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STRUCTURE OF THE FEDERAL FUEL TAX AND THE LONG-TERM VIABILITY OF THE HIGHWAY TRUST FUND

(110–22)

HEARING

BEFORE THE

SUBCOMMITTEE ON
HIGHWAYS AND TRANSIT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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March 23, 2007

SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Highways and Transit

FROM: Subcommittee on Highways and Transit Staff

SUBJECT: Hearing on "Structure of the Federal Fuel Tax and the Long-Term Viability of the Highway Trust Fund"

PURPOSE OF HEARING

The Subcommittee on Highways and Transit is scheduled to meet on Tuesday, March 27, 2007, at 2:00 p.m., to receive testimony on the structure of the federal excise tax on motor fuels, which generates the vast majority of the revenues that are deposited into the federal Highway Trust Fund. The hearing will examine how this tax structure affects the long-term financial viability of the Highway Trust Fund, which contributes most of the funding for the federal highway and transit programs. This will be the first in a series of hearings on financing investment in our surface transportation infrastructure. The Subcommittee will hear from the Deputy Director of the Congressional Budget Office (CBO), an economist from the transportation construction industry, and transportation experts in the research community.

BACKGROUND

Federal-Aid Highway Program

The Federal-Aid Highway Program (Federal highway program) is a federally-assisted, state-run program in which the states plan, design, and construct highway projects as well as operate and maintain major roads. A primary role of the federal government is to provide financial resources and technical assistance to state departments of transportation to construct, preserve, and improve the National Highway System and other urban and rural roads that are eligible for federal assistance although they are not part of the System.

There are nearly four million miles of public roads in the United States, but only about 965,000 miles of these roads are in the National Highway System. Governments at all levels provided $147.5 billion in 2004 for highways and bridges in the form of capital outlay, maintenance and operations, highway safety and enforcement, and debt service. Federal investment of $33.1 billion in that year accounted for 22.4 percent of the total.

Federal assistance for highway construction dates back to the early 20th century when Congress provided $500,000 in the Post Office Appropriations Bill of 1912. A greatly expanded federal role began with the Federal-Aid Highway Act of 1944, which authorized the construction of a "National System of Interstate Highways." The construction program did not get off to a good start due to, among other things, the lack of a sound financing mechanism.

The landmark Federal-Aid Highway Act of 1956 authorized a 41,000-mile National System of Interstate and Defense Highways and established the Highway Trust Fund (HTF). Receipts from federal excise taxes levied on motor fuels and various highway-related products such as tires and heavy vehicles are deposited into the HTF to be used to finance the Federal highway program. The motor fuel tax is the most important among the various excise taxes, as it provides about 90 percent of all HTF revenues. This dedicated funding mechanism provides financial certainty for the Federal highway program.

Federal Public Transportation Program

The federal public transportation, or transit, program is a federally-assisted and administered program. Federal transit assistance comes in the form of grants. To obtain assistance, a grant applicant (publicly-owned operators of transit systems, local governments including metropolitan planning organizations, states, and Indian tribes) must submit an application to the Federal Transit Administration. When the grant is approved, federal funds are obligated to enable the agency to proceed with its procurement process or receive reimbursement for expenditures that have already been made.

In 2004, there were 640 transit operators serving urbanized areas, of which 600 were public agencies. These agencies operated 120,659 vehicles, 57 percent of which were buses and 92,520 of which were in areas with more than one million people. Rail systems comprised 10,892 miles of track and 2,961 stations. There were 793 bus and rail maintenance facilities in urban areas with more than 5,000 people. The most recent data (for the year 2000) show there were 19,185 transit vehicles operating in rural areas with population below 5,000 people. Americans took 10.1 billion trips on public transportation in 2006, the highest transit ridership in 49 years.

Federal assistance for public transportation was first authorized in the Urban Mass Transportation Act of 1964. Congress recognized that the movement of people and goods was being jeopardized by the deterioration or inadequate provision of public transportation facilities and services, and set the stage for the current program of financial assistance for public transportation. The Federal-Aid Highway Act of 1973 for the first time allowed highway funds to be used for transit capital purchases. At that time, passenger fares accounted for about one-third of the average system's operating funds, and demand for dedicated federal assistance was high.

Since 1982, a portion of the fuel tax revenue has been deposited into the Mass Transit Account of the HTF to fund public transportation projects. Federal transit programs are funded

mostly with revenues in the Mass Transit Account (81 percent). The remainder of funding for public transportation programs comes from general revenues.

Highway Safety Programs

In addition to the Federal-aid Highway Program and the federal transit programs, the HTF also funds programs administered by the Federal Motor Carrier Safety Administration (FMCSA) and some of the programs administered by the National Highway Traffic Safety Administration (NHTSA). FMCSA oversees large truck and bus safety and the agency's programs are entirely funded by HTF revenues. NHTSA oversees highway and passenger vehicle safety. The agency's operational programs and research related to driver behavior are funded out of the HTF, while those geared particularly to the safety of vehicles are traditionally funded out of general revenues.

Changing Structure of the Federal Fuel Tax

When the HTF was established in 1956, the excise tax rate for highway use of motor fuels was three cents per gallon. Since then, the tax rate and structure have been revised several times. The current rates of 18.4 cents per gallon of gasoline and 24.4 cents per gallon of diesel went into effect on October 1, 1993.

Until 1982, all receipts from the motor fuel tax were deposited into the HTF. The Surface Transportation Assistance Act of 1982 increased the tax rate from four cents per gallon to nine cents per gallon, established separate accounts for highways and transit within the HTF, a Highway Account and a Mass Transit Account. One cent of the nine cents per gallon was deposited into the Mass Transit Account.

The Deficit Reduction Act of 1984 established differentiated rates for gasoline, used primarily by passenger cars, and diesel, used mostly by commercial trucks. This Act also raised the fuel tax rate for diesel by six cents to account for the additional wear to highway pavement caused by heavy trucks. The six-cent differential between gasoline and diesel has remained in place ever since.

The Superfund Amendments and Reauthorization Act of 1986 raised the rates by 0.1 cent per gallon to 9.1 cents per gallon of gasoline and 15.1 cents per gallon of diesel, and deposited the revenues generated from that increase into the newly-established Leaking Underground Storage Tank Trust Fund. The Omnibus Budget Reconciliation Act of 1990 allowed the increase to lapse on September 30, 1996.

The Omnibus Budget Reconciliation Act of 1990 raised the fuel tax rates by 5 cents per gallon to 14.1 cents per gallon of gasoline and 20.1 cents per gallon of diesel. But for the first time a portion of the tax revenue, 2.5 cents per gallon, was put into the general fund for deficit reduction. Revenues from that 2.5 cent per gallon tax were restored to the HTF on October 1, 1995.

The Omnibus Budget Reconciliation Act of 1993 raised the fuel tax rates by another 4.3 cents per gallon, and deposited all the receipts from that increase into the general fund for deficit reduction. The Taxpayer Relief Act of 1997 redirected the receipts from the 4.3 cents per gallon rate hike back to the HTF (80 percent to the Highway Account, and 20 percent to the Mass Transit

Account). The Act also reinstated the lapsed 0.1 cent per gallon fuel taxes for the Leaking Underground Storage Tank Trust Fund.

Currently, of the 18.4 cents per gallon federal excise tax on gasoline, 15.44 cents is deposited into the Highway Account, and 2.86 cents is deposited into the Mass Transit Account. Of the 24.4 cents per gallon federal excise tax on diesel, 21.44 cents is deposited into the Highway Account, and 2.86 cents is deposited into the Mass Transit Account. The latest data show that HTF receipts totaled $38.8 billion in FY 2006, with $33.9 billion deposited into the Highway Account, and $4.9 billion into the Mass Transit Account.

Structural Weakness of the Federal Fuel Tax

One inherent weakness of the federal fuel excise tax is that it is a unit tax whose rate is tied to a gallon of fuel (gasoline, diesel, or other special fuels) consumed, as opposed to an *ad valorem* tax levied per dollar spent on fuel or a distance tax charged per mile of travel. The disadvantage of a unit tax is that revenues can grow only if consumption increases.

Rising fuel prices do not enhance HTF revenues. On the contrary, when the price of fuel rises beyond a certain point or when the price increase is viewed as permanent, highway users may curtail their driving and reduce their fuel consumption that would, in turn, depress HTF receipts. Indeed, a recent survey shows that the high prices of fuel last year resulted in reduced driving (as measured by total vehicle-miles driven).

Growth in fuel consumption is constrained by improving fuel efficiency of the vehicle fleet on our highways. In spite of the popularity of larger vehicles such as SUVs that use more fuel, the average fuel efficiency of our fleet has been increasing slowly and steadily since 1970, partly in response to policy initiatives including the corporate average fuel economy (CAFE) standards.[1] In 1970, the average passenger car got 13.5 miles per gallon. That average rose 62.2 percent to 22.3 miles per gallon in 2003, an average annual improvement of 1.5 percent. For light trucks, which include minivans, light pickup trucks, and smaller SUVs, the average fuel economy improved by 77 percent from 10.0 miles per gallon in 1970 to 17.7 miles per gallon in 2003, or 1.6 percent per year. Improving fuel economy means that less fuel is consumed per mile traveled, and less tax is paid into the HTF.[2]

The situation is made more difficult by the erosion of purchasing power of fuel tax revenues caused by inflation. Since the fuel tax rates were last raised in 1993, inflation as measured by the consumer price index (CPI) has risen by 28 percent. To maintain the value of tax revenues in real terms, federal fuel tax for gasoline should have gone up by 5.2 cents per gallon to 23.6 cents per

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[1] CAFE standards do not apply to heavy trucks. For heavy single unit trucks including large pickup trucks and SUVs, fuel economy only went up from 6.8 miles per gallon in 1970 to 7.3 miles per gallon in 2003 for an average annual increase of 0.22 percent in the 33-year period. Fuel efficiency improvement for semi trucks fared equally poorly—they got 4.8 miles per gallon in 1970 and 5.1 miles per gallon in 2003, for an average annual fuel economy improvement of 0.19 percent. Indeed, the average fuel economy improvement for the period 1993-2003 was -1.3 percent per year.

[2] According to Federal Highway Administration (FHWA) data, a gap developed in the mid-1970s following the oil crisis of 1973-74 between vehicle highway travel and fuel use. Since then, the gap has been widening steadily. FHWA estimates that had that gap not developed (and the quantity of fuel use continued to grow in historic proportion with the amount of vehicle travel) motorists would be consuming about 70 billion gallons more fuel a year by 2005.

gallon and 29.6 cents per gallon for diesel.[3] The problem actually has been more severe than reflected by the CPI data. The cost of building highway and transit facilities has risen dramatically, having registered almost a ten-fold increase on the construction cost index between 1957 and 2006. Since 2004, construction material prices have spiked as global demand for construction material skyrocketed due to rapid economic growth in many parts of the world, especially China and India.

The federal motor fuel excise tax rates must be increased periodically if the revenues the tax generates are to keep pace with rapidly rising travel demand and construction costs. However, such rates are established by law and were not raised during enactment of the Transportation Equity Act for the 21st Century (TEA 21) in 1998 or the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005.

Financial Viability of the HTF

Total vehicle miles traveled grew, on average, 4.9 percent between 1970 and 2003. More recently, total vehicle-miles traveled rose at an average annual rate of 2.3 percent between 1995 and 2004. Americans traveled nearly 3 trillion vehicle miles in 2004. To address pressing surface transportation investment needs, Congress significantly increased the authorization levels for the federal highway and transit programs in TEA 21 and SAFETEA-LU, often greater than the level of incoming HTF revenues.[4] That has caused the cash balances in the Highway Account of the HTF to decline steadily.[5] At the end of FY 2000, the Highway Account had a balance of $22.55 billion. By the time TEA 21 expired at the end of FY 2003, the balance had fallen to $13 billion. At the end of FY 2006, the balance in the Highway Account had dropped further to $9.2 billion. Current projections by the Department of the Treasury and CBO estimate that the cash balances of the Highway Account will be depleted sometime in 2009.

If the Highway Account were to reach a zero balance in 2009, it would not mean that the Federal-Aid Highway Program runs out of money, as federal excise tax revenues will continue to flow into the HTF. However, it might mean that the level of investment would have to be cut back to levels below those authorized by SAFETEA-LU. Since those levels of investment are already insufficient to finance all the infrastructure needs required to support our changing economy, any reduction will have a detrimental impact upon our effort to improve the conditions and performance of our highways.

Most observers recognize that the current financing mechanism, which uses dedicated federal highway-related excise tax revenues to fund infrastructure programs and projects, though imperfect, has served the nation well in helping build a world class highway system and will continue

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[3] The 28.8 cents per gallon rate for diesel would maintain the 6-cent per gallon differential in tax rates between gasoline and diesel. Had inflation been factored in for diesel, the tax rate would have increased by 6.8 cents to 31.2 cents per gallon.

[4] Since 2000, expenditures for federal highway programs have exceeded revenues credited to the Highway Account. This was possible because there were substantial cash balances built up in the Highway Account in the past. Both TEA 21 and SAFETEA-LU attempted to bring down the cash balances and to align authorized investment levels with anticipated revenues into the HTF. Federal highway programs are funded exclusively by HTF revenues; their funding levels are limited by available revenues in the Highway Account.

[5] The Mass Transit Account currently does not encounter the same difficulty only because a change in the way various transit programs are funded that was incorporated in SAFETEA-LU has helped slow down expenditures from the Account. Nevertheless, the cash balances in the Mass Transit Account are projected to run out in 2013.

to be the primary method of funding our highway and transit programs in the future. The purpose of this hearing is to develop a better understanding of this financing mechanism and its structure.

PREVIOUS SUBCOMMITTEE ACTION

The Subcommittee held an oversight hearing in April 2006 on the reliability of the revenue estimate for the HTF.

WITNESS LIST

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HEARING ON STRUCTURE OF THE FEDERAL FUEL TAX AND THE LONG-TERM VIABILITY OF THE HIGHWAY TRUST FUND

Tuesday, March 27, 2007,

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT,
Washington, DC.

The subcommittee met, pursuant to call, at 2:00 p.m., in Room 2167, Rayburn House Office Building, the Honorable Peter DeFazio [chairman of the subcommittee] presiding.

Mr. DEFAZIO. Okay, let's get started. I want to thank my Ranking Member, Jimmy Duncan, for being here today and the witnesses for being here. Perhaps the state of the Highway Trust Fund and the income into the Trust Fund is not to a lot of people an earthshaking topic. But it is one of two key components, as we move forward and look at the reauthorization of the next highway and transit legislation in 2009.

Obviously we are also investigating the other component, that is, what is it we have to maintain and what is it we have to build to enhance the system. But the other side is, how are we going to pay for it. If we look back to SAFETEA-LU and just before SAFETEA-LU, the estimates of the Bush Administration's Department of Transportation were, we basically needed $375 billion investment over the term of the bill to tread water. Obviously our resources were short of that. We did as good as we could, coming up just under $300 billion.

So we need to understand how the gas tax is going to fare in the future, the Trust Fund, the other associated taxes that contribute to the Trust Fund, and hopefully look toward a way to make more robust investments in the future. Obviously other things have happened since the last time the gas tax was updated, the extraordinary run-up of construction costs. And obviously, increased traffic. So we need to take a very hard look at all these issues, and I appreciate your all being here today.

I now recognize my Ranking Member, Mr. Duncan from Tennessee.

Mr. DUNCAN. Thank you, Mr. Chairman. I am pleased that we are holding this hearing today on the structure of the Federal fuel tax and the long-term viability of the Highway Trust Fund.

When the SAFETEA-LU bill was signed into law two and a half years ago, I think many people realized that we would at some point have to reevaluate how we fund the surface transportation

projects, and probably need to do that before the next reauthorization bill is considered. This hearing begins that very important process.

Ever since the HIgwhay Trust Fund was created in 1956, the Federal fuel tax has been the primary source of revenue for the Trust Fund. The Highway Trust Fund, as most people know, most of the people who are here today, also receives revenue from taxes on tires and truck and trailer sales and annual sales on heavy trucks. However, the vast majority of the revenue deposited in the Highway Trust Fund is derived from Federal taxes on gasoline, diesel fuel and other special fuels.

We are now reaching a point in history where we need to evaluate whether or not the current revenue structure of the Highway Trust Fund can stand the test of time. For 50 years it has served us well. However the vehicles we drive are rapidly changing. Fuel efficiency is increasing. Electric hybrid vehicles are gaining in popularity and major auto manufacturers are talking about mass-producing plug-in electric vehicles.

I have seen some of the research being done in this area firsthand at the National Transportation Research Center in my district in Knoxville. Researchers at the NTRC are some of the leading experts in developing advanced power electronic devices. As transportation shifts from combustion-driven vehicles to hybrid electric, plug-in, hybrid and fuel cell vehicles, the research being done at this facility I think will be very critical, very important.

This shift in how we fuel our vehicles will reduce our dependence on foreign oil and may have positive environmental impacts. However, it may also force us to change how we fund the Highway Trust Fund. A tax on fuel is our primary source of revenue, as I have mentioned, for the fund. As we incorporate technologies that reduce the amount of fuel we use, we will see a reduction in revenue into the trust fund that is attributed to the fuel tax. While this is not an immediate concern, it is something we need to think about as we begin to write the next reauthorization bill.

I look forward to hearing from the experts that we have assembled here today and hope that they will provide us some real insight on the current status of the Highway Trust Fund and how long into the future the current financing structure of the Trust Fund can sustain our Nation's surface transportation needs.

Thank you, Mr. Chairman. I yield back.

Mr. DEFAZIO. I thank the Ranking Member for that statement, helping put this hearing in context.

If there are no other opening statements, we will move to the witnesses. In terms of the order prescribed, whatever it says there, I guess it's the order up there. Mr. Marron, Deputy Director of CBO, go right ahead.

TESTIMONY OF DONALD B. MARRON, DEPUTY DIRECTOR, CONGRESSIONAL BUDGET OFFICE; WILLIAM BUECHNER, VICE PRESIDENT FOR ECONOMICS AND RESEARCH, AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION; DANIEL SPERLING, PROFESSOR AND DIRECTOR, UNIVERSITY OF CALIFORNIA-DAVIS, INSTITUTE OF TRANSPORTATION STUDIES; ALAN PISARSKI, PRIVATE CONSULTANT

Mr. MARRON. Thank you, Mr. Chairman, Mr. Ranking Member, and members of the Committee, it is a pleasure to be here today to discuss the status of the Highway Trust Fund.

In my opening remarks, I would like to make four points. First, CBO projects that under current law, revenues to the highway account of the Highway Trust Fund will fall short of outlays over the next few years. As a result, the account will become exhausted by the end of 2009.

