[5] GREET is the DOE-sponsored fuel cycle analysis model developed at Argonne National Laboratory; see http://www.transportation.anl.gov/software/GREET/index.html.

[6] The business-as-usual projection is based on DOE's 2007 Annual Energy Outlook, extended through 2050 by applying VMT growth rates from DOE's VISION model. This BAU projection assumes little change in vehicles and fuels and so is mainly driven by growth in VMT, which is expected to increase at an average rate of 1.8%/yr 2005-2030 and 1.6%/yr 2005-2050. In other words, without new policies to restrain growth in automobile travel demand, VMT in 2050 is projected to be 2.1 times the 2005 level.

[7] For "aggressive vehicle efficiency and powertrain improvements," we assume steady progress toward reducing average vehicle energy use per mile by a factor of three, corresponding to achievement by mid-century of fleetwide vehicle technologies similar to those demonstrated by the PNGV program's goal of tripled fuel economy.

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### PROFESSIONAL EXPERIENCE

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Research and policy analysis on automotive environmental issues, with an emphasis on strategies for addressing transportation sector petroleum use and greenhouse gas emissions. Assessment of conventional and advanced vehicle technologies, development of market-based policies and consumer information programs. Based in the Detroit metropolitan area in support of Environmental Defense's Washington, DC-based National Climate Campaign.

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Research, writing, and policy analysis on automotive environmental issues; advisement on strategies for "greening" the automobile and other aspects of sustainable transportation; writing and presentations for consumer, business, technical, and policy audiences.

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Research, advocacy, policy analysis, and consumer education regarding energy efficiency. Directed ACEEE's Transportation Program, including studies of sector energy use and greenhouse gas emissions, and general topics regarding energy and climate strategy, economic and environmental impacts of energy policies, and energy efficiency in buildings.

**Visiting Scholar** — Department of Physics and School of Natural Resources and Environment
January – December 1998 — University of Michigan, Ann Arbor, MI 48109

Research and analysis of next-generation automotive technologies as well as issues and barriers faced in deploying such technologies to achieve higher vehicle efficiency and lower greenhouse gas emissions. This sabbatical appointment enabled collaboration with university researchers and facilitated contact with U.S. automobile manufacturers and other auto-industry related businesses and institutions in the region.

### PERSONAL INFORMATION

**Address**
6327 Todds Lane, Dexter, MI 48130
Cell phone: 313-727-7429
E-mail: jmdgb@earthlink.net

Citizenship: U.S.A.
Place of birth: Bethesda, Maryland
Date of birth: October 11, 1952

**Staff Scientist**
March 1988 – October 1990

National Audubon Society
Environmental Policy Analysis Department
New York, NY 10022

Research and policy work on environmental impacts of energy use, including nuclear radiation, electric power transmission, air pollution, and greenhouse gas emissions; presentations, testimony, and writing on these subjects for technical audiences and the public.

**Research Assistant**
August 1983 – March 1988

Center for Energy and Environmental Studies
Princeton University
Princeton, NJ 08544

Research on energy use in buildings, including measurement and analysis of thermal loads and building components; surveys and analysis of behavioral factors influencing energy consumption. Assisted teaching classes in thermodynamics, controls, and fluid mechanics.

**Intern / Research Assistant**
June – August 1982

Solar Energy Research Institute
Golden, CO 80401

Design of a direct-contact heat exchange experiment for a pentane Rankine cycle and feasibility study of a self-sustaining ocean upwelling pump.

**Teaching Assistant**
September 1981 – June 1983

Department of Mechanical Engineering
North Carolina State University
Raleigh, NC 27650

Taught thermodynamics and assisted with courses in heat transfer and air conditioning.

**Systems Analyst**
May 1978 – August 1981

Computing Center
North Carolina State University
Raleigh, NC 27650

Systems analysis and development for the campus time-sharing system; teaching short courses; writing documentation for and assisting users of the campus computing facilities.

**Salesman, technician**
October 1977 – January 1978

Reeves-Davis Construction Co.
708 East Ash Street
Goldsboro, NC 27350

Promotion, sales, and installation of residential solar heating systems and energy conservation measures; installation and maintenance of conventional heating systems.

**Research Assistant**
November 1976 – August 1977

The World Bank
Development Research Center
Washington, DC 20433

Research and macroeconomic modeling of international development programs.

