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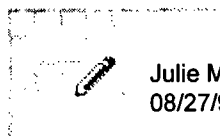
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Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Office of Environmental Initiatives
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OA/ID Number: 19508
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Folder Title:
Climate Change Budget/Finance Tax [2]

Stack:	Row:	Section:	Shelf:	Position:
S	61	7	11	2



Julie M. Anderson
08/27/99 10:12:03 AM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP

cc:

Subject: tax priorities

Here is the little document I did on our priorities. You need to add BABs. With respect to what is bad in the Republican's bill, I have some calls out to folks at treasury and others. The stuff I know about is: (1) they combined the superfund tax with the LUST fund; (2) extended for 5 years the suspension of 100 net income limitation for marginal oil and gas properties; (3) repealed the 4.3 cent per gallon tax on railroad and inland waterway fuels and the .1cent per gallon LUST tax on diesel fuel in fy2000; (4) allowed a 5 year carryback of oil and gas net operating losses (instead of the normal 2 years). None of these stand out.



Climate Change Tax Credit Priorit

I'll try to get you more by the end of the day.

Climate Change Tax Credit Priorities

In 1998, the Climate Change Technology Initiative originally contained 9 tax credits. We were successful in getting the parking and transit parking benefit proposal in the highway bill. In 1999, upon review of the remaining credits, we dropped two of the credits and modified and improved the remaining 6 tax credits. The 1999 CCTI \$3.6 billion tax incentive package includes:

1. Energy Efficient Building Equipment
2. Energy Efficient New Homes
3. Electric and Hybrid Vehicles
4. Combined Heat & Power Systems
5. Rooftop Solar Equipment
6. Wind & Biomass Renewable Energy

Our priorities for this year are:

- | | |
|------------------------------------|----------------------------|
| 1. Wind & Biomass Renewable Energy | \$300 Million over 5 years |
| 2. Energy Efficient New Homes | \$400 Million over 5 years |
| 3. Electric & Hybrid Vehicles | \$900 Million over 5 years |

All three of these credits enjoy some Hill support. All three of these issues are receiving support and attention from industry. However, there are varying proposals floating with respect to each. There is great potential, if the Administration is willing to negotiate, to reach consensus with industry, the environmental community and the Hill on all three. The three are listed in order of viability – i.e., wind and biomass credit is probably the most easy to obtain.

The costs of all three would increase with revisions. Approximate revenue expenditures are:

- | | |
|--|----------------------------------|
| 1. Wind & Biomass
(Adding existing biomass facilities) | \$500 Million over 5 years |
| 2. New Homes
(Modification of tiers) | Up to \$750 Million over 5 years |
| 3. Vehicles
(Combining electric, hybrids & alternative fuel vehicles) | \$1.4 billion over 5 years |



NEWS RELEASE

Contacts: Mark Whiteis-Helm 202-783-7400 x102
Brian Dunkiel 802-951-9094

For Immediate Release
Wednesday, August 25, 1999

ENVIRONMENTALISTS SAY TO CLINTON: VETO TAX BILL

Coalition of Environmentalists Led by Friends of the Earth Say Bill is a Disaster for the Environment

Washington, D.C.—Friends of the Earth and 18 other environmental organizations sent a letter to President Clinton today urging him to veto any tax bill passed by Congress that contains anti-environmental provisions. Calling the recently passed tax bill “decidedly anti-environmental,” the groups cited numerous provisions that would harm efforts to protect natural resources, human health, and communities.

The groups warned that the tax bill passed earlier this month by Congress further tilts the tax code against clean air, drinkable water, healthy forests and safe communities, and fails to encourage sustainable development. Identifying more than \$7 billion in new subsidies for the oil, gas and nuclear industries, Friends of the Earth noted that only \$195 million in tax incentives were established for cleaner renewable sources of energy such as wind or biomass.

“This tax bill is heavily biased toward polluting energy sources that release global warming gases, foul our air and threaten our communities,” said Brian Dunkiel, Staff Attorney and Director of Tax Policy for Friends of the Earth. “Not only will this tax bill seriously undermine Clinton Administration efforts to encourage energy efficiency and renewable energy production, it also creates a new financial mechanism for sprawl inducing highway construction.”

Additionally, the letter points to specific provisions that lower incentives for farm and forest conservation, promote sprawl, subsidize logging, jeopardize funding for hazardous site clean

up, and encourage other environmentally destructive activities. The groups called on President Clinton to thwart these increased financial incentives for pollution and environmental damage, and to replace them with provisions that will encourage environmental protection.

"President Clinton has an opportunity to tell law makers that the tax code should be used as a tool to meet environmental objectives, not to undermine them," said Friends of the Earth President Brent Blackwelder. "It's time to send a message to the Republican leadership that their special interest bonanza is history-- the environment comes first."

Please go to <http://www.foe.org/act/e4e34tax.html> for an environmental analysis of the tax bill.

Founded in 1969, Friends of the Earth is a national environmental advocacy organization with affiliates in 58 countries.

--end--

September 9, 1999

The President
The White House
Washington, DC 20500

Dear Mr. President:

The undersigned businesses and business associations urge you to insist that tax credits for energy efficiency and renewable energy technologies be included in any tax legislation enacted in 1999. We were pleased to see that such tax credits were included in your fiscal year 1999 and 2000 budget requests. As you and your Administration have noted many times, both the economy and the environment would benefit from stimulating the introduction and adoption of innovative energy-saving and renewable energy technologies such as:

- hybrid and fuel cell-powered cars and light trucks
- highly efficient new homes
- highly efficient gas and electric heating and cooling systems
- solar photovoltaic power and water heating systems
- wind power technologies
- biomass-based power systems
- fuel cell cogeneration systems
- combined heat and power systems

We hope that we can count on your continued leadership and support for such tax credits as tax legislation moves towards enactment.

Sincerely,

ACR Solar International
ASE Americas
AWS Scientific, Inc.
Air Conditioning and Refrigeration Institute
Air Conditioning Contractors of America
American Architectural Manufacturers Assoc.
American Bioenergy Association
American Gas Cooling Center
American Portland Cement Alliance
American Rockwool, Inc.
American Standard, Inc.
American Supply Association
Andersen Corporation

Apache Products Company
AstroPower, Inc.
Atlas Roofing Corporation
BG Technologies LLC
Bayer Corporation
Bergey Windpower
Cardinal IG
Carrier Corporation
Cascade Associates
Celotex Corporation
CertainTeed Corporation
Constellation Energy Source, Inc.
C.T. Donovan Associates, Inc.

E₃ Ventures, Inc.
 Energy Conversion Devices
 Energy Insurance Brokers
 Evanite Fiber Corporation
 Exeltherm, Inc.
 enXco Inc.
 Evergreen Solar, Inc.
 Exergy Partners Corp.
 Fibrex Insulations, Inc.
 Firestone Building Products Co.
 Florida Solar Energy Industries Association
 Ford Motor Company
 Global Biorefineries, Inc.
 Global Energy Concepts
 GreenMountain.com
 HL Power Company
 Hearth Products Association
 Homasote Company
 Honeywell, Inc.
 ICI Polyurethane
 I. C. Thomasson Assoc., Inc.
 Insulating Concrete Form Association
 Integrated Building & Construction Solutions
 International Applied Engineering, Inc.
 International District Energy Association
 Isolatek International
 Johns Manville
 Johnson Controls
 Kamzin Technology
 Knauf Fiber Glass
 Louisiana Pacific Corporation
 M+N Wind Power, Inc.
 MFS, Inc.
 National Association of
 Plumbing-Heating-Cooling Contractors
 National BioEnergy Industries Association
 NEG Micon USA, Inc.
 NRG Systems, Inc.
 Nichimen America, Inc.
 NiSource, Inc.
 NORDYNE, Inc.
 North American Insulation
 Manufacturers Association
 North American Steel Framing Alliance
 Oak Creek Energy Systems, Inc.

OEM Development Corporation
 Onsite SYCOM
 Organic Power, Inc.
 Operational Energy Corporation
 Owens Corning
 Peachtree Doors and Windows
 Plug Power, LLC.
 Polyisocyanurate Insulation
 Manufacturers Association
 PowerLight Corporation
 Ray Core
 Real Goods Trading Corp.
 Reeve Agri-Energy
 Renewable Aviation Fuels
 Development Center
 Renewable Ventures, Inc.
 Rmax, Inc.
 Rock Wool Manufacturing Co.
 Roxul, Inc.
 Sea West Windpower, Inc.
 Sheet Metal & Air Conditioning Contractors'
 National Association (SMACNA)
 Simonton Windows
 Sloss Industries Corporation
 Society of the Plastics Industry
 Solar Energy Industries Association
 Solar Turbines, Inc.
 Son Energy, Inc.
 Southern California Edison
 Spire Corporation
 Springtyme, L.L.C.
 SUN Utility Network
 Tenneco Building Products
 Toyota Motor Sales, USA
 Trace Engineering
 Trigen Energy
 True Wind Solutions, L.L.C.
 USG Interiors, Inc.
 W.A. Vachon + Associates
 Vestas-American Wind Technology, Inc.
 Western Fiberglass Group
 The Wind Turbine Company
 WindLite Corporation
 York International Corporation

Questions or replies to this letter may be directed to the Edward R. Osann, Potomac Resources, Inc., 1001
 Connecticut Avenue, NW, Suite 801, Washington, DC 20036; 202-429-8873.

HOLD FOR RELEASE
September 9, 1999

FOR FURTHER INFORMATION:
Ken Mentzer (NAIMA): 703-684-0084
Jim Olson (Toyota): 202-775-1700
Karen Conover (GEC): 425-822-9008
Scott Sklar (SEIA): 703-248-0704

BUSINESSES URGE SUPPORT FOR CLIMATE-FRIENDLY TAX MEASURES

Over 100 companies and business trade associations -- including 12 Fortune 500 companies -- have written today to President Clinton urging that he continue to push for tax incentives for clean energy in the likely face-off with Congress over tax policy this fall. (See attached letter.) The \$792 billion tax cut approved by Congress contains no new incentives for energy efficiency or renewable energy.

"Tax incentives for energy efficient buildings and homes make sense for business and homeowners by increasing affordability, cutting energy costs, and reducing pollution, with the added benefit of improving our environment," said Ken Mentzer, Executive Vice President of the **North American Insulation Manufacturers Association (NAIMA)**.

"A flexible, market-driven system using tax credits to jump-start clean, energy-efficient new technology is obviously in the best interest of America's future and something everyone should support," said Jim Olson, Senior Vice President for External Affairs, **Toyota Motor Sales, USA**.

"With the right public policies in place, much of the new energy needs of the American people can be served with clean sources of renewable energy, including wind-generated electric power," said Karen Conover, president of **Global Energy Concepts** and immediate past president of the **American Wind Energy Association**. "The President should insist on tax policies that can ensure a healthy expansion of this home-grown industry."

"The role of government is not to subsidize mature industries with mature technologies in mature markets, but rather to support emerging clean technologies creating new markets with hundreds of thousands of new US jobs," said Scott Sklar, Executive Director of the **Solar Energy Industries Association (SEIA)**.

In the budget submitted earlier this year, President Clinton proposed a variety of tax incentives to speed up the production and use of energy efficient vehicles and equipment and electricity generated from renewable energy sources. Representatives Bill Thomas (R-CA), Matt Salmon (R-AZ), Wally Herger (R-CA), Mac Collins (R-GA), and Bob Matsui (D-CA) and Senators Chuck Grassley (R-IA) and Jay Rockefeller (D-WV) all had introduced legislation to provide tax incentives for clean energy, but none of these proposals were included in the final tax bill approved by Congress in early August except for a 4-year extension of expiring credits for power generated from wind and biomass. The White House has announced its intention to veto the Congressional tax bill.

September 9, 1999

The President
The White House
Washington, DC 20500

Dear Mr. President:

The undersigned businesses and business associations urge you to insist that tax credits for energy efficiency and renewable energy technologies be included in any tax legislation enacted in 1999. We were pleased to see that such tax credits were included in your fiscal year 1999 and 2000 budget requests. As you and your Administration have noted many times, both the economy and the environment would benefit from stimulating the introduction and adoption of innovative energy-saving and renewable energy technologies such as:

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E₃ Ventures, Inc.
 Energy Conversion Devices
 Energy Insurance Brokers
 Evanite Fiber Corporation
 Exeltherm, Inc.
 exXco Inc.
 Evergreen Solar, Inc.
 Exergy Partners Corp.
 Fibrex Insulations, Inc.
 Firestone Building Products Co.
 Florida Solar Energy Industries Association
 Ford Motor Company
 Global Biorefineries, Inc.
 Global Energy Concepts
 GreenMountain.com
 HL Power Company
 Hearth Products Association
 Homasote Company
 Honeywell, Inc.
 ICI Polyurethane
 I. C. Thomasson Assoc., Inc.
 Insulating Concrete Form Association
 Integrated Building & Construction Solutions
 International Applied Engineering, Inc.
 International District Energy Association
 Isolatch International
 Johns Manville
 Johnson Controls
 Karnzin Technology
 Knauf Fiber Glass
 Louisiana Pacific Corporation
 M+N Wind Power, Inc.
 MFS, Inc.
 National Association of
 Plumbing-Heating-Cooling Contractors
 National BioEnergy Industries Association
 NEG Micon USA, Inc.
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 Nichimen America, Inc.
 NiSource, Inc.
 NORDYNE, Inc.
 North American Insulation
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 North American Steel Framing Alliance
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OEM Development Corporation
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 Organic Power, Inc.
 Operational Energy Corporation
 Owens Corning
 Peachtree Doors and Windows
 Plug Power, LLC.
 Polyisocyanurate Insulation
 Manufacturers Association
 PowerLight Corporation
 Ray Core
 Real Goods Trading Corp.
 Reeve Agri-Energy
 Renewable Aviation Fuels
 Development Center
 Renewable Ventures, Inc.
 Rmax, Inc.
 Rock Wool Manufacturing Co.
 Roxul, Inc.
 Sea West Windpower, Inc.
 Sheet Metal & Air Conditioning Contractors'
 National Association (SMACNA)
 Simonton Windows
 Sloss Industries Corporation
 Society of the Plastics Industry
 Solar Energy Industries Association
 Solar Turbines, Inc.
 Son Energy, Inc.
 Southern California Edison
 Spire Corporation
 Springtime, L.L.C.
 SUN Utility Network
 Tenneco Building Products
 Toyota Motor Sales, USA
 Trace Engineering
 Trigen Energy
 True Wind Solutions, L.L.C.
 USG Interiors, Inc.
 W.A. Vachon + Associates
 Vestas-American Wind Technology, Inc.
 Western Fiberglass Group
 The Wind Turbine Company
 WindLite Corporation
 York International Corporation

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 Connecticut Avenue, N.W., Suite 801, Washington, DC 20036; 202-429-8873.



DEMOCRATIC POLICY COMMITTEE **COMMITTEE ACTION REPORT**

CR-03-Budget/Taxation

Staff Contact: Mike Jones (202) 224-3232

July 23, 1999

The Senate Reconciliation Bill: Reckless Tax Breaks— Nothing for Medicare or Key Domestic Investments

This week, the Senate Finance Committee reported its *1999 Budget Reconciliation Bill* providing \$792 billion in tax breaks that are heavily skewed toward upper-income taxpayers. These massive tax breaks grow rapidly over time, draining almost all of the on-budget surplus over the next ten years. Consequently, the Republican plan leaves nothing for Medicare or investments in domestic priorities such as health and education.

GOP tax breaks explode in the outyears, just as the baby boomers begin to retire. The Republican tax breaks start off small—\$4 billion in FY 2000—but grow substantially over time. In FY 2004, the tax breaks grow to \$50 billion, increasing threefold by FY 2009 to \$154 billion. Put another way, the size of the Republican tax break in FY 2009 is almost as large as the size of the tax break over the first five years combined.

Many of the tax breaks are phased in over the period or are not immediately effective. Consequently, the tax breaks continue to grow substantially after FY 2009. Over the next ten years, FY 2010-2019, the Republican tax breaks total more than \$2 trillion. The size of these tax breaks explode just as the baby boom generation reaches retirement age.

Nothing for Medicare or other critical investments. The Republican tax breaks consume most of the on-budget surplus, leaving critical needs of Medicare and other key investments unaddressed. Under their plan, Republicans leave no on-budget surplus to extend the solvency of the Medicare trust fund, provide prescription drug coverage, or restore cuts to important programs such as health and education.

Democratic Policy Committee
United States Senate
Washington, D.C. 20510-7050

Tom Daschle, Chairman
Byron Dorgan, Co-Chairman



Republicans tax breaks favor wealthy taxpayers. Because the Republicans spend the on-budget surplus, their plan provides less for debt reduction than is the case under current projections. The increased debt levels resulting from the Republican plan means that the future cost of financing the debt will also be higher. In fact, the \$1.1 trillion interest cost of the plan over the second ten years (2010-2019) is greater than the tax breaks in their bill over the first ten years.

The beneficiaries of these tax breaks are primarily wealthy taxpayers. According to a recent Citizens for Tax Justice analysis, the top 20 percent of taxpayers will receive over 75 percent of the benefits with the top one percent receiving 29 percent of the tax breaks. By contrast, the bottom 60 percent of taxpayers receive a mere 11 percent of the benefits.

Republicans reject targeted tax cuts for working families. At the Senate Finance Committee markup, Senator **Moynihan** offered a responsible alternative tax cut of \$295 billion that provided broad-based tax relief for working Americans by increasing the standard deduction—a tax cut for 73 percent of taxpayers who claim a standard deduction. The proposal also provided targeted tax relief including: marriage penalty tax relief; school modernization bonds; technology incentives; estate tax relief for individuals, small businesses and farmers; incentives for conservation, alternative fuels, and mass transit; pension portability; long-term care and child care tax credits. The amendment failed by a party line vote of 9-11. (see the attached side-by-side comparison with the Republican plan)

Republicans reject Social Security and Medicare lockbox. Senators **Baucus** and **Conrad** offered an amendment that would have established a lockbox for Social Security and Medicare. The lockbox would have protected the Social Security surplus and set aside one-third of the on-budget surplus for legislation that extends Medicare's solvency and provides prescription drug benefits for Medicare beneficiaries. Chairman Roth ruled the amendment was non-germane and the committee failed to waive the point of order by a 7-9 vote.

Republicans refuse to put Medicare first. Senators **Graham**, **Robb**, **Rockefeller**, **Bryan**, and **Kerrey** offered an amendment that would have delayed the effective date of the tax breaks included in the Republican bill until the solvency of the Medicare trust fund had been extended through 2027. The amendment failed on a party-line vote, 9-11.

Republicans proceed with risky budget plan. The Finance Committee voted to report the Budget Reconciliation bill despite the fact that the Republican plan overwhelmingly benefits the wealthy; dips into the Social Security surplus; does not address the critical needs of the Medicare program, such as the solvency of the Hospital Insurance Trust Fund and prescription drug benefits for the program's beneficiaries; and reserves none of the surplus for important investments such as education, health, and defense.

Democrats continue to work hard to put the country's fiscal house in order. Our Nation's surpluses provide an opportunity to strengthen the nation's fiscal position to support the retirement of the baby boom generation. Nonetheless, the inherent uncertainty of economic forecasts requires a responsible approach for setting priorities for allocations of the surplus. Democrats believe that the surplus should be used to save Social Security and Medicare first and then to provide tax relief for working Americans.