If obligation limitations and RABA adjustments are set at the levels authorized in SAFETEA-LU, CBO estimates that outlays during 2007 through 2009 will total about $117 billion. Revenues over that period are projected to be about $108 billion, $9 billion lower than outlays. Transfers from the highway account to the transit account would total about $2 billion over that period. Putting those figures together, CBO projects that the highway account balance would decline by almost $11 billion by the end of 2009. More specifically, the balance would fall from about $8.9 billion at the start of 2007 to negative $1.7 billion at the end of 2009. CBO similarly projects that the mass transit account will become exhausted in 2012.

Second, about 90 percent of the revenues for the Highway Trust Fund come from fuel taxes that are fixed in nominal terms: the 18.3 cents per gallon tax on gasoline and gasohol and the 24.3 cents per gallon tax on diesel. Because the tax rates are fixed in nominal terms, tax revenues are ultimately determined by fuel use. Fuel use in turn is driven by real economic growth, fuel prices, fuel economy and the types of fuel that are used. Economic growth increases fuel purchases and tax revenues. Higher fuel prices and higher fuel efficiency both reduce fuel purchases and revenues, and changes in the types of fuel can either raise or lower revenues, depending on the particular tax rates and the energy content of the fuel.

Third, because revenues are driven by fuel use, they tend to grow more slowly than the nominal size of the economy. For example, CBO projects that fuel tax revenues will grow about 1.5 percent per year over the next 10 years, compared to nominal economic growth of 4.6 percent per year.

I should note, however, that the fuel tax revenues did grow faster than fuel use over the last 10 years. That happened because of several law changes that shifted resources into the Trust Fund from the general fund. In 1998, for example, revenues from the 4.3 cents per gallon tax that was originally enacted in 1993 were shifted into the Trust Fund from general revenue. In 2005, tax credits for ethanol were restructured so that they reduced general revenues rather than Trust Fund revenues.

Fourth and finally, I should emphasize that these projections, and really any projections of revenues and outlays for the Highway

Trust Fund, are subject to significant uncertainty. There is uncertainty about spending, for example, because it will depend on decisions made by the Congress and the Administration regarding basic annual funding levels for the program and the adoption of RABA adjustments. Spending rates will also be influenced by the decisions of State and local governments.

There is uncertainty about revenues because of uncertainty about future economic conditions. The economy could grow faster or slower than expected, oil prices could rise or fall above projected levels, and alternative fuels could develop faster or slower than expected. Such economic changes would result in different revenue levels.

There are also uncertainties about the key technical assumptions that relate economic activity to revenues. Consumers might adjust to changes in fuel prices more or less than we expect. Fuel and truck purchases might be more or less responsive to increases in economic activity. Any of those changes could affect revenues. Given these uncertainties, the highway account could become exhausted either earlier or later than our current estimates indicate.

Thank you, and I would be happy to answer any questions.

Mr. DEFAZIO. Thank you, Mr. Marron.

Mr. Buechner.

Mr. BUECHNER. Mr. Chairman and members of the Subcommittee, thank you very much for inviting the American Road and Transportation Builders Association to testify on the viability of the motor fuels excise tax.

Let me start with the most immediate concern, the balance in the Highway Trust Fund. The Highway Trust Fund balance will be exhausted by the end of fiscal year 2009. The Federal Highway Administration estimates a $200 million deficit, the Congressional Budget Office $1.7 billion. The figures are somewhat variable, depending on what assumptions you make.

The fear is that the way we are going to deal with that is to cut highway funding, either by foregoing the RABA adjustment in fiscal year 2008 or cutting the program in 2009. But there is a better alternative, which is to repeal or restructure most of the remaining Federal motor fuel excise tax exemptions.

As you know, the Federal Highway program is user-fee financed through revenues, primarily from taxes on gasoline and diesel fuels. But there are some highway users that are exempt from the tax for reasons that have nothing to do with transportation policy. Repealing or funding these exemptions from the general fund, as was done with the ethanol incentive in 2004, would add about $1 billion per year to highway account revenues. This approach was endorsed by the Administration in its fiscal year 2006 budget submission and was included in the version of SAFETEA-LU passed by the Senate. It would pretty much rectify any of the deficit projections that are on the table.

Beyond 2009, there are two concerns affecting the viability of the Federal Motor Fuel Tax—the impact of higher CAFE standards and rising construction costs. Very briefly, CAFE standards for cars and light trucks have very laudable goals. They reduce our dependence on foreign fuel and they improve air quality. But they also reduce tax revenues for the Highway Trust Fund.

NHTSA has recently announced a 10 percent increase in CAFE standards for light trucks that would be effective with the 2011 model year. This will have an impact on Highway Trust Fund revenues, as Don pointed out, in the long term. But it won't be significant until well after the years covered by the next reauthorization legislation.

We currently replace about 7 percent of the 230 million cars and light trucks registered in the U.S. each year. So it takes more than 14 years to completely replace the entire fleet. If you go through the math on the trucks that will be affected by this, you find that the new CAFE standards for light trucks would reduce Highway Trust Fund revenues by about $100 million in fiscal year 2012 and maybe as much as $300 million or $400 million by 2015, which is about 1 percent of projected revenues for that year.

If you look at hybrid vehicles, which are the only other kind of cars on the road right now that are of serious concern here, they only comprise like 2 or 3 percent of automobile sales each year. The average revenue foregone would be in the range of $30 million a year. So that is an issue for the long term.

Far more important for the short term is the erosion of the purchasing power of the fuel tax. Since 1993, when Congress enacted the current tax rate, the purchasing power of the Federal Motor Fuels Tax has fallen by more than 35 percent. The big issue in 2004 was rising steel prices, which I have shown in the first chart. You see the big increase in 2004. In 2005 and 2006, these rapid increases started spreading to core highway construction materials. These charts show what happened to the price of aggregates, crushed stone, which is the major material for highways, ready-mix concrete went way up, asphalt paving mixtures and diesel fuel all rose rapidly. Diesel fuel more than doubled in three years.

So in these three years, the cost of highway construction materials has risen more than 35 percent. When you factor in wages and overhead, which have risen much less, the cost increase is still at least 20 percent in three years and in some parts of the country it is much higher.

This next figure shows the erosion of the purchasing power of the Federal gas tax due to these higher construction costs. In 2007, for example, the 18.3 cent per gallon gas tax purchases about what 11.6 cents would have bought in 1993. Here is a chart showing what the gas tax would have to be to maintain that 18.3 cent purchasing power.

In summary, the Federal Motor Fuels Excise Tax is not a broken model. It can continue to serve as the foundation for financing the highway and mass transit programs for SAFETEA-LU reauthorization and probably for some years beyond that. None of the potential threats to the tax base will have a significant impact for some years to come. The purchasing power of the tax, though, is the problem and has been significantly eroded by higher construction costs. It certainly can't support the level of Federal highway investment needed today to maintain mobility and support economic growth.

That is where I would like to stop and I thank you very much for the opportunity to testify.

Mr. DEFAZIO. Thank you. That was, particularly the graphics, very compelling.

We will now move to our next panelist, Mr. Sperling.

Mr. SPERLING. Thank you, Mr. Chairman and members of the Subcommittee. Thank you for the opportunity to speak to you regarding the fuel excise tax.

My statement addresses the effect of alternative fuels and vehicle fuel economy on fuel tax revenues. I note that I have devoted most of my professional career to studying energy use and transportation. This includes working closely with all of the major car and oil companies in the world. And I note that I also served on the 2005 National Academies TRB committee that drafted the report, the Fuel Tax and Alternatives for Transportation Funding.

My remarks are based in part on the findings of that study, but the conclusions and recommendations I will offer are my own. So my testimony addresses two concerns. One is addressing, ensuring adequate funding for transportation and secondly, reducing greenhouse gas emissions from transportation. So I have three points. The first point responds to a fear that we have just been hearing about in the transportation community that the use of alternative fuels, hybrid cars, other fuel efficient vehicles will reduce gas tax revenues. My assessment and the assessment of the 2005 National Academies report is that the gas tax is structurally sound for the near future. And this agrees with the previous speaker.

Improved fuel economy and the introduction of alternative fuels are unlikely to be great enough to threaten the viability of the gas tax for at least the next 10 years and probably longer. The 2005 National Academies report concluded "The existing revenue sources will retain the capacity to fund transportation programs at historical levels." Now, the simple explanation for this conclusion is as follows. First, population continues to increase, vehicle use continues to increase. Second, plans to tighten CAFE standards that we are hearing about a lot in the news that the President is proposing and others, will have a large effect eventually. But probably not for quite a few years, for a number of reasons, including a slow turnover of vehicles.

Thirdly, the rapid increase in alternative fuel use will be mostly with ethanol, which is fully taxed and thus its use does not affect gas tax revenues. The alternative fuels that are not currently taxed, natural gas, hydrogen, electricity for plug-in hybrids, are unlikely to be used in large volumes for at least 15 years and probably longer.

A reasonable projection is that gasoline and ethanol, the taxed fuels, will continue increasing, peaking in about eight to ten years and then start to slowly dip. For energy security and climate change reasons, I personally hope that this down-turn in gasoline use happens faster. But it is unlikely. I have a different point of view than some of the others on the panel on that.

My second point is that if we agree that more funding is needed for highways and transit, and I do believe that very strongly, then this funding need can be generated by simply raising the gas tax a few cents per gallon. Adding five cents per gallon costs a vehicle owner an extra $30 a year per vehicle. This would solve any transportation funding problems for many years.

The third point is a longer term solution, looking ahead in terms of restructuring the financing. It is to restructure the gasoline and diesel taxes to reward low carbon fuels in such a way as to assure continued increases in the transportation funding stream. Since alternative fuels will slowly become an increasing share of the fuel supply pool, why not tax them in accordance to their effect on climate change.

Keep in mind that some fuels already generate much higher greenhouse gas emissions than others. For instance, gasoline produced from tar sands in Canada generates about 20 to 50 percent more greenhouse gases per gallon than gasoline produced from conventional oil. At the other extreme, the production of biofuels made from crop residues, switchgrass. other cellulosic material, dramatically reduces greenhouse gases, in some cases to zero. Why not charge a higher tax for high carbon fuels and a lower tax for low carbon fuels? The rates can be adjusted periodically to sustain revenue flows into the Transportation Trust Fund. This new carbon-based tax solves the long-term structural problems of the gas tax and provides incentives for low carbon fuels.

Thank you.

Mr. DEFAZIO. Thank you.

And then to our final panelist, Mr. Pisarski.

Mr. PISARSKI. Thank you very much, Mr. Chairman, Mr. Ranking Member and distinguished members. It is always a pleasure to come back to talk to the Committee.

Last year, we celebrated the anniversary of the financing plan that created the Highway Trust Fund in 1956 and the pay-as-you-go system that made the interstate possible. The pay-as-you-go system was a Congressional decision, after a toll-based system was found too limiting and a bonding system too expensive. The fundamental understanding is that of a user compact between Government and road users in which users pay according to the costs they exert on the road system and Government expends those funds in ways that are responsive to user needs. The responsibilities are mutual and reciprocal.

To be effective, a charging system for road use must to be fair to users as well as adequate in generating resources. To be fair, it is best for the fee system to be a surrogate for the miles traveled by vehicles and proportionate to the effects on the road system. The fuel use charge system does it about as well as one could imagine.

The system's effectiveness can go wrong in two ways, either in the fundamentals or in the effects of time. In the fundamentals, it can simply be the original user charges are inappropriate or the expenditures may not be focused properly on user needs. Over time, the relationship of the elements changes with fuel economy, inflation costs, construction costs, new technology and the new demands that the society makes on the system. All of these problems are directly addressable, analytically, legislative, by policy, by indexing systems or other means. We expect more of our systems today. Trying to accomplish more has placed great strains on the investment system.

Some analysts would foresee a system that could charge not just for miles driven, but for miles driven at certain times and at cer-

tain places with certain congestion levels. I think few taxing systems are really capable of that kind of precision.

The early years of the system I think is really very important to recognize. The relatively coarse mechanism employed to generate revenues were compensated for by massive growth both in the fuel rates that were charged and growth in auto use, the ownership of the automobile and the dramatic growth in vehicle miles of travel. You see that in the slide presented here.

One of the key factors for the future is in many respects the saturation of many of these trends. The white, non-Hispanic population has reached effective saturation in automobiles and driver's licenses. Increases in per capita VMT have stabilized. Current estimates of 20 year VMT growth out into the future range below 2 percent, contrasted to the 3 and 4 percent annual rates that we saw in past decades.

While all of these factors are significant, to me the greatest impact on the user charge system and its adequacy have not been demographic or technological. They have been the result of fiscal and policy decisions that have distorted the pay-as-you-go system with expanded targets for funding, transit and others, fiscal constraints on the process, impounding, CAFE and obligation limits, and the erosion over time of the value of the funds as we fail to make timely adjustments. The fear of future erosion of the system's revenues from new alternative fuels and new vehicle technologies are relatively distant in terms of serious impact and can be addressed as long as we keep in mind the relationship between road use and the user fee. It is the other challenges that will be a more serious threat to the viability of the system.

Much has been made of the public's resistance to fuel tax increases. It is more to the point that the public may have lost faith in the validity of our vision and our ability to execute our plans that leads to a real distaste for increases. When a sound menu was put before the public by agencies that are trusted, the success has been substantial around the Country.

Overall, the pay-as-you-go system, tied to the trust fund mechanism, has been immensely effective. Other nations have used the gas tax as a cash cow, seeking consciously to separate road program costs from road taxes in order to tap into the immense benefits the public receives from road use. Other funding approaches are not immune from that same problem. In effect, then, one of the great benefits of the present system is that it establishes an upper limit on what can be charged to road users. In my mind, the integrity of dedication to highways of the user charge is the most fundamental aspect of the user compact. If that connection to transportation is lost, the injury to America's high mobility society will be massive.

Than you so much, and I would be happy to answer any questions.

Mr. DEFAZIO. Thank you, and thanks to the other panelists for your testimony.

There does seem to be a little bit of variance in opinion on the panel, which I would like to invoke some discussion over. As I read through your testimony and listened to you today, at the moment, construction increases and costs of construction are obviously a

very major factor in our capability of using the current funds and gas tax to meet our needs.

But then in the out years, the question of course, it is kind of a crystal ball what might happen there, but it is also a crystal ball how quickly the new technologies are going to evolve and what impact that will have. We have a bit of testimony on both sides. I would like you to discuss that. Is the gas tax viable for a 10 year window, 20 year window, your best guess? Perhaps with some adjustment for either inflation or construction costs inflation, and if each one of you could address that.

Mr. Marron?

Mr. MARRON. Sure, I am happy to go first. Playing the standard CBO card, I am not sure I am in a position to use the word viable. What I can say is in our baseline, in the projections that we prepared here and in our baseline, we do have revenues from the gas tax rising over the ten year projection window. So they are viable in the sense that revenues are on an upward trajectory as fuel use rises.

In constructing those estimates, we look at these issues about alternative fuels and whether they will cause revenues to go down. We have a little bit of that in the baseline, but as several of the other panelists say, we don't expect a lot of that over the next 10 years. And thus far, we always look 10 years in the future, we haven't actually looked out beyond that.

Mr. DEFAZIO. Okay.

Mr. BUECHNER. I think even with new technologies being developed, it just takes a long time to implement them and get them into the fleet. So I think 10 years, 15 years, and certainly for the next reauthorization, I don't see any threat other than minor erosion from hybrid cars and a little bit from the increase in the CAFE standard.

But it is more a question of, when you are looking to the next reauthorization, what do you want to accomplish with the Federal highway program? What is the vision for the program? What is the structure? And what revenues are needed to meet those goals?

At that point, Congress would have to make a decision about what the gas tax rate should be. But I think the base will be there.

Mr. DEFAZIO. Well, given the run-up in construction costs, given what you just said, if we didn't make any adjustment in the gas tax in the next transportation bill, and given the fact we are looking at potential exhaustion of the trust fund, although there will be ongoing revenue in 2009 to 2010, I mean, it would seem to me that you would be looking at a larger deficit between need and capability.

Mr. BUECHNER. Oh, much larger, yes.

Mr. DEFAZIO. Does anybody disagree with that?

Mr. BUECHNER. To emphasize what you are saying, the current level of the gas tax is insufficient to meet our highway and transit investment needs.

Mr. DEFAZIO. All right. And we will be. As you pointed out, you do need to know what you are looking to do. We are going to be holding other hearings on the needs of the system. We are sort of on two tracks here. One is examining our current funding and its prospects and alternatives for funding, and the other track is, what

is our vision, what are our base needs, what are the enhancements that we want to look to add to the system.

Does anybody else want to comment? Yes, Mr. Pisarski.

Mr. PISARSKI. Again, I agree that probably out 20 years the system will still be very effective. And we need to support it even beyond that to make sure it is dedicated to transportation. But the concern is that we are, as you mentioned earlier, facing the $375 billion backlog number, and that number is now higher with the new Condition and Performance report. We are not close to being able to respond to that. So we must recognize that we need to expand the funding that can be made available.

One of the focus points in my view, because we have declining VMT into the future, is we have an immense backlog of investment that is identified in the FHWA report documents. Once we get past that backlog, I would like to argue that there is a more steady state and that we will have a more reasonable problem to address into the future. But that backlog is about one reauthorization's worth of funding. That is the level of the backlog.

Mr. DEFAZIO. So what do you quantify the backlog at?

Mr. PISARSKI. One reauthorization——

Mr. DEFAZIO. The last one, $300 billion?

Mr. PISARSKI. 1.0 reauthorization; yes, something on that scale. I don't know that they have developed a new number. I would have to ask them. But I would guess it has to be $375 billion to $400 billion.

[After the hearing, Mr. Pisarski stated the following for the record: the 2006 Condition and Performance report cites a value of $430 billion as the highway backlog, excluding rural and urban local streets; and $65.2 billion in the bridge backlog.]

Mr. DEFAZIO. All right. I think we have exhausted that topic.

Does anybody have any thoughts on the last question? Then we will turn to other members of the panel. But if we add an index, if we wanted to index it, what would you use, to avoid some of the deficit in the future? What would be the most reasonable sort of—yes, Mr. Sperling?

Mr. SPERLING. Well, as I suggested, there are basically two ways. You can just index it up at some rate. Of course, many people are suggesting refashioning the whole tax system into a VMT type system, even a more pure user-based system. Having participated in that gas tax committee for two years and listened to all the proposals, in principle I thought it was a great concept. But the more you dig into it, the more complicated and difficult it becomes to actually implement. I still think we need to be experimenting and exploring and developing that, and maybe at the State level it would be more fruitful as kind of an experiment, as Oregon is doing, for instance.

But the other is to rethink the gas tax, as I suggested and make it more tied to the environmental goals as well. I know the transportation community hates that idea, because they like a pure revenue stream, unadulterated by these other considerations. But in fact, the transportation community has been lagging behind other sectors of our society in addressing some of these environmental and especially energy and climate considerations. This seems to me a very effective way, a mechanism, this idea of a higher tax on high

carbon fuels, lower tax on low carbon fuels, in a way that will generate perhaps even more public support than just saying, oh, well, we're just raising the gas tax another nickel or dime and hopefully you see the benefits from it.