**Mathematician**
January 1974 - March 1976

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Mathematical analysis and development of software for satellite navigation.

## EDUCATION

**Ph.D., Mechanical Engineering** Princeton University
June 1988 Princeton, New Jersey 08544

Thesis: *Modeling, diagnosis, and implications for improving the energy efficiency of centrally heated apartment buildings.* Coursework and comprehensive examinations were taken in applied mathematics, control theory, fluid mechanics, economics and public policy.

**M.S., Mechanical Engineering** North Carolina State University
August 1983 Raleigh, North Carolina 27650

Thesis: *Thermal performance evaluation of the NCSU Solar House: heating season results and data analysis.* Coursework in thermodynamics, heat transfer, fluid mechanics, and mathematics.

**B.A., Mathematics** Catholic University of America
June 1974 Washington, DC 20064

Coursework included mathematics, philosophy, humanities, and social sciences.

## PROFESSIONAL AFFILIATIONS

Affiliate, Transportation Research Board (TRB), National Research Council
Chair (1996–2000), Committee on Energy
Member, Committee on Alternative Fuels

Associate Member, Society of Automotive Engineers (SAE)

Member, American Solar Energy Society (ASES)

## HONORS AND AWARDS

German Marshall Fund Environmental Fellowship (1997)

General Electric Foundation Fellowship, Princeton University (1984-87)

Guggenheim Fellowship, Princeton University (1983)

Phi Beta Kappa and graduation summa cum laude (1974)

National Merit Scholarship, Catholic University of America (1970-74)

# I Committee on Energy and Commerce
# U.S. House of Representatives

**Witness Disclosure Requirement - "Truth in Testimony"**
**Required by House Rule XI, Clause 2(g)**

**Your Name: John DeCicco**

| | | |
|---|---|---|
| 1. Are you testifying on behalf of a Federal, State, or local Government entity? | Yes | No<br>X |
| 2. Are you testifying on behalf of an entity that is not a Government entity? | Yes<br>X | No |

3. Please list any Federal grants or contracts (including subgrants or subcontracts) that you personally have received on or after October 1, 2004:

   None

4. Other than yourself, please list which entity or entities you are representing:

   Senior Fellow, Environmental Defense

5. If your answer to the question in item 2 in this form is 'yes,' please list any offices or elected positions held or briefly describe your representational capacity with the entities disclosed in the question in item 4:

| | | |
|---|---|---|
| 6. If your answer to the question in item 2 is 'yes,' do any of the entities disclosed in item 4 have parent organizations, subsidiaries, or partnerships that you are not representing in your testimony? | Yes<br>X | No |

7. If the answer to the question in item 2 is 'yes,' please list any Federal grants or contracts (including subgrants or subcontracts) that were received by the entities listed under the question in item 4 on or after October 1, 2004, that exceed 10 percent of the revenue of the entities in the year received, including the source and amount of each grant or contract to be listed:

   Please see attached

**Signature:** John M. DeCicco **Date:** 6/4/07

**Environmental Defense, Inc**
**List of Awarded Federal Grants**
**As of March 31 2007**

| Federal Agency | Project Title | Award # | Award Date | Grant Period | Award Amount | |
|---|---|---|---|---|---|---|
| Environmental Protection Agency | Int'l GHG/TC Russia | X4-83199301 | 08/31/04 | 10/01/04 - 9/30/05 | 240,000 | |
| Environmental Protection Agency | Int'l GHG/TC Ukraine | X4-83199301 | 09/06/05 | 10/01/05 - 9/30/06 | 125,000 | |
| Environmental Protection Agency | Int'l GHG/TC Ukraine | X4-83199301 | | 1/01/07 - 12/31/07 | 50,000 | |
| National Fish and Wildlife Foundation | Utah Prairie Dog Consevation | 2004-0070-000 | 05/12/04 | 10/1/03- 6/30/05 | 43,400 | |
| National Fish and Wildlife Foundation | Chalk Mountain WMA | 2004-0154-000 | 06/23/04 | 10/1/03-4/30/05 | 85,426 | |
| National Fish and Wildlife Foundation | Incentives for Bog Turtle Recovery on Private Land | 2004-0073-000 | 05/19/04 | 1/1/04-3/1/05 | 60,000 | |
| National Fish and Wildlife Foundation | Rio Grande (TX) Local Water Trust | 2003-0174-000 | 01/11/04 | 4/1/03-5/31/05 | 150,000 | |
| National Fish and Wildlife Foundation | Willow Flycatcher Habitat Restoration | 2005-0043-000 | 01/18/05 | 10/1/04 - 9/30/05 | 45,800 | |
| National Fish and Wildlife Foundation | PLHP/WFIP West | | 12/16/05 | 10/1/05-9/30/06 | 29,125 | |
| National Fish and Wildlife Foundation | Habitat Restoration for Black-Capped Vireo | 2005-0033-000 | 01/06/05 | 1/1/05 - 12/31/06 | 65,300 | |
| National Fish and Wildlife Foundation | Habitat Restoration for Endangered Houston Toad | 2005-0270-000 | 10/14/05 | 10/1/05-9/30/06 | 47,074 | $ 19,037 is Non-Federal |
| National Fish and Wildlife Foundation | Bay Region Nutrient Use Efficiency Initiative | 2006-0113-002 | 09/18/06 | 7/1/06 - 6/30/09 | 582,500 | |
| National Fish and Wildlife Foundation | Utah Prairie Dog Consevation II | 2006-0151-000 | 09/25/06 | 1/1/06 - 8/31/07 | 35,080 | |
| National Resources Conservation Service | Bog Turtle Monitoring Project in Hudson Valley Region | 68-2C31-4-804 | 10/25/04 | 9/30/04 - 9/30/05 | 20,000 | |
| National Resources Conservation Service | WFIP Mid Atlantic | | 07/11/05 | 5/23/05 - 1/1/06 | 21,000 | |
| National Resources Conservation Service | Bog Turtle Wetland Restoration Initiative in Maryland | 68-3B19-5-503 | 02/24/06 | 10/1/05 - 9/30/08 | 106,000 | |
| National Resources Conservation Service | WFIP Mid Atlantic | | 02/24/06 | 10/1/05 - 9/30/08 | 56,250 | |

**Environmental Defense, Inc**
**List of Awarded Federal Grants**
**As of March 31 2007**

| Federal Agency | Project Title | Award # | Award Date | Grant Period | Award Amount |
|---|---|---|---|---|---|
| U.S. Fish and Wildlife Services | Restoration ad Enhancement of Habitats for the Endangered Ocelot | 1448-20181-05-G902 | 09/27/04 | 6/1/04 - 5/31/05 | 87,300 |
| U.S. Fish and Wildlife Services | Bog Turtle Habitat Management Recommendations | | 07/11/05 | 6/13/05 - 12/31/08 | 24,834 |
| U.S. Fish and Wildlife Services | Utah Prairie Dog | 60181-3-G | 09/07/04 | 10/1/04 - 9/30/09 | 56,590 |
| U.S. Fish and Wildlife Services | PLHP/WFIP TX LCAP Hill Country | | 06/03/05 | 6/1/05 - 9/30/05 | 18,099 |
| U.S. Fish and Wildlife Services | Landowners Conservation Assistance Program | 1448-20181-05 | 10/19/05 | 10/1/05-9/30/06 | 97,000 |
| U.S. Fish and Wildlife Services | Back from the Brink Conservation Initiative | 201815J831 | 10/31/05 | 10/1/05-9/30/06 | 25,000 |
| U.S. Fish and Wildlife Services | Bog Turtle Habitat Management Recommendations | 50120-5981-000 | 07/11/05 | 6/24/05 - 12/31/08 | 7,320 |
| U.S. Fish and Wildlife Services | Maryland Bog Turtle Habitat Restoration Projects | 50120-5981-000 | 07/11/05 | 6/24/05 - 12/31/08 | 23,368 |
| U.S. Fish and Wildlife Services | Bog Turtle Restoration | 50181-5J035 | 02/24/06 | 8/31/06 - 8/30/08 | 30,000 |
| Center for Disease Control | | 200-2006-M-18909 | 09/12/06 | 8/30/06-8/30/07 | 26,474 |
| Texas Parks and Wildlife Department | Monitor Status of Black-capped Vireo in TX | 129862 | 09/15/03 | 11/01/03-10/3106 | 47,300 |
| Texas Parks and Wildlife Department | Conservation of Houston Toad in TX | 129864 | 09/15/03 | 11/01/03-10/31/06 | 106,499 |
| | | | | **Grand Total** | **$ 2,311,739** |