COMPARISON OF MAJOR PROVISIONS OF THE GOP AND DEMOCRATIC PROPOSALS

	GOP	DEMOCRATIC ALTERNATIVE
Debt Reduction	\$0	\$290 billion
Discretionary	\$0	\$290 billion
Net Tax Cuts	\$792 billion	\$290 billion
*****	*****	*****
Major Tax Cut Categories		
<i>Broad Based Relief</i>	\$298 billion Reduce 15% rate to 14% Benefits all taxpayers	\$169 billion Increase the standard deduction Benefits the 73% of taxpayers claiming the standard deduction
<i>Marriage Penalty and AMT</i>	\$222 billion Couples elect to file as single or joint Permanently extends personal credits (Hope, child, etc.)	\$27 billion 20% deduction for lower earning spouse Extends personal credits (Hope, child, etc.) for 5 years
<i>Savings and Retirement</i>	\$90 billion Mostly IRA expansions for wealthy	\$9 billion Small business initiatives and portability
<i>Education</i>	\$12 billion No Education IRA changes; otherwise Finance Committee bill	\$17 billion No Education IRA; otherwise Finance Committee bill plus school modernization bonds
<i>Health</i>	\$52 billion 100% health care deduction 100% long term care deduction Dependency deduction 100% self-employed health	\$27 billion 30% refundable tax credit \$20,000/\$40,000 limit 50% long-term care deduction \$500 long-term care credit 100% self-employed health
<i>Small Business</i>	\$6 billion Increase expensing to \$30,000 Repeal FUTA surtax	\$3 billion Accelerate expensing to \$25,000 Reduce depreciable life for leasehold improvements
<i>Estate</i>	\$63 billion Reduce top rates to 50% Unified credit to \$1.5 million by 2007	\$10 billion Unified credit to \$1 million Small business/farm exemption to \$1.75 million

<i>Housing/Real Estate</i>	\$5 billion Low income housing tax credit REITs Historic home ownership	\$4 billion Low income housing tax credit Leasehold Improvements to 15 years REITS
<i>Expiring Provisions*</i>	\$23 billion Extension of five years	\$31 billion Make R&E permanent Expand to graduates and make permanent educational assistance Extend others two years
<i>Tax Exempt Organizations</i>	\$8 billion Provide tax exempt status to State created insurance companies Allow charitable IRA rollover	\$-- State created insurance companies
<i>International Tax Relief</i>	\$16 billion Allocate interest deduction on worldwide basis	\$0
<i>Environment</i>	\$0	\$5 billion Incentives for conservation, alternative fuels, mass transit and land and endangered species conservation, urban revitalization, and waste utilization
<i>Agriculture*</i>	\$-- Establish tax-deferred accounts	\$5 billion Establish tax-deferred accounts Increase volume cap for ag bonds Expand \$500,000 capital gains exclusion
<i>Miscellaneous</i>	\$6 billion Allow corporate AMT credit carryovers up to 50% of AMT Repeal 4.3 cents/gallon fuel tax on railroads and inland waterway carriers	\$10 billion Allow corporate AMT credit carryovers up to 20% of AMT Oil and gas incentives Electric Deregulation Child care credit, worksite child care credit Increase charitable deduction
<i>Revenue Offsets</i>	\$9 billion Offsets previously passed by the Senate and REITs	\$27 billion Offsets previously passed by the Senate or included in the Daschle alternative and REITs

*During markup of the bill, the committee adopted an amendments making the R&E tax credit permanent and establishing tax deferred accounts for farmers and ranchers.

VAN SCOYOC ASSOCIATES, INC.

Claudia A. McMurray
Vice President

1420 New York Ave., N.W.
Suite 1050
Washington, DC 20005

Phone: (202) 638-1950
FAX: (202) 638-7714
Email: cmcmurray@vsadc.com

Landfill Gas-to-Energy Projects:

A Tax Credit is Needed for these Environmentally Beneficial Projects

Each year, Americans generate over 208 million tons of municipal solid waste. What most Americans do not know is that waste decomposes in landfills and produces methane gas, a potent greenhouse gas. This gas can be collected and utilized for the production of electricity or as a gas fuel for commercial burners.

Landfill gas projects can produce many environmental benefits. However, most projects are not economical, and the landfill gas is flared or released to the environment as a waste product instead of being converted to a beneficial use.

In the past, Congress has recognized the benefits of landfill gas projects by enacting a tax credit for the sale of landfill gas under section 29 of the Internal Revenue Code. That credit has now expired, and will not be available for new projects.

Section 45 of the Internal Code should be amended to include a credit for landfill gas projects for the following reasons:

- **greenhouse gas emissions from landfills would be reduced;**
- **reliance on a valuable renewable energy source would increase;**
- **landfills would be safer and better managed.**

1. Controlling and reusing methane emissions from landfills decreases greenhouse gas emissions.

Decomposing trash in landfills emits gas ("LFG") containing about 50 % methane -- a greenhouse gas that is 21 times more potent than carbon dioxide. EPA estimates that about 36% of man-made methane emissions in the U.S. comes from LFG.

Most of the smaller landfills do not control methane emissions but instead allow them to escape into the atmosphere. Larger landfills must comply with Clean Air Act, and many have installed a LFG collection system to extract gas out but then simply “flare” the gas. Although “flaring” systems reduce methane emissions, it wastes a potential energy resource, which, if used in place of fossil fuels, would further reduce total emissions.

With the section 45 tax credit, equipment to both collect and reuse methane from landfill gas could be installed at (1) some small landfills and (2) large landfills that currently flare LFG, resulting in a significant reduction in greenhouse gas emissions. The emissions reductions from new and all existing projects combined could by 2010 achieve approximately 10% of the Kyoto Treaty’s greenhouse gas reduction target for the U.S. These reductions are consistent with the goals of S. 547, the “Credit for Voluntary Reductions Act,” and other pending legislation to encourage voluntary reductions of greenhouse gasses.

In addition, the beneficial users (gas processors and electricity generators) need a predictable supply of landfill gas and require landfill owners to manage the gas collection systems for maximum efficiency on a continuous basis. This results in better operation of the collection systems and control of methane emissions.

2. Methane from landfills is a valuable energy source that now is largely untapped.

LFG methane is a valuable and grossly underutilized renewable energy resource. If methane produced from all landfills were used to produce electricity, it could generate an equivalent of up to 4,000 megawatts annually – enough to provide power to about 3 million households, or roughly all households in the State of Connecticut. Viewed another way, existing landfill gas utilization projects are estimated to generate energy equivalent to 23.9 million barrels of crude oil per year. By the year 2010, assuming a tax credit is enacted, another 400 projects could bring

the total projected energy output equivalent to 38.8 million barrels of crude oil per year – the same as taking 20 million automobiles off the road.

Diverting energy use away from fossil fuels to this clean renewable energy resource will have several additional benefits to the environment. Reduced use of fossil fuels will produce reductions in emissions of other air pollutants, such as carbon dioxide (CO₂ – another greenhouse gas) and nitrogen oxide (NO_x). Moreover, the environmental impacts from drilling or mining coal would be lessened.

3. Landfill gas projects result in better landfill management.

Landfill gas projects require an extensive and intricate piping system to collect LFG and project operators must closely monitor these systems on a regular basis. This diligence in maximizing LFG collection results in overall better management and supervision of the operation of the landfill in all aspects, and, consequently, an improved record of safety and regulatory compliance at the landfill. Finally, landfill gas recovery also reduces explosions and odor at landfills, making them better neighbors to the surrounding community.

DESCRIPTION OF PROPOSED AMENDMENT TO SEC. 45

- Purpose:** To renew the credit for sales of gas and electricity produced from landfill biomass, to expand the numbers of landfills which can benefit from such projects and to simplify the transactions which are eligible for the credit.
- In general:** The amended sec. 45 would apply the credit to sales of gas as well as electricity from the expanded list of renewable resources. New wording would be placed in the section heading and in subsections (a), (a)(1), (d)(1) and (d)(4). The amendments would not address other proposed changes to sec. 45, but the new provisions with respect to landfill biomass would be compatible with wind, closed-loop biomass, an expanded biomass definition, poultry waste and other resources under sec. 45.
- "Landfill biomass":** The subsection (c)(1) definition of "qualified energy resources" from which electricity and gas can be produced for purposes of claiming the credit would be expanded by adding "landfill biomass" to wind and closed loop biomass. New subsection (c)(3) would define the new term both with a text and with a cross reference to a non-tax statute and regulations. The purpose is to provide a well accepted and generally recognized definition of garbage.
- "Qualified facility":** The current subsection (c)(3) definition of "qualified facility" would be renumbered as (c)(4) and expanded to include definitions of a facility in both the gas and electricity production contexts. For the production of gas that is eligible for the credit, the definition would exclude the wells and piping which collect the gas and would include the housing and equipment which are used to pump, filter, compress and meter the gas that is produced for sale. For the production of electricity, the definition would exclude the collection system (wells and piping) and the gas production system (pump, compressor, *etc.*) and would include the housing and equipment which burn the gas to generate electricity for sale.
- Btu equivalency:** The subsection (c) definitions would be further expanded to add a definition of "kilowatt hour equivalent" that is used in amended subsection (a)(2). The units of gas eligible for the credit would be determined by the meter based on a Btu content of 12,189 per unit.
- Credit integration:** The new definitions of "qualified facility" in subsection (c)(4) would include placed-in-service dates that begin on January 1, 1993 and expire

on December 31, 2008. On its own, this would enable a landfill biomass project which qualified for the sec. 29 credit also to qualify for the sec. 45 credit. But the offset in new (b)(4) would prohibit double credits. This integration approach is taken for two reasons. First, it would remove an incentive for aggressive tax planning that could occur by taking older sec. 29 credit facilities out of service, modifying them and then seeking to place them back into service under sec. 45 if July 1, 1998 were the earliest placed-in-service date. Second, it would allow confirmation of Congressional intent that the exclusion of wells and piping from the definitions of gas and electricity production facilities is the proper result in the section 29 context (rather than a recent IRS private letter ruling which reversed prior interpretations).

Interests in facility: Subsection (d)(3) would be amended by expanding its terminology to refer to "property or facility" and to "ownership or other economic interest" for the purpose of synchronizing sec. 45 with sec. 29(d)(3).

megawatts and includes both gas projects and gas-to-electricity projects) plus the aggregate new capacity which will be eligible for the credit during each such period :

	<u>Period after Date of Enactment</u>	<u>Incremental Mw of New Capacity</u>	<u>Aggregate Mw of New Capacity</u>	<u>Revenue * Loss</u>
	Months 1 to 12	5	5	\$ 670,140
	Months 13 to 24	25	30	4,020,840
	Months 25 to 36	45	75	10,052,100
<u>5 years</u>	Months 37 to 48	50	125	16,753,500
\$ 53,611,060	Months 49 to 60	40	165	22,114,620
	Months 61 to 72	35	200	26,805,600
	Months 73 to 84	30	230	30,826,440
	Months 85 to 96	30	260	34,847,280
	Months 97 to 108	25	285	38,197,980
	Months 109 to 120	25	310	41,548,680
4. Other data --	<u>10 years TOTAL</u>			\$ 225,297,040

- The sec. 45 credit of 1.5 cents/kwh (or Btu equivalent) is adjusted annually for inflation since 1992. The IRS announced in Notice 99-26, 1999-21 IRB 4 that the credit for calendar 1998 was 1.7 cents.
- The credit phaseout computation also involves amounts which are adjusted annually, but this has not been relevant in recent years because the threshold sales price (8 cents/kwh adjusted) has exceeded the phaseout reference price (see Notice 99-26). As a practical matter, the phaseout computation is not likely to be triggered in even the most expensive markets in the foreseeable future, so the industry does not expect the phaseout to apply during the proposed period for which expanded sec. 45 would be in effect.
- One megawatt (1 Mw) equals 1,000 kilowatts (1 kw). So, each megawatt of capacity can produce a maximum of 8,760,000 kilowatt hours during a year (1,000 kw x 24 hours x 365 days). Assuming that each facility will operate at 90 percent of capacity each year, the 1998 credit of 1.7 cents/kwh would be \$134,028 per Mw of capacity (\$148,920 per Mw of capacity x 90% utilization).

* based simply on estimated new capacity x \$134,028 per Mw

**BACKGROUND INFORMATION FOR
A REVENUE ESTIMATE FOR APPLYING SEC. 45
TO LANDFILL-GAS-TO-ENERGY PROJECTS**

This memo provides background information for use in preparing a revenue estimate for applying sec. 45 to landfill gas-to-energy projects covering both direct gas sales to end users and sales of electricity produced by the recovered gas.

1. **Few (if any) projects that currently are under construction would be new projects for sec. 45 purposes** -- The sec. 29 credit is available to LFG projects which met the placed in service requirement before July 1, 1998. Projects which remain under construction today generally are already eligible for the sec. 29 credit because the gas production facility was in place by June 30, 1998; it is the electric generation facilities for such projects which are being completed now. Major LFG project developers are not aware of any significant projects under construction which are not already eligible for sec. 29. If there are particular projects in which the costs do not require a tax credit (possibly a medium Btu gas facility which sells to a nearby industrial in a higher priced gas market), they are relatively small and few in number. A guesstimate would be that facilities capable of producing 5 megawatts of electricity capacity plus gas Btu equivalency (using the proposed 12,189 Btu per kilowatt hour standard) might be under construction that do not qualify under sec. 29.
2. **Construction time** -- A typical LFG project requires in the range of 18 to 24 months to be placed in service from the time that negotiations begin with a landfill owner and potential electricity or gas users. This time can be shortened if the well and piping systems are already in place and if local zoning and construction regulations are minimal. The time can be lengthened when the negotiations with end users are difficult.
3. **Annual incremental additions to capacity** -- Following enactment of the expanded sec. 45, LFG projects are likely to begin to be developed after developers, landfill owners and lenders are familiar with the new law; this should not take more than six months. Then new LFG projects should begin to be developed quickly, and that process will accelerate for two or three years until the maximum sustainable level of development is reached in the third or fourth year following enactment. By the fifth year, the pace of new projects is likely to begin to fall as the most promising sites have been taken and are in service. The industry expects the pace of incremental additions to fall from a maximum of about 50 Mw to the range of 20 to 30 Mw of incremental additions by the seventh or eighth year.

Starting essentially from zero new capacity in the first 24 months (except for an estimate of current project construction that is ineligible for sec. 29 as noted in item 1 above), the following is an industry estimate of both incremental new capacity which might be placed in service in each 12-month period following the date of enactment (the capacity is expressed in

megawatts and includes both gas projects and gas-to-electricity projects) plus the aggregate new capacity which will be eligible for the credit during each such period :

<u>Period after Date of Enactment</u>	<u>Incremental Mw of New Capacity</u>	<u>Aggregate Mw of New Capacity</u>
Months 1 to 12	5	5
Months 13 to 24	25	30
Months 25 to 36	45	75
Months 37 to 48	50	125
Months 49 to 60	40	165
Months 61 to 72	35	200
Months 73 to 84	30	230

4. Other data --

- The sec. 45 credit of 1.5 cents/kwh (or Btu equivalent) is adjusted annually for inflation since 1992. The IRS announced in Notice 99-26, 1999-21 IRB 4 that the credit for calendar 1998 was 1.7 cents.
- The credit phaseout computation also involves amounts which are adjusted annually, but this has not been relevant in recent years because the threshold sales price (8 cents/kwh adjusted) has exceeded the phaseout reference price (see Notice 99-26). As a practical matter, the phaseout computation is not likely to be triggered in even the most expensive markets in the foreseeable future, so the industry does not expect the phaseout to apply during the proposed period for which expanded sec. 45 would be in effect.
- One megawatt (1 Mw) equals 1,000 kilowatts (1 kw). So, each megawatt of capacity can produce a maximum of 8,760,000 kilowatt hours during a year (1,000 kw x 24 hours x 365 days). Assuming that each facility will operate at 90 percent of capacity each year, the 1998 credit of 1.7 cents/kwh would be \$134,028 per Mw of capacity (\$148,920 per Mw of capacity x 90% utilization).

SECTION 45 TAX CREDIT ILLUSTRATION
LANDFILL GAS APPLICATION, MEDIUM SIZE LANDFILL

This spreadsheet illustrates a typical landfill gas development, incorporating a landfill gas collection collection and production system, interconnections with an electric generation facility including reciprocating engine generators, and electric utility interconnections.
See Notes below for further information (*).

Section 45 Tax Credits?

NO

ASSUMPTIONS

Project Information	Annual Expenses	Section 45 Tax Credits	Other	Results
Initial Net Electric Capacity (k)	Property lease/t	Section 45 Tax Credit (\$/kwh)	Escalation	IRR**
Gas System Cost	Gas O&M	Year 1999 \$/kw	Discount Rate**	NPV
Generation System Cost	Genco O&M	Heat Rate(kwh/	Gas Decay Rat	#NUM!
Total Project Capital Cost (\$)*	O&M Expense		Debt principal	(\$2,099,472)
Project Life (years)	G&A		Debt rate	
Annual Capacity Factor	Depreciation (15		8.50%	Debt term (yrs)
Electric Price (\$/kwh)	Income Tax Rat			10
Development Period (months)				

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
mmbtu used by engines	-	173,457	348,914	348,914	348,914	348,914	348,914	348,914	348,914	260,186	260,186	260,186	260,186	260,186	260,186	173,457	173,457	173,457	173,457
Total Gas Available (mmbtu)***	423,508	457,128	486,468	489,619	448,712	424,923	404,202	393,028	365,740	347,904	330,823	323,418	307,247	291,885	277,291	263,426	250,255	237,742	225,855
Total Engines Running		4	4	4	4	4	4	4	4	3	3	3	3	3	3	2	2	2	2
REVENUE																			
Residual Value of Engine										100,000						50,000			
Electric Output (kwh/yr)**	-	14,230,620	28,461,240	28,461,240	28,461,240	28,461,240	28,461,240	28,461,240	28,461,240	21,345,930	21,345,930	21,345,930	21,345,930	21,345,930	21,345,930	14,230,620	14,230,620	14,230,620	14,230,620
Electric Price (\$/kwh)	0.0310	0.0319	0.0329	0.0339	0.0349	0.0359	0.0370	0.0381	0.0393	0.0404	0.0417	0.0429	0.0442	0.0455	0.0469	0.0483	0.0497	0.0512	0.0528
Electric Revenue (\$/yr)	-	454,384	936,030	964,111	993,035	1,022,626	1,053,510	1,085,116	1,117,669	983,399.51	889,301	915,981	943,460	971,764	1,000,917	737,296.11	707,915	729,152	751,027
EXPENSES																			
Gas Lease/Property Taxes	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000
O&M Expense(\$/yr)	-	275,834	568,218	585,265	602,823	620,907	639,534	658,720	678,482	524,127	539,851	556,047	572,728	589,910	607,607	417,224	429,740	442,633	455,912
G & A (\$/yr)	-	8,574	17,663	18,193	18,738	19,301	19,880	20,476	21,090	21,723	22,375	23,046	23,737	24,450	25,183	25,938	26,717	27,518	28,344
Depreciation (\$/yr)	-	171,127	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	171,127	-	-
Interest Expense (\$/yr)	-	242,674	211,871	181,068	147,491	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462
Total Expenses (Exclude principal)	90,000	788,208	1,230,007	1,216,780	1,481,307	1,191,925	1,211,131	1,230,913	1,251,289	1,097,567	1,113,943	1,011,347	1,028,720	1,046,614	1,065,045	875,417	717,584	560,151	574,255
Debt Service (P&I)		458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294
Taxable Income	(90,000)	(333,826)	(293,976)	(252,669)	(488,272)	(169,099)	(157,821)	(145,798)	(133,620)	(134,168)	(224,641)	(95,367)	(85,260)	(74,850)	(64,128)	(138,121)	(9,869)	169,002	176,772
Income Tax (Benefit)	(37,233)	(138,104)	(121,618)	(104,529)	(201,998)	(69,958)	(65,208)	(60,316)	(55,279)	(55,505)	(92,934)	(39,453)	(35,272)	(30,966)	(26,530)	(57,140)	(4,000)	89,916	73,130
Net Income Before Section 45 Credit	(82,767)	(195,722)	(172,358)	(148,140)	(286,274)	(99,143)	(92,413)	(85,481)	(78,341)	(78,663)	(131,707)	(55,914)	(49,988)	(43,885)	(37,698)	(80,980)	(5,869)	99,086	103,641
Section 45 Credit Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Section 45 Credit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Income After Section 45 Credit****	(82,767)	(195,722)	(172,358)	(148,140)	(286,274)	(99,143)	(92,413)	(85,481)	(78,341)	(78,663)	(131,707)	(55,914)	(49,988)	(43,885)	(37,698)	(80,980)	(5,869)	99,086	103,641
CASH FLOW SCHEDULE																			
Net Income After Section 45 Credit*****	(82,767)	(195,722)	(172,358)	(148,140)	(286,274)	(99,143)	(92,413)	(85,481)	(78,341)	(78,663)	(131,707)	(55,914)	(49,988)	(43,885)	(37,698)	(80,980)	(5,869)	99,086	103,641
Depreciation (\$/yr)	-	171,127	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	171,127	-	-
Less Debt Principal Payment	-	(215,620)	(246,423)	(277,228)	(30,803)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)
Cash Flow Before Initial Capital	(266,387)	(240,215)	(76,527)	(83,111)	25,178	(95,720)	(88,990)	(82,059)	(74,919)	(75,240)	(128,285)	286,341	292,267	298,370	304,656	261,274	165,458	99,086	103,641
Equity Input	(1,028,764)	(1,028,764)																	
Net Project Cash Flow	(1,295,151)	(1,268,979)	(76,527)	(83,111)	25,178	(95,720)	(88,990)	(82,059)	(74,919)	(75,240)	(128,285)	286,341	292,267	298,370	304,656	261,274	165,458	99,086	103,641
Project NPV @ 15%	(\$2,099,472)																		

NOTES

*The total investment of the gas collection and generation systems, along with aggregate returns, are shown here. Allocations of total returns to Gasco and Genco will depend on the prices negotiated between them for gas deliveries, allocation of common costs such as lease payments to the landfill owner, and any services to be performed between them. If some or all of a gas system is installed and operated pursuant to NSPS or other mandates, gas collection system installation and operation may be regarded as a sunk cost, and the assumed costs in cells c14 and f14 reduced accordingly.