Mr. DEFAZIO. Should we be looking at producer level or consumer level taxes? Right now we have consumer level taxes. Should we be looking at, given your position with a focus on carbon production, should that be at the producer level or would you continue it at the consumer level?

Mr. SPERLING. In California what we are doing is introducing something called a low carbon fuel standard. And that is imposed at the producer level, but in such a way that producers can trade credits, buy and sell credits. One possibility is that they can buy and sell those credits with the auto makers as well, based upon their CAFE performance.

So it would be easier to manage at the producer level, from the vehicle producer and fuel producer. I would be very reluctant to bring it more downstream toward the consumer, because it would get very complicated.

But on the other hand, what is really important, I think that Congress and political leaders need, that I would suggest need to do is, get people to engage in a way that they feel some responsibility. I think that is the only way that we are going to deal with our energy and climate problems.

Mr. DEFAZIO. Okay. Mr. Pisarski will be the last one, then I have to move on to other members.

Mr. PISARSKI. Thank you, sir. I would suggest that it should be a series of indexes that would make the most sense. One would be an inflation index, one would be a cost of construction index, and one would be an index that related to changes in vehicle fuel economy. Even if you didn't employ every one of them, if you knew what those numbers were and how each was working, and you understood the relationship to the total program, I think that would be a very effective goal.

I will add one small point. In Texas, we just finished a study for the Governor's Business Council. They are talking about an inflation index of the Federal tax, that they are going to compensate for the losses in their revenue from their State gasoline tax and also from the Federal gas tax. It is an interesting concept.

Mr. DEFAZIO. Thank you.

Mr. Duncan.

Mr. DUNCAN. Mr. Chairman, since I am going to be here until the end, I want to go first to our members in the order in which staff tells me they came in. So Ms. Drake would be, I would like you to recognize Ms. Drake first.

Ms. DRAKE. Thank you, Mr. Chairman.

Dr. Buechner, I thought it was very interesting that you were talking about exceptions. We talked about exceptions when I was in the State legislature in Virginia, in the tax code, got a lot of pushback. But could you expand on that? Could you tell us what exceptions you think are valid or are not valid or how we could do that?

Mr. BUECHNER. Of the current exemptions that result in a loss of revenue to the Highway Trust Fund, there are five major ones:

first, vehicles used on the road by State and local governments; vehicles used by non-profit educational institutions; school buses; intra-city municipal bus systems; and over-the-road intra-city buses are exempt from paying the motor fuel tax. The tax is collected when they purchase fuel and then refunded to them, which they must apply for.

When we had this problem with the ethanol incentive in 2004, the way it was addressed was to credit the Highway Trust Fund with the full 18.3 cents per gallon and then provide the refund from the general fund. And in this case, when you think about reasons for these exemptions, these are all vehicles that use the roads. And they all should be paying their share. But if there is a reason to relieve these users of that tax, it shouldn't come out of the Highway Trust Fund. There is a better way of doing it, which would be to reimburse them from the general fund.

Ms. DRAKE. Next question, Mr. Chairman, is, do you have any other suggestions other than gas tax or these exemptions of getting additional money in this fund. You are probably aware in Virginia that the Governor and the general assembly have just agreed on a pretty comprehensive plan State-wide and in various regions and have a lot of different mechanisms. So I just wondered if your industry has looked at, are there other things that should be proposed?

Mr. BUECHNER. Our industry has, and this will be the subject of another hearing, a proposal that we have for addressing our highway investment needs with a separate sub-fund in the Highway Trust Fund that would involve user fees levied on shippers. It is something that we have fleshed out and we can provide it to you. And we will do that.

Ms. DRAKE. Thank you. I also wonder if your industry, how involved they are in alternative fuels, and just wanted to point out to you that Old Dominion University in Norfolk, Virginia is working on a bio-diesel that is created from algae. Higher carbon content than corn or soy, but very interesting work that maybe they would like to take a look at.

I wanted to ask Mr. Pisarski, you mentioned in your testimony about transit and other modes receiving money from the Highway Trust Fund. I am wondering if you think that maybe that should be changed and the money in the Highway Trust Fund should be for highways and if we should look at other alternatives for transit and other modes?

Mr. PISARSKI. I think we certainly should be looking for other alternatives. The pressure that has been put on the Highway Trust Fund, trying to meet these new goals, has, I think, exhausted it. And to open it up to general revenue and other alternative sources, just as Dr. Buechner was saying, it is not that you don't think those things are valuable, attractive or useful, it is just that as they use the road they should be paying for it. You want to look for other alternatives to support them, general revenue or other mechanisms.

Ms. DRAKE. Thank you. Thank you, Mr. Chairman. I will yield back.

Mr. DEFAZIO. Thank you.

Mr. Mitchell? No? Okay. We are back now to Mr. Bishop.

Mr. BISHOP. Thank you, Mr. Chairman. Thank you for having this hearing.

What I would like to explore, if I could hear from all of you is what your thoughts are on resolving the dilemma. Clearly one policy imperative that we have on the national level is to drive down fuel consumption and increase fuel efficiency. If we do that, we depress revenue going into the Highway Trust Fund. Mr. Sperling, you talked about perhaps finding some way of taxing vehicles, or is it feasible to tax vehicles that receive poor emissions ratings or poor environmental ratings.

I would just be interested in hearing from all of you on what is the most constructive way to resolve that dilemma. Because obviously, both ends are desirable. We want to make sure the Highway Trust Fund is adequately funded. We want to drive down consumption. How do we reconcile two mutually attractive goals that are at odds with one another?

Mr. MARRON. I guess I will go first, so we will be in order. Again, not making any recommendations but just looking at the playing field, clearly increasing the gasoline tax would have both of those effects, would have the effect of discouraging driving, encouraging more fuel-efficient cars. But we are in a range where the consumer reactions are such that you would nonetheless raise significantly more revenue. So that would accomplish the twin goals that you laid out.

In addition, various proposals for having tolling and then having the revenues from tolls go into the Trust Fund would again have the effect of discouraging some driving and being a revenue source.

Mr. BUECHNER. I frankly can't add much to that. The notion of raising the gas tax is certainly going to be helpful to the Highway Trust Fund. To the extent that it does resolve some of these other issues, that would be very helpful as well.

Mr. BISHOP. Thank you. Mr. Sperling?

Mr. SPERLING. Yes, I think it will not be difficult to adjust the taxes based upon the quality of the fuels. I say that because in the next few years, it s going to be done, there is going to be a system put in place, in California we are doing it, as I mentioned, the low carbon fuel standards, where we are developing, this is getting kind of sophisticated, where we are taking from the academic world this concept of life cycle analysis, life cycle emissions, and we are codifying it. We are putting it into law in California. The U.S., at the Federal level, is probably going to be doing the same thing because of the renewable fuels program, renewable fuels standard that is floating around in Congress and the Executive Branch right now. The EU is doing that, the U.K. is doing that.

So this idea of being able to label the fuels and track them is something that is going to be done anyway. So to attach taxes to it, fuel taxes, will not require any major new institutional apparatus.

Mr. BISHOP. Okay, thank you. I yield back, Mr. Chairman.

Mr. DEFAZIO. I thank the gentleman. Mr. Boozman?

Mr. BOOZMAN. Thank you, Mr. Chairman.

Have any studies been done on exactly what the effect of increasing the fuel cost is in the sense that, you know, you go to Europe and it looks to me like they have the same problem that we do. If

Americans can get there in a reasonable length of time and there is parking, it looks to me like they are going to drive their cars, unless we get dramatically higher, and if we get dramatically higher, none of use are going to vote for that, because the American people won't tolerate it and I think rightfully so. So it really is just a complex thing.

But is there a study like that that indicates at what point you really do affect, because it does seem that especially in America, that people again, to me the thing that really mitigates whether or not they are going to do it is the parking problem. Yes, sir?

Mr. SPERLING. Yes, there has been some good research, including with some of my colleagues, over the last few years. We have found just what you are saying, that the idea, we use this concept of elasticity of demand. And it used to be, back in the 1970s, that for every 10 percent increase in fuel price, you would get about a 3 percent reduction in fuel consumption, gasoline consumption. Now for every 10 percent, we are getting about a half percent reduction. In other words, consumers are very inelastic, compared to almost any other product. We have seen that, all you have to do is look at the statistics the lats few years. Prices doubled and there was very little effect on gasoline consumption.

So certainly some people were hurt by those high fuel prices. But the overall effect is that people are not responsive to high prices. So when we talked about gas taxes, we should be thinking about why do we want high gas taxes. It probably won't change behavior very much. It will have two effects, of course, it generates more revenue and it does raise the threshold for investors in alternative fuels. That is a very important concept to keep in mind.

Mr. BOOZMAN. I think you can impact the size of cars, the fuel efficiency and people will buy smaller cars and gravitate that way, that have a higher fuel economy. But it is just an interesting phenomenon. Mr. Marron?

Mr. MARRON. Yes, sir, I just wanted to say that in our estimates, I think it is important to distinguish between the short run effect and the longer run effect. What we have seen from recent price increases is that over the short run, people are quite inelastic in their demand for gasoline. There is some effect, but it is quite small, as the other witness mentioned.

Over long time periods, as you were just hinting, there are more margins along which people can respond in terms of choosing their car, choosing their transportation patterns. So there is some noticeable effect. In the elasticity terms, as you mentioned, over the longer run, we have an estimate of about 30 percent in those terms. So if you increase gas prices 10 percent, you would see about a 3 percent reduction in use, which is not enormous, but is something.

Mr. BOOZMAN. So do you think we will wind up with some hybrid? Certainly the problem of taxing a battery-powered car, and we do have battery-powered cars now that will run 150 miles an hour, go 200 miles and things. They are working hard to shrink the size of the battery. That problem, compared to a gasoline engine that gets 50 miles to the gallon is a different animal.

So do you think we will ultimately wind up with some hybrid, taxing those two differently?

Mr. BUECHNER. I would think, the one fuel that does cause a problem is electric cars. Because that is a fuel that can be delivered without requiring a separate delivery system. But fuels like gasoline, hydrogen, natural gas, can't be delivered directly to the consumer except going through a system where you could find a place to tax them. So electric cars will pose a problem.

But I think any of the other alternative fuels, so long as there is a separate delivery system and you can impose a tax at some point that can be collected, you just have to set your base and set what the rate will be. In fact, even natural gas used in automobiles is taxed at the same rate today as gasoline. So there is just that one problem with electric cars that I see as a long-term problem.

Mr. BOOZMAN. But you have to fix that one, or you will drive people into, they will gravitate to the other to escape the tax if it is not done.

My time is up. Thank you, Mr. Chairman, and thank you all very much.

Mr. DEFAZIO. Thank you. Mrs. Capito?

Mrs. CAPITO. Thank you, Mr. Chairman, and I thank the gentlemen, too.

We have talked along and around the question that I am getting ready to ask. So if you have already answered it specifically, I apologize. In West Virginia, we tag part of our, a portion of our State gasoline tax is pegged to the price of gasoline, it is recalibrated every year. The past year, the Governor suspended that growth in the tax as a measure to try to keep the price of gasoline down. It ended up costing $53 million to the State, and now he is scrambling to try to make that up to match.

Have you all ever looked at tagging a portion of the Federal gas tax so that every year, I guess either it would be indexed or indexed to a portion of the price of gas? Is this a concept that you have taken from, say, our State and tried to extrapolate in the Federal system?

Mr. BUECHNER. There are two alternative ways of doing that. The one that you use in West Virginia, which is a sales tax levied as a percent of the sales price, will fluctuate up and down as the price of gasoline changes. But an alternative is to link the tax rate to an index that is somewhat related to the cost of highway construction. One possible index is the consumer price index. There are other indexes that partially, at least, track the cost of highway construction. Either way, year after year, the tax rate is adjusted so that you can actually maintain the same amount of highway investment.

There are other States that use the sales tax approach. They find that it is a little bit disruptive to their planning, because it does go up and down with the price of gasoline.

Mrs. CAPITO. I had another question on public-private partnerships. In a State like West Virginia, even though we are a small State, the cost of building our highways is extremely high, because of our terrain. The cost of building per mile is so much more than what you would normally think in a State the size of ours.

So we are trying to look at public-private partnerships for financing road construction. What do you see the future of that? I just had some folks in my office earlier this morning who are not in

favor of that because they want to know, does the public money become private or does the private money become public, and how does that work? And then it also raises the issue, I think, of toll roads, which is a little bit separate. Do you all have an opinion on that public-private financing aspect of road construction?

Mr. PISARSKI. I guess I will start the trouble by responding. I think there are many opportunities that we are all looking at because of the lack of funds both at the State and at the Federal level, and we should be open to them. In many instances, in the State of Virginia, for instance, and other States, it has been an effective tool. But I have a feeling that we are moving very fast into some of these things and not very carefully in some cases. I think we are going to find out that there are problems that begin to arise that we weren't prepared for.

So I guess my concern would be, I am very open to it, I am very positive about it, but I would really want to be very careful as we proceed.

Mrs. CAPITO. One of the questions that came up today in our discussion was if the construction becomes more of a private emphasis than a public emphasis, are there safety issues involved, what standards are these construction dollars going toward? I think that is a legitimate question and one, I would agree with you that we would need to go into if we are going to go that direction or look at it seriously, we ought to look at some pilot studies or something to see that we don't all of a sudden think this is a panacea, this is the greatest thing and it ends up unsafe conditions and less checks and balances.

I yield back. Thank you.

Mr. DEFAZIO. Mr. Boustany?

Mr. BOUSTANY. Thank you, Mr. Chairman.

Mr. Pisarski, the backlog figure you gave as an estimate, $375 billion to $400 billion, is that just a Federal backlog or does that include State?

Mr. PISARSKI. That is the national backlog that comes out of the Condition and Performance report and analysis of the conditional performance report.

Mr. BOUSTANY. Okay. Because many States have backlogs, too. I know for instance my State of Louisiana has about a $13 billion backlog, and we are struggling with how to deal with that back home. Most of you or all of you talked to some extent about increasing the gasoline tax. What about the States? States are looking to increase gasoline tax, so it seems to me that we are heading for a brick wall on this. So that becomes a problem.

I know you partially answered my question, when Mr. Bishop asked about whether or not assuring adequate funding and reducing greenhouse gases, are they mutually exclusive goals and how do we go about it. You brought up the issue of adjusting tax based on fuel quality. How complicated is that? And how would we pay for that? And would paying for it come out of the Highway Trust Fund?

Mr. SPERLING. As I said earlier, I think institutionally it can be done, and it will be actually in five or six years, I think it will be easier to do, because we are putting all the systems in place to do it for other reasons for these carbon standards, using life cycle

models and metrics and so on. So I think that is all going to be codified and fairly routine. Then in terms of the revenue stream, you can make it revenue neutral in the sense that you can make sure that trajectory goes up at whatever slope you want by the mix. Because we can forecast, five years out we can forecast very well. Fifteen years, the crystal ball gets a little hazy. But five years, eight years, we can do pretty reliably. So we can project ahead, I think, without too much trouble.

Mr. BOUSTANY. Do you have a sense of what the cost will be to make that transition?

Mr. SPERLING. The cost to, in a sense, society?

Mr. BOUSTANY. Just the actual cost to be able to set up a system whereby you can create these adjustments on the fuel tax based on fuel qualities? There is obviously some cost involved in making a transition to that type of model. Do you have a sense of what the cost would be?

Mr. SPERLING. I think because we are doing it anyway, the additional cost in a sense to the this gas tax system would be minor, very, very minor, almost negligible, because we would be doing it, we will be doing it anyway.

Mr. PISARSKI. Going back to your first question about State taxes, historically what has happened is when you see a Federal gas increase, then a lot of the States recognize that in order to match the Federal funds they are going to need an increase in funds. You will frequently see State taxes follow along. It is always a very effective tool at the State level to, in effect, justify a tax increase as it is needed to be able to match the Federal response.

Another item I wanted to add, going back in history, this is during the last energy crisis. The big bump-up in 1979 where I was in the Department of Transportation and the price was very high by those standards. One of the arguments that we used on the gas tax increase was that for every ten cents a gallon that the price of gasoline dropped we added one cent in Federal tax. So that as the gas prices dropped 30 or 40 or 50 cents, you would pick up one penny, you would pick up a penny Federal gas tax for every 10 cents the price dropped. Obviously it would effectively disappear.

I think that kind of notion was very clear. We also offered the States an arrangement where you would take a penny off the Federal tax for every penny that the State tax rose. And we had no takers.

Mr. BOUSTANY. Have we become conditioned with regard to the elasticity now? Because earlier, when there were oil shocks, clearly there was a major decrease in utilization. It seems to me that as a society, we have become much more conditioned. So that has created this inelasticity.

Mr. PISARSKI. Yes. I follow the consumer expenditure survey very closely. What people tend to do is they take it out of other transportation expenditures. They are less likely to buy a new car because they are going to wait and hold it longer, because their transportation costs are high this year. Unless they are trying to find something that is really fuel efficient. They tend to hold their share of total income roughly constant going for transportation.

Mr. BOUSTANY. Thank you . My time is up and I yield back.

Mr. DEFAZIO. I thank the gentleman.

Mr. Duncan? Ms. Fallin?

Ms. FALLIN. Thank you, Mr. Chairman. I actually do not have a question, but as I was listening to the debate something came across my mind. In my State of Oklahoma, I remember we put a proposal to the vote of the people about whether to raise their gasoline taxes. So I was sitting here trying to remember what all was the percentage of the vote. I think it went down by like 75, 80 percent, people that voted against a gasoline tax increase. So that was kind of the mood of our State back, I think it was about three or four years ago.

One of the biggest concerns we have in our State is just getting back a good share of the money we send into the Federal Government. Of course, Oklahoma has always been a donor State. So I guess if anything ever came about that the taxes were changed, my State would certainly want to get back its fair share. That is probably not a question, but just a statement about our State.

Thank you, Mr. Chairman.

Mr. DEFAZIO. It is good representation. We thank you for being a donor. My State was until very recently a donor State. So I know how it goes, that is always a big debate.

For perspective, my State repeatedly turned down a gas tax increase until it was linked to, it was instead of just raising the tax, it was a specific problem, which was failing bridges, was identified. And the tax increase was dedicated to a very large bond issuance to retire the bonds. So people saw immediately quite a substantial investment. At that point they were willing to vote for it, because they said, okay, we see what we are going to get now, and it is quite substantial. And they were willing to vote for it. But if it was just sort of, well, we are going to raise the gas tax, they were—so.

Mr. Duncan?

Mr. PISARSKI. May I comment on that, sir?

Mr. DEFAZIO. Sure.

Mr. PISARSKI. I think that is absolutely right. At the State level, it is very frequently tied to a menu. "This is what we will do if you give us this money." And at the Federal level, I think it is the same thing, rather than simply talking about more money. You need to have a vision, as I made the point in my testimony. If we were talking about the preservation, protection, expansion and effective utilization of the interstate system, I think the public would understand that kind of a concept.