** Assumes four initial reciprocating engines with an average heat rate of 12,189 MMBtu/kwh, reduced to 3 and then 2 engines as gas production falls.

***A discount rate of 15% is the minimum acceptable to most private equity investors. The project must achieve an NPV of at least zero at a 15% discount rate (that is, achieve a minimum 15% IRR).

****Gas available in excess of engine usage is used to evaporate condensate and leachate from the landfill.

SECTION 45 TAX CREDIT ILLUSTRATION LANDFILL GAS APPLICATION, MEDIUM SIZE LANDFILL

This spreadsheet illustrates a typical landfill gas development, incorporating a landfill gas collection and production system, interconnections with an electric generation facility including reciprocating engine generators, and electric utility interconnections.
See Notes below for further information (*).

Section 45 Tax Credits?

YES

ASSUMPTIONS

Project Information		Annual Expenses		Section 45 Tax Credits		Other		Results	
Initial Net Electric Capacity (k	3,610	Property lease/	90,000	Section 45 Tax Credit (\$/kwh)		Escalation	3%	IRR**	18%
Gas System Cost	933,818	Gas O&M	170,000	Year 1999 \$/kw	0.017	Discount Rate**	18%	NPV	\$96,731
Generation System Cost	4,200,000	Genco O&M	360,000	Heat Rate(kwh/	12189	Gas Decay Rat	5%		
Total Project Capital Cost (\$)*	5,133,818	O&M Expense	620,000			Debt principal	3,080,290.80		
Project Life (years)	19	G&A	18,184			Debt rate	0.50%	Debt term (yrs)	10
Annual Capacity Factor	90%	Depreciation (15	342,284.83						
Electric Price (\$/kwh)	0.031	Income Tax Rat	41.37%						
Development Period (months)	18								

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Operating Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
mmBtu used by engines	-	173,457	346,914	346,914	346,914	346,914	346,914	346,914	346,914	260,186	260,186	260,186	260,186	260,186	260,186	173,457	173,457	173,457	173,457
Total Gas Available (mmBtu)***	423,508	457,128	468,468	469,619	446,712	424,923	404,202	393,026	365,740	347,904	330,923	323,418	307,247	291,885	277,291	263,426	250,255	237,742	225,855
Total Engines Running		4	4	4	4	4	4	4	4	3	3	3	3	3	3	2	2	2	2

REVENUE		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residual Value of Engine											100,000						50,000			
Electric Output (kwh/yr)**		-	14,230,820	28,461,240	28,461,240	28,461,240	28,461,240	28,461,240	28,461,240	21,345,930	21,345,930	21,345,930	21,345,930	21,345,930	21,345,930	14,230,820	14,230,820	14,230,820	14,230,820	
Electric Price (\$/kwh)	0.0310	0.0310	0.0319	0.0329	0.0339	0.0349	0.0359	0.0370	0.0381	0.0393	0.0404	0.0417	0.0429	0.0442	0.0455	0.0469	0.0483	0.0497	0.0512	0.0528
Electric Revenue (\$/yr)	-	454,384	936,030	964,111	993,035	1,022,826	1,053,510	1,085,116	1,117,669	963,399.51	889,301	915,981	943,460	971,764	1,000,917	737,296.11	707,915	729,152	751,027	

EXPENSES		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Gas Lease/Property Taxes	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000	90,000
O&M Expense(\$/yr)	-	275,834	568,218	585,265	602,823	620,907	639,534	658,720	678,482	524,127	539,851	558,047	572,728	589,910	607,607	417,224	429,740	442,633	455,912	
G & A (\$/yr)	-	8,574	17,663	18,193	18,739	19,301	19,880	20,478	21,090	21,723	22,375	23,046	23,737	24,450	25,183	25,938	26,717	27,518	28,344	
Depreciation (\$/yr)	-	171,127	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	171,127	-	-	
Interest Expense (\$/yr)	-	242,674	211,871	181,068	147,491	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	119,462	
Total Expenses (Exclude principal)	90,000	788,209	1,230,007	1,216,780	1,481,307	1,191,925	1,211,131	1,230,913	1,251,289	1,097,587	1,113,943	1,011,347	1,028,720	1,046,614	1,065,045	875,417	717,584	580,151	574,255	

Debt Service (P&I)		458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294	458,294
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Taxable Income	(90,000)	(333,826)	(293,976)	(252,669)	(488,272)	(169,099)	(157,621)	(145,798)	(133,620)	(134,168)	(224,641)	(95,367)	(85,260)	(74,850)	(64,128)	(138,121)	(9,669)	189,002	176,772
Income Tax (Benefit)	(37,233)	(138,104)	(121,618)	(104,529)	(201,998)	(69,958)	(65,208)	(60,316)	(55,279)	(55,505)	(92,934)	(39,453)	(35,272)	(30,966)	(26,530)	(57,140)	(4,000)	89,916	73,130
Net Income Before Section 45 Credit	(52,767)	(195,722)	(172,358)	(148,140)	(286,274)	(99,143)	(92,413)	(85,481)	(78,341)	(78,663)	(131,707)	(55,914)	(49,988)	(43,885)	(37,598)	(80,980)	(5,669)	99,886	103,641
Section 45 Credit Value	0.0170	0.0175	0.0180	0.0186	0.0191	0.0197	0.0203	0.0209	0.0215	0.0222	0.0228	0.0235	0.0242	0.0249	0.0256	0.0263	0.0270	0.0277	0.0284
Section 45 Credit	-	249,176	513,307	528,706	544,567	560,904	577,732	595,063	612,915	473,477	487,661	251,156	-	-	-	-	-	-	-
Net Income After Section 45 Credit*****	(52,767)	63,456	340,949	380,567	258,293	461,762	485,319	509,582	534,574	394,815	355,974	195,242	(49,988)	(43,885)	(37,598)	(80,980)	(5,669)	99,886	103,641

CASH FLOW SCHEDULE		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Net Income After Section 45 Credit*****	(52,767)	63,456	340,949	380,567	258,293	461,762	485,319	509,582	534,574	394,815	355,974	195,242	(49,988)	(43,885)	(37,598)	(80,980)	(5,669)	99,886	103,641	
Depreciation (\$/yr)	-	171,127	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	342,255	171,127	-	-	
Less Debt Principal Payment	-	(215,620)	(246,423)	(277,226)	(30,803)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	(338,832)	
Cash Flow Before Initial Capital	(268,367)	8,963	436,780	445,595	569,745	465,184	488,741	513,005	537,997	398,237	359,397	195,497	292,267	298,370	304,656	261,274	165,458	99,086	103,641	
Equity Input	(1,026,764)	(1,026,764)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Net Project Cash Flow	(1,295,131)	(1,017,801)	436,780	445,595	569,745	465,184	488,741	513,005	537,997	398,237	359,397	195,497	292,267	298,370	304,656	261,274	165,458	99,086	103,641	
Project NPV @ 18%	\$96,731																			

NOTES

*The total investment of the gas collection and generation systems, along with aggregate returns, are shown here. Allocations of total returns to Gasco and Genco will depend on the prices negotiated between them for gas deliveries, allocation of common costs such as lease payments to the landfill owner, and any services to be performed between them. If some or all of a gas system is installed and operated pursuant to NSPS or other mandates, gas collection system installation and operation may be regarded as a sunk cost, and the assumed costs in cells c14 and f14 reduced accordingly.

** Assumes four initial reciprocating engines with an average heat rate of 12,189 MMBtu/Kwh, reduced to 3 and then 2 engines as gas production falls.

***A discount rate of 15% is the minimum acceptable to most private equity investors. The project must achieve an NPV of at least zero at a 15% discount rate (that is, achieve a minimum 15% IRR).

****Gas available in excess of engine usage is used to evaporate condensate and leachate from the landfill.

May 25, 1999

SEC. 45. ~~ELECTRICITY~~ ENERGY PRODUCED FROM CERTAIN RENEWABLE RESOURCES

(a) GENERAL RULE.--For purposes of section 38, the renewable ~~electricity~~ energy production credit for any taxable year is an amount equal to the product of—

- (1) 1.5 cents, multiplied by
- (2) the kilowatt hours of electricity or the kilowatt-hour-equivalent of gas—
 - (A) produced by the taxpayer—
 - (i) from qualified energy resources, and
 - (ii) at a qualified facility during the 10-year period beginning on the date the facility was originally placed in service, and
 - (B) sold by the taxpayer to an unrelated person during the taxable year.

(b) LIMITATIONS AND ADJUSTMENTS.—

(1) PHASEOUT OF CREDIT.—The amount of the credit determined under subsection (a) shall be reduced by an amount which bears the same ratio to the amount of the credit (determined without regard to this paragraph) as—

- (A) the amount by which the reference price for the calendar year in which the sale occurs exceeds 8 cents, bears to
- (B) 3 cents.

(2) CREDIT AND PHASEOUT ADJUSTMENT BASED ON INFLATION.—The 1.5 cent amount in subsection (a) and the 8 cent amount in paragraph (1) shall each be adjusted by multiplying such amount by the inflation adjustment factor for the calendar year in which the sale occurs. If any amount as increased under the preceding sentence is not a multiple of 0.1 cent, such amount shall be rounded to the nearest multiple of 0.1 cent.

(3) CREDIT REDUCED FOR GRANTS, TAX-EXEMPT BONDS, SUBSIDIZED ENERGY FINANCING, AND OTHER CREDITS.—The amount of the credit determined under subsection (a) with respect to any project for any taxable year (determined after the application of paragraphs (1) and (2)) shall be reduced by the amount which is the product of the amount so determined for such year and a fraction—

(A) the numerator of which is the sum, for the taxable year and all prior taxable years, of—

(i) grants provided by the United States, a State, or a political subdivision of a State for use in connection with the project,

(ii) proceeds of an issue of State or local government obligations used to provide financing for the project the interest on which is exempt from tax under section 103,

(iii) the aggregate amount of subsidized energy financing provided (directly or indirectly) under a Federal, State, or local program provided in connection with the project, and

(iv) the amount of any other credit allowable with respect to any property which is part of the project, and

(B) the denominator of which is the aggregate amount of additions to the capital account for the project for the taxable year and all prior taxable years.

The amounts under the preceding sentence for any taxable year shall be determined as of the close of the taxable year.

(4) CREDIT REDUCED FOR NONCONVENTIONAL FUEL SOURCE CREDIT.—The amount allowable as a credit under subsection (a) with respect to any qualified facility for any taxable year (determined after application of paragraphs (1), (2) and (3)) shall be reduced by the amount allowed as a credit under section 29(a) with respect to sales of qualified fuels produced at the qualified facility for the taxable year.

(c) DEFINITIONS.—For purposes of this section—

(1) QUALIFIED ENERGY RESOURCES.—The term “qualified energy resources” means—

(A) wind,~~and~~

(B) closed-loop biomass, and

(C) landfill biomass.

(2) CLOSED-LOOP BIOMASS.--The term “closed-loop biomass” means any organic material from a plant which is planted exclusively for purposes of being used at a qualified facility to produce electricity.

(3) LANDFILL BIOMASS.—The term “landfill biomass” means household solid waste, commercial solid waste and industrial solid waste disposed of in a municipal solid waste landfill unit as those terms are defined under Subtitle D of the Solid Waste Disposal Act (42 U.S.C. 6941 et seq.) at part 258.2 of title 40, Code of Federal Regulations (or successor regulations).

(43) QUALIFIED FACILITY.—

(A) WIND AND CLOSED-LOOP BIOMASS FACILITIES.—In the case of a facility using wind or closed-loop biomass to produce electricity, the term “qualified facility” means any facility owned by the taxpayer which is originally placed in service after December 31, 1993 (December 31, 1992, in the case of a facility using closed-loop biomass to produce electricity), and before July 1, ~~1999~~2008.

(B) FACILITIES FOR PRODUCTION OF GAS FROM LANDFILL BIOMASS.—In the case of a facility using landfill biomass to produce gas, the term “qualified facility” means any facility consisting of the equipment and housing required to produce, filter, compress and measure the gas (excluding wells and related systems required to collect and transmit the gas to the production facility) which is owned or leased by the taxpayer which is originally placed in service after December 31, 1992 and before December 31, 2008.

(C) FACILITIES FOR PRODUCTION OF ELECTRICITY FROM LANDFILL BIOMASS.—In the case of a facility using gas from landfill biomass to produce electricity, the term “qualified facility” means any facility consisting of the equipment and housing required to generate electricity from gas (excluding wells and related systems required to collect, produce and transmit the gas to the electricity generation facility) which is owned or leased by the taxpayer which is originally placed in service after December 31, 1992 and before December 31, 2008.

(5) KILOWATT-HOUR EQUIVALENT. The term “kilowatt-hour equivalent” means a number equal to the sum of each unit of gas with a Btu content of 12,189.

(d) DEFINITIONS AND SPECIAL RULES.—For purposes of this section—

(1) ONLY PRODUCTION IN THE UNITED STATES TAKEN INTO ACCOUNT.—Sales shall be taken into account under this section only with respect to electricity or gas the production of which is within—

(A) the United States (within the meaning of section 638(1)), or

(B) a possession of the United States (within the meaning of section 638(2)).

(2) COMPUTATION OF INFLATION ADJUSTMENT FACTOR AND REFERENCE PRICE.—

(A) IN GENERAL.—The Secretary shall, not later than April 1 of each calendar year, determine and publish in the Federal Register the inflation adjustment factor and the reference price for such calendar year in accordance with this paragraph.

(B) INFLATION ADJUSTMENT FACTOR.—The term “inflation adjustment factor” means, with respect to a calendar year, a fraction the numerator of which is the GDP implicit price deflator for the preceding calendar year and the denominator of which is the GDP implicit price deflator for the calendar year 1992. The term “GDP implicit price deflator” means the most recent revision of the implicit price deflator for the gross domestic product as computed and published by the Department of Commerce before March 15 of the calendar year.

(C) REFERENCE PRICE.—The term “reference price” means, with respect to a calendar year, the Secretary’s determination of the annual average contract price per kilowatt hour of electricity generated from the same qualified energy resource and sold in the previous year in the United States. For purposes of the preceding sentence, only contracts entered into after December 31, 1989, shall be taken into account.

(3) PRODUCTION ATTRIBUTABLE TO THE TAXPAYER.—In the case of a property or facility in which more than 1 person has an ownership or other economic interest, except to the extent provided in regulations prescribed by the Secretary, production from the property or facility (as the case may be) shall be allocated among such persons in proportion to their respective ownership or other economic interests in the gross sales from such property or facility.

(4) RELATED PERSONS.—Persons shall be treated as related to each other if such persons would be treated as a single employer under the regulations prescribed under section 52(b). In the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling electricity or gas to an unrelated person if such electricity or gas is sold to such a person by another member of such group.

(5) PASS-THRU IN THE CASE OF ESTATES AND TRUSTS.—Under regulations prescribed by the Secretary, rules similar to the rules of subsection (d) of section 52 shall apply.

SEC. 45. ENERGY PRODUCED FROM CERTAIN RENEWABLE RESOURCES

(a) GENERAL RULE.--For purposes of section 38, the renewable energy production credit for any taxable year is an amount equal to the product of—

- (1) 1.5 cents, multiplied by
- (2) the kilowatt hours of electricity or the kilowatt-hour-equivalent of gas—
 - (A) produced by the taxpayer—
 - (i) from qualified energy resources, and
 - (ii) at a qualified facility during the 10-year period beginning on the date the facility was originally placed in service, and
 - (B) sold by the taxpayer to an unrelated person during the taxable year.

(b) LIMITATIONS AND ADJUSTMENTS.—

(1) PHASEOUT OF CREDIT.—The amount of the credit determined under subsection (a) shall be reduced by an amount which bears the same ratio to the amount of the credit (determined without regard to this paragraph) as—

(A) the amount by which the reference price for the calendar year in which the sale occurs exceeds 8 cents, bears to

(B) 3 cents.

(2) CREDIT AND PHASEOUT ADJUSTMENT BASED ON INFLATION.—The 1.5 cent amount in subsection (a) and the 8 cent amount in paragraph (1) shall each be adjusted by multiplying such amount by the inflation adjustment factor for the calendar year in which the sale occurs. If any amount as increased under the preceding sentence is not a multiple of 0.1 cent, such amount shall be rounded to the nearest multiple of 0.1 cent.

(3) CREDIT REDUCED FOR GRANTS, TAX-EXEMPT BONDS, SUBSIDIZED ENERGY FINANCING, AND OTHER CREDITS.—The amount of the credit determined under subsection (a) with respect to any project for any taxable year (determined after the application of paragraphs (1) and (2)) shall be reduced by the amount which is the product of the amount so determined for such year and a fraction—

(A) the numerator of which is the sum, for the taxable year and all prior taxable years, of—

(i) grants provided by the United States, a State, or a political subdivision of a State for use in connection with the project,

(ii) proceeds of an issue of State or local government obligations used to provide financing for the project the interest on which is exempt from tax under section 103,

(iii) the aggregate amount of subsidized energy financing provided (directly or indirectly) under a Federal, State, or local program provided in connection with the project, and

(iv) the amount of any other credit allowable with respect to any property which is part of the project, and

(B) the denominator of which is the aggregate amount of additions to the capital account for the project for the taxable year and all prior taxable years.

The amounts under the preceding sentence for any taxable year shall be determined as of the close of the taxable year.

(4) CREDIT REDUCED FOR NONCONVENTIONAL FUEL SOURCE CREDIT.—The amount allowable as a credit under subsection (a) with respect to any qualified facility for any taxable year (determined after application of paragraphs (1), (2) and (3)) shall be reduced by the amount allowed as a credit under section 29(a) with respect to sales of qualified fuels produced at the qualified facility for the taxable year.

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(B) closed-loop biomass, and

(C) landfill biomass.

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solid waste landfill unit as those terms are defined under Subtitle D of the Solid Waste Disposal Act (42 U.S.C. 6941 et seq.) at part 258.2 of title 40, Code of Federal Regulations (or successor regulations).

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(B) FACILITIES FOR PRODUCTION OF GAS FROM LANDFILL BIOMASS—In the case of a facility using landfill biomass to produce gas, the term “qualified facility” means any facility consisting of the equipment and housing required to produce, filter, compress and measure the gas (excluding wells and related systems required to collect and transmit the gas to the production facility) which is owned or leased by the taxpayer which is originally placed in service after December 31, 1992 and before December 31, 2008.