Mr. DEFAZIO. Or if we were talking about Mr. Sperling's infrastructure deficit and we were issuing infrastructure deficit bonds, which were retired by a small increment on the gas tax.

Mr. PISARSKI. Yes.

Mr. DEFAZIO. Just an idea. I didn't make a formal proposal, in case there is any press here.

Mr. Duncan?

Mr. DUNCAN. Thank you, Mr. Chairman.

Mr. Marron, you mentioned in your testimony that Trust Fund spending has exceeded Trust Fund revenues by about $16 billion since 2001. Was there any time where Trust Fund spending exceeded revenues prior to that?

Mr. MARRON. Which way do you want it, a period during which outlays were previously higher than revenues?

Mr. DUNCAN. Right.

Mr. MARRON. My crack folks are looking at their tables here. Actually, I think I have a graph in the testimony that addresses that. So Figure 1, you can see outlays exceeding revenues kind of in the 1994 time period, and then a few years occasionally prior to that.

Mr. DUNCAN. Mr. Sperling, you say in your testimony, large drop-offs in fuel tax revenue are unlikely for the next 10 years. Funding gaps can easily be solved over the next 20 years or so with very small increases in the fuel taxes. Yet we are already off from the projections that we got last year. I am wondering, I guess what I am wondering about, some people are already saying that troubles in Iran are going to lead to really big increases in the cost of oil. What would happen if that, if the price of oil doubled here in the next year or two? You said that with each 10 percent increase in the cost of gas that there was a 3 percent decrease? What was it you said about that?

Mr. SPERLING. I said that is what it used to be. Now it is like half of a percent to 1 percent. Mr. Marron said that in the long term, it would be back to 30 percent. I would disagree with that, or I would suggest that is likely not true, because while theoretically correct, I am the professor, but I am going to argue against the theory, in practice what we have seen is oil prices fluctuating up and down. What has happened is people have been conditioned to believe that oil prices are not going to stay high.

So in fact this so-called long term response or long term elasticity never happens, or hasn't happened the last 25 years. From what I understand about oil markets, it is probably not going to happen in the future either, because the fundamental cost of production of oil is maybe $25, $30 a barrel. There are a lot of countries making an awful lot of profit. It is actually much less than $25 in almost all cases.

So the price of oil, if you talk to any expert, the price of oil can be anywhere, including the CEO of Exxon, the price of oil can be anywhere from $30 to $70 to $80 and they really can't predict that. So your scenario is very possible. But the question is, what is the consumer response. It is not at all clear that there ever will be this, it is not clear that the price is going to stay very high for a long time. And it is not clear that consumers are going to have any kind of fundamental, durable, lasting response to high prices whenever they do happen.

Mr. DUNCAN. Well, you know, none of these things are easy. You said it can easily be solved with a very small increase in the fuel taxes, yet Dr. Buechner mentioned removing the exemptions. Yet the main exemptions are for the State and local governments and transit agencies and I can tell you that every one of us is being bombarded every day by people from State and local governments who are up here trying to get more money. If we start removing those exemptions, boy, they will scream to high heaven. Then you talk about tolls, I can tell you, in my State there are no tolls. If we start putting those in, if people thought I was responsible for a toll, I would be voted out in the next election with no question about it.

[Laughter.]

Mr. DUNCAN. The fuel tax, the Chairman noted in almost every State they vote those down every single time. Maybe it would be possible to do a tiny little increase if you tie it into some project that is very popular. But it just looks like you have a very difficult situation there. What do you say, Mr. Pisarski?

Mr. PISARSKI. Yes, it is difficult. If you look at where there have been successes and where there have been failures, success is always tied to a program where the people trust the State government, the State DOT, to do a good job and where they have laid out a menu or laid out a program. In most of the cases that I have seen, I am thinking of Ohio as one of the best examples, where they were very sorry that they had not asked for more after they succeeded. There are a number of States that have succeeded in creating indexes.

So there is, I think, more concern than there needs to be. I think the public recognizes these needs and we just need to make that case to them better. I look at the European system, going to your question about the price of oil. If you count the taxation, the value of a barrel of oil in Europe coming out of the ground is like $300 a barrel. And it doesn't come out of the ground with tax on it. So I guess my point is that there is an immense benefit to the society, to every society, from the automobile and from the use of petroleum fuels. People are willing to pay immense sums for that benefit and the Europeans have discovered that. That is why their tax system is so high.

Mr. DUNCAN. Well, you talk about trusting the State DOTs, I am not sure, actually through, pretty much through no fault of their own, most of the State DOTs are not that popular. I remember in Knoxville, we used to have a mayor and I didn't get in any public dispute with him, but he used to attack the State DOT all the time because they were doing all this highway construction there in Knoxville. And it was very unpopular while it was going on.

But what I told people, I said, well, if the interstate in West Knoxville, just think if it was still two lanes instead of five like it is now. My gosh, we would have been in a horrible situation. So you have to put up with it. Now I think it is popular, but it sure wasn't for those several years while we were going through it.

All right, well, thank you very much for your testimony. You have been a very helpful and informative panel. Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you. Any other questions?

Okay. With that, I thank you for your testimony and this committee is now adjourned.

[Whereupon, at 3:37 p.m., the committee was adjourned.]

Subcommittee on Highways and Transit

Hearing on the "Structure of the Federal Fuel Tax and the Long-term Viability of the Highway Trust Fund"
Tuesday, March 27, 2007

Statement – Congressman Jason Altmire (PA-04)

Thank you, Chairman DeFazio, for holding this important hearing today on the "Structure of the Federal Fuel Tax and the Long-term Viability of the Highway Trust Fund." I appreciate your attention to how the Highway Trust Fund is financed and structured.

Numerous transportation policy experts, including our witnesses here today, have outlined the impending crisis the nation faces in its ability to adequately invest in and provide for our transportation infrastructure needs. In fiscal year 2009, the cash balances of the Highway Account will be depleted, according to current projections by the Department of Treasury and the Congressional Budget Office. If this were to occur, the amount available for states to plan, design, and construct new highway projects, as well as operate and maintain major roads, will be severely limited. It will also negatively impact any investments and improvements to public transit facilities, including bus and rail systems.

While current projections may prove to be inaccurate, it is important to examine ways in which we can address the long-term financial viability of the Highway Trust Fund. I think we all agree that the current financing mechanism of the Highway Trust Fund has served the nation well and allowed us to build a world class highway system. But it is imperfect and must be updated to reflect current realities. As we move closer to the reauthorization of the highways bill, I look forward to working with my colleagues to address this issue.

Thank you again, Mr. Chairman. I yield back the balance of my time.

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Statement of Rep. Harry Mitchell
House Transportation and Infrastructure Committee
Subcommittee on Highways and Transit
3/27/07

--Thank you Mr. Chairman.

--As you know, Arizona is now the fastest growing state in the nation.

--Our rapid growth has created an urgent need for highways.....a need that is out-pacing our ability to pay for them.

--According to the Arizona Department of Transportation, over the next 20 years, we

will need at least $9 billion for just 12 of our major highway corridors....and these corridors represent just 36% of our state's total highway miles.

--Making matters worse, Arizona is a "donor-state." We send more money to the federal highway trust fund than we receive in the form of highway funding. In FY-2006, we received just 90.5% of our fuel taxes back in the form of highway funding.

3

--This is unfair, and I welcome today's review of our federal fuel tax.

--I look forward to hearing from today's witnesses how they think the federal government can help Arizona meet our rapidly growing highway needs.

--I yield back the balance of my time.

Testimony

of the

American Road and Transportation Builders Association

before the

Subcommittee on Highways and Transit of the Committee on Transportation and Infrastructure

On

"Structure of the Federal Fuel Tax and the Long-Term Viability of the Highway Trust Fund"

Tuesday, March 27, 2007

By

William R. Buechner, Ph.D.,
Vice President, Economics and Research

Testimony of the American Road and Transportation Builders Association before the Subcommittee on Highways and Transit of the Committee on Transportation and Infrastructure on "Structure of the Federal Fuel Tax and the Long-Term Viability of the Highway Trust Fund"
Tuesday, March 27, 2007
Presented by William R. Buechner, Ph.D., Vice President, Economics and Research

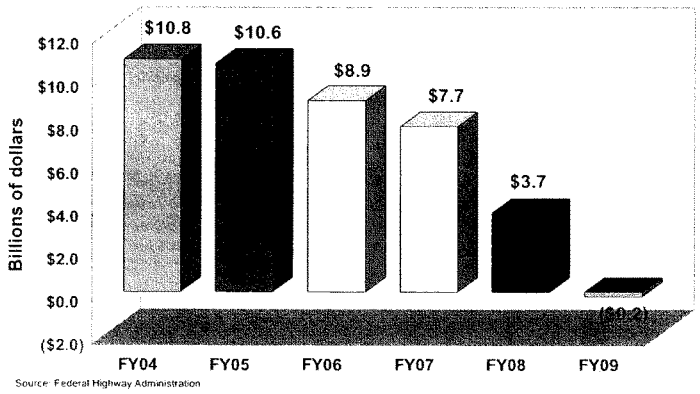
Mr. Chairman and members of the Subcommittee, thank you very much for inviting the American Road and Transportation Builders Association (ARTBA) to present its views on the viability of the federal motor fuels excise tax as a primary revenue source for the federal Highway Trust Fund (HTF).

Highway Trust Fund Balance

Before discussing this issue, let me address a more immediate concern—the projected elimination of the cash balance in the Highway Account of the Highway Trust Fund.

According to the Federal Highway Administration, the cash balance in the Highway Account will fall slightly below zero by the end of FY 2009, as shown in Figure 1. This forecast assumes Congress concurs with the recommendation in the president's budget not to fund the $631 million RABA bonus for FY 2008. If Congress does fund the RABA bonus, as provided in Section 8002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the negative balance at the end of FY 2009 would be slightly larger, about -$700 million.

Fig. 1 - Highway Account Balance Projected to Fall to -$200 Million by End of FY 2009



Source: Federal Highway Administration

This situation has been characterized as "bankruptcy of the trust fund," which implies some impending disaster for the federal highway program. But the term "bankruptcy" overstates the impact of a negative Highway Account balance. The FHWA forecast simply means that projected outlays from the Highway Account in FY 2009 will be slightly larger than the amount of funds available during FY 2009. But there will still be plenty of money coming into the Highway Account after FY 2009 to cover the shortfall. In fact, during the following four fiscal years, Highway Account revenues are projected to exceed $150 billion.

So, if a $200 - $700 million shortfall in the Highway Account does materialize as projected, all Congress would have to do is enact a small amount of additional revenues in FY 2009 to close the gap.

An effective solution to this problem would be to repeal or restructure most of the remaining exemptions from the federal motor fuels excise taxes. According to the Joint Committee on Taxation, Highway Trust Fund Highway Account exemptions are provided for:

- Use in State and local government and nonprofit educational organization highway vehicles;
- Use in buses engaged in transporting students and employees of schools;
- Use in private local mass transit buses having a seating capacity of at least 20 adults (not including the driver) when the buses operate under contract with (or are subsidized by) a State or local government unit to furnish transportation; and
- Use in private intercity buses serving the general public along scheduled routes. Such use is totally exempt from the gasoline excise tax and is exempt from 17 cents per gallon of the diesel fuel tax.

Exemptions and reduced rates for the annual use tax that is imposed on heavy highway vehicles are provided for certain "transit-type buses," trucks used for fewer than 5,000 miles on public highways (7,500 miles for agricultural vehicles), and logging trucks.

The U.S. Department of Treasury testified to the House Transportation and Infrastructure Committee in 2006 that these exemptions cost the Highway Trust Fund Highway Account approximately $1 billion per year in foregone revenue. There are no comparable exemptions for contributions to the Mass Transit Account.

Eliminating these Highway Account exemptions would likely ensure the trust fund has enough revenue to meet the investment commitments made in SAFETEA-LU and would prevent the next reauthorization cycle from starting in a deficit situation.

The policy rationale behind the Highway Account exemptions is not related to improving the nation's transportation infrastructure. With the Highway Account facing a projected negative balance, these exemptions can no longer be afforded. The exemptions should either be repealed or restructured as a general fund supported activity, as was done to eliminate the adverse impact of the ethanol motor fuels tax treatment on Highway Account revenues in 2004.

Even with this change, there is no question that projected Highway Account revenues will not be able to support continued funding for the federal highway program at the SAFETEA-LU level after FY 2009. The cash balance in the Highway Account at the start of FY 2010 will effectively be zero, even if it does not go negative. There will be no cash reserve to support a highway program after FY 2009 where outlays continue to exceed Highway Account revenues.

The Treasury Department projects Highway Account revenues of just over $37 billion in FY 2010. Much of the revenue—$30 billion or more—will be needed to finance outlays resulting from funding provided by SAFETEA-LU. This means only $6-$7 billion of the FY 2010 Highway Account revenues will be available to support new federal highway investment in FY 2010. Given that 27 percent of highway program funds spend out during the initial fiscal year, $6-$7 billion of available revenues would support no more than $24-$25 billion of federal highway investment in FY 2010. This would be a cut of about $18 billion from the $42 billion of guaranteed funding for FY 2009 under SAFETEA-LU.

User Fee Financing for the Highway and Mass Transit Programs

This brings us to the core issue of this hearing—whether the current federal motor fuels tax is the appropriate model to general funds for the federal highway and mass transit programs for the next reauthorization bill and how much longer the federal motor fuels excise tax can serve as a major source of revenues to finance the federal surface transportation programs.

This is an extremely important question, because of its impact on the fundamental principle of user fee financing for the federal transportation program. User fee financing of the federal highway and transit programs through the motor fuels tax has proven to be good public policy for two reasons. First, it relieves the federal general fund of responsibility for financing those important investments. Highway investment benefits highway users and they are the ones who pay for it. In return, the motor fuels excise tax has provided steady reliable support for federal highway investment for more than 50 years.

A federal tax on gasoline was first enacted in 1932. Until creation of the Highway Trust Fund in 1956, federal gas tax revenues were credited to the general fund. Federal investment in highways was financed from the general fund, but there was no specific relationship to gas tax revenues.

Since 1956, revenues from the federal excise tax on motor fuels have been deposited into the federal Highway Trust Fund where they have, at least in theory, been used to support federal highway investment and, since 1982, federal investment in mass transit.

The current federal excise tax on gasoline and gasohol is 18.3 cents per gallon. The tax on diesel fuel is 24.3 cents per gallon. Both apply only to motor fuels used for on-highway travel. The tax is paid to the Treasury by wholesale distributors of motor fuels and is passed on to highway users who pay it as part of the price of gasoline and diesel fuel at the pump.

Of the total tax per gallon, 2.86 cents for both gasoline and diesel fuel is credited to the Mass Transit Account of the Highway Trust Fund and is used to finance the federal public transportation program.

The remainder—15.44 cents per gallon of the tax on gasoline and gasohol and 21.44 cents per gallon of the tax on diesel fuel—is credited to the Highway Account to finance the federal highway program.

The only other revenue source for the HTF is a set of taxes levied on heavy trucks, in the form of sales, use, and heavy tire taxes which are credited to the Highway Account.

In FY 2007, motor fuel taxes are projected to generate $34.4 billion, or 87 percent of HTF revenues. The truck taxes are expected to generate $5.5 billion, or 13 percent. The U.S. Treasury projects annual growth of Highway Account revenues of just under $1 billion for the next few years.

Outlook for the Federal Motor Fuel Excise Tax

Looking to the future, our concern is whether there is anything on the horizon that would pose an obstacle to the continued use of motor fuel taxes as the major source of financing for the Highway Trust Fund. To do this, we have to look at factors that might erode the tax base or the tax rate.

Tax Base. When we are talking about erosion of the tax base, we mean anything that might reduce the highway use of gasoline and diesel fuel. Let me address the potential threats:

- CAFE standards. The most imminent concern is the proposal to raise corporate average fleet economy (CAFE) standards for cars and light trucks. An increase in fuel economy means less fuel will be needed for highway travel and thus less fuel tax revenues for the Highway Trust Fund.

  But this should not pose a measurable threat to the flow of motor fuel tax revenues for SAFETEA-LU reauthorization. The only CAFE changes actually announced to date apply to light trucks and would not be fully implemented until the 2011 model year, which coincides with the start of federal FY 2012. The Bush administration has also made a proposal that would take years to enact and implement.

  Even when the new CAFE standards are implemented, it will be a number of years before light trucks conforming to the standards comprise a significant part of the car and light truck fleet. Currently, there are more than 230 million cars and light trucks registered in the U.S. New car and light truck sales have averaged around 16 million vehicles in recent years, or about 7 percent of the total. At a turnover of 7 percent per year, it takes more than 14 years to completely replace the entire car and light truck fleet. Based on the projected CAFE increase and the vehicle turnover rate, the potential impact of the new light truck standards would be about three-tenths of one

percent starting 2012 or just about $100 million per year. By 2015, HA motor fuel tax revenues would be about $300 million lower than under current CAFÉ standards. Furthermore, even if higher CAFÉ standards reduce fuel consumption, the revenue effect can be offset by raising the tax rate.

- Rising retail prices for motor fuels. Even without higher CAFÉ standards, rising fuel costs would probably have a similar effect. No-one can predict the price of gasoline or diesel fuel from month to month or year to year, but it is virtually inevitable that the price of gasoline and diesel fuel will trend upward in the in the long term. Rapid growth of car ownership in China and India will increase demand while the cost of developing new petroleum supplies gets larger and larger. As prices rise, consumers will adjust by reducing travel and purchasing more fuel-efficient vehicles. This is a long-term adjustment that, absent a crisis like 1973 or 1979, should have little impact on revenues for SAFETEA-LU reauthorization.

- New motor fuels. As petroleum becomes scarcer, there will be pressure to develop new fuels for cars and trucks. Taxation, however, should not be a problem so long as the fuel requires a special delivery system to highway users. This would apply to ethanol, biomass diesel, hydrogen and compressed natural gas, all of which are or could be taxed somewhere in the delivery system at a rate equivalent to that on gasoline and diesel fuel. The main potential problem is electric vehicles but that is far in the future.

Construction Costs and Purchasing Power of the Federal Motor Fuels Tax. Far more important for both SAFETEA-LU reauthorization and the longer term is the erosion of the purchasing power of the federal motor fuel tax rates.

Congress last adjusted the federal motor fuel tax rates in 1993, when the gasoline tax was increased 4.3 cents from 14.0 cents per gallon to the current rate of 18.3 cents per gallon. The tax rate on diesel fuel was also raised by 4.3 cents per gallon at that time. That was 14 years ago and there have been no further adjustments.

What has happened to the purchasing power of the federal motor fuels tax since then?

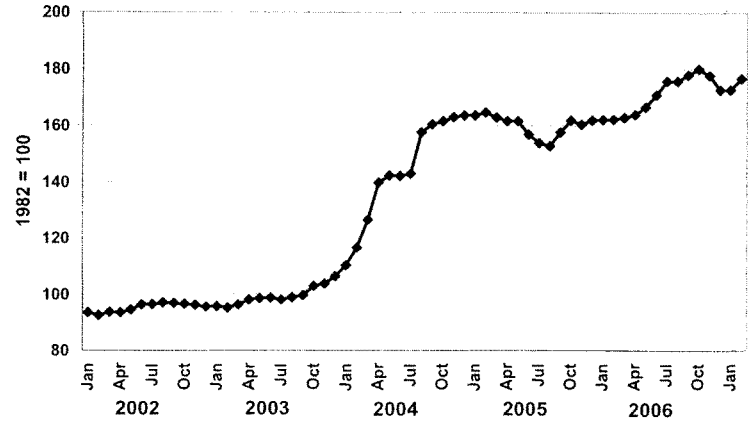
There is, unfortunately, no comprehensive official price index that applies to the cost of constructing highways and bridges. The best alternative is the Producer Price Index for Highways and Streets, which is prepared and released monthly by the U.S. Bureau of Labor Statistics, an agency of the U.S. Department of Labor. This index tracks the prices of all materials and services that are used directly or indirectly for highway and bridge construction.

This index shows that between 1993 and 2003, the cost of constructing highway and bridges rose moderately each year, tracking close to the Consumer Price Index. Even with moderate inflation, the purchasing power of the federal gasoline tax fell 25 percent in that one decade.

This relative stability came to an end in 2004. In the spring of that year, the price of construction steel began to rise rapidly due to Chinese purchases of scrap steel from around

the world to use for their construction projects. Scrap is a major source of raw materials for the U.S. steel industry. As the supply of scrap fell and prices skyrocketed, the availability and price of steel used in highway and bridge projects became a major problem. Figure 2 shows the rapid price increase for steel in 2004. Although the steel price index leveled off toward the end of the year, it was at a much higher level than in 2003.

Fig. 2 - Cost of Construction Steel Almost Doubled in 2004



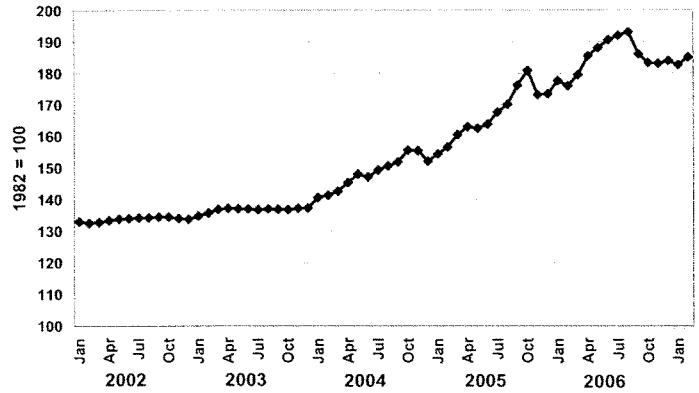
Source: Bureau of Labor Statistics PPI for Hot Rolled Bars, Plates & Structural Shapes

In 2005 and 2006, rapid price increases spread to core highway construction materials, including crushed stone, ready mix concrete, asphalt paving mixtures and diesel fuel, as shown in Figures 2a – 2d that are attached to the end of this statement. The causes were numerous, including: strong construction markets in the U.S. and around the world, which put pressure on supplies; Hurricane Katrina, which absorbed materials for emergency repairs; and spikes in petroleum prices, which worked into prices for asphalt and diesel fuel.

These increases in core highway construction materials as well as numerous other highway construction materials are incorporated into an overall index of highway and bridge construction costs, shown in Figure 3.

For the last three years, then, highway construction costs have risen substantially—8.5 percent in 2004, 12.5 percent in 2005 and 10.8 percent in 2006. During 2006, the average cost of highway construction materials was 35.2 percent higher than in 2003.

Fig. 3 - Cost of Highway Construction Materials Has Risen 35 Percent in Three Years



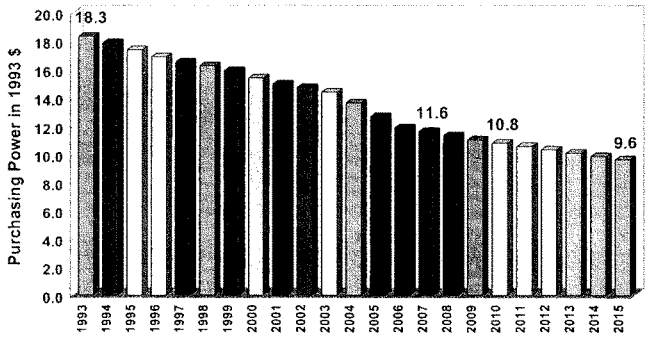
Source: Bureau of Labor Statistics, PPI for Highway and Street Construction

Fortunately, materials like asphalt and concrete comprise only half the cost of constructing highway and bridge projects, on average. According to reports submitted to the FHWA by highway contractors, labor and overhead such as office rental, equipment, medical insurance and phone bills comprise the other half of construction costs—and these have been rising at a much lower rate.

When all of these factors are combined, ARTBA calculates that the cost of highway and bridge construction in 2006 was at least 20 percent higher than in 2003. In parts of the country, the increase may have been much higher.

The relative purchasing power of the federal gasoline tax each year from 1993 to 2015 is shown in Figure 4. The Consumer Price Index is used as the measure of highway construction

Fig. 4 - Purchasing Power of Federal Gas Tax Being Eroded by Rising Highway Construction Costs



Source: BLS CPI thru 2003. ARTBA estimate for 2004-06; FY 2008 Budget of the U.S. Government for 2007 forward

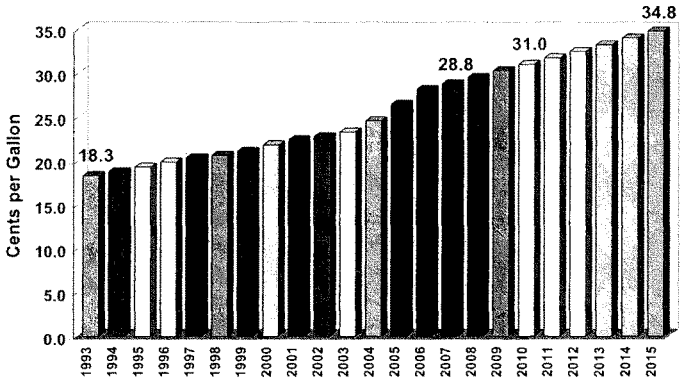
costs for all years except 2004-06, where we incorporate our best estimate of the actual increase.

As the chart shows, the federal gas tax today buys less than 2/3 the amount of highway and bridge construction as in 1993. It is as though the gas tax today were 11.6 cents per gallon.

By 2010, the first year of the next surface transportation authorization bill, the purchasing power of the gas tax is likely to fall even further, to 10.8 cents per gallon. By 2015, the 18.3 cent per gallon gas tax will purchase only 9.6 cents worth of highway construction.

Figure 5 shows what the federal gas tax rate should have been, or should be, each year to maintain the same purchasing power as 18.3 cents per gallon in 1993. In 2007, for example, the tax rate would have to be 28.8 cents per gallon. By 2015, we would need 34.8 cents per gallon.

Fig. 5 - Gas Tax Rate Required to Maintain 1993 Purchasing Power of 18.3 Cents per Gallon



Source: Same as for Figure 4

In conclusion, the federal motor fuels tax should continue to serve as a primary source of funding for federal highway investment, both for SAFETEA-LU reauthorization in the short run and probably for some time after that. For more than 50 years, the federal surface transportation programs have operated on the "users pay" principle. This principle has served the nation well. It has removed the responsibility for financing federal highway and transit investment from general taxes while providing a steady and secure source of funding for highway and transit improvements. Foreign transportation officials visiting ARTBA invariably express their envy for our system and wish for a similar source of dedicated revenues.

SAFETEA-LU Reauthorization

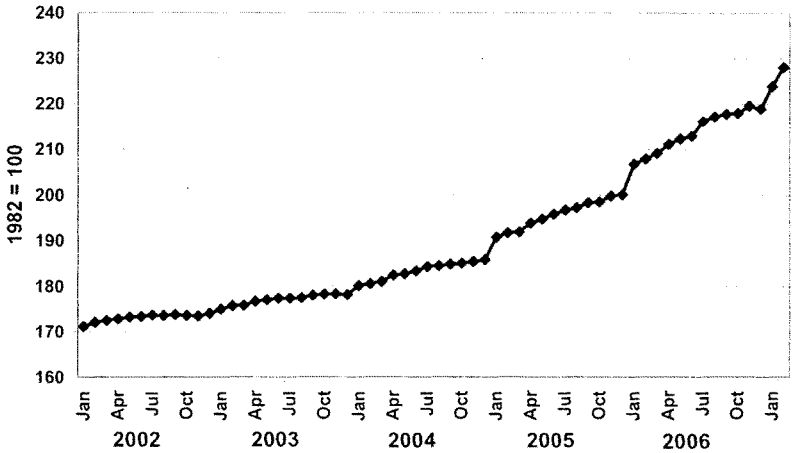
I want to caution that the increase in the federal gas tax to maintain its 1993 purchasing power is only a benchmark, not a policy recommendation. To ask, for SAFETEA-LU reauthorization, how much the gas tax should be increased to restore its 1993 purchasing power is the wrong question and goes at the financing issue backwards.

The way Congress should approach this for the next surface transportation bill is to start with establishing our highway and transit investment vision and needs for the six years from FY 2010 through FY 2015 and beyond. What amount should the federal government invest to maintain and improve our highway and transit systems so that they support the economic growth and mobility goals for this country? Once we know what we must accomplish through the federal surface transportation program, then Congress can determine how that investment should be structured and financed and the revenues to be raised.

That is the subject of another hearing and ARTBA would be pleased to present its views at the request of the Committee.

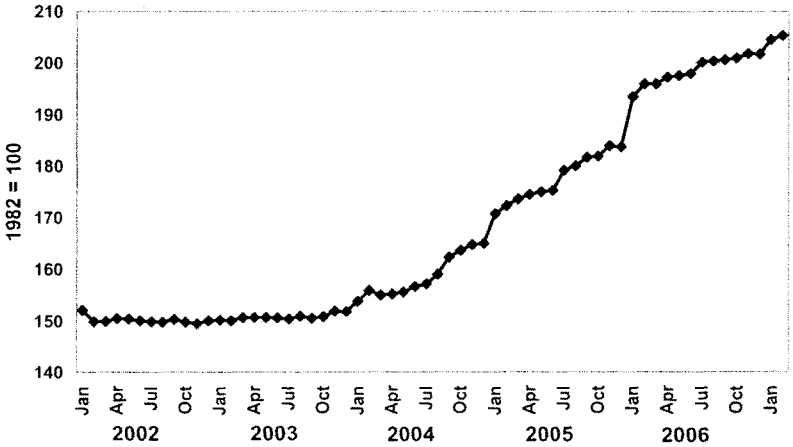
Mr. Chairman, again I thank you for the opportunity to testify on this issue. I would be happy to respond to questions.

Fig. 2a - Cost of Construction Sand, Gravel and Crushed Stone Has Risen 20.8 Percent Since 2003



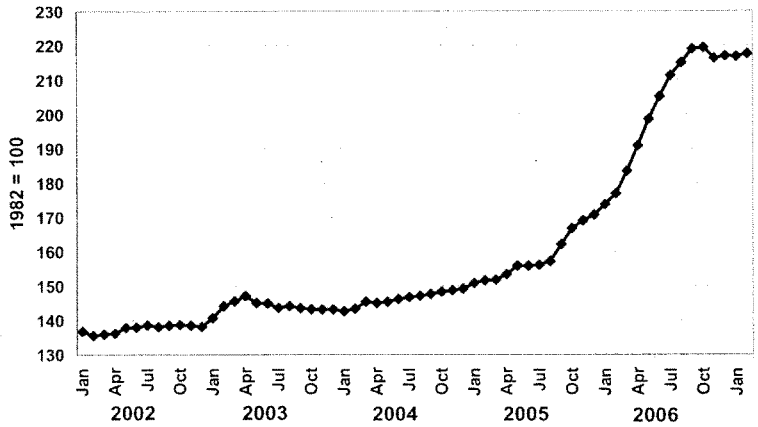
Source: Bureau of Labor Statistics. PPI for Construction Sand, Gravel and Crushed Stone

Fig. 2b - Cost of Ready-Mix Concrete Has Risen 31.7 Percent Since 2003



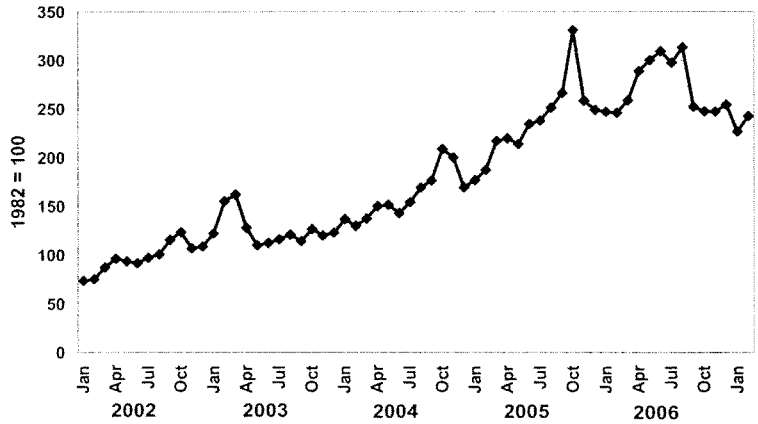
Source: Bureau of Labor Statistics. PPI for Ready-Mix Concrete

Fig. 2c - Cost of Asphalt Paving Mixtures Has Risen 40.4 Percent Since 2003



Source: Bureau of Labor Statistics. PPI for Asphalt Paving Mixtures

Fig. 2d - Cost of Diesel Fuel Has Risen 115.9 Percent Since 2003



Source: Bureau of Labor Statistics. PPI for #2 Diesel Fuel

CBO TESTIMONY

Statement of
Donald B. Marron
Deputy Director

Status of the Highway Trust Fund: 2007

before the
Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
U.S. House of Representatives

March 27, 2007

This document is embargoed until it is delivered at 2:00 p.m. (EDT) on Tuesday, March 27, 2007. The contents may not be published, transmitted, or otherwise communicated by any print, broadcast, or electronic media before that time.

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

Note

Numbers in the text and tables may not add up to totals because of rounding.

Mr. Chairman and Members of the Subcommittee, I am pleased to be here today to discuss the status of the Highway Trust Fund and to present the Congressional Budget Office (CBO)'s projections of the fund's revenues and outlays.

My testimony has four main conclusions:

- The revenues that finance the Highway Trust Fund have grown at a moderate pace in recent years, increasing by an average of about 2 percent per year since 1998. Before that, from 1997 to 1998, revenues rose sharply, when receipts from a portion of the gasoline tax were redirected from the Treasury's general fund into the trust fund. Spending from the trust fund has increased steadily since 1998, by an average of about 4 percent per year. Spending began to outpace revenues in 2001 and since then has exceeded revenues by about $16 billion.

- If annual obligation limits are set at the levels authorized in 2005, CBO projects that the highway account of the Highway Trust Fund will become exhausted at some point during fiscal year 2009; the Administration also projects that the balances in the highway account will be exhausted that year. CBO expects that the mass transit account will have sufficient revenues to cover its expenditures until 2012; the Administration estimates that the mass transit account will become exhausted in 2011.

- Projections of trust fund revenues are subject to uncertainty. Changes in oil prices, the economy, and the fuel efficiency of vehicles can all cause future revenues to differ from current projections. Consequently, the highway account could exhaust its resources either before or after 2009.

- Fuel taxes provide a relatively stable source of revenues with generally low collection costs and minimal evasion. However, fuel tax revenues do not grow as rapidly as the economy. CBO projects that if fuel taxes are extended, revenues from them will grow about 1.5 percent per year from 2007 to 2017, less than the nominal growth of the economy, at 4.6 percent. Fuel tax rates are fixed in nominal terms, so revenue growth is driven by increased fuel use. Fuel use, in turn, is driven by real economic growth, price changes, fuel economy, and the types of fuel used.

Overview of the Highway Trust Fund

The Highway Trust Fund is an accounting mechanism in the federal budget. It records specific cash inflows (revenues from certain excise taxes on motor fuels and trucks) and cash outflows (spending on designated highway and mass transit programs). The fund comprises two separate accounts, one for highways and one for mass transit. By far, the largest component of the trust fund is the Federal-Aid Highway program, which will account for about 90 percent of the fund's outlays in 2007 (see Table 1).

Table 1.

Major Components of the Highway Trust Fund, 2007

(Billions of dollars)

	Estimated Receipts[a]	Budget Authority and Obligation Limitations[b]	Estimated Outlays
Highway Account			
Federal-Aid Highway program	n.a.	39.8	33.9
Motor carrier safety	n.a.	0.5	0.5
Highway traffic safety	n.a.	0.8	0.6
Other	n.a.	0	0.3
Subtotal	35.2	41.0	35.3
Mass Transit Account			
Discretionary grants	n.a.	0	0.1
Trust fund's share of transit programs[c]	n.a.	7.2	2.9
Subtotal	5.1	7.2	3.0
Total, Highway Trust Fund	**40.2**	**48.3**	**38.3**

Source: Congressional Budget Office.

Note: n.a. = not applicable.

a. Receipts are deposited in the highway and mass transit accounts but are not earmarked for specific components.

b. Obligation limitations enacted in appropriation acts limit the amount of budget authority available to most Highway Trust Fund programs. The amounts in this column are the sum of obligation limitations and budget authority that is not subject to any such limitations.

c. Includes only outlays from 2007 funds. Outlays from previous years' funding were attributed to those years.

Spending from the Highway Trust Fund is not automatically triggered by the collection of tax revenues. Authorization acts provide budget authority for highway programs, mostly in the form of contract authority (the authority to incur obligations in advance of appropriations). Annual spending from the fund is largely controlled by limits on the amount of contract authority that can be obligated in a particular year. Such obligation limitations are customarily set in annual appropriation acts.

The most recent authorization law governing spending from the trust fund—the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—was enacted in 2005 and is due to expire at the end of 2009. The law provides specific amounts of contract authority over the 2005–2009 period and authorizes appropriations for certain programs that are not funded through contract authority. It also specifies annual obligation limitations, which may be superseded each year by limitations set in annual appropriation acts.