(C) FACILITIES FOR PRODUCTION OF ELECTRICITY FROM LANDFILL BIOMASS—In the case of a facility using gas from landfill biomass to produce electricity, the term “qualified facility” means any facility consisting of the equipment and housing required to generate electricity from gas (excluding wells and related systems required to collect, produce and transmit the gas to the electricity generation facility) which is owned or leased by the taxpayer which is originally placed in service after December 31, 1992 and before December 31, 2008.

(5) KILOWATT-HOUR EQUIVALENT. The term “kilowatt-hour equivalent” means a number equal to the sum of each unit of gas with a Btu content of 12,189.

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(A) the United States (within the meaning of section 638(1)), or

(B) a possession of the United States (within the meaning of section 638(2)).

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(C) REFERENCE PRICE.—The term “reference price” means, with respect to a calendar year, the Secretary’s determination of the annual average contract price per kilowatt hour of electricity generated from the same qualified energy resource and sold in the previous year in the United States. For purposes of the preceding sentence, only contracts entered into after December 31, 1989, shall be taken into account.

(3) PRODUCTION ATTRIBUTABLE TO THE TAXPAYER.—In the case of a property or facility in which more than 1 person has an ownership or other economic interest, except to the extent provided in regulations prescribed by the Secretary, production from the property or facility (as the case may be) shall be allocated among such persons in proportion to their respective ownership or other economic interests in the gross sales from such property or facility.

(4) RELATED PERSONS.—Persons shall be treated as related to each other if such persons would be treated as a single employer under the regulations prescribed under section 52(b). In the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling electricity or gas to an unrelated person if such electricity or gas is sold to such a person by another member of such group.

(5) PASS-THRU IN THE CASE OF ESTATES AND TRUSTS.—Under regulations prescribed by the Secretary, rules similar to the rules of subsection (d) of section 52 shall apply.

Elements of Housing Efficiency Tax Credit

- New homes only
- 2 tier for 5 years -- 30% with \$1500 cap and 45% with \$2500 cap
- Third party certification (prescriptive: certified home inspectors; performance: home energy raters approved by HERS or NASEO) with provisions for sampling or other means to assure compliance while minimizing transaction costs; consumer disclosure requirements
- Credits to homebuilders
- Fuel neutrality

The Thomas bill without existing homes would cost \$750 million over 5 years. The Matsui bill new homes credit provision was scored at \$400 million.

Sustainable Energy Coalition
Washington, DC

July 16, 1999

The Hon. Richard A. Gephardt
Minority Leader
U.S. House of Representatives
Washington, DC 20515

The Hon. Charles B. Rangel
Ranking Minority Member
Committee on Ways & Means
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Minority Leader and Mr. Rangel:

As you complete the preparation of the Democratic alternative tax package, the undersigned members of the Sustainable Energy Coalition urge you to consider the inclusion of tax incentives that will encourage more widespread use of renewable energy and energy efficiency technologies. The Sustainable Energy Coalition is made up of 35 national business, environmental, consumer, and energy policy organizations that support a strong Federal role in research, development, and deployment of energy efficiency and renewable energy technologies.

Promotion of new technology for clean energy has broad bipartisan support, although tax incentives for these purposes are notably absent from the Archer Bill. Energy efficiency technologies already in place have saved American consumers hundreds of billions of dollars while reducing emissions that contribute to regional air quality problems and global climate change. Renewable energy technologies are already providing the Nation with clean power and high tech jobs, and much more is possible. Well-crafted tax incentives can play a key role in stimulating both energy efficiency and renewable energy by increasing sales of market-ready products, boosting economies-of-scale in production, and lowering costs for consumers.

In this Congress, Members of both parties have introduced a wide array of targeted tax incentives to promote the use of clean energy technology in our homes, vehicles, factories, farms, and powerplants. In addition, the Administration has resubmitted a refined set of energy technology tax proposals with its FY 2000 Budget, which were recently introduced by Rep. Bob Matsui. We urge you to consider this group of proposals for inclusion in the Democratic alternative. If there is to be a major tax bill signed into law during this Congress, targeted tax relief to accelerate America's transition to clean energy and the achievement of air quality goals must certainly be part of the mix.

Thank you for your attention to these views.

Sincerely,

David Nemtzow
Alliance to Save Energy

Megan S. Smith
American Bioenergy Association

Howard Geller
American Council for an
Energy-Efficient Economy

Ed Reid
American Gas Cooling Center

Randall Swisher
American Wind Energy Association

Jennifer Schafer
Cascade Associates

Douglas A. Durante
Clean Fuels Development Coalition

Burl Haigwood
Clean Fuels Foundation

Carol Werner
Environment and Energy
Study Institute

Bill Holmberg
Global Biorefineries, Inc.

Michael Dickens
Integrated Building and Construction
Solutions

John Fiegel
International District Energy Association

Edward R. Osann
Potomac Resources, Inc.

Scott Sklar
Solar Energy Industries Association and
National BioEnergy Industries
Association

Ken Bossong
SUN DAY Campaign

Alan Nogee
Union of Concerned Scientists

cc: Hon. David E. Bonior, Minority Whip
Hon. Martin Frost, Chair, House Democratic Caucus
Democratic Members, Committee on Ways & Means

Questions or replies to this letter may be directed to the Sustainable Energy Coalition c/o Edward R. Osann,
Potomac Resources, Inc., 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036; 202-429-8873.

TOYOTA

climate-tax

July 9, 1999

Toyota Motor Sales, U.S.A., Inc.
1850 M Street, N.W., Suite 600
Washington, D.C. 20036
(202) 775-1700
(202) 822-0928 Fax

Mr. Roger Ballantine
The White House
115 Old Executive Office Building
Washington, DC 20502

Dear Roger,

I am writing to again thank you for meeting with us to discuss the merits of accelerating the effective date for the proposed hybrid electric vehicle tax credit.

Moving forward the effective date will enhance the competitive pressures within the industry to bring products to the market sooner than otherwise will be the case. Most importantly, earlier application of the credit will accelerate the environmental and energy security benefits associated with this cleaner, more fuel efficient technology.

Attached is a position paper highlighting the arguments for moving ahead the effective date, including an analysis/estimate of the lifetime CO2 emission reductions for the Prius compared to the average 1998 MY passenger car and an analysis of the reductions in traditional pollutants compared to 2001 MY requirements.

Also, as requested, we have included information on the use of renewable energy by our operations in California.

I trust this information is of benefit. Please give me a call if we can provide additional information.

Sincerely,



Gil Bamford
Vice President
Government & Industry Relations

cc: Jeff Seabright
Janet Anderson

**PROPOSED MODIFICATION H.R. 2830, A BILL
TO PROVIDE
TAX CREDITS FOR CERTAIN HYBRID ELECTRIC VEHICLES**

Background: Legislation has been introduced by Congressman Bob Matsui (H.R. 2830) which would provide for an incremental tax credit for hybrid electric vehicles based on (1) percentages the rechargeable energy system provides of the maximum available power and (2) percentages the regenerative braking system supplies of the energy available from braking under set standards. The tax credit would be effective for the years 2003 through 2006.

Proposed Modification: Modify H.R. 2830 by making the effective date January 1, 2000.

Rationale:

1. **If incentives are delayed until 2003, companies will delay hybrid vehicle sales to meet that timetable. An earlier date may accelerate product launches to more closely reflect product development times by creating a competitive incentive.**
 - *"GM will have a production-ready hybrid vehicle by 2001..." (GM Website, June 25, 1999)*
 - *"Jac Nasser, president of Ford Automotive Operations, says the company expects to put an electric hybrid version of the P2000 on the road later this year..." (The Edmonton Sun, March 27, 1999)*
 - *"Chrysler Corp. is developing a new type of hybrid car that would get 70 miles per gallon, cost the same as a conventional car and be ready for production as early as 2003." (AP, January 5, 1998)*
2. **Earlier application of the credit would accelerate environmental benefits and provide for a clean fuel vehicle which would cut down on imported oil.**

The Toyota Prius is targeted to meet California Super Ultra Low Emission Vehicle (SULEV) standards. Certification at these levels represents a significant reduction in traditional pollutants.

Prius 2001 MY Certification Target

Emission	Emission Levels			
	NMOG	CO	NOx	
SULEV	0.010	1.0	0.02	Prius

Conventional Vehicle 2001 MY Certification Requirements

Emission Standard	Emission Levels		
	NMOG	CO	NOx
Tier 1	0.25	3.4	0.4
LEV*	0.075	3.4	0.2
ULEV**	0.040	1.7	0.2

Comparative Difference

Comparison of Prius (SULEV) Emission reductions to:	Emission Reductions		
	NMOG	CO	NOx
Tier 1	96%	71%	95%
LEV*	87%	71%	90%
ULEV**	75%	41%	90%

* Low Emission Vehicle

** Ultra Low Emission Vehicle

Prius represents a substantial reduction in CO2 emissions over the life of the car when compared with the average fuel economy of today's passenger car. Even when compared to the highly fuel efficient Toyota Corolla, Prius represents a significant reduction in CO2 emissions.

	Industry Average 98 MY Passenger Car	Prius	Corolla
Combined fuel economy	28.7 mpg	55 to 60 mpg	36.8 mpg
CO2 emission reduction	—	approx. 50%	approx. 20%
Lifetime (100,000 miles) CO2 emission*	approx. 30 tons	approx. 15 tons	approx. 24 tons

*from ACEEE methodology for "Green Guide to Cars and Trucks" — CO2 tonnage emissions can vary based on driving conditions.

- 3. Benefits specific to the proposed modification: the early tax credit, applicable on a modest basis, would provide some early indication of demand for hybrid vehicles, help develop a regulatory structure necessary to administer and enforce the credit and generally provide a low cost preview of unknown and unanticipated ramifications of the proposed hybrid credit.**
- 4. The revenue loss would be small, because of the limited number of vehicles to be offered for sale, with the benefits great because of the early test market.**

ESTIMATED BUDGET EFFECTS OF THE REVENUE PROVISIONS CONTAINED IN THE PRESIDENT'S FISCAL YEAR 2000 BUDGET PROPOSAL

Fiscal Years 1999 - 2009

(Millions of Dollars)

Provision	Effective	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999-04	1999-09
I. PROVISIONS REDUCING REVENUES														
A. Health Care Tax Provisions														
1. Long-term care tax credit [1]	tyba 12/31/99	---	-59	-1,256	-1,451	-1,551	-1,654	-1,748	-1,829	-1,812	-1,791	-1,788	-5,971	-14,939
2. Disabled workers tax credit	tyba 12/31/99	---	-18	-122	-141	-160	-171	-180	-183	-187	-189	-194	-611	-1,544
3. Provide tax relief to encourage small business health plans	[2]	---	-2	-6	-12	-16	-11	-2	---	---	---	---	-47	-49
B. Education Tax Provisions														
1. Tax credits for holders of qualified school modernization bonds and qualified zone academy bonds	bio/a 1/1/00	---	-85	-352	-684	-929	-1,044	-1,067	-1,067	-1,067	-1,067	-1,067	-3,094	-8,431
2. Exclusion for employer-provided educational assistance, including graduate level courses	[3]	-57	-285	-510	-201	---	---	---	---	---	---	---	-1,053	-1,053
3. Tax credit for employer-provided workplace literacy and basic education programs	tyba 12/31/99	---	-3	-19	-26	-38	-56	-70	-70	-71	-71	-71	-142	-496
4. Tax credit for contributions to qualified zone academies	cspma 12/31/99	---	-14	-41	-37	-29	-20	-5	---	---	---	---	-141	-147
5. Eliminate 60-month limit on student loan interest deduction	ipoqela 12/31/99	---	-16	-64	-69	-71	-74	-77	-78	-79	-87	-94	-295	-709
6. Eliminate tax on forgiveness of direct student loans subject to certain income contingent repayment	lca 12/31/99	----- No Revenue Effect -----												
7. Tax treatment of education awards under certain Federal programs:														
a. Eliminate tax on awards under National Health Corps Scholarship Program and F. Edward Hebert Hebert Armed Forces Health Professions Scholarship and Financial Assistance Program	eaa 12/31/99	---	-1	-1	-1	-1	[4]	[4]	-1	-1	-1	-1	-4	-7
b. Eliminate tax on repayment or cancellation of student loans under NHSC Scholarship Program, Americorps Education Award Program, and Armed Forces Health Professions Loan Repayment Program	rocoslra 12/31/99	---	-3	-6	-6	-6	-6	-6	-6	-6	-7	-7	-27	-59
C. Child Care Provisions														
1. Expand the dependent care credit	tyba 12/31/99	---	-244	-1,228	-1,272	-1,314	-1,356	-1,372	-1,406	-1,417	-1,408	-1,429	-5,414	-12,447
2. Tax credit for employer-provided child care facilities	tyba 12/31/99	---	-45	-90	-106	-125	-144	-159	-172	-185	-199	-214	-509	-1,437
D. Tax Incentives to Revitalize Communities														
1. Increase low-income housing tax credit per capita cap to \$1.75	cyba 1999	---	-16	-81	-195	-330	-469	-610	-753	-897	-1,042	-1,189	-1,091	-5,583
2. Tax credits for holders of Better America Bonds	bio/a 1/1/00	---	-6	-31	-82	-149	-220	-285	-331	-350	-353	-353	-487	-2,159
3. New markets tax credit	qima 12/31/99	---	---	-9	-68	-154	-234	-304	-325	-264	-161	-75	-465	-1,593
4. Specialized small business investment companies	sa & tybo/a DOE	---	[4]	[4]	[4]	[4]	-1	-1	-1	-2	-2	-2	-1	-9

Provision	Effective	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999-04	1999-09
5. Extend wage credit for two new empowerment zones	1/1/00	---	---	---	---	---	---	-21	-42	-43	-43	-22	---	-170
E. Energy and Environmental Tax Provisions														
1. Tax credit for energy-efficient building equipment	[5]	---	-48	-75	-46	-33	-11	-1	1	1	1	1	-211	-205
2. Tax credit for purchase of new energy-efficient homes	[6]	---	-16	-93	-156	-97	-36	-43	---	---	---	---	-398	-442
3. Extend tax credit for electric vehicles and provide tax credit for certain fuel-efficient hybrid vehicles	[7]	---	---	---	-2	-137	-617	-1,244	-1,875	-1,540	-65	27	-756	-5,453
4. Tax credit for combined heat and power ("CHP") systems	[8]	---	-58	-88	-87	-26	6	6	6	6	6	6	-253	-220
5. Tax credit for rooftop solar equipment	[9]	---	-8	-15	-19	-23	-31	-34	-44	-17	[4]	[4]	-97	-193
6. Extend wind and biomass tax credit and expand eligible biomass sources (through 6/30/04)	DOE; fpisb 7/1/04	-4	-21	-39	-63	-81	-94	-100	-102	-105	-108	-102	-303	-819
F. Retirement Savings Provisions														
1. IRA contributions through payroll deduction for retirement savings	tyba 12/31/99	---	-7	-10	-1	-1	-1	-1	-1	-1	-1	-1	-21	-27
2. Small business tax credit for retirement plan start-up expenses	[10]	---	-27	-33	-35	-21	-11	-3	-1	---	---	---	-127	-131
3. Simplified pension plan for small business ("SMART")	cyba 1999 pyba 12/31/99	---	-18	-74	-156	-214	-226	-229	-235	-242	-250	-257	-688	-1,901
4. Faster vesting of employer matching contributions	pyba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5. Count FMLA leave for retirement eligibility and vesting purposes	pyba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6. Require joint and 75% survivor annuity option for pension plans	pyba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7. Pension disclosure	pyba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8. Benefits of nonhighly compensated employees under section 401(k) safe harbor plans	pyba 12/31/99	---	-10	-16	-16	-17	-17	-18	-18	-19	-19	-20	-77	-172
9. Modify definition of highly compensated employee	pyba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10. Modify benefit limits for multiemployer plans under section 415	yba 12/31/99	---	-3	-4	-4	-4	-4	-4	-4	-5	-5	-5	-18	-41
11. Modify full funding limitation for multiemployer plans	tyba 12/31/99	---	-8	-9	-9	-8	-8	-6	-6	-6	-6	-6	-42	-73
12. Eliminate partial termination rules for multiemployer plans	ptba 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
13. Allow rollovers between qualified retirement plans and section 403(b) tax-sheltered annuities	da 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
14. Allow rollovers from deductible IRAs to qualified plans or section 403(b) tax-sheltered annuities	da 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
15. Allow rollovers of after-tax contributions	da 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
16. Allow rollovers of contributions from nonqualified deferred compensation plans of State and local governments	da 12/31/99	---	-6	-11	-11	-12	-12	-12	-13	-13	-13	-14	-52	-117
17. Purchase of service credits in governmental defined benefit plans	tma 12/31/99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
G. Extend Certain Expiring Tax Provisions														
1. Extend minimum tax relief for individuals (through 2000)	tyba 12/31/98	---	-979	-742	---	---	---	---	---	---	---	---	-1,721	-1,721
2. Extend the work opportunity tax credit (through 6/30/00)	wpoifbwa 6/30/99	---	-178	-133	-70	-27	-9	-2	---	---	---	---	-417	-419

[illegible]

Provision	Effective	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999-04	1999-09
3. Modify treatment of built-in losses and other attribute trafficking	teio/a DOE	[11]	70	94	106	114	122	132	144	158	174	192	506	1,306
4. Modify treatment of ESOP as S corporation shareholder	tybo/a dofca	---	24	47	57	67	78	87	95	100	104	108	272	766
5. Limit tax-free liquidations of U.S. subsidiaries of foreign corporations	latoo/a DOE	[11]	5	8	10	10	10	10	10	10	10	10	43	93
6. Prevent capital gains avoidance through basis shift transactions involving foreign shareholders	do/a dofca	[11]	75	50	45	40	35	30	33	37	40	43	245	428
7. Limit inappropriate tax benefits for lessors of tax-exempt use property	teio/a DOE	---	26	48	72	94	113	129	141	148	151	149	353	1,071
8. Prevent mismatching of deductions and income inclusions in transactions with related foreign persons	pao/a dofca	[11]	35	50	70	25	29	35	40	44	48	52	209	428
9. Restrict basis creation through section 357(c)	to/a 10/19/98	7	12	14	16	18	20	22	24	26	28	30	87	217
10. Modify anti-abuse rules related to assumption of liabilities	aolo/a dofca	[11]	2	4	5	5	5	5	5	5	5	5	21	46
11. Modify corporate-owned life insurance ("COLI") rules	tyba DOE	---	230	352	381	407	433	458	485	512	540	566	1,803	4,365
B. Financial Products														
1. Require banks to accrue interest on short-term obligations	oso/a DOE	---	65	2	2	3	3	4	4	5	5	6	75	99
2. Require current accrual of market discount by accrual method taxpayers	diao/a DOE	---	15	12	10	8	7	5	5	6	6	6	52	80
3. Limit conversion of character of income from constructive ownership transactions with respect to partnership interests	gro/a dofca	2	34	35	39	40	41	43	44	46	48	50	191	422
4. Modify rules for debt-financed portfolio stock	psao/a DOE	[11]	1	2	3	5	8	12	16	22	28	35	19	132
5. Modify and clarify certain rules relating to debt-for-debt exchanges	eco/a DOE	---	12	22	26	30	33	34	35	36	37	38	123	303
6. Modify and clarify straddle rules	seio/a DOE	---	5	21	22	23	24	25	26	27	28	29	95	230
7. Defer interest deduction and original issue discount ("OID") on certain convertible debt	cdio/a dofca	1	13	25	38	51	64	72	80	89	99	110	192	642
C. Corporate Provisions														
1. Conform control test for tax-free incorporations, distributions, and reorganizations	to/a DOE	---	16	16	17	17	18	18	19	19	20	20	84	180
2. Tax issuance of tracking stock	tsio/a DOE	---	66	98	108	119	131	144	159	174	192	211	522	1,402
3. Require consistent treatment and provide basis allocation rules for transfers of intangibles in certain nonrecognition transactions	to/a DOE	---	25	26	28	29	30	32	34	35	37	39	138	314
4. Modify tax treatment of downstream mergers	to/a DOE	---	35	72	76	79	83	88	92	97	101	106	346	830
5. Deny dividends-received deduction for certain preferred stock	sio/a DOE	---	13	24	27	30	32	34	36	38	40	42	126	316
D. Provisions Affecting Pass-Through Entities														
1. Require partnership basis adjustments upon distributions of property and modify basis allocation rules	pdmo/a DOE	---	29	65	100	120	136	143	147	149	152	157	449	1,198
2. Modify structure of businesses indirectly conducted by REITs	DOE	---	2	7	8	8	8	9	9	9	10	10	33	80
3. Modify treatment of closely held REITs	tybo/a dofca	---	3	10	10	11	11	12	12	13	13	14	45	109
4. Repeal tax-free conversions of large C corporations to S corporations [17]	sefe tyba 1/1/00	---	6	36	46	52	58	67	77	88	101	117	198	648

[illegible]

Provision	Effective	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999-04	1999-09
6. Replace sales-source rules with activity-based rules	tyba DOE	15	908	1,837	1,901	2,002	2,123	2,249	2,383	2,525	2,674	2,831	8,786	21,448
7. Modify rules relating to foreign oil and gas extraction income	ftpoi tyba DOE; tyba DOE	5	188	194	200	206	213	220	227	234	241	249	1,006	2,177
K. Pension Provisions														
1. Increase elective withholding rate for nonperiodic distributions from deferred compensation plans	dma 1999	---	51	1	1	1	1	1	1	1	1	1	54	58
2. Increase section 4973 excise tax for excess IRA contributions	tyba 12/31/99	---	[11]	5	5	5	5	6	6	6	7	7	20	52
3. Impose limitation on pre-funding of welfare benefits	cpa DOE	---	69	141	147	149	140	129	118	105	90	74	647	1,163
4. Subject signing bonuses to employment taxes	sbpa DOE	---	9	6	6	6	6	7	7	7	7	7	33	68
L. Compliance Provisions														
1. Expand reporting of cancellation of indebtedness income	co/a DOE	---	2	7	7	7	7	7	7	7	7	7	30	65
2. Modify the substantial understatement penalty for large corporations	tyba DOE	---	---	---	---	---	20	20	20	20	20	20	20	120
3. Repeal exemption for withholding on certain gambling winnings	[23]	---	25	2	2	3	3	3	3	3	3	3	35	50
4. Increase penalties for failure to file correct information returns	[24]	---	1	4	10	14	18	18	17	15	14	12	47	123
M. Miscellaneous Revenue-Increase Provisions														
1. Modify deposit requirement for Federal unemployment ("FUTA") taxes [25]	mba 12/31/04	---	---	---	---	---	---	1,306	-815	-419	-106	157	---	123
2. Reinstate Oil Spill Liability Trust Fund excise tax and increase trust fund ceiling to \$5 billion (through 9/30/09)	DOE	9	247	249	252	254	255	257	260	263	265	268	1,287	2,581
3. Simplify foster child definition under earned income credit	tyba 12/31/99	---	2	36	38	38	39	40	41	42	43	43	153	362
4. Repeal percentage depletion for non-fuel minerals mined on Federal and formerly Federal lands	tyba DOE	3	66	67	69	71	73	74	76	78	80	82	349	740
5. Impose excise tax on purchase of structured settlements	poa DOE	---	3	4	3	1	-1	-2	-3	-3	-3	-4	11	-5
6. Require taxpayers to include rental income of residence in income without regard to period of rental	tyba 12/31/99	---	5	16	17	17	18	18	19	20	20	21	72	171
SUBTOTAL: PROVISIONS INCREASING REVENUES.....		119	4,266	7,210	7,450	7,522	7,737	9,406	8,118	8,778	9,319	9,835	34,306	79,764
III. OTHER PROVISIONS THAT AFFECT RECEIPTS														
A. Hazardous Substance Superfund Taxes														
1. Reinstate environmental tax imposed on corporate taxable income and deposited in the Hazardous Substance Superfund.....	[26]	---	938	559	571	584	602	631	663	690	716	739	3,255	6,694
2. Reinstate excise taxes deposited in the Hazardous Substance Superfund.....	[27]	28	703	709	716	721	724	731	739	749	754	762	3,601	7,336
B. Convert a Portion of the Excise Taxes Deposited in the Airport and Airway Trust Fund to Cost-Based User Fees Assessed For Federal Aviation Administration ("FAA") Services (Administration's estimate) [28]														
C. Increase Excise Taxes on Tobacco Products With Section 5061(d)(4) and 5703(b)(2)(D) Adjustment	10/1/00	---	1,122	1,184	1,091	1,007	910	804	685	550	410	246	5,314	8,009
	10/1/99	-114	8,352	7,447	7,012	6,830	6,808	6,767	6,735	6,695	6,651	6,592	36,334	69,774

Provision	Effective	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999-04	1999-09
<i>D. Change Harbor Maintenance Excise Tax to Cost-Based User Fee [29].....</i>	DOE	---	-436	-488	-525	-564	-607	-652	-701	-754	-810	-871	-2,620	-6,408
<i>E. Additional Provisions Requiring Amendment of the Internal Revenue Code:</i>														
1. Puerto Rico rum excise tax cover over [25]	[30]	---	-49	-65	-65	-65	-65	-16	---	---	---	---	-309	-325
2. Allow members of the clergy to revoke exemption from Social Security and Medicare coverage [25]	1/1/00	---	3	9	11	11	12	12	12	13	13	13	46	110
3. Restore Premiums for United Mine Workers of American Combined Benefit Fund [25]	ppo/a 3/1/99	8	13	12	12	11	11	11	10	10	10	9	67	117
4. Extension of VA authority to access section 6103 Information [25].....	9/30/02	---	---	---	---	3	6	8	10	12	13	15	9	67
<i>F. Allow Immediate Participation in the Thrift Savings Plan by Federal Government Employees.....</i>	1/1/00	---	-4	-8	-9	-9	-9	-9	-10	-10	-10	-11	-38	-89
SUBTOTAL: OTHER PROVISIONS THAT AFFECT RECEIPTS.....		-78	10,642	9,359	8,814	8,529	8,392	8,287	8,143	7,955	7,747	7,494	45,659	85,285
NET TOTAL		-310	11,093	10,114	10,165	9,573	9,040	9,650	6,674	6,553	8,118	9,028	49,679	89,703

Joint Committee on Taxation

NOTE: Details may not add to totals due to rounding. Enactment date is assumed to be September 15, 1999.

Legend for "Effective" column:

afroefa = applications for recognition of exemption filed after
aolo/a = assumptions of liabilities on or after
bio/a = bonds issued on or after
cdio/a = convertible debt issued on or after
cia = costs incurred after
co/a = cancellations on or after
cpa = contributions paid after
cspma = corporate sponsorship payments made after
cyba = calendar years beginning after
da = distributions after
dda = decedents dying after
diao/a = debt instruments acquired on or after
dma = distributions made after
Dma = disclaimers made after
do/a = distributions on or after
DOE = date of enactment
dofca = date of first committee action
dpoio/a = damages paid or incurred on or after
eara = education awards received after
eoo/a = exchanges occurring on or after
fceio/a = forward contracts entered into on or after

fpisb = facilities placed in service before
ftpoi = foreign taxes paid or accrued in
gro/a = gains recognized on or after
iodpoa = interest or dividends paid or accrued more than
ipoqela = interest paid on qualified education loans after
iseio/a = installment sales entered into on or after
latoo/a = liquidations and terminations occurring on or after
lca = loan cancellations after
mba = months beginning after
mf = mutual funds
oao/a = obligations acquired on or after
pao/a = payments accrued on or after
pdmo/a = partnership distributions made on or after
poa = purchases occurring after
ppo/a = premiums paid on or after
psao/a = portfolio stock acquired on or after
ptba = partial terminations beginning after
pyba = plan years beginning after
qima = qualified investments made after
rocoslra = repayments or cancellations of student loans received after

sbpa = signing bonuses paid after
sefe = subchapter S elections that are first effective
selo/a = straddles entered into on or after
sio/a = stock issued on or after
sa = sales after
spri = severance pay received in
ta = transfers after
teia = transactions entered into after
teio/a = transactions entered into on or after
tita = transfers in trust after
tma = transfers made after
to/a = transfers on or after
too/a = transactions occurring on or after
tsio/a = tracking stock issued on or after
tyba = taxable years beginning after
tybo/a = taxable years beginning on or after
tyea = taxable years ending after
wpoifibwa = wages paid or incurred for individuals beginning work after
yba = years beginning after
30da = 30 days after

[1] Estimate includes an increase in outlays of \$597 million for fiscal years 1999-2004 and \$1,494 million for fiscal years 1999-2009.

[2] The proposal would be effective for taxable years beginning after 12/31/99. The special foundation rule would apply to grants and loans made prior to 1/1/04 for initial operating expenses incurred prior to 1/1/06. The credit would be available only for health plans established before 1/1/04. No carrybacks of the credit would be allowed to taxable years beginning before 1/1/00.

[3] The present-law exclusion would be extended by 19 months to apply to undergraduate courses beginning before 1/1/02. In addition, the exclusion would be reinstated for graduate education, effective for courses beginning after 6/30/99, and before 1/1/02.

Footnotes for JCX-9-99 continued:

- [4] Loss of less than \$500,000.
- [5] 10-percent credit effective for purchases after 12/31/99, and before 1/1/02. 20-percent credit effective for purchases after 12/31/99, and before 1/1/04.
- [6] \$2,000 credit effective for homes purchased after 12/31/99 and before 1/1/05; \$1,500 credit effective for homes purchased after 12/31/99 and before 1/1/03; \$1,000 credit effective for homes purchased after 12/31/99 and before 1/1/02.
- [7] \$1,000 credit effective for vehicles that are one-third more fuel efficient and purchased after 12/31/02 and before 1/1/05. \$2,000 credit effective for vehicles that are two-thirds more fuel efficient and purchased after 12/31/02 and before 1/1/07. \$3,000 credit effective for vehicles that are twice as fuel efficient and purchased after 12/31/03 and before 1/1/07. \$4,000 credit effective for vehicles that are three times more fuel efficient and purchased after 12/31/03 and before 1/1/07.
- [8] Effective for investments placed in service after 12/31/99 and before 1/1/03.
- [9] Effective for solar water heating equipment placed in service after 12/31/99 and before 1/1/05; effective for photovoltaic equipment placed in service after 12/31/99 and before 1/1/07.
- [10] Effective for plans established after 12/31/97 and before 1/1/02. Credit available beginning in taxable year in which date of enactment occurs.
- [11] Gain of less than \$500,000.
- [12] The estimate assumes clarifications of the proposal, e.g., a definition of severance pay.
- [13] Effective the date of enactment of the President's Comprehensive Electricity Competition Plan.
- [14] Tax provisions are contingent on the enactment of the Comprehensive Electricity Competition Plan, which has not been enacted and is not part of the President's Budget.
- [15] These proposals contain significant interdependence and are, therefore, grouped together. Estimates are tentative and will be adjusted as the details of the proposals are further developed.
- [16] Generally effective for transactions on or after the date of first committee action.
- [17] Proposal also would apply to acquisitions made after 12/31/99.
- [18] Gain of less than \$5 million.
- [19] Effective for taxable years beginning after the date of enactment with respect to obligations acquired on or after the date of first committee action.
- [20] Generally effective for start-up and organizational expenditures incurred after the date of enactment.
- [21] Effective taxable years beginning after the date of enactment with respect to investments acquired on or after the date of first committee action.
- [22] Effective for transfers after the date of enactment in the case of lifetime gifts, and decedents dying after the date of enactment in the case of transfers at death.
- [23] Effective for payments made after the beginning of the first month that begins at least 10 days after the date of enactment.
- [24] Effective for returns the due date for which (without regard to extensions) is more than 90 days after the date of enactment of the proposal.
- [25] Estimate provided by the Congressional Budget Office.
- [26] The corporate environmental income tax would be reinstated for taxable years beginning after 12/31/98, and before 1/1/10.
- [27] The three Superfund excise taxes would be reinstated for the period after the date of enactment and before 10/1/09.
- [28] Table shows the net effects of replacing a portion of the excise taxes with user fees. Estimate was provided by the Department of the Treasury. The President's budget proposal did not provide details regarding the proposed user fees.
- [29] Table shows the effects of the proposal on Federal revenues. The President's budget proposal did not provide details regarding the proposed user fee.
- [30] Effective for rum imported into the United States after 10/1/99, and before 10/1/04.

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**PREPARED BY THE STAFF
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SUMMARY

A straight **5-year extension** (through July 1, 2004) of this existing provision providing a 1.5 cent per kilowatt-hour tax credit (adjusted for inflation) for electricity produced using wind resources (current PTC expires June 30, 1999).

PROBLEM

Although the PTC is a production tax credit available only for energy that is actually produced, the credit is inextricably linked to financing and developing continued wind energy production capacity. The financing and permitting requirements for a typical wind energy installation require two to three years of lead time at a minimum. Yet the PTC is now scheduled to expire in less than five months. This situation is already drying up investments and halting future project planning just as wind stands to assume a new and competitive role in the domestic energy market.

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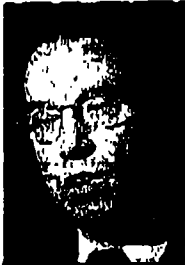
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DEBBIE L. HOLZKAMP, *Vice President, Advertising*
J. AUSTIN RYAN, *Vice President, Production*
R. DEE WILSON, *Vice President, Information Services*

THE REGISTER'S EDITORIALS

An energy bargain

■ The windpower subsidy will nourish a potentially big industry in Iowa.

Renewal of the federal subsidy given wind-energy production is a must for Iowa's blossoming windpower industry. It will cost \$144 million over the next five years, while offering environmental values that could make it the energy bargain of the new century.



Grassley

Iowa Senator Charles Grassley, author of the Wind Energy Incentives Act of 1993, is asking for its renewal at a time when Iowa is seeing an explosion in the industry. Enron Corp. is erecting 250 of the towering wind generators in the Alta-Storm Lake area and will

sell power to MidAmerican Energy. Florida Light and Power is putting up 56 at Clear Lake, with power going to Alliant.

When the mega-windmills go on line, Iowa will be the third-largest wind-energy state in the nation, behind California and Minnesota.

So — where's the bargain?

Most electrical energy is generated from burning coal or natural gas. The "fuel" for wind energy is free for the taking. Burning coal and gas depletes future supplies. Harnessing the wind doesn't. Coal and gas pump

heat-trapping gases into the atmosphere, profoundly affecting global climate. Wind energy doesn't. America spends billions yearly protecting the sea lanes that bring oil from abroad. Wind arrives unescorted.

The only costs that show up on the bottom line of the energy industry's books are those involved in mining, drilling, refining and transporting gas and oil. If dollar signs were attached to the other costs, and utilities had to

America spends billions yearly protecting the sea lanes that bring oil from abroad. Wind arrives unescorted.

pay a price for depleting reserves, for fouling the air and for hiring a Navy, your electric bill would go out of sight — and windpower would be the hottest thing on Wall Street.

The federal subsidy that Grassley wants reauthorized through the summer of 2004 pays 1.7 cents per kilowatt of the cost of windpower, making it competitive. Today it helps nurture an Iowa-grown "alternate energy" industry onto its feet. Tomorrow it will carry a lot more clout than the term "alternate" implies.



Department of Energy

Washington, DC 20585

MAY 13 1999

*Saline
Rogers*

Mr. Leonard Burman
U.S. Department of Treasury
Deputy Assistant Secretary for Tax Analysis
Room 1334
Treasury Building
Washington D.C. 20220

Subject: Tax Credit for Purchase of Energy Efficient New Homes

Dear Mr. Burman:

As you are aware, our staffs have been working together to develop legislation to allow a tax credit for purchasers of energy efficient new homes. As originally envisioned by the Administration, it was to have been a reasonably straightforward process of establishing a level of performance in terms of percent savings over a base home built to Model Energy Code (MEC). As our staffs worked on the details, it became apparent that there could be many interpretations and misapplications of the specifications. In addition, there is extreme sensitivity to the possible advantaging of a particular fuel type in the process. Although the staffs explored many options, including prescriptive legislative language, it was agreed that the best option was to have the Department of Energy put in place, by regulation, a federal process for certification and uniform calculation procedures. We see no simpler alternative. Accordingly, we offer the following amendments to subsection (6) of the Matsui bill language (HR 4538).

(6) New Highly Efficient Principal Residence

(A) In general - property is a new, highly energy-efficient residence if-

(I) [no change]

(ii) Such property

(I) reduces calculated environmental emissions for heating and cooling by 50% compared to a reference house that complies with minimum standard practice, as determined according to the requirements specified in paragraph (B)(ii).*

(II) [no change]

(B) Certification

(I) Individuals qualified to determine compliance shall be only those individuals that are recognized by an organization certified by the Secretary of Energy for such purposes.



○

The Secretary of Energy shall establish requirements for certification after examining the requirements for energy consultants and home energy ratings providers specified by the Mortgage Industry National Accreditation Procedures for Home Energy Rating Systems. All certifications shall be conveyed to the homeowner seeking the tax credit.

(ii) Certification of calculational methods

Compliance with the requirements of Section (A)(ii) shall be demonstrated either by a component-based approach or a calculation-based approach.

(I) Compliance by the component approach is achieved when all of the components of the house comply with the additional requirements established by the Secretary of Energy such that they are equivalent to the results of using the performance-based approach of Section (II) to achieve a 50% reduction in emissions.

(II) Performance-based compliance shall be demonstrated by the use of software that meets all of the procedures and methods for calculating emissions and emissions reductions and for reporting the results that are promulgated by the Secretary of Energy in consultation with the Secretary of Treasury. Such regulations on the specifications for software shall be based on the 1998 California residential ACM manual, except that the calculational procedures shall be developed such that the same energy efficiency measures qualify a home for tax credits regardless of whether the home uses a gas or oil furnace or boiler, or an electric heat pump;

(III) The regulations shall require that computer software print the IRS forms directly, and that it print for the home owner explanations of the energy efficiency features that were used to comply with the tax credit.

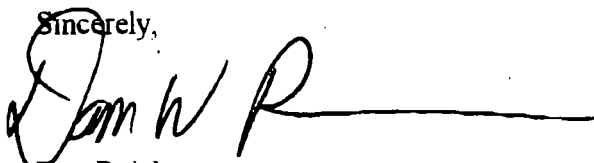
(IV) The Secretary of Energy shall approve software submissions that comply with these calculational requirements.

(we use 50% here realizing that other percents and sliding scales are still under consideration.)*

As you can imagine, these rulemakings will have an impact on our staff requirements. California, for example, has issued over 300 pages of regulation on calculational methods for their state standards. We envision a similar, but larger, effort for the National tax credit program. In addition, issuing certification procedures and implementing the program will further burden our resources. Because of the large increase in workload and the need to accelerate the process, we are suggesting the bill include language authorizing the Department to seek appropriations to support this important effort. We estimate that appropriations of \$2,000,000 per year for the first two years from enactment would be necessary.

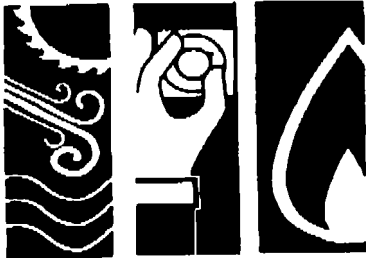
We appreciate your consideration of this matter and look forward to the opportunity and challenge this bill represents for both our agencies. We owe it to the American public to deliver the intended energy savings without risk or needless delay.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Dan W. Reicher', followed by a long horizontal line extending to the right.