In addition, the 2005 law includes a funding mechanism, known as revenue-aligned budget authority (RABA), that is designed to strengthen the relationship between the highway account's revenues and spending. Under RABA, the Administration estimates revenues for the highway account and compares those estimates with the revenue amounts anticipated in SAFETEA-LU and with the estimates made the previous year. On the basis of that comparison, the Administration, as part of the President's annual budget request, is required to adjust contract authority for programs funded from the highway account. (If the current revenue estimates are higher than the revenue amounts anticipated in SAFETEA-LU, contract authority is increased. If the revenue estimates are lower than the anticipated amounts, contract authority is reduced, as long as the highway account balance is less than $6 billion.) The obligation limitations set in appropriation acts, however, do not necessarily reflect RABA adjustments.

History of the Highway Trust Fund's Revenues and Spending

Many changes have been made to the highway program, to the taxes dedicated to the Highway Trust Fund, and to trust fund operations since 1983. One of the most significant changes occurred in the Taxpayer Relief Act of 1997, which increased amounts deposited into the trust fund by 4.3 cents per gallon of gasoline sold, in addition to the 14.0 cents per gallon previously allocated to the fund.[1] Spending started increasing rapidly in 1999, resulting from changes enacted in the Transportation Equity Act for the 21st Century (TEA-21). TEA-21, which provided contract authority of $218 billion over the 1998–2003 period (an average of $36.3 billion per year), and SAFETEA-LU, which provided contract authority of $286 billion (an average of $57.2 billion per year) over the 2005–2009 period, represented significant increases in spending over previous authorizations.

Balances in the highway account were steady during the 1980s and the first half of the 1990s, in the vicinity of $10 billion (see Figure 1). Receipts substantially exceeded outlays from 1996 to 2000, and the unexpended balance in the highway account (sometimes called the cash balance) grew from $10 billion in 1995 to a peak of about $23 billion in 2000.[2] Since then, spending, boosted by TEA-21, has

1. The total gas tax is 18.4 cents per gallon. Of that, 18.3 cents is deposited in the Highway Trust Fund, and 0.1 cents goes to the Leaking Underground Storage Trust Fund.

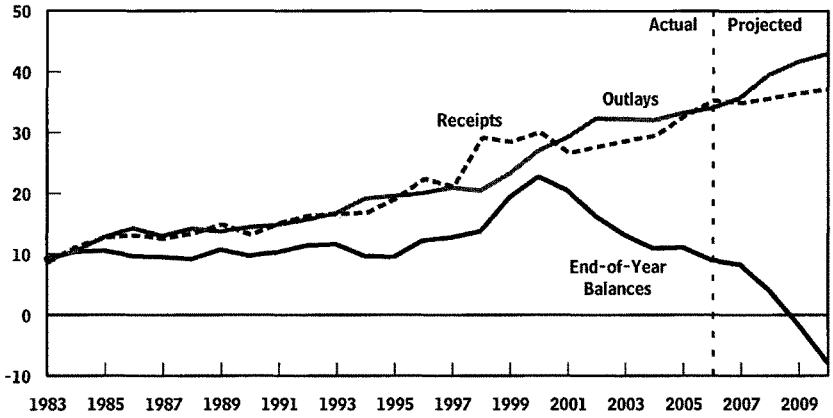
   The 1993 Omnibus Budget and Reconciliation Act increased the gas tax by 4.3 cents, but those funds were not initially deposited into the trust fund, but into the general fund of the Treasury.

2. Section 901(e) of the Taxpayer Relief Act of 1997 allowed taxpayers to delay depositing estimated fuel tax liabilities that would otherwise have been required in August and September of 1998 until October 5, 1998—effectively delaying a deposit of about $5 billion to the highway account and about $900 million to the mass transit account from fiscal year 1998 until fiscal year 1999.

Figure 1.

The Highway Account, 1983 to 2010

(Billions of dollars)



Source: Congressional Budget Office.

Note: Receipts are adjusted to remove the effects of a legislated shift in payment dates that reduced receipts by $5 billion in 1998 and increased them by the same amount in 1999.

generally exceeded revenues, which fell sharply in 2001. As a result, unspent balances fell over the next several years, to about $9 billion in 2006. In general, balances in the mass transit account also have been falling since 2000, although at a slower rate than those in the highway account. At the end of 2006, the balance in the mass transit account totaled about $6 billion.

After declining in 2001, revenues have increased steadily, at an average rate of about 5 percent per year through 2006. Revenue growth was especially strong in 2005, following changes in the tax treatment of certain fuels.[3] Outlays have not grown as rapidly, rising at about 3 percent per year from 2001 through 2006; nonetheless, they have generally exceeded revenues.

Projections of the Highway Trust Fund's Revenues and Spending

The status of the Highway Trust Fund is generally assessed by projecting the balances in it, which indicate whether the expected revenues will be sufficient to

3. The American Jobs Creation Act of 2004 increased the fuel tax on ethanol to equal that on gasoline for the purpose of the Highway Trust Fund, and that law retained a tax subsidy for ethanol production in the form of a tax credit paid from the Treasury's general fund. The law also included other provisions to increase revenues to the trust fund.

cover the anticipated spending. Those balances represent the cumulative difference between revenues and outlays over the life of the fund and indicate how much the fund has available, at any particular time, to meet its current and future obligations.

Highway Trust Fund Balances

CBO has estimated the trust fund's future balances by projecting revenues and outlays independently of each other because they have different bases—revenues depend on the collection of various taxes, and current-year outlays depend on the obligation limitations set in appropriation acts as well as the timing of spending for obligations that have been made in prior years. For those projections, CBO assumes that policymakers will continue to control spending through such limitations. Further, the agency assumes that appropriation acts will set obligation limitations equal to the amounts specified in SAFETEA-LU plus any RABA adjustments.[4] As that adjustment for 2007, the Administration projects an increase of $842 million and, for 2008, $631 million; for illustrative purposes, for 2009, CBO has estimated an increase of about $250 million (however, the Administration is responsible for preparing and implementing the adjustments of RABA). On the basis of those assumptions, the amounts available for obligation from the highway account would rise from about $38 billion in 2006 to $43 billion in 2009 (see Table 2).[5]

Under SAFETEA-LU, the amounts available for obligation from the mass transit account would rise from $8.3 billion in 2006 to $9.4 billion in 2009.[6]

Highway Trust Fund Revenues: Sources and Projections

The largest contributor of revenues to the Highway Trust Fund is the tax of 18.3 cents per gallon on gasoline and gasohol. Under current law, such taxes are scheduled to expire in 2011. The gas and gasohol tax currently produces about two-thirds of the fund's total revenues (see Table 3). About 2.8 cents per gallon is dedicated to the mass transit account. The second-largest source is the levy of 24.3 cents per gallon on diesel and special motor fuels, which accounts for about

4. That assumption differs from the one underlying CBO's baseline budget projections, which are governed by the rules set forth in the Balanced Budget and Emergency Deficit Control Act. In its most recent baseline, CBO projected highway spending over the next decade by assuming that the budget authority and obligation limitations in future years would equal those enacted in the 2007 appropriation act for the Department of Transportation, adjusted for inflation. With that projection method, baseline funding levels for highways are lower than the levels specified in SAFETEA-LU.

5. The $43 billion obligation limit in 2009 is 1.5 percent above the amount projected in CBO's baseline.

6. The obligation limit in 2009 is about 8 percent above the amount projected in CBO's baseline.

Table 2.

CBO's Estimate of Funds Available for Obligation from the Highway Trust Fund, 2006 to 2009

(Billions of dollars)

	Actual 2006	2007	2008	2009	Total, 2006-2009
Federal-Aid Highway Program					
Obligation limitation in SAFETEA-LU	35.6	38.2	39.6	41.2	154.6
RABA adjustments to obligation limitation[a]	0	0.8	0.6	0.3	1.7
Contract authority not subject to obligation limitation	0.7	0.7	0.7	0.7	2.9
Safety Programs (Obligation limitation)	1.3	1.3	1.2	1.3	5.2
Total Funds Available for Obligation[b]	**37.6**	**41.0**	**42.1**	**43.1**	**164.4**
Mass Transit Account					
Obligation limitation[c]	8.3	8.3	8.9	9.4	34.8

Source: Congressional Budget Office.

Notes: SAFETEA-LU = Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users; RABA = revenue-aligned budget authority.

a. Estimates assume funding levels authorized in SAFETEA-LU.

a. The figures shown as RABA adjustments in 2007 and 2008 come from the Administration, which is responsible for specifying them. The figure for 2009 is an illustrative estimate by the Congressional Budget Office.

b. CBO assumes that future appropriation acts will provide for SAFETEA-LU funding levels and any RABA adjustments.

c. The figures include about $1 billion annually that is transferred from the highway account to the mass transit account, through a mechanism known as "flexing."

one-quarter of the revenues. Thus, taxes on motor fuels generate about 90 percent of the trust fund's total revenues. The rest come from a 12 percent tax on the first retail sale of a truck or trailer above a certain weight, taxes on truck tires for highway use, and an annual use tax on heavy trucks. CBO projects all five of those revenue sources separately, along with refunds on amounts paid by certain taxpayers, such as state and local governments, which are exempt from the taxes.

Revenues from the taxes on gasoline and diesel fuel are credited to the trust fund, and then the highway account and the mass transit account receive shares.[7] Revenues from the three different taxes on trucks are credited entirely to the highway account. Currently, more than 85 percent of the revenues in the Highway Trust Fund go to the highway account.

7. About 85 percent of the gasoline and gasohol revenues and about 90 percent of the diesel revenues are credited to the highway account. The remainder go to the mass transit account.

Table 3.

Estimated Highway Trust Fund Revenues, 2006

Revenue Source	Billions of Dollars	Percentage of Total Trust Fund Revenues
Gasoline and Gasohol Tax	25.5	65
Diesel Tax	9.7	25
Retail Sales Tax on Trucks	3.5	9
Heavy-Vehicle Use Tax	1.4	3
Tax on Truck Tires	0.5	1
Refunds	-1.0	-3
Total	**39.6**	**100**

Source: Congressional Budget Office.

If the current taxes are extended beyond their 2011 expiration date, revenues credited to the Highway Trust Fund will rise at an average annual rate of about 2 percent per year over the coming decade, CBO projects (see Table 4). Trust fund revenues are projected to grow from about $40 billion in 2006 to about $42 billion in 2009—at a slower rate than nominal GDP, which CBO expects to rise at an average annual rate of 4.6 percent over the next 10 years. In large part, the difference exists because the fuel tax rates are fixed in nominal terms, so revenues depend on the quantity of fuel consumed, not its dollar value.

Outlay Projections

CBO bases its estimates of trust fund outlays primarily on historical spending patterns, which reflect states' multiyear projects to plan and build roads, bridges, and other transportation infrastructure. In the case of the fund's highway account, most of the obligations involve capital projects on which money is spent over a number of years. For example, the Federal-Aid Highway program typically spends about 27 percent of its budgetary resources in the year they are made available for spending and the rest over the next several years. The mass transit program typically spends about 15 percent of budgetary resources in the first year. Most of the highway programs' existing obligations will therefore be met using future tax revenues because those obligations far exceed the amounts now in the account. At the end of 2006, the balance of the highway account stood at $8.9 billion, whereas the outstanding obligations of highway programs totaled about $45 billion. The mass transit account had a balance of about $6.2 billion and outstanding obligations of about $3 billion (see Table 5).

If the Congress sets obligation limitations at the amounts authorized in SAFETEA-LU and adds RABA adjustments (as estimated), outlays from the trust fund's highway account will gradually increase from about $34 billion in 2006 to

Table 4.

CBO's Current Projections of Highway Trust Fund Revenues, 2006 to 2017

(Billions of dollars)

Revenue Source	2006	2007	2008	2009	2010	Average Annual Percentage Change 2007	2007-2009	2010-2017
Gasoline and Gasohol Tax	25.5	25.8	26.2	26.6	26.9	1.1	1.4	1.2
Diesel Tax	9.7	9.9	10.1	10.4	10.6	2.1	2.3	2.0
Retail Sales Tax on Trucks	3.5	3.7	3.8	4.0	4.2	3.9	4.3	4.1
Heavy-Vehicle Use Tax	1.4	1.4	1.4	1.5	1.5	2.3	2.8	2.6
Tax on Truck Tires	0.5	0.5	0.5	0.6	0.6	2.4	2.8	2.6
Refunds	-1.0	-1.0	-1.0	-1.0	-1.1	0.7	1.1	1.2
Total	**39.6**	**40.2**	**41.1**	**42.0**	**42.8**	**1.7**	**2.0**	**1.8**

Source: Congressional Budget Office.

about $42 billion in 2009, CBO estimates. Those outlays would exceed revenues by about $500 million in 2007, $3.5 billion in 2008, and $5 billion in 2009. In addition, CBO anticipates that about $2 billion from the highway account will be transferred to the mass transit account over that period.[8] By CBO's estimates, balances in the highway account will be exhausted during fiscal year 2009, falling short of obligations coming due in that year by about $1.7 billion.

The exhaustion of the highway account does not mean that spending would end. Annual spending would, instead, be limited to the amount of revenues flowing into the account each year, and there would be limited funds for new projects. Such balancing of spending and revenues could be accomplished by reducing future obligation limitations and budget authority below the levels assumed in CBO's projections, by reducing the rate of spending on projects for which funds have already been obligated (for example, by requiring states to delay the start or completion of projects), or a combination of the two.

Under SAFETEA-LU and with obligation limits adjusted for inflation after 2009, the mass transit account will have sufficient resources to meet spending demands until 2012, according to CBO's estimates.[9] Including transfers from the highway account, the obligation limit for mass transit will grow from $8.3 billion in 2006 to

8. Under SAFETEA-LU, states are allowed to use some of their highway funds for transit projects; the highway account transfers funds to the transit account when states choose to use such flexibility.

9. The Administration estimates that the mass transit account will run out of cash one year earlier. CBO and the Administration have made different estimates about how quickly spending from the fund will occur.

Table 5.

CBO's Projections of Highway Trust Fund Balances, 2006 to 2010

(Billions of dollars)

	2006	2007	2008	2009	2010	Total, 2006–2010
Highway Account						
Estimated outlays	33.9	35.7	39.4	41.5	42.8	193.3
Transfer to mass transit account[a]	1.4	0.3	0.7	0.9	0.9	4.1
Estimated receipts	33.6	35.2	35.9	36.7	37.5	178.9
Difference	-1.7	-0.8	-4.2	-5.7	-6.3	-18.7
Projected End-of-Year Balance	**8.9**	**8.1**	**3.9**	**-1.7**	**-8.1**	**n.a.**
Change from Previous Year's Balance	-1.7	-0.8	-4.2	-5.7	-6.3	-18.7
Mass Transit Account						
Estimated outlays	1.9	3.7	5.5	6.9	8.1	26.1
Estimated receipts	4.8	5.1	5.1	5.2	5.3	25.6
Receipts from highway account[a]	1.4	0.3	0.7	0.9	0.9	4.3
Difference	4.3	1.6	0.3	-0.8	-1.8	6.1
Projected End-of-Year Balance	**6.2**	**7.8**	**8.1**	**7.3**	**5.5**	**n.a.**
Change from Previous Year's Balance	4.3	1.6	0.3	-0.8	-1.8	6.1

Source: Congressional Budget Office.

Notes: n.a. = not applicable.

Estimates assume funding levels authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.

a. States are allowed to use a certain portion of their highway funds for mass transit programs, resulting in transfers from the highway account to the mass transit account.

$9.4 billion in 2009. However, by CBO's estimates, outlays will exceed revenues by less than $500 million in 2008 and by about $1.5 billion in 2009.

The Uncertainty of Projections

Projections of the Highway Trust Fund's revenues and spending face a variety of uncertainties. For example, the Congress could choose to limit obligations from the trust fund at different levels from those under SAFETEA-LU. In addition, a number of factors could significantly affect the use of gasoline, which would, in turn, affect the trust fund's income. The economy could grow faster or more slowly than expected. Oil prices could climb higher or fall substantially. Consumers might adjust more or less to changes in fuel prices (for example, by driving fewer miles in the short term or purchasing more-fuel-efficient vehicles in the longer term).

Historical Analysis of CBO's Revenue Projections

An analysis of CBO's historical track record is one way to illustrate the sensitivity of revenues to a variety of factors and the resulting uncertainty of the projections of revenues for the Highway Trust Fund.[10] In the 1990s, highway revenues tended to exceed the projections because of unexpectedly strong economic growth and a rapid increase in purchases of sport utility vehicles, which have below average fuel efficiency. Conversely, projections of revenues made in the years just before 2002 generally turned out to be too high. The 2001 recession reduced revenues well below expectations. The projections made since 2001 have been more accurate than the average.

As noted earlier, CBO projects that, under current law, the highway account will become exhausted before the end of 2009. CBO's analysis of past forecast errors indicates that if actual revenues fell short of projections to the extent that occurred with CBO's forecasts produced in and just before 2001, then the highway account could run out of funds as early as 2008. However, if revenues exceeded the projections by amounts consistent with the 1990s deviations, then the highway account could be in surplus until 2010 or 2011.

However, the historical performance of revenue projections may not be a good indicator for the future. In particular, the increase in fuel prices in recent years has persisted and may lie outside the range of experience. Also, alternative sources of powering motor vehicles, not subject to taxes, may be developed. Those developments potentially introduce more uncertainty, especially in the longer term.

The Sensitivity of CBO's Current Revenue Projections

The uncertainty of revenue estimates can also be assessed by looking at CBO's current revenue projections in more detail, especially by identifying the effects of higher fuel prices. CBO projects that the fuel price increases of the past several years will largely persist over the 10-year projection period. Relative to overall prices in the economy, fuel prices over the next 10 years are projected to average about 50 percent above their average over the 1984–2003 period. As a result, CBO expects individuals to purchase vehicles with higher fuel efficiency and to drive fewer miles, reducing gasoline use by amounts that become more significant over a number of years. The effects of the higher fuel prices reduce CBO's projection of growth in highway revenues by about 0.4 percentage points per year, on average, over the next decade. Cumulatively over the 2008-2017 period, the higher prices reduce projected revenues to the Highway Trust Fund by about $9 billion (under an assumption that the taxes are extended beyond their scheduled expiration in 2011).

10. Statement of Donald B. Marron, Acting Director, Congressional Budget Office, *CBO's Projections of Revenues for the Highway Trust Fund,* before the Subcommittee on Highways, Transit, and Pipelines, House Committee on Transportation and Infrastructure (April 4, 2006).

The projections of revenues are also sensitive to assumptions about the substitution of alternative fuel sources for gasoline, but CBO expects that factor to have a limited effect on the trust fund over the 10-year projection period. The mandated increase in the use of ethanol fuels affects revenues even though the tax rates on gasoline and ethanol are the same for the purpose of the trust fund. Ethanol has a lower heat content than gasoline and therefore reduces fuel efficiency compared with gasoline. However, the effect on the trust fund is limited because ethanol is expected to replace a relatively small share of gasoline use over the coming decade. Other technologies, furthermore, may emerge to replace gasoline and ethanol. For example, if technological advances allow fully electric-powered vehicles to become a significant share of the vehicle stock, then growth in the use of taxed motor fuels would be reduced. However, CBO expects that such technological changes will cause only small impacts on the trust fund over the 10-year period.