Dan Reicher
Assistant Secretary
Energy Efficiency and Renewable Energy

cc: Todd Stern
George Frampton
Elgie Holstein
Geraldine Gerardi



**The
Business Council
for
Sustainable
Energy**

1200 18th Street, NW
Ninth Floor
Washington, DC 20036

Phone 202-785-0507
Fax 202-785-0514

**AN INDUSTRY STATEMENT OF SUPPORT
FOR CLEAN ENERGY**

To: Clean Energy Executives

From: Michael Marvin, Executive Director

Date: May 13, 1999

Subj: Statement of Support for Clean Energy Technologies and Fuels

*John
Arzene
Janet*

As an association of businesses and industry trade associations that share a commitment to a clean energy future, the Business Council for Sustainable Energy is distributing the enclosed statement in support of renewable energy, energy efficiency, and natural gas technologies and programs. *If your company would like to sign the statement, please fax this form back by May 21, 1999.*

This statement is intended to demonstrate broad and diverse support within the business community for clean energy technologies. The Council will distribute the statement to Members of the House and Senate, who will soon consider funding to strengthen cost-shared government industry initiatives into the 21st Century.

Please feel free to contact Ryan Sassman if you have any questions or comments, or would like more information about the Council and its activities.

I hope to hear from you soon.

FAX-BACK FORM

FAX TO: 202-785-0514

My company, _____, would like to be listed as a signator of this letter (actual signature is not required on letter).

Name _____

Title/Position _____

Street Address/P.O. Box _____

City/State/ZIP _____

Phone _____ Fax _____

E-mail address _____

_____ I would like more information on the Council and its activities.

_____ Please remove my company from your distribution list.

MAY 1999

AN INDUSTRY STATEMENT OF SUPPORT FOR CLEAN ENERGY

The undersigned companies support an expanded national commitment to make clean renewable energy, energy efficiency, and natural gas technologies and fuels the cornerstones of our nation's energy policy. Increasing the use of clean energy will help strengthen our economic competitiveness, improve our energy security, and preserve our natural resources for present and future generations.

Few activities have a greater impact on our nation's economy, environment, and national security than the production and use of energy. Our economic well-being depends on energy expenditures, which account for seven to eight percent of the nation's gross domestic product and a similar fraction in U.S. and world trade. Wise energy production and use can reduce regional smog, acid rain, and greenhouse gas emissions which accumulate in the atmosphere. Our national security is also linked to energy production and use, given our nation's increasing dependence on foreign oil sources, including those from the politically unstable Middle East.

Americans understand that it is less expensive to save energy than to produce it; thus, using less energy by increasing energy productivity represents one of our nation's most cost-effective methods for preventing pollution. Our remaining energy needs should be met with clean and abundant fuels like natural gas and renewable energy. Many of these sources have become increasingly cost-competitive with, and in some cases cheaper than, traditional energy sources.

As business leaders, we applaud the federal government's commitment to balancing its books. However, it is short-sighted to target sustainable energy technologies for budget cuts, given their successful track record of public/private cost sharing and widespread economic benefits. Such a reduction would deprive the economy of the massive and immediate returns in terms of improving the nation's balance of trade and in reducing the environmental impact of energy production and use. Cutting cost-shared initiatives in support of clean energy programs threatens our nation's ability to compete in world energy markets.

Faced with declining budgets, priority must be given to further developing emerging, clean technologies that enhance America's international competitiveness rather than promoting dirty alternatives. Particular emphasis should be given to providing adequate and stable public and private funding for energy efficiency, renewable energy, and natural gas research and development activities such as those spearheaded by the U.S. Department of Energy and the U.S. Environmental Protection Agency. Moreover, to the maximum, government programs should be partnered with the private sector to serve as a catalyst for the development and promotion of these technologies. The public agrees - multiple polls taken during the past decade have consistently documented overwhelming support for research and development of energy efficiency, renewable energy, and natural gas technologies.

Now is not the time to retreat. Rather, our nation should redouble its efforts to realize the substantial environmental, national security, and economic benefits which will rise from a strong national commitment to a clean energy future.

We urge your support for research, development, and commercialization initiatives that support renewable energy, energy efficiency, and natural gas technologies and fuels.

TO SIGN ON: If you would like to add your company's name in support of this statement, please contact the Business Council for Sustainable Energy, attn: Ryan Sassman, 1200 18th Street, NW, Ninth Floor, Washington, D.C. 20036; phone: 202-785-0507; fax 202-785-0514, or e-mail: rsassman@bcse.org.

May 4, 1999

Ryan / Rosene

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

We, the undersigned, urge you to take immediate steps to enhance U.S. agriculture's ability to improve soil quality and sequester carbon as a contribution to global climate change mitigation and creation of a more sustainable agriculture. Enclosed are three specific proposals to advance this goal. We believe an initiative based on these proposals would help engage the farm community in the Administration's climate change agenda in a positive way, while simultaneously advancing the agricultural recommendations of the President's Council on Sustainable Development. Implementation of these proposals would also augment the initiatives already undertaken by the Administration in support of bioenergy development to demonstrate potential market opportunities for agriculture related to action on climate change.

As a land-based and weather-dependent industry, a major contributor to greenhouse gas emissions, and a significant potential carbon sink, agriculture has many reasons to be concerned with climate change issues. Unfortunately, some farm organizations have tried to capture this natural concern to support a nay-saying agenda. Despite these efforts, there are increasing signs of a popular desire for more positive engagement within the farming community. By moving forward now using existing administrative authorities to create some "win-win" program advancements, the Administration could help stimulate these underlying proclivities.

The recommended actions would help generate needed data and test innovative strategies for improving soil quality and carbon retention on American farmland. Emerging carbon models and assumptions must be tested by research, but also need to be "groundtruthed" on real working farms. To a large extent, the best farm practices and systems for sequestering carbon are proving to be those developed by sustainable agriculture practitioners on their own farms. This process should be encouraged. By focusing on a whole systems, integrated resource management approach, each of the enclosed proposals would also provide substantial co-benefits – enhanced water quality and biodiversity, reduced pesticide dependence, increased soil fertility and productivity, and improved farm income.

Pursuing these proposals would also help reinvigorate the farm bill's conservation title. Cited as a key achievement in the 1996 FAIR Act, some of the banner conservation programs have nonetheless fallen on hard times. For example, the Environmental Quality Incentives Program has had its mandatory funding cut by Congress and the Administration has failed to secure implementation of the Conservation Farm Option. These program setbacks and funding losses have occurred even as billions of supplemental federal dollars have been poured into the farm economy without any accompanying conservation benefit. The time has come to reverse these lost opportunities.

May 4, 1999, page 2

This Administration has contributed a great deal to advancing sustainable development ideas and programs. Much more can and should be done in this regard, however, with respect to agriculture, which continues to lag behind. For instance, despite kind words and supportive recommendations from the PCSD, USDA's Sustainable Development Council, the National Academy of Sciences, the General Accounting Office, and others, funding for the government's flagship Sustainable Agriculture Research and Education (SARE) program has sadly stagnated in this decade at just one-half of one percent of the total USDA research and education annual budget. A major redirection of funding to support the development and implementation of sustainable approaches is feasible, desirable, and long overdue.

We concur with the Administration's conclusion that agriculture has an important role to play in contributing to greenhouse gas emission reduction and to increased carbon sequestration retention. Fortuitously, strategies to pursue this role will also help make agriculture more resilient. Action can and should be taken now, even while carbon sequestration approaches undergo further research and development and while trading and credit mechanisms are subjected to rigorous debate. We urge you to adopt the three enclosed proposals as part of an initiative to advance the state of knowledge and practice for improved soil quality and soil-based carbon sequestration and to bolster the Administration's commitments on climate change and sustainable agriculture.

Sincerely,

Reid Detchon
Co-Director
American Bioenergy Association

David Hunter
Executive Director
Center for International Environmental Law

Carol Werner
Executive Director
Environmental and Energy Study Institute

Steve Cochran
Legislative Director
Environmental Defense Fund

Ken Cook
President
Environmental Working Group

May 4, 1999, page 3

Garth Youngberg
Executive Director
Henry A. Wallace Institute for Alternative Agriculture

Amy Little
Executive Director
National Campaign for Sustainable Agriculture

Daniel Lashof
Senior Scientist
Natural Resources Defense Council

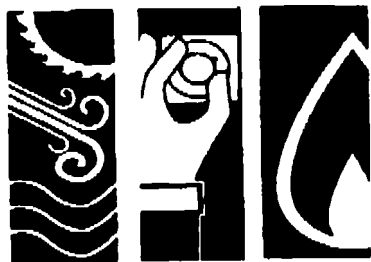
John Passacantando
Executive Director
Ozone Action

Ferd Hoefner
Washington Representative
Sustainable Agriculture Coalition

Alden Meyer
Director of Government Relations
Union of Concerned Scientists

cc:

The Vice President
The Honorable Jacob Lew
The Honorable Neal Lane
The Honorable George Frampton, Jr.
The Honorable Dan Glickman
The Honorable Carol Browner



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Subj: Statement of Support for Clean Energy Technologies and Fuels

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Title/Position _____

Street Address/P.O. Box _____

City/State/ZIP _____

Phone _____ Fax _____

E-mail address _____

_____ I would like more information on the Council and its activities.

_____ Please remove my company from your distribution list.

MAY 1999

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Few activities have a greater impact on our nation's economy, environment, and national security than the production and use of energy. Our economic well-being depends on energy expenditures, which account for seven to eight percent of the nation's gross domestic product and a similar fraction in U.S. and world trade. Wise energy production and use can reduce regional smog, acid rain, and greenhouse gas emissions which accumulate in the atmosphere. Our national security is also linked to energy production and use, given our nation's increasing dependence on foreign oil sources, including those from the politically unstable Middle East.

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Faced with declining budgets, priority must be given to further developing emerging, clean technologies that enhance America's international competitiveness rather than promoting dirty alternatives. Particular emphasis should be given to providing adequate and stable public and private funding for energy efficiency, renewable energy, and natural gas research and development activities such as those spearheaded by the U.S. Department of Energy and the U.S. Environmental Protection Agency. Moreover, to the maximum, government programs should be partnered with the private sector to serve as a catalyst for the development and promotion of these technologies. The public agrees – multiple polls taken during the past decade have consistently documented overwhelming support for research and development of energy efficiency, renewable energy, and natural gas technologies.

Now is not the time to retreat. Rather, our nation should redouble its efforts to realize the substantial environmental, national security, and economic benefits which will rise from a strong national commitment to a clean energy future.

We urge your support for research, development, and commercialization initiatives that support renewable energy, energy efficiency, and natural gas technologies and fuels.

TO SIGN ON: If you would like to add your company's name in support of this statement, please contact the Business Council for Sustainable Energy, attn: Ryan Sassman, 1200 18th Street, NW, Ninth Floor, Washington, D.C. 20036; phone: 202-785-0507; fax 202-785-0514, or e-mail: rsassman@bcse.org.

- (1) Credit for electric vehicles. The phase down of the credit for electric vehicles would be eliminated and the credit would be extended through 2006. Thus the maximum \$4,000 credit would be available for purchases before 2007.
- (2) Credit for hybrid vehicles. Tax credits for vehicles using hybrid propulsion systems purchased after December 31, 2002 and before January 1, 2007 would be \$[A1] if the rechargeable energy storage system provides at least 5% but less than 10% of the maximum available power, \$[A2] if at least 10% but less than 20% of the maximum available power, \$[A3] if at least 20% but less than 30% of the maximum available power and \$[A4] if greater than 30%. If the vehicle actively employs a regenerative braking system, the amount of the credit would be increased by \$[B1] if the regenerative braking system supplies at least 20% of the energy available from braking in a typical 60 mph to 0 mph braking event to the rechargeable energy storage system, \$[B2] if the regenerative system supplies at least 40% of such energy, and \$[B3] if the regenerative system supplies at least 60 of such energy.(a)(b)

Definitions:

A **hybrid vehicle** is a road vehicle that can draw propulsion energy from both of the following on-board sources of stored energy: 1) a consumable fuel and 2) a rechargeable energy storage system. [from SAE HEV test procedure J1711]

Vehicles qualifying for the credit must meet all applicable regulatory requirements.

Maximum available power means the maximum value of the sum of the heat engine and electric drive system power or other non-heat energy conversion devices available for a driver's command for maximum acceleration at vehicle speeds under 75 miles per hour.(c)

Notes:

- (a) Dollar amounts \$A1-\$A4 and \$B1-\$B3 are being developed by Treasury.
- (b) Report language will show that the deceleration will be similar to the data on deceleration vs. time provided to the industry on May 14.
- (c) Staff will develop a more precise definition of the test procedure for "maximum available power".

Record Type: Record

To: Morley A. Winograd/OVP@OVP
cc: See the distribution list at the bottom of this message
Subject: Re: Car tax 

I don't have an objection in principle, but I also don't have any idea of what exactly the credit would be and we don't have a lot of time to fool around before Matsui needs to drop his bill in. Linda -- you don't have any transit ideas up your sleeve do you?

Assuming Harry Pierce doesn't save the day, here are the options as I see them: (1) Quickly come up with a nifty idea for using \$6-700M for a transportation related tax credit; (2) put in a bill at less than \$3.6 billion; (3) put in bill with car tax using last year's comparability language, which car companies will oppose; (4) put in bill with some version of Ford's car tax language, recognizing that it will get faint praise from Ford and be opposed by some others; (5) using the money for some non-transportation purpose.

Option 1 would be fine if doable. Options 2 and 3 seem bad. Option 4 -- assuming it's doable on the Treasury end -- isn't good, but is better than 2 or 3 and might be where we're forced if we can't come up with a new tax credit and if Ron is dead set against using the money for a different energy-efficiency purpose.

Thoughts?

p.s. Morley -- we really need whatever language Ford was playing with so that Treasury can take a look and we can evaluate whether Option 4 is even viable.

Message Copied To:

Sally Katzen/OPD/EOP@EOP
Linda Lance/CEQ/EOP@EOP
Julie M. Anderson/WHCCTF/EOP@EOP
Roger S. Ballentine/WHO/EOP@EOP
Henry C. Kelly/OSTP/EOP

May 28, 1999

EXTEND TAX CREDIT FOR ELECTRIC VEHICLES AND PROVIDE TAX CREDIT FOR CERTAIN HYBRID VEHICLES

Current Law

No generally available income tax credit for purchases of hybrid vehicles is available currently. A 10-percent tax credit is provided for the cost of a qualified electric vehicle, up to a maximum credit of \$4,000. A qualified electric vehicle is a motor vehicle that is powered primarily by an electric motor drawing current from rechargeable batteries, fuel cells, or other portable sources of electric current, the original use of which commences with the taxpayer, and that is acquired for use by the taxpayer and not for resale. The full amount of the credit is available for purchases prior to 2002. The credit begins to phase down in 2002 and does not apply to vehicles placed in service after 2004.

Certain costs of qualified clean-fuel property, including clean-fuel vehicles, may be deducted when such property is placed in service. Qualified electric vehicles do not qualify for the clean-fuel vehicle deduction. The deduction begins to phase down in 2002 and does not apply to property placed in service after 2004.

Reasons for Change

The transportation sector now accounts for one-third of greenhouse gas emissions in the United States. Cars, sport utility vehicles, light trucks and minivans alone account for 20 percent of our greenhouse gas emissions. These vehicles also account for about 20 to 40 percent of all urban smog-forming emissions and 40 percent of US oil consumption. Almost all of these vehicles use a single gasoline-fueled engine.

Hybrid vehicles, which have more than one source of power on-board the vehicle, and electric vehicles have the potential to reduce greenhouse gas emissions, air pollution, and petroleum consumption. The proposed credits will encourage the purchase of vehicles that incorporate advanced automotive technologies and will help to move hybrid vehicles from the laboratory to the highway. These vehicles can significantly reduce emissions of carbon dioxide, the most prevalent greenhouse gas.

Proposal

The proposal would extend the present credit for qualified electric vehicles and provide temporary tax credits for certain hybrid vehicles:

- (1) Credit for electric vehicles. The phase down of the credit for electric vehicles would be eliminated and the credit would be extended through 2006. Thus, the maximum \$4,000 credit would be available for purchases before 2007.

(2) Credit for qualified hybrid vehicles. A credit, of up to \$3,000, would be available for purchases of a qualified hybrid vehicle after December 31, 2002, and before January 1, 2007. The credit would be:

- (a) \$500 if the rechargeable energy storage system provides at least 5% but less than 10% of the maximum available power;
- (b) \$1,000 if the rechargeable energy storage system provides at least 10% and less than 20% of the maximum available power;
- (c) \$1,500 if the rechargeable energy storage system provides at least 20% and less than 30% of the maximum available power; and
- (d) \$2,000 if the rechargeable energy storage system provides 30% or more of the maximum available power.

If the vehicle actively employs a regenerative braking system, the amount of the credit shown in (a) through (d) above would be increased by the following amounts:

- (i) \$250 if the regenerative braking system supplies at least 20% but less than 40% of the energy available from braking in a typical 60 miles per hour (mph) to 0 mph braking event to the rechargeable energy storage system;
- (ii) \$500 if the regenerative braking system supplies at least 40% but less than 60% of such energy; and
- (iii) \$1,000 if the regenerative braking system supplies 60% or more of such energy.

A qualifying hybrid vehicle is a road vehicle that can draw propulsion energy from both of the following on-board sources of stored energy: (1) a consumable fuel, and (2) a rechargeable energy storage system. A qualifying vehicle would have to meet all applicable regulatory requirements.

Maximum available power means the maximum value of the sum of the heat engine and electric drive system power or other non-heat energy conversion devices available for a driver's command for maximum acceleration at vehicle speeds under 75 mph.

These credits would be available for all qualifying light vehicles including cars, minivans, sport utility vehicles, and light trucks. Taxpayers who claim one of the qualified hybrid vehicle credits would not be able to claim the qualified electric vehicle credit or the deduction for clean-fuel vehicle property for the same vehicle.

EXTEND TAX CREDIT FOR ELECTRIC VEHICLES AND PROVIDE TAX CREDIT FOR CERTAIN FUEL-EFFICIENT HYBRID VEHICLES

Current Law

No generally available income tax credit for purchases of fuel-efficient vehicles is provided currently. A 10-percent tax credit is provided for the cost of a qualified electric vehicle, up to a maximum credit of \$4,000. A qualified electric vehicle is a motor vehicle that is powered primarily by an electric motor drawing current from rechargeable batteries, fuel cells, or other portable sources of electric current, the original use of which commences with the taxpayer, and that is acquired by the taxpayer and is not for resale. The full amount of the credit is available for purchases prior to 2002. The credit begins to phase down in 2002 and phases out in 2005.

Proposal

The proposal would extend the present credit for qualified electric vehicles and provide temporary tax credits for fuel-efficient hybrid vehicles:

Credit for electric vehicles. The present credit for electric vehicles would be extended through 2006. The phase out of the credit would be eliminated, so that the maximum \$4,000 credit would be available for 2002 and thereafter.

Credit for fuel-efficient hybrid vehicles. The credit would be:

- (a) \$1,000 for each vehicle that is one-third more fuel efficient than a comparable vehicle in its class. The \$1,000 credit would be available for purchases of qualifying vehicles in years 2003-2004;
- (b) \$2,000 for each vehicle that is two-thirds more fuel efficient than a comparable vehicle in its class. The \$2,000 credit would be available for purchases of qualifying vehicles in years 2003-2006.
- (c) \$3,000 for each vehicle that is twice as fuel efficient as a comparable vehicle in its class. The \$3,000 credit would be available for purchases of qualifying vehicles in years 2004-2006;
- (d) \$4,000 for each vehicle that is three times as fuel efficient as a comparable vehicle in its class. The \$4,000 credit would be available for purchases of qualifying vehicles in years 2004-2006.

A qualifying hybrid vehicle would be a vehicle powered by onboard fuel which uses regenerative braking and an energy storage system that will recover at least 60 percent of the energy in a typical 70-0 braking event.

Qualifying vehicles would have to meet all emission requirements applicable to gasoline powered automobiles.

These credits would be available for all qualifying light vehicles including cars, minivans, sport utility vehicles, and light trucks. Taxpayers who claim one of these credits would not be able to claim the qualified electric vehicle credit or the deduction for clean-fuel vehicle property for the same vehicle.

MEMORANDUM

To: Friends of "No Regrets" Climate Mitigation

From: David B. Goldstein, Energy Program Co-Director
Natural Resources Defense Council

Date: December 4, 1998

Re: Federal Tax Credits Legislation: Critique and Recommendations on
the Matsui Bill.

From
mfg
LWMB &
David
JH

Executive Summary

Very large savings in greenhouse gas emissions can be achieved by the United States over the next several decades using only those energy efficiency and renewable energy measures that make economic sense to the user without assigning a value to the environmental benefits. Several studies conducted by the public interest community and national laboratories have demonstrated the scope and impact of these "no regrets" measures.¹

But a broad array of market failures has impeded the adoption of these measures. If America is to meet the climate goals embodied in the Kyoto Protocol, much less the more ambitious goals required for true climate stabilization, our nation will have to embark on a comprehensive array of programs, addressing all sectors of the economy, that can overcome market barriers and failings and implement these measures as quickly as possible.

A comprehensive portfolio of policies, mostly focused on the introduction of new technologies into the economy, is necessary to overcome these failures and maximize the use of economically attractive climate protection measures. These policies are discussed in greater detail in the public interest sector studies of

¹ These studies include: *America's Energy Choices: Investing in a Strong Economy and a Clean Environment*, Alliance to Save Energy, American Council for an Energy-Efficient Economy, the Natural Resources Defense Council, Union of Concerned Scientists, and the Tellus Institute, Cambridge, MA, 1991; *Energy Innovations: A Prosperous Path to a Clean Environment*, Alliance to Save Energy, American Council for an Energy-Efficient Economy, Natural Resources Defense Council, Tellus Institute and Union of Concerned Scientists, Washington, DC, 1997; and *Scenarios of U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond*, Lawrence Berkeley National Laboratory, Berkeley, CA and Oak Ridge National Laboratory, Oak Ridge, TN., Interlaboratory Working Group, 1997.

footnote one. Key policies include efficiency regulations, financial incentives and disincentives, education and research and development. Some of these policies complement each other and act synergistically; other options can substitute one for the other.

In total, a nationwide investment of over \$2 trillion in cleaner energy is justified over the next 30-40 years. Such an investment would foster economic growth while reducing climate emissions by some 70%. The total societal investment over the next five years would be on the order of \$50 to \$70 billion per year.

Most of this would be invested by the users of energy consuming devices or by energy suppliers. In many cases, however, financial incentives by utilities or government or other parties would cover a significant fraction of the cost.

A particularly noteworthy component of a comprehensive climate emissions mitigation strategy is *market transformation*: the introduction on a full commercial scale of new technologies that either are not on the market now or that currently occupy only a tiny niche. Market transformation takes advantage of technology learning curves and returns to scale to reduce costs, and overcomes the market barriers that have prevented the introduction of new technologies. It can be the most highly leveraged investment in efficiency, because other policy mechanisms that cost less – or changing market relationships caused by the program – can allow the results of such a program to be institutionalized in the marketplace.

The Administration proposed the creation of federal tax credits based on a market transformation principle in the form of the Matsui Bill introduced in the 105th Congress. NRDC supports this proposal as a significant piece of a comprehensive climate protection strategy. But there are some mid-course corrections that are necessary to remedy a few problems of enforceability and misplaced incentives, particularly in the section referring to new buildings.

This memo describes these problems and offers suggestions on how they can be resolved. Because some of the issues are highly technical, the memo goes into considerable detail. The main points are summarized below.

The current Bill calls for new houses to cut 50% of the energy use from the level defined by the Model Energy Code (MEC) for heating, cooling, and hot water in order to qualify for the tax credit. This is unenforceably vague. The MEC is a prescriptive standard and does not adequately define how to do energy use calculations. Furthermore, energy use as defined in MEC has no public policy interest: this Bill is interested in reducing carbon emissions. Energy and climate calculations are not the same.

The problems identified in doing climate impact calculations from the MEC can be remedied in a straightforward way based on extensive practical experience at the state level. The solution involves:

- Limiting tradeoffs to the building envelope.
- Establishing component specifications for houses that qualify for tax credits, along with detailed calculational rules for equal climate emissions tradeoffs from this component base case.
- Fixing the tax credit at a flat \$2,000 per housing unit.

We recommend that the tax credit be extended to existing homes that meet the same level of performance, either on a whole house basis or a component by component basis.

These recommendations are discussed in detail in Section III below.

For the transportation vehicle tax credits, we recommend that compliance be based on two and three-fold reductions in fuel cycle carbon emissions rather than the less accurate criterion of miles-per-gallon. We further recommend that California SULEV standards be met as a requirement for qualifying for tax credits in order to assure that the new technologies brought forth continue to be allowed under air quality regulations. Finally, cars that qualify for tax credits should be excluded from calculations used for CAFE compliance.

This Bill attempts, successfully, we believe, to maximize climate emissions reductions within a very strict budget constraint. Much larger economic and environmental benefits could be obtained with a larger budget with additional revenue enhancements.

I. Overview

NRDC views this bill as a critical component of a comprehensive climate emissions reduction strategy, and supports it, with the revisions described in this memo.

This Bill is fundamentally on the right track if our goal is obtaining the maximum amount of cost-effective climate emissions mitigation technology for the least cost to the taxpayer.

There are two ways of looking at this. The first is based on the concept of market transformation, which has been pioneered by the Consortium for Energy Efficiency, primarily a utility-based organization that has developed several successful programs, and by the United States Environmental Protection Agency and the Department of Energy. Market transformation programs focus on introducing new technologies that either do not exist in the market at all or occupy only a tiny niche. One of the barriers that market transformation programs seek to overcome is the lack of availability of these technologies and the high cost resulting from low production runs. This approach demands setting an ambitious but achievable target, and planning on co-funding a significant but not overwhelming market share. This is the approach taken in the current draft of the Bill.

Alternatively, from a revenue loss viewpoint, consider that the cost-effective investment in technologies for climate mitigation is on the order of \$2 trillion over the next 30 years.² If tax credits provide only 20% of the incremental cost for 5 years, the cost of such tax credits would exceed \$50 billion. This Bill proposes only a tenth that much. If it does not focus exclusively on the highest technologies, the budget impact targets will be grossly exceeded.

From a climate policy perspective, the impact of these tax credits will be relatively small, simply because of the size of the energy efficiency resource. If the Bill's goal is to maximize America's economic efficiency and competitiveness by encouraging cost-effective climate emissions reductions, the Bill would add other technologies and sectors; it would also include a lower second tier for a wider variety of products, with commensurately lower tax credits. These could be funded by eliminating the deductibility of parking and by a small carbon emissions fee.

While the Bill is clearly on the right track for achieving its goal, several mid-course corrections could greatly improve its effectiveness, implementability, and verifiability. This paper discusses the mid-course corrections, focusing on the new buildings tax credit where the problems are most serious.

Section II describes why the current proposal for achieving 50% energy savings on heating, cooling, and hot water compared to the Model Energy Code (MEC) (now more appropriately referred to as the International Energy Conservation Code (IECC)) is problematic because the MEC was designed as a prescriptive standard, and is weak in its ability to allow energy use or energy savings calculations.

² *America's Energy Choices: Investing in a Strong Economy and a Clean Environment*, Alliance to Save Energy, American Council for an Energy-Efficient Economy, Natural Resources Defense Council, and Union of Concerned Scientists in consultation with the Tellus Institute. 1991.

Any percent-savings-from-MEC criterion could not be implemented – or even understood – without substantial additional regulations, including the need to make several decisions with important policy significance. This is a doable task, and a variant of it will be required in any event (see Section III). But the legislation must specify how this task will be accomplished in a timely fashion.

There is also the potential for perverse incentives whereby a builder's decision to qualify for tax credits could actually worsen the climate emissions problem rather than improve it. Section II illustrates this concern.

Section III provides NRDC's proposal, which is consistent in intent with the current language, but is more implementable. It also potentially could solve, or at least mitigate, disagreements between home builders, supported by the Alliance to Save Energy, and supporters of the current high threshold for tax credits.

Section IV elaborates a little more on the rationale for our proposal.

Section V discusses some issues with the transportation sector incentives.

II. Implementation Problems with the New Housing Tax Credit

A. *Prescriptive Standards vs. Performance Standards*

The Model Energy Code (MEC) is a prescriptive standard: it specifies insulation levels and thermal properties of building components and requires certain installation techniques. It is easy to define compliance with the Model Energy Code, but it is problematic to define percentage improvements beyond the Code.

Calculating percentage improvements requires a performance approach rather than a prescriptive approach. A performance approach calculates the energy impact of decisions on building components. The MEC has provided increasingly detained guidance over the years on how to do such calculations, but even the 1998 Model Energy Code falls woefully short of being repeatable.³

Most of the national experience on energy codes for new housing is based exclusively on prescriptive compliance. California, however, initiated

³ Repeatable means that two different analysts will get the same energy consumption result from analyzing the same house.

performance-based compliance on a massive scale in the 1980's, largely in response to the homebuilding industry (and without the opposition of any major faction.) Close to a million homes have complied with California's Title 24 standards on a performance basis.

This experience has pointed out a number of problems that would not necessarily be apparent from reading the text of the code. Many of these are still present in the MEC. Experience showed that builders and their consultants were extremely creative at finding loopholes in the rules for modeling energy use. This isn't hard to do, because simulation of energy use accurately requires hour-by-hour calculations for the full year, including the separate calculation of heating and cooling energy. Dozens, if not hundreds, of assumptions are necessary to do the calculation.

It is important to specify correctly the assumptions to be used both for modeling the reference house that defines code compliance and the proposed design, and rules on when these assumptions can vary between the two houses being simulated. California has evolved a detailed prescription on how to do this: it is referred to as "the Alternative Calculation Manual" (ACM), and runs over 400 pages with Appendices. It is essentially a standard for software to demonstrate compliance with the standard. Such software could trivially be modified to include calculations of percent savings beyond the standard.

Field experience has shown that the results are repeatable and relatively tamper-proof. Such experience has also shown that the decisions on assumptions are valid, in that technologies that get credit for saving energy obtain an amount of credit that stakeholders in the Code process, including energy consultants, builders, environmental advocates, and building code officials find to be reasonable.

In order to provide the level of respectability and verifiability necessary for a tax credit, a similar process would have to be set up at the federal level. An initial proposal for doing this is presented in Section III below. The Department of Energy has attempted to do such a thing in developing voluntary rules for Home Energy Rating Services (HERS); this has led to paralysis due to a dispute between gas and electric interests. The proposal in Section III attempts to circumvent these political problems.

B. Treatment of Different Fuels

Most houses are heated by gas or oil and cooled by electricity. Nationally, water heating is about 60% gas and 40% electric. Thus, for the majority of houses, savings below MEC or any other target will have to be based on some methodology for comparing kilowatt hours of electricity with Btus of fossil fuel. This has been a source of great controversy in other proceedings.

In the MEC, the specification is to use “site energy,” in which the Btu content of energy delivered is all that is considered. Thus, one kilowatt hour is defined as 3413 Btus. But for the case of climate mitigation tax credits, the solution should be pretty obviously be different: the criterion should be set in terms of kilograms of carbon emitted by the house.

Fuel selection makes an immense difference in climate impacts. Using the national average generation mix, which includes renewable, hydro, and nuclear plants whose output will not be affected by efficiency, 1 kWh of electricity produces 3.3 times the climate impacts of 3413 Btu of gas, without accounting for transmission losses. (See Section IV for the precise figures). For a worst reasonable case, but one typical of much of the country, 1 kWh of electricity produces over 5 times the climate emissions of 3413 Btu of natural gas. Emissions from oil are about 50% higher than those from an equivalent amount of gas.

An effort to define a climate goal without regard to fuel choice – that is, a climate goal that would encourage fuel switching – would place tremendous economic significance on the precise values of carbon emissions factors assigned to electricity vis-à-vis gas. As will be discussed in Section IV.A. below, decisions on how to count transmission losses, how to project marginal sources of electricity generation that will be avoided through efficient new buildings, and on whether to calculate emissions factors regionally or on national average make it politically problematic to select defensible exact values for carbon emissions factors.

When there is legitimate scientific uncertainty as well as political controversy over selecting exactly correct values for a parameter, it is better to find ways to avoid excess reliance on this parameter.⁴ We believe that it

⁴ From a pure climate protection point of view, the preferred policy option would most likely be to base the tax credit qualification level on the carbon emissions of a house with gas heating, and require an electric heated house to meet the same emissions level. Whether this presents a modest design problem or an insuperable barrier to obtaining tax credits for electrically-heated houses will

can be established at an appropriate level if the consequences of a particular choice for that level are not too extreme.

This can be done by taking the philosophy of encouraging efficient use of whatever fuel the builder is choosing anyway. With this approach, the choice of emissions factors affects tradeoffs between different energy efficiency technologies, but does not influence the builder to choose one fuel over another. This is the approach that California has taken in its residential energy standards. It should be followed in this Bill, as illustrated in Section III, but it is crucial to avoid perverse incentives. Unfortunately, there are many in the Bill as it stands.

1. Inclusion of Water Heating

The current proposal calls for a 50% reduction from the MEC for heating, cooling, and water heating. Reducing heating and cooling energy can be done by a variety of techniques, but the only technique currently recognized in any building code in the country is the substitution of more efficient water heaters. For gas water heaters, high technology equipment could cut energy use by about 35%-40%. For electricity, heat-pump water heaters or solar-assisted water heaters could cut energy use by 50%-75%. At present, heat-pump water heaters are likely to be less expensive than high-efficiency gas water heaters.

Thus, if water heating is included in the calculation, it is both easier to get credits for energy reductions and cheaper as well to start off with an electric water heater. This creates a dangerously perverse incentive. A tax-credit seeking builder would say that he was

depend on the choice of carbon emissions factors. For example, if we set the emissions factors at the national average levels described (but criticized) in Section IV.A., a minimum efficiency heat pump will have 28% higher emissions than a minimum efficiency gas furnace, assuming everything else is equal. This is a difference that can be overcome by selecting higher efficiency equipment or using additional energy efficiency measures. But, if we assume the worst reasonable case of carbon emissions factors, assuming coal is the avoided fuel for electricity generation, electric heat is at a 2.2:1 disadvantage, which will be difficult to overcome. At the opposite extreme, if we assume that electricity is supplied by high efficiency new gas-fired plants, a minimum efficiency electric heat pump would have a slight advantage compared to the base case gas house. Thus, the consequences of a plausible range of decisions on emissions factors are immense in terms of inter-fuel competition. Even a narrower, more realistic range of debate over emissions factors would have a large effect on fuel choice.

installing electric water heating in the base case in order to qualify for a credit of 50%-75% rather than merely 35%-40%.

The problem is that even a heat-pump water heater will be responsible for about 1.1 to 2.4 times the climate emissions of the highly efficient gas water heater.

2. Inclusion of HVAC equipment.

A similarly perverse incentive is created for space heating. A good heat pump will save more than 50% of the energy compared to electric resistance heating, whereas even an engine-driven gas heat pump will only save less than 40% compared to a conventional gas furnace. Again, it is easier to make savings starting with an electric fuel choice, but the resulting electric house will have higher climate emissions than the gas house.

C. Other Quirks in the MEC

The MEC standards for wall insulation and window characteristics are based on an assumed ratio of window area to wall area. Houses with less window area find it easier to comply with the MEC even though they are not more efficient. Houses with greater wall area, either by house designs that involve elaborate shapes or by the use of high ceilings, are allowed to have greater window area. These dependencies create variations in stringency with house design, and effectively, with house pricing levels, that do not always make sense.

The MEC was designed to address heating and not cooling, but at current levels of efficiency, cooling typically accounts for more climate emissions than heating (see Section IV). This leads to an insufficiently stringent requirement for areas with low heating loads but high cooling loads compared to other areas in the country. It also leads to a serious ambiguity concerning the extent to which cooling loads are modeled. Repeatable results will require that cooling loads be treated in a well-defined and consistent fashion.

III. Preliminary Outline of Our Proposal

This section contains NRDC's recommendation for the structure of a Bill that could address the problems described in Section II in a politically feasible and

competitively fair fashion. Not that these proposals have not been reviewed widely, and so they may still contain some flaws. In particular, the table of specific requirements presented in Section III.B. is a first cut, with values that are illustrative of what might make sense, but which may have to be revised in many instances. Similarly, the structure of the table could be made more complex and detailed or simplified for the final introduced Bill, based on Administration or stakeholder input.

A. General Requirements to Obtain the Tax Credit

1. Limit the credit to heating and cooling energy use reduction technologies for the building envelope.

Water heating should be deleted from the requirements for the new housing tax credit because the only measure one can use to comply is the installation of a more efficient water heater, and this is already covered under the equipment tax credit section. New houses should be eligible for the equipment tax credits for water heaters in addition to whatever credits they earn for the building itself.

(This structure eliminates the perverse incentive for fuel switches to electricity and essentially says that whatever fuel the builder was intending to install in the first place, he can qualify for a tax credit.)

The energy savings credit from heating and cooling equipment should be eliminated for several reasons. First, experience in California, which I believe is corroborated by the EPA ENERGYSTAR program, is that the first measure builders install to go beyond MEC is a 12 SEER air conditioner. This measure accounts for nearly 20% of the air-conditioner market and is not consistent with the high standard of performance being required for all other technologies.

If equipment efficiency were to be part of the tradeoff, assumptions would need to be made concerning the base case equipment. MEC is silent about equipment efficiencies other than saying that they have to comply with national appliance standards. Thus, to avoid perverse incentives to switch to electric resistance heat, which has lower first costs, assumptions would have to be made that a heat pump is required in an electric-heated home. Not only is this somewhat controversial, but it still provides larger credits for envelope measures to the more climate-polluting electric heat pump choice than

to a comparable house with a gas furnace. Since insulation saves more heating than cooling, insulation measures will buy greater percentage reductions in the heat-pump house than in the gas house.

This creates an incentive to choose a heat pump over gas heating, when the reverse is better from a climate viewpoint.

Recommendation:

Provide credits for reductions in heating and cooling energy only, assuming a gas furnace and an electric air conditioner, whether or not those fuels are actually used.

Option A:

Assume that NAECA minimum efficiency equipment is installed regardless of the actual equipment efficiency levels.

Option B:

Require the installation of ENERGYSTAR-compliant equipment in order to qualify for the new housing tax credit. This would require eliminating tax credit eligibility for resistance heated houses (since there is no additional first cost to meeting a non-existent ENERGYSTAR specification for resistance heating). Electric-heated houses would require a heat pump to receive the tax credit.

In this option, the house would be modeled with a gas furnace and an electric air conditioner at the ENERGYSTAR levels, whether or not that sort of equipment was installed.

Discussion:

On the surface it seems counter-intuitive to assume a type of heating equipment that doesn't exist when one knows what actually does exist. But, this choice is necessary in order to create a level playing field between electricity and gas.

In general, in building codes there are two different ways of obtaining a level playing field. One is to require the same performance target regardless of the choice of fuels being made. This would set a carbon criterion based on the least carbon-intensive fuel, probably gas, and require other systems to jump over the same bar.

As discussed in Section II.B. above, the consequences of such a decision would be drastically different depending on which end of the plausible range of carbon emission factors for electricity was chosen. At one extreme, the least carbon-intensive fuel would be electricity, and gas heating would have to make up a slight (probably 10%) disadvantage. At the other end of the extreme, electric houses would have to make up a nearly 2:1 deficit compared to the carbon intensity of a gas furnace. Because of the immense variation in consequences that would flow from the selection of a particular level of emissions factor, the whole process could bog down in controversy. The potential for unintended consequences is high, even if the government is able to establish good emissions factors.

The other approach is to require the same tradeoffs be presented to the builder regardless of the choice of fuels. The only way to present the same tradeoffs regardless of fuels is to make a fixed assumption about fuel choice that is not dependent on any decision the builder makes.