The tax rates on gasoline, ethanol, and diesel fuel are fixed in nominal terms and thus do not rise with inflation, which contributes to a long-term decline in the purchasing power of the revenues accruing to the Highway Trust Fund. If the tax rates rose with inflation, revenues to the Highway Trust Fund would be about $44 billion higher over the 2008–2017 period, according to estimates of the Joint Committee on Taxation. The lack of indexed tax rates explains about two-thirds of the difference between CBO's baseline projection of average annual growth in fuel tax revenues (1.5 percent) and in nominal gross domestic product (4.6 percent) over the next 10 years.

Fuel Taxes as a Highway Revenue Source

Issues in the use of fuel excise taxes to fund federal highways include the extent to which the taxes are economically efficient, their costs of collection and ease of ensuring compliance, the stability of the revenue stream that they provide, and the growth of that revenue stream over time.

Economic Efficiency

Economic efficiency would require that highway users face the full resource cost of driving. That resource cost includes not only the private costs of owning and using a vehicle but also public costs such as the wear and tear that driving inflicts on roads (which increases with vehicle weight and the distance traveled), delays from traffic congestion and accident risks imposed on occupants of other vehicles, and pollution and other external costs. Some of those public costs may be accounted for through other means—tolls, for example, can address some costs of road use and congestion, insurance premiums and liability rules can address some accident risks, and emissions regulations may address some pollution costs. If those other measures do an incomplete job of accounting for those costs, however, it may be economically efficient to address them with fuel taxes.

Fuel taxes can only approximate those costs, though. Heavier vehicles and longer trips generally require more fuel, but fuel costs and public costs are not closely

linked. A driver pays the same fuel tax for going a given distance at a given speed whether driving on a busy urban highway or an empty rural highway, for example, even though congestion costs are higher in the first case. Two vehicles with the same gas mileage pay the same tax to travel a given distance, even though they may differ in weight and thus impose different costs on the highway system.

Further complicating the issue, roads have high fixed costs, while the marginal cost of adding a single vehicle is very low (except in those situations where a road is very congested). Therefore, pricing vehicles' use of the roads on a marginal cost basis could make it difficult to recoup the cost of building and operating the system.

Compliance

Collection costs for fuel taxes are fairly low, and evading them is difficult. Because the fuel excise taxes are levied on fuel producers (who then pass the added costs on to consumers), tax authorities collect the revenues from only a small, stable (and therefore easily monitored) group of taxpayers. Some difficulties posed by highway use of fuels intended for off-highway use (which are typically not taxed) have occurred but have been fairly well controlled, especially since a requirement to dye off-road diesel and diesel-substitute fuel was implemented.

The Stability of the Revenue Source

Despite fluctuations in the economy and long-term improvements in fuel efficiency, fuel taxes have provided a relatively stable stream of revenues. In part, that stability results because motor fuel use is not very sensitive to changes in price. Annual growth in motor fuel use has varied less historically than has growth in the income bases for the individual and corporate income taxes, which are affected more by changing economic conditions.

Future Revenue Growth

Several factors could influence the long-term outlook for fuel revenues. Most important, the tax rates are fixed in nominal terms and thus do not increase with inflation. All else being equal, future revenues will grow only with future fuel use. If the cost of building and maintaining highways rises in the future as it has in the past, fuel tax revenues will support a declining amount of investment in and maintenance of the transportation infrastructure.

In addition, increased production of vehicles that run on alternative sources of power that are taxed less or not at all (like fully electric cars) may reduce the tax base provided by fossil fuels and fossil fuel blends. Even discounting the influence of such vehicles, improvements in fuel efficiency will probably limit the growth of fuel use—and thereby limit the growth of excise tax receipts.

However, increasing use of certain alternative fuels may also build the tax base. Ethanol's lower energy content than gasoline's means that vehicles running on an ethanol-blended fuel get fewer miles per gallon than they would using pure gasoline, increasing the fuel consumed for a given number of miles driven. Because fuel taxes are levied on a per-gallon basis, substituting ethanol for gasoline increases the trust fund's revenues from the excise tax.[11] Continued taxation on the basis of volume (instead of energy content) will increase revenues if other alternative fuels contain less heat per gallon than gasoline.

Alternative Revenue Sources

Highway and mass transit programs could be financed in a variety of ways—including other types of taxes and charges and financing from the Treasury's general fund.

Road Usage Charges

Tolls can be used to raise prices specifically for busy roads, and congestion pricing can adjust charges to motorists for travel on particular roads depending on the amount of traffic. Technology is increasingly making possible the routine assessment of usage charges without the delays associated with toll booths in the past. Those methods of revenue collection could be a major improvement over fuel taxes in their ability to link the prices paid by drivers to travel distances and traffic congestion.

Other Excise Taxes

The federal government currently levies excise taxes on the sale and use of heavy trucks and trailers and on the manufacture and importation of tires for heavy vehicles. Like the fuel excise taxes, those taxes are collected from a relatively small group of retailers and manufacturers, making the taxes relatively easy to collect and difficult to evade. Although receipts from truck sales taxes have been highly variable (owing partly to the price-basis on which they are levied), truck use taxes and tire sales taxes have provided a revenue stream of comparable stability to the one from fuel taxes. Those other excise taxes could be relied on more; for instance, they could be increased or expanded to cover light trucks and cars. Such taxes vary more directly with vehicle weight and miles traveled and can be made to mirror even more closely those factors affecting public costs.

General Fund Revenues

Another approach is to finance road construction and maintenance with general fund revenues, which may have a particular rationale for costs that cannot be attributed to individual users. As a result of tax preferences provided to producers of ethanol and other alternative fuels, several billion dollars a year are already

11. However, a credit for ethanol production (which is in place until the end of calendar year 2010) draws from the Treasury's general fund.

directed, in effect, from the general fund to the Highway Trust Fund. Currently, those producers get tax credits, the effect of which is to tax those fuels at a lower rate and have transfers from the general fund make up the difference.

Extending and Indexing Current Taxes

Short of major overhauls of the financing mechanism, the existing motor fuel taxes could be altered in a variety of ways. To achieve higher revenues, policymakers could increase the per-gallon tax rates or index them to inflation. To tax fuels comparably, policymakers could apply rates consistent with the fuels' energy content and bring new fuels under this rubric as they emerge. For example, fully electric cars, if they become practical alternatives to conventional vehicles, could somehow be taxed.

TESTIMONY BEFORE THE US HOUSE OF REPRESENTATIVES COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE SUB-COMMITTEE ON HIGHWAYS AND TRANSIT

The Federal User Charge System

March 27, 2007

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Introduction

Mr. Chairman and distinguished members: it is a great pleasure to appear before this Committee once again to discuss with you the substantial challenges the nation faces in transportation and transportation funding. I treasure the past interactions I have had with this great body over the years.

Last year we celebrated the 50th anniversary of the Interstate System. In fact what we were celebrating was the 50th anniversary of the funding mechanism that made the Interstate possible. As stated in my testimony to this body in January of this year, the vision for the interstate system was developed in the thirties, the plan (the actual map) evolved in the forties, but it took President Eisenhower's genius for organization to put it all in motion with the financing plan that created the Highway Trust Fund in 1956 and the Pay As You Go system that made the Interstate System (the crown jewel of the nation's transportation system) possible. Previous proposals had advanced the idea of a entirely toll-based road system; later Administration proposals from the Clay Commission advanced the idea of a bonding program paid for with fuel taxes. The Pay As You Go system was a Congressional decision after the other concepts were deemed inappropriate for being too limited or too expensive.

That Trust Fund and the user fee based system of revenues that support it have served the Nation well for those fifty years. In my testimony I will describe many of the elements that made for an effective revenue system and examine how those elements are changing.

The User Compact

The fundamental understanding is that of a user compact between government and road users. In that user compact users pay according to the costs they exert on the road system and governments expend those funds in ways that are responsive to user needs and seek to minimize their costs. The responsibilities are mutual and reciprocal.

First and foremost we need to recognize that to be effective a charging system for road use must seek to be fair to users as well as adequate in the resources it generates. To be fair it is best for the fee system to be a surrogate for the miles traveled by vehicles and proportionate to the effects the vehicle has on the roads it uses. The fuel user charge does that really quite well. Absent complex technology, only recently emerging, it does it about as well as one could imagine such a system to do. Among its attributes:

- Almost all motorized vehicles have been and still are petroleum-based so effectively all motorized vehicle users pay as they use their vehicles;
- Non-users of the road system pay nothing directly for the road system;
- A limited number of users of purchased fuels don't use them on roads and in most instances there are refund mechanisms to address this;
- To the extent that fuel taxes are a part of trucking costs, road costs are incorporated in the costs of products we buy whether we are road users or non-users;
- Taxation increases with distance traveled;
- Heavier, bigger vehicles which may cause more damage tend to pay higher fees given their typically lower gas mileage;
- System administration costs (costs of collection, fraud, etc.) are small;
- Continuing cost allocation studies by FHWA have assessed the proportionate shares of costs among users.

Such a system is dependent on getting the original relationship between fuel taxes per mile of travel right in the first place – that is knowing the average cost exerted on the road system per mile of travel and thru the intermediary-ship of the changing miles per gallon characteristics of the fleet, and the fuel user charge rate per gallon, assuring that the user is paying an appropriate amount for use.

Weaknesses

We already see from this some of the ways that the system's effectiveness can go wrong. These have two parts: the fundamental attributes of the system; and the effects of time:

Fundamental Attributes

- The adequacy of the original user charge expressed as cents per VMT could have been wrong;
- Funds may be adequate but not dedicated to the needs of road-users as dictated by user revenues;
- Funds may be diverted, impounded, or otherwise not employed in cost-effective ways;
- Administrative procedures may be weak, lax or inappropriate.

The Effects of Time

- Over time vehicle fuel economy could change modifying the program's income per vehicle mile;
- Over time the weights of vehicles could change causing greater damage than expected;
- Over time road congestion can change the cost picture for both user and highway operator;
- Over time the mix of roads in the system can change with different costs to build and operate (e.g. the Interstate);
- Over time the needs for maintenance will grow with system size and age reducing funds for expansion;
- Over time costs may change with technology, new procedures, new demands (sound barriers), new expectations;
- Over time the value of the revenue can be eroded by changing labor and materials costs and inflation.

All of these problems are directly addressable analytically, legislatively, by policy, by indexing systems or other means. It must be recognized that our wealthier society today makes demands on a system based on the public's higher values of time, their greater willingness to see investment in environmental, safety and aesthetic concerns than past generations. We expect more of our system today. Trying to accomplish more has placed great strains on the present Highway Trust Fund system. One result has been a growing backlog of investment needs in improved condition and performance.

A Broader Assessment of Weaknesses

Some analysts observe that the use of averages in the user charge system have undesirable consequences and would foresee a system that could charge not just for miles driven but for miles driven at certain times and in certain places. Few taxing systems are capable of such precision. Cost allocation procedures as mentioned above seek to get costs right by broad vehicle classes over the years and have difficulty getting that right much less by type of facility, or specific facility, by time of day or in real time – especially when the goal is to be sensitive to congestion levels on a given facility at a given time.

The history of the program has been such that the relatively blunt mechanisms employed to generate revenues were compensated for by, in relative terms, very large percentage increases in the fees, by relatively benign inflation rates, but most of all by the explosive growth in the early days of the system and up to just recently in drivers, vehicles and their travel. These included:

- The baby boomers coming of working age and the advent of a greater proportion of women entering the work force than ever before created an extraordinary boom in new drivers;
- Vehicle ownership after WWII exploded and produced a dramatically larger vehicle fleet;
- Growing wealth made vehicles more broadly affordable and made fuel cost and the accompanying user charge a relatively minor consideration;
- The shifts away from crowded cities by the population expanded the auto-oriented high-mobility life style;
- Tourism, including business travel and recreation, became major industries generating new levels of long distance vehicle-based travel;

The fuel tax increases in the early stages were dramatic in percentage terms: July 1956 50% (2¢ to 3¢); Oct 1959 33% (3¢ to 4¢); April 1983 125% (4¢ to 9¢); Jan 1987 55% (9.1¢ to 14.1¢) and finally Oct 1993 30% (14.1¢ to 18.4¢)

(Appendix charts following this testimony document these trends)

One of the key factors in the future that we began to see even in the nineties is the reflection of the saturation of many of these trends. The white non-Hispanic population has reached effective saturation among both men and women in drivers' licenses and in vehicles. Remaining growth will be a product of the closing of licensing and vehicle ownership gaps by:

- minorities over time as their incomes rise;
- the arrival of new immigrants;
- and the reaching of driving age of today's youth.

Increases in per capita VMT have stabilized as the population shifts toward the lower travel age groups. Current estimates of twenty year VMT growth trends now range

below two percent per year, instead of the three and four percent rates typical of previous decades. One of the remaining gaps to close over the next 15-20 years will come from the aging of the high travel prone baby boom age group replacing the present older population which was less oriented to the auto.

While all of these factors are significant, the greatest impacts on the user charge system and its adequacy have not been demographic or technological. They have been the result of fiscal and policy decisions that have distorted the Pay As You Go system with expanded targets for funding (transit and other); fiscal constraints on the process (impounding, CAFE and obligation limits) and the erosion over time of the value of the funds raised from failure to make timely adjustments to the fee structure system.

The feared future erosion of the system's revenues from new alternative fuels, new vehicle technologies are relatively distant in terms of serious impact and can be addressed as long as we keep in mind the relationship between road use and the user fee, but it is the other challenges that will be the more serious threat to the viability of the system. The greatest threat to the effective functioning of the system will be the program's continued lack of focus and expansion of eligible opportunities so that everything is federal.

Closing Thoughts on the Fundamental Challenges we face

Much has been made of the public's resistance to fuel tax increases. In a period when fuel prices varied by at least a dollar a gallon, it is hard to see how a five or ten cent change from user charges would have been singled out as too onerous. It is more to the point that the public may have lost faith in the validity of our vision and our ability to execute our plans that leads to a distaste for increases. When a sound menu is put before the public by agencies that are trusted the success has been substantial.

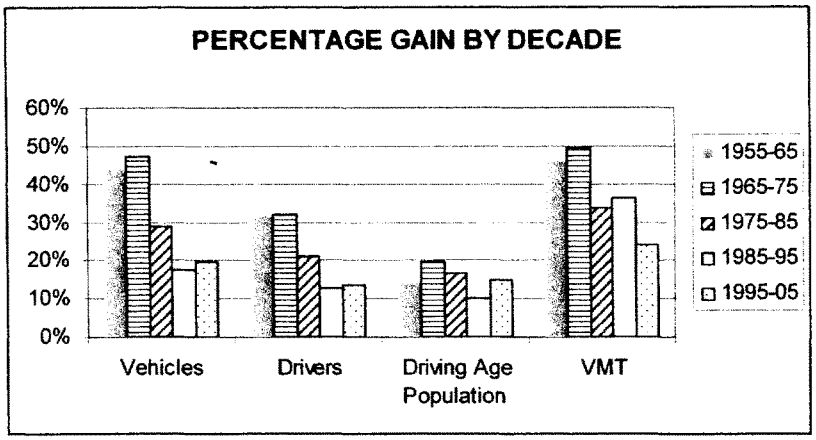
Over all the Pay As You Go system tied to the Trust Fund mechanism has been immensely effective. Other nations have used the gas tax as a cash-cow seeking consciously to separate road program costs from road taxes in order to tap into the immense benefits the public receives from road use. Other funding approaches are not immune from this. We are seeing in Europe debates among countries as to whether toll revenues are general fund receipts or dedicated transportation revenues. In this country we are seeing that same conflict with old and new toll systems and new proposals for lease arrangements.

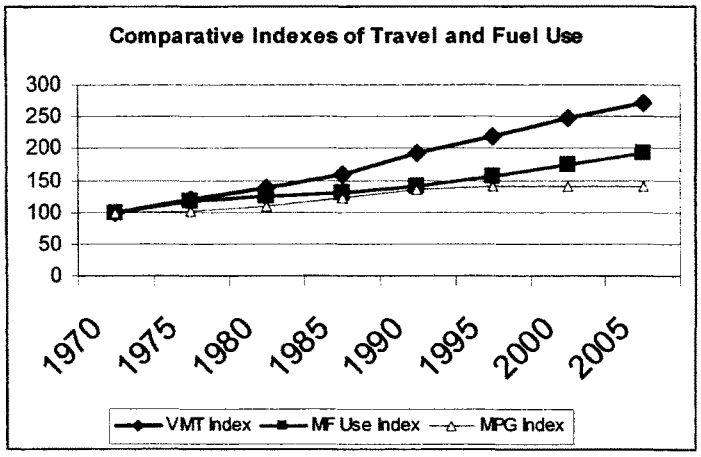
In effect, then, one of the great benefits of the present US Highway Trust Fund system is that it establishes an upper limit on what can be charged to road users and that is that amount needed to assure a responsive road system which supports road users and the nation in its economic and social aspirations. In my mind the integrity of dedication to highways of the user charge is the most fundamental aspect of the user compact. It is most fundamental that that be preserved. If that connection to transportation is lost the injury to America's high mobility society will be massive. All other factors are relatively secondary to that. At an expected $1.7 billion per penny the fund will continue to attract friends. The great power of the Interstate System program was its power to attract and to repel. It attracted supporters of the concept and the funding system to support it. It also was able to repel those who had broader designs on what the money raised might do. It is that ability to repel that has been diminished by the decline of the Interstate program with the results we see today – effectively a funding source without a program. not that such a program does not exist but it has not been enunciated. A new mission – a new vision – is required.