2. Set component goals by heating and cooling climate in the legislation.

Once one recognizes the impossibility of defining percentages better than MEC, the simplest route to defining a level that qualifies for tax credits is simply to specify the measures. This can be done at various levels of complexity. A relatively simple example is presented in Section III.B.

While such an effort to essentially rewrite a code looks troublesome superficially, the MEC itself is not an intellectually self-consistent code, having been built up by accretion based on analyses dating back to the 1970's. The MEC is variably difficult to meet depending on climate, and has such anomalies as requiring no different standards for very hot climates with low heating loads such as Phoenix, and very cool climates with low heating loads such as San Diego.

This can be corrected easily. I believe that it will be easier to get stakeholders to agree to prescriptive qualification levels of each component of the building than to agree to a particular percent better than MEC. This approach will also lead to more predictable results in the field.

With component targets, a climate emissions calculation will not be required in many cases. A home that meets all the component specifications automatically qualifies for the tax credit. Calculations are only required when a different mix of efficiency measures is used.

3. *Offer a fixed \$2,000 tax credit for all housing units over a minimum size – 500 sq. ft. as a strawman – for meeting either the component requirements or the equivalent climate emission performance as defined below.*

This credit would be in addition to any credit that could be obtained from more efficient heating, cooling, or water-heating equipment. The reason for making the tax credit constant is primarily based on equity: to do otherwise would tilt the beneficiary class of the tax credit towards the upper-middle class unnecessarily.

4. *Define equivalence rigorously.*

A. Require DOE to promulgate calculational rules – standards for acceptable software – starting with the current California ACM (<http://energy.ca.gov/98standards/documents/index.html#resacm>) and looking also at HERS simulation rules.

B. Require EPA to establish carbon emissions per unit energy use to convert gas, oil, propane, electricity, and other relevant fuels to carbon equivalence for use in the calculations. For example, California defines the conversion between gas and other fossil fuels and electricity as 10,239 Btu/kWh. EPA should define grams of emission per Btu or kWh of energy use for each fuel in an appropriate fashion for this calculation

(See Section IV.A.)

C. Assume a gas furnace and an electric air conditioner at minimum NAECA efficiencies (or ENERGYSTAR levels) and assume the default duct efficiency in the ACM for the level of duct performance required to qualify for the tax credit.

The level of work required to define equivalence rigorously and to enforce the results as described below clearly is not trivial. But

most of this intellectual effort has already been accomplished for the administration of the California standards. It would be a relatively trivial effort for the government to modify the ACM appropriately to take into account national concerns for tax credits as opposed to state level concerns for a building code. It would also be straightforward for commercial vendors of software to revise existing code compliance programs used in California and for MEC to comply with such a revised national ACM.

The experience in California provides a good basis for extrapolation nationwide in part because California's varied geography includes almost all of the climate types found throughout the country, from very cold snowy climates in the mountains to mild climates with and without cooling load. Essentially the only factor of national concern that is not addressed in the California work is the effect of high humidity on cooling.

5. Verification.

1. Plans.

The Title 24 standards require documentation to be submitted to the building department. This includes a limited number of summary forms and the plans for the building. Similar documentation should be made available to the IRS and to homeowner. The builder should certify as to its accuracy in a way that establishes legal responsibility for errors or omissions.

Note that the California ACM requires that the program itself produce easy-to-understand compliance forms as part of its output. There is a long and successful track record of using these software program outputs as the basis of compliance in California. The DOE-specified program could be required to print out the exact tax forms to be submitted to the IRS. It could also be designed to print out consumer information so the homeowner could also verify that he/she got what was paid for.

One additional issue is the question of who is qualified to run the software. In California, there is a trade association that sets voluntary certifications of qualified energy consultants. I believe that this trade association, the California Association of Building Energy

Consultants (CABEC), would prefer government regulation of the qualification of practitioners.

2. Field verification.

The applicant should provide permission for access to the property for random checks by inspectors.

In addition, several of the measures such as duct sealing and infiltration reduction require on-site testing. California ACM procedures should be followed for documentation of these field measurements.

B. Example of Component Standards

Each dwelling unit qualifying for a tax credit shall comply with the IECC (MEC) prescriptive requirements except that:

1. The fenestration requirements and insulation levels shall be determined by Table 1. U-factors for fenestration are to be determined in accordance with NFRC 100 and SHGC is to be determined in accordance with NFRC 200. U-factor and SHGC are to be determined by a laboratory accredited by a nationally recognized accreditation organization, such as the National Fenestration Rating Council, and are to be labeled and certified by the manufacturer.

TABLE 1

Climate	Fenestration Maximum U-Factor		Min. or Max. SHGC	Min. Ceiling R-Value	Min. Exterior Wall R-Value	Min. Floor R-Value	Min. Basement Wall R-Value	Min. Slab Perimeter R-Value & Depth	Min. Crawl Space Wall R-Value
	Vertical	Skylights or Sloped							
0-1999 HDD65 ⁵ <6000 CDH74	.55	.65	.5 min.	R-30	R-15	R-19	R-8	R-5, 2 ft.	R-11
	.50	.60	.35 max.	R-38	R-19	R-19	R-8	R-5, 2 ft.	R-11
2000-3999 HDD65 <6000 CDH74	.40	.50	.5 min.	R-38	R-19	R-30	R-11	R-9, 2 ft.	R-19
	.35	.45	.35 max.	R-49	R-19	R-30	R-11	R-9, 2 ft.	R-19
4000-5999 HDD65	.30	.40	NR ⁶	R-49	R-21	R-30	R-19	R-13, 4 ft.	R-25
6000-8499 HDD65	.25	.35	.3 min.	R-60	R-26	R-30	R-19	R-18, 4 ft.	R-25
8500-12999 HDD65	.20	.30	.3 min.	R-60	R-30	R-38	R-24	R-20, 4 ft.	R-30

2. Fenestration area shall be limited to 15% of the floor area or the actual fenestration area, whichever is lower.

3. Duct leakage, as determined by the California ACM procedures, shall be 6% based on diagnostic testing. If a system does not have ducts, the reference house shall include the 6% required level of duct loss, except for the case of electric resistance heating.

4. Infiltration shall be determined by blower door testing to be .33 air changes per hour (ach) for climates below 6000 HDD and a maximum of .15 for climates of 6000 HDD and above. If infiltration is lower than .33 ach, mechanical ventilation with heat recovery at 60% efficiency shall be provided to achieve .33 air changes per hour. If this infiltration requirement is not met, the California ACM's defaults shall be used for the proposed design in tradeoff calculations.

The MEC provides separate sets of prescriptive criteria for masonry buildings. We may need to develop an alternate set of wall insulation targets for masonry buildings.

⁵ HDD = heating degree days base 65°F

CDH74 = cooling degree hours base 74°F (available in ASHRAE Standard 90.2).

⁶ NR = no requirement. The ACM defines default assumptions to use for tradeoffs.

C. Existing Houses

This structure can allow tax credits to be extended to existing homes, in two different ways. Such an extension makes sense because there is no good reason to distinguish between energy savings from new homes or existing ones if the technical measures are the same.

The first way to cover existing homes is simply to state that existing homes are eligible for the same tax credit as new homes if they achieve the same levels of performance. As for new homes, compliance could be demonstrated by component or by performance calculation. To qualify for the full tax credit of \$2000, all components of the house would have to meet the specification.

A second approach is to allow a tax credit per square foot for each component (*i.e.*, windows, ceiling insulation, leak sealing, wall insulation, etc.) for which the specification is met, up to a limit. Thus, if all windows were replaced with windows meeting the performance level required, the owner would qualify for the tax credit for windows. Such an approach truly allows existing houses to comply, but does so without any compromise in the technology level being incentivized.

Prorating the tax credit roughly by savings, we can propose the following language:

“Components in existing dwelling units that are upgraded to the levels specified in Table 1 shall be eligible for the following credits:”

Table 2

Component	Tax Credit in \$/sf for each square foot of component upgraded to levels in Table 1	Maximum tax credit for this component per dwelling unit
Fenestration	\$3.00/sf upgraded	\$900
Opaque roof	\$0.20/sf upgraded	\$150
Opaque wall	\$0.20/sf upgraded	\$300
Opaque floor	\$0.20/sf upgraded	\$150
Duct Sealing	--	\$250
Air Leakage Reduction	--	\$250

IV. Additional Statements of Rationale for Building Code Proposals

A. Deriving Carbon Emissions Factors

One source of carbon emissions factors is the DOE/EIA EPAAct Section 1605 reporting guidelines. Carbon emissions factors are established there as follows:

- Natural gas: 52.7 kg/MBtu
- Distillate fuel: 78.5 kg/MBtu
- Electricity, U.S. mean: 586 g/kWh

These values are used in the calculational example in Section B to examine what their policy impact would be.

These values are not necessarily the best choice for use in evaluating the climate emissions reductions that will result from more efficient new buildings. First, they do not include transmission losses. For the residential sector, including such losses would increase the electricity number by about 10% for losses on the electricity system. It might increase both the electric value and the natural gas value, and to a lesser the distillate fuel value for transmission and transportation losses of fuel from the source to the power plant or the home.

A more significant source of policy error is that the electricity number is obtained by dividing total carbon emissions from the electric sector by total electricity output from generating plants. Thus, sources of generation with no direct carbon impacts such as hydro, renewables, and nuclear, which account for almost 1/3 of U.S. generation, are not counted.

But the supply of these resources will be determined independently of the demand for electricity. That is, savings from new houses will not lead to any reductions in nuclear, hydro, or renewable generation. Instead, marginal changes in electricity demand will lead to marginal adjustments in the use of fossil fuels, particularly coal and gas. For coal-fired electricity, the emission factor at existing coal plants would be approximately 900 g/kWh. For new gas plants, the emission factor could be as low as 350 g/kWh, and for existing gas-fired plants, the value would be somewhere in between.

Selecting a figure that will accurately reflect climate emissions mitigation goals is complex. First, one has to predict the percentage of demand reductions that cause reductions in output from coal rather than gas-fired plants, distinguishing newer or higher efficiency plants from older or lower efficiency plants. This answer could vary regionally.⁷

More problematic is that the prediction depends on policy decisions that have yet to be made. Regional effects will be different in a restructured utility environment than they will be if the current regulatory environment for utilities is maintained. And the ratio of coal to gas could change as a result of climate policy.

For this reason, it is important to design the tax credit bill such that it does not have drastically different practical results if the emissions factor is the low end of the plausible range, or about the national average of 586

⁷ EIA has projected marginal carbon emission factors for electricity in the range of 610-640 g/kWh at the power plant, which implies about 650-700 g/kWh after transmission losses.

g/kWh, or at the high end of the plausible range, or about 1,000 g/kWh. The policies described meet this criterion.

B. Examples of Different Ways to Add Gas and Electricity Use.

The errors incurred for climate policy by using MEC's site weighting scheme rather than carbon-emissions weighting can be illustrated by the following example. The numbers for heating, cooling, and water leaking are made up, but are in the ballpark of nationally typical values for heating, cooling, and hot water.

A base MEC house with gas heat and electric cooling will consume 40 MBtu of heat and 3,000 kWh of cooling. Gas water heater usage will be approximately 25 MBtu and electric 4,000 kWh.

For the purpose of this comparison, we will first assume that the emission factor for gas is 52.7 kg/MBtu and for electricity is 1 kg/kWh, assuming coal-fired generation and 10% transmission losses. This is a worst reasonable case, but not atypical of much of the country.

The gas heating/electric cooling only MEC case has emissions of $65 \text{ MBtu} \times 52.7 \text{ kgC/MBtu} + 3000 \text{ kWh} \times 1 \text{ kgC/kWh} = 6425 \text{ kgC}$. The electric base case, assuming an electric resistance furnace instead of a gas furnace at national minimum efficiency of 78% uses $(40 \text{ MBtu} \times .78/3413 + 3000 \text{ kWh} + 4000 \text{ kWh}) 1 \text{ kgC/kWh} = 16,141 \text{ kgC}$. Thus, the 50%-below-MEC all electric house creates as much as 25% more climate emissions than the base-case gas/electric house.

Repeating the calculation for the national average emission factor of 586 g/kWh, the gas/electric house has carbon emissions of $65 \text{ MBtu} \times 52.7 \text{ kgC/MBtu} + 3,000 \text{ kWh} \times .586 \text{ kgC/kWh} = 5183 \text{ kgC}$. For the all-electric base case, the emissions are $(40 \text{ MBtu} \times .78/3413 + 3,000 \text{ kWh} + 4,000 \text{ kWh}) \times .586 \text{ kgC/kWh} = 9459 \text{ kgC}$.

Using this calculational metric, the electric house requires 45% savings below MEC merely to equal the base case MEC-compliant gas/electric house.

The same example illustrates how site energy can provide the wrong guidance for climate policy. The all-electric house in this case consumes $31.8 \text{ MBtu} + (4000 \text{ kWh} + 3000 \text{ kWh}) \times 3413 \text{ Btu/kWh} = 55.7 \text{ MBtu}$ of site energy.

This is in comparison to the gas/electric house, which uses $(45 \text{ MBtu} + 25 \text{ MBtu} + 3000 \times 3413 \text{ Btu/kWh}) = 75 \text{ MBtu}$.

This illustrative calculation shows the immense difference in the results of an MEC-style site weighting energy calculation compared to a climate emissions calculation.

The site calculation shows the gas/electric MEC house using 35% more energy than the all-electric house, both at MEC compliance, whereas the climate impacts of the all-electric case range between about 80% to 150% higher.

V. Automotive Sector

- A. *The Criteria Should be In Grams Carbon Emissions per Mile for the Complete Fuel Cycle rather than Miles per Gallon.*

Miles per gallon is an appropriate criterion if the technologies in question all use gasoline. For alternative fuels, if we want to create a level playing field based for fuel technologies, we should define the criterion in terms of climate impact. This metric should also help in global competitiveness, because other countries are likely to be designing their automotive sectors around minimizing climate emissions as well.

- B. *The Vehicles Complying for the Tax Credit Should also Comply with Air Quality Criteria, such as California's SULEV Criterion.*

There are good environmental reasons for this requirement, both from a substantive and a political consensus point of view.

But even if there weren't, the reality is that tighter emission standards will certainly be in effect in California by 2004 and could well be in effect in the rest of the United States. It is easier for equipment designers to optimize for two criteria at once than to address each of them separately. This was clearly demonstrated for refrigerators and commercial air conditioners when the dual goals were phase-out of ozone depleters and improvement of energy efficiency. Optimizing for both objectives at once was cheaper and more effective. If we know that the industry will be required to move in a certain direction on clean air, we should encourage that same direction through market transformation programs.

Finally, this tax credit will incentivize only a tiny fraction of the automobile fleet due to its limited financial resources. We cannot afford to exclude at least 15% of the market, and probably more, from the potential for purchasing products that qualify for a tax credit.

C. There is No Rationale for Using Acceleration as a Criterion for Fuel Economy

The current proposal asks EPA to define classes of vehicle acceleration for comparison of fuel economy. Beyond the performance of a typical family car, we can see no public policy justification for allowing higher climate emissions for higher acceleration. Unlike vehicle size, there is no practical function that acceleration serves. High acceleration vehicles are, I believe, correlated with high traffic accident rates.

It could be argued that controlling for acceleration, as is done in the Bill, assures that tax credits will be used only for advancing motor vehicle technology and not for encouraging shifts in consumer preference. But a shift to higher acceleration performance does not serve either a public policy purpose or a practical need. By controlling for acceleration, at least for accelerations faster than those of a typical car, technologies that could be contributing to policy goals of climate change mitigation and highway safety would instead be diverted to frivolous changes from the existing market mix of cars.

D. Avoiding Double Dipping: Cars that Qualify for Tax Credits Should Not be Eligible for CAFE Credits.

The way the Bill is currently written, there is an unfortunate interaction between tax credits and CAFE Standards. Since the tax credited vehicles would still be produced by the same manufacturers covered by CAFE, any savings in fuel, and therefore carbon, paid for by the tax credits would simply allow the manufacturer to produce lower miles-per-gallon cars in the rest of its fleet leading to the same overall average fuel economy. Thus, there are no carbon emission savings directly attributable to the Bill!

The only benefit would be the introduction of new technologies, which one might hope would gain market share in the future after tax credits expire. But there is also a concern that the offsetting reductions in fuel economy of the rest of the fleet might be long-lived as well.

The simplest remedy for this problem is to exclude vehicles eligible for tax credits from the calculation of CAFE. This simple change will assure that all of the direct carbon savings achieved by complying vehicles will in fact contribute to a national emissions savings overall.

United States Senate

July 15, 1998

Ms. Lindy Paull
Chief of Staff
Joint Committee on Taxation
1015 Longworth HOB
Washington, DC 20515

Dear Ms. Paull:

We are writing to request that cost estimates be prepared for the following tax proposals to improve domestic energy security. As we would like to have this information in time for consideration of any tax bill this year, we would very much appreciate it if you would expedite consideration of this request. The bill language in many cases lumps together a number of related proposals. For our purposes, please provide cost estimates of the following items:

1. Efficient Farm Equipment

Provide a tax credit for 20 percent of the purchase price of new, fuel-efficient farm equipment (e.g., tractors, harvesters) that achieves 125% of fleet average in fuel efficiency.

2. Anaerobic Digestion/Co-Generation

Establish a tax credit equal to 20% of the cost of purchasing and installing an aerobic digester for manure and/or crop waste that achieves at least 65% efficiency measured in terms of the fraction of energy input converted to electricity and useful thermal energy.

3. Tax Credit for the Production of ETBE

Establish a non-taxable credit (54 cents per gallon of ethanol used) for refiners who produce ETBE.

4. Tax Credits for Biomass Conversion to Ethanol and Renewable Methanol

Establish a renewable fuel producer credit of 10 cents per gallon for renewable ethanol and methanol produced through the conversion of highly energy-efficient biomass feedstocks, including agricultural waste (including pulp and paper residues); landfill gas; the cellulosic portion of the urban waste stream for ethanol or power by gasification; anaerobic digestion; and gasification of wood and wood waste.

5. Fix Eligibility Problem for Farmer-owned Cooperatives Regarding Existing Small Ethanol Producer Credit and Make Available to Biodiesel Producers

6. Make Biodiesel Fuel Eligible for the Existing 54 cent per gallon Renewable Alcohol Incentives.

Establish a 10 cent per gallon bonus credit for biodiesel fuel produced from recycled or waste cooking grease.

7. Natural Gas-Derived Fuels

Establish a 50 cent per gallon (energy equivalent gallon) tax credit for methanol, compressed natural gas and liquefied natural gas.

8. Tax Credit equal to 10% of the Purchase Price of New Fuel Cell, Electric and Hybrid Vehicles.

9. Increase Reforestation/Aforestation Tax Credit

Increase the aforestation and reforestation tax credit (currently 10% of up to \$10,000 eligible) by doubling percentage eligible or doubling cap or both.

10. Tax Credits for the Purchase of Energy Efficient New Homes

In order to stimulate the construction of homes that are more efficient than the current Model Energy Code standards, provide a tax credit of \$2,000 for homes that are at least 30% more efficient, which could be ramped up to \$5,000 for homes that are 50% more efficient.

11. Establish a Credit for Marginal Domestic Oil and Natural Gas Production

Establish a tax credit of \$3 per barrel of qualified crude oil production and 50 cents per 1,000 cubic feet of qualified natural gas production.

12. Credit for Solar Home Systems

Establish a credit available for purchases of rooftop photovoltaic systems and solar water heating systems located on or adjacent to buildings for purposes other than heating swimming pools. The credit would be 15 % of qualified investment up to a maximum of \$1,000 for solar hot water heaters and \$2,000 for photovoltaic systems.

13. Extend Wind Production Tax Credit

Extend 1.5 cent per kWh production tax credit for electricity produced from wind for five years.

14. Establish Credit for Small Wind Power Users

Create a new tax credit for residential and commercial users of small wind energy equipment rated no greater than 50 kW. Tax credit would equal 30% of the purchase and installation cost.

15. Extend