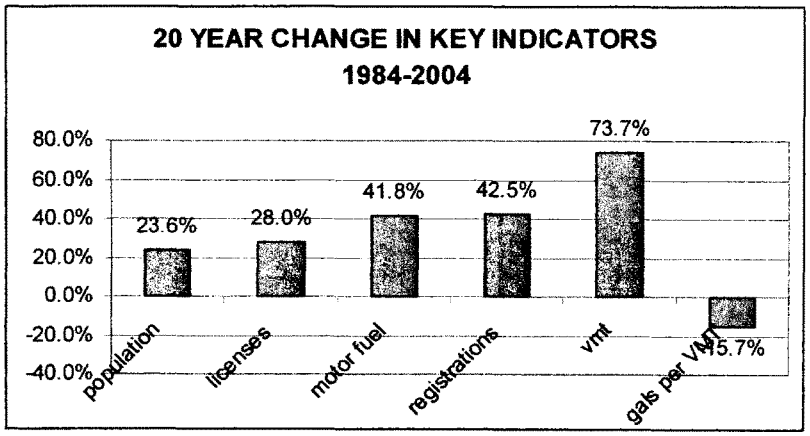
GRAPHICAL APPENDIX

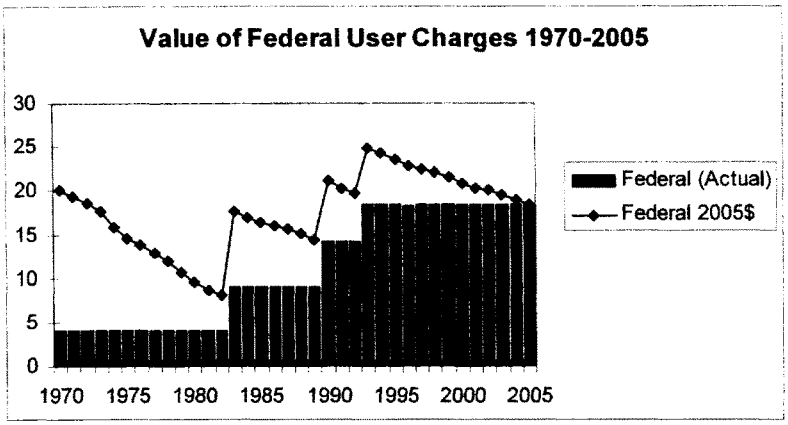
SOURCES:

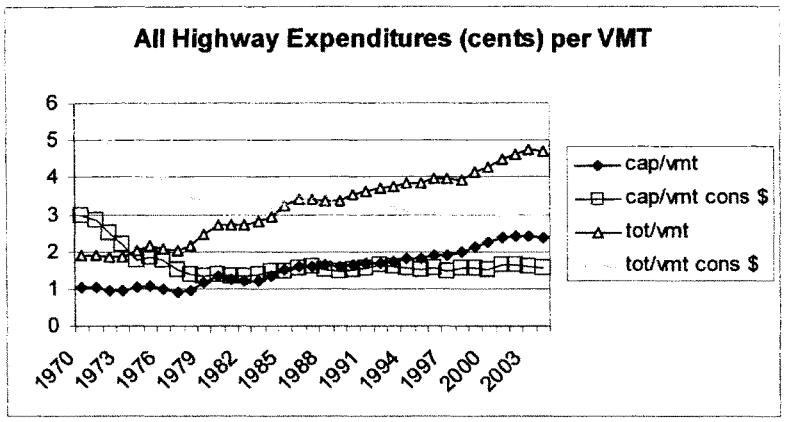
FHWA: HIGHWAY STATISTICS
FHWA: OUR NATION'S HIGHWAYS
FHWA: NATONAL HOUSEHOLD TRAVEL SURVEY

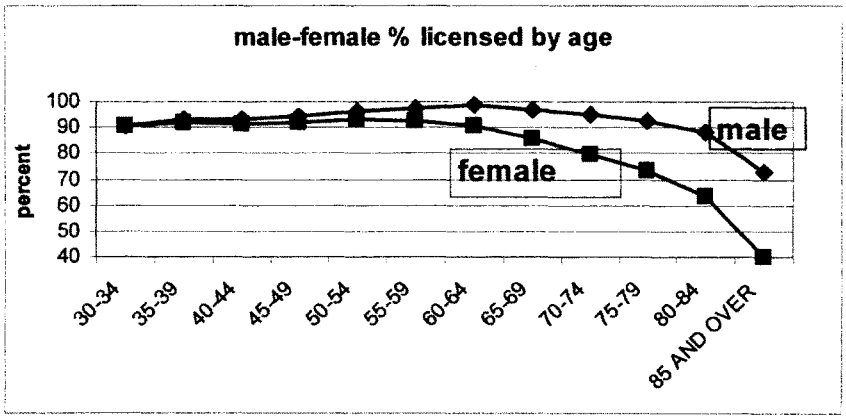

PERCENTAGE GAIN BY DECADE
60%
50%
40%
30%
20%
10%
0%
Vehicles
Drivers
Driving Age Population
VMT
1955-65
1965-75
1975-85
1985-95
1995-05


Comparative Indexes of Travel and Fuel Use
300
250
200
150
100
50
0
1970
1975
1980
1985
1990
1995
2000
2005
VMT Index
MF Use Index
MPG Index

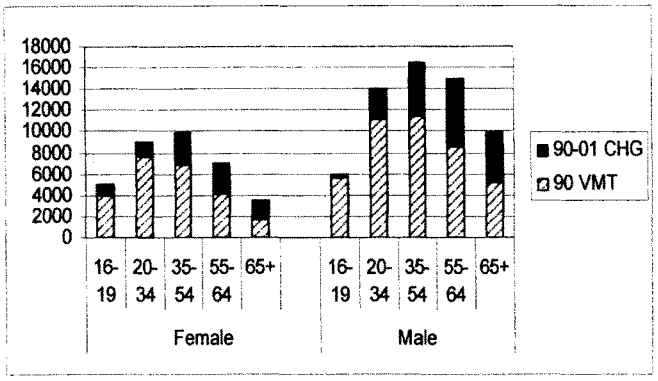

20 YEAR CHANGE IN KEY INDICATORS
1984-2004
80.0%
60.0%
40.0%
20.0%
0.0%
-20.0%
-40.0%
23.6%
28.0%
41.8%
42.5%
73.7%
-15.7%
population
licenses
motor fuel
registrations
vmt
gals per VMT

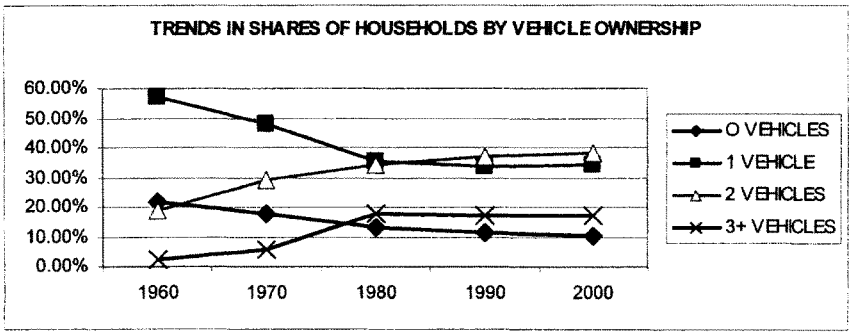

Value of Federal User Charges 1970-2005
30
25
20
15
10
5
0
1970
1975
1980
1985
1990
1995
2000
2005
Federal (Actual)
Federal 2005$


All Highway Expenditures (cents) per VMT
6
5
4
3
2
1
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
cap/vmt
cap/vmt cons $
tot/vmt
tot/vmt cons $


male-female % licensed by age
percent
100
90
80
70
60
50
40
male
female
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85 AND OVER

TREND IN PERSONAL VMT – by age-sex





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TESTIMONY
Before the Highways and Transit Subcommittee of
Transportation and Infrastructure Committee
United States House of Representatives

Hearing on Structure and Viability of the Federal Excise Fuel Excise Tax

March 27, 2007

Mr. Chairman and Members of the Committee, thank you for the opportunity to provide testimony on the impacts of fuel economy and alternative fuels on the viability of the federal fuel excise tax. I served on the 2005 National Academies committee that drafted the report, *The Fuel Tax and Alternatives for Transportation Funding*. My remarks are based in part on the findings of that study.

I am a professor of engineering and environmental policy and director of the Institute of Transportation Studies at the University of California, Davis (ITS-Davis). ITS-Davis is the leading university center for the study of transportation energy. I have devoted most of my professional career to the study of energy use in transportation. I've authored or co-authored over 200 technical papers and nine books, most of them on transportation energy issues. I was the founding chair of the alternative fuels committee of the Transportation Research Board of the National Academies, and advise most of the major car and oil companies in the world. In February 2007 I was appointed by Governor Schwarzenegger to the California Air Resources Board, where my principal focus is energy and climate policy related to transportation.

My statement addresses the effect of improved fuel economy and alternative fuel use on fuel tax revenues. I respond to two concerns: how to assure adequate funding for transportation, and how to reduce greenhouse gas emissions from transportation.

I note that many leaders in the transportation community are concerned that rapid reduction in gasoline use and rapid introduction of alternative fuels will empty the Transportation Trust Fund. For example, Oregon's Road User Fee Task Force was formed by the legislature in 2001 with a charge to develop a new form of revenue collection, with the assertion that "New technology will soon greatly improve the average fuel efficiency of the statewide passenger vehicle fleet. . . . As a result of fuel efficiency improvements, Oregon fuel tax revenues from the sale of gasoline are likely to level off during the next 10 years and then drop permanently" (Road User Fee Task Force 2003, 1).

I have three points:

1) Large drop-offs in fuel tax revenues are unlikely for the next 10 years.
2) Funding gaps can easily be solved over the next 20 years or so with very small increases in the fuel taxes.
3) A long term solution to both transportation funding and climate change concerns is to restructure fuel taxes to reward low-carbon fuels in a way that allows an expanding revenue stream for the Transportation Trust Fund.

To support my assertion that gasoline (and diesel) tax revenues are unlikely to dip much, if at all, in the next ten years, let me briefly summarize past trends and current proposals for fuel economy and alternative fuel use.

Past and Current Trends in Fuel Consumption and Alternative Fuels

- Gasoline fuel consumption in the US has increased 40 percent since the early 1980s. This increase has come about for two reasons: the fuel economy of light duty vehicles has not improved in the past 25 years ago, while vehicle travel has steadily increased. Diesel fuel consumption, mostly in large trucks, has increased even faster. Vehicle travel is expected to continue increasing, due to increasing population and more intensive use of vehicles.

- Alternative fuel use has increased over time, mostly in the past few years, but still only accounts for only 4% of today's gasoline use (3% on an energy basis). However, almost all of the 4% is ethanol, which is blended into gasoline in small quantities (usually 5-10% of gasoline). This ethanol use has no effect on revenues available to transportation since the excise tax waiver for ethanol is refunded from general revenues.

Future Legislative and Regulatory Initiatives

- President Bush is proposing to strengthen fuel economy standards for new vehicles by (up to) about 1 mpg per year starting in 2010-12, reaching about 34 miles per gallon in 2017. This represents an increase of ~4% per year. Today's (tested) fuel economy is about 24.6 mpg. A number of bills have been introduced in Congress that would have roughly the same impact as the President's proposal. Likewise, the new greenhouse gas emissions regulation for vehicles in California (AB1493) also would have roughly the same impact on fuel economy over roughly the same time period.

- President Bush is proposing to increase alternative fuel use from today's 5 billion gallons per year to 35 billion gallons per year in 2017 (compared to current gasoline consumption of about 140 billion gallons).

Impact of Current Legislative and Regulatory Initiatives

The actual impact of these fuel economy and alternative fuel initiatives on gasoline use and fuel tax revenues will be more modest than appears at first glance, for the following reasons.

<u>For fuel economy:</u>

- No guarantee that the initiatives will be passed into law and adopted into regulation as proposed;
- Proposed increase of 4% per year is couched as "up to";
- Rules are intended to be in place for a limited number of years;
- Most proposals are have escape clauses premised on findings of reduced vehicle safety and technological feasibility;
- Even if the more aggressive proposals are fully implemented, the slow turnover of vehicles combined with increased driving means that fuel consumption in 2017 would still be about the same as it is today.

For alternative fuels:

- Most of the alternative fuels used during at least the next 10 years, and probably well beyond, will have no effect on fuel tax revenues
    - Most will be ethanol, which does not reduce revenues into the trust fund;
    - Beginning in about 10 years, some alternative fuel production might be gasoline (and diesel) made from coal, but this fuel will likely be taxed the same as gasoline from petroleum;
- It is highly unlikely that the goal of 35 billion gallons by 2017 will be realized, for a variety of reasons, including high costs, dependence on high oil prices, competition with food, land availability, immature state of cellulosic biofuel technology, and more;
- The problematic fuels, from the transport trust fund perspective, are gaseous fuels (hydrogen, natural gas) and electricity (for plug-in hybrids and battery electric cars). These fuels are not subject to the gasoline and diesel excise tax requirement. But their use is likely to be a tiny proportion of gasoline (and even ethanol) use for a long time.

Today, about 140 billion gallons of gasoline are consumed per year by light and medium duty vehicles. Without these various policy and regulatory initiatives, consumption is expected to increase to about 160 billion in the next 10 years. If the more aggressive policies and rules were implemented in a timely fashion, the amount of liquid (taxed) fuels would be about the same as today. Most likely it will be higher.

Conclusion

Fuel tax revenues are unlikely to drop in the near future. As the 2005 National Academies report concluded, "the existing revenue sources will retain the capacity to fund transportation programs at historical levels" (p.2).

The report suggested that "A reduction of 20% in average fuel consumption per vehicle mile is possible by 2025 if fuel economy improvement is driven by regulation or sustained fuel price increases" (p.2). It now looks like there will be more aggressive regulations and it is possible that oil prices will stay at $60 or higher. It is thus possible that average fuel consumption per vehicle mile will drop more than 20 percent (which, because of slow vehicle turnover, implies much larger reductions in new-car fuel economy), and that significant amounts of alternative fuels will be introduced. But because of increasing vehicle travel and

because ethanol use does not affect Trust Fund revenues, it is unlikely that tax revenues will drop below today's levels for at least 10 years, and probably quite a bit longer.

In other words, absent dramatic and unexpected changes, the structure of the gas tax is not threatened for some time.

The real point of this debate about the viability of the gasoline (and diesel) tax is simple: more funding is needed for transportation, and Congress and the state legislatures have been unwilling to raise fuel taxes to provide those funds. The fuel economy and alternative fuel argument is used by many to justify the need for new types of revenue mechanisms that might be able to generate additional revenues more easily than politically-unpopular fuel taxes.

The choice before Congress is whether to shift away from fuel taxes entirely – to other types of user based mechanisms (such as vehicle mileage fees) – or to adjust the fuel taxes to accommodate coming changes in fuels by rewarding those that are more environmentally beneficial. Or perhaps the two approaches can be combined.

A tax that rewards low-carbon fuels is becoming increasingly compelling. Some fuels generate much higher emissions than others. For instance, gasoline produced from tar sands has 20-50% more greenhouse gases (on a lifecycle basis) than gasoline produced from conventional oil. At the other extreme, the production of biofuels made from crop residues, switchgrass, or other cellulosic material, dramatically reduces GHG emissions, in some cases to zero. Why not impose a higher tax on high carbon fuels, and a lower tax on lower carbon fuels? The rates can be adjusted periodically to sustain revenue flows into the Transportation Trust Fund. This new carbon-based fuel tax solves the long term structural problems of today's gasoline and diesel taxes. It is responsive to both transportation and environmental goals.

Recommendations

1. In the near term, Congress and state legislatures should have the political courage to increase taxes on gasoline and diesel fuels, such that transportation funding problems are temporarily solved.
2. Congress should create a longer term solution by restructuring the gasoline and diesel tax to accommodate increasing use of alternative fuels. Tax rates could be designed to impose lower fees on low-carbon fuels, such as cellulosic biofuels, and higher rates on high-carbon fuels, such as gasoline produced from tar sands. This can be done in a way that assures continued increases in the overall revenue stream.
3. Congress should tighten fuel economy standards and introduce low-carbon fuel standards (as in California and the European Union)… and prove me wrong about gasoline use not dropping off in the next ten years!

Background on How UC Davis Is Contributing to the National Effort to Improve Fuel Economy and Develop Alternative Fuel Technologies

The Institute of Transportation Studies at UC Davis (ITS-Davis) is a multidisciplinary, internationally-recognized center that oversees more than 60 faculty and researchers, 90 graduate students, and a $8 million annual budget. The Institute's mission is to serve the needs of society by organizing and conducting research on emerging and important transportation issues, disseminating this research through conferences and scholarly publications, and enhancing the quality and breadth of transportation education.

Research

ITS-Davis is a leading center of transportation studies, specializing in sustainable transportation themes. It is unique in its multidisciplinary approach to transportation technology, fuels, basic science, human behavior and policy. The Institute's faculty, staff and students examine a range of transport topics in three core areas of research and analysis: travel behavior and transport systems modeling; environmental vehicle technologies and fuels pathways; and climate change, air quality, and other environmental impacts

The Institute flourishes due to a strong and diverse network of research partners. Strong relationships with government and nongovernmental organizations, and with energy, environmental, and automotive industry experts enhance the research program. Central research programs in the area of transportation energy include:

- Sustainable Transportation Energy Pathways to compare the pathways toward implementation of biofuel, electric and hydrogen/fuel cell vehicles, all in relation to existing and future fossil fuel pathways.
- Biofuels Energy Research Group to expand the interface between UC Davis's expansive agricultural research expertise and the evaluation of future, carbon-reducing biofuels for the U.S. transportation sector.
- U.S. Department of Transportation Sustainable Transportation Center at ITS-Davis to promote a broad range of sustainable transportation options, from improved land use planning to lower impact modes of travel.
- Plug-in Hybrid Vehicle Center established by the California Energy Commission to evaluate the technical, consumer and environmental feasibility of Plug-in HEVs.
- U.S. Department of Energy Graduate Automotive Technology Education (GATE) program to advance the education of students for tomorrow's environmental vehicle design challenges.
- China Center on Energy and Transportation to understand the energy and vehicle adoption dynamics of China.

Education

The Institute's education program is designed to meet the world's growing needs for qualified, thoughtful and dedicated engineers, policy makers, technicians and advocates. Its interdisciplinary approach transcends the boundaries of traditional engineering-based studies to include social and behavioral sciences, ecology, and management. Students interact with a broad range of researchers and leaders from industry, government, public interest groups, and academia through seminars and workshops, internships, visiting lectures, fellowships and grants. ITS-Davis offers a variety of specialized courses, from social costs of transportation to fuel cell vehicle systems engineering. ITS-Davis hosts the UC Davis University

Transportation Center, a multi-year, multi-million dollar program funded through matching federal and state transportation grants designated for graduate education activities. It also hosts the U.S. Department of Energy Graduate Automotive Technology Education (GATE) program to train fuel cell and hybrid vehicle engineers.

Outreach

ITS-Davis actively disseminates the many publications of its researchers, and offers an extensive series of seminars, workshops and conferences. The Institute's website (www.its.ucdavis.edu) highlights its activities and the bi-monthly *ITS-Davis e-news* electronic newsletter is sent to over 5,000 people. For over 20 years the Institute has hosted the biennial Asilomar Conference on transportation and energy under the auspices of the Transportation Research Board's standing committees on Energy, Alternative Fuels, and Sustainable Transportation. The next Asilomar conference on August 21-24, 2007 will address Transportation and Climate Policy.

ITS-Davis maintains relations with more than 70 companies. Companies sponsor basic research, conferences and evaluations of demonstration projects; host graduate student interns; provide unrestricted support for specific programs and general Institute activities; and donate equipment. The Institute benefits greatly from these relationships; they strengthen laboratory capabilities and play a vital role in enhancing the diversity of educational and research experiences at UC Davis.

***ITS-Davis publications and other information are available at* www.its.ucdavis.edu.**

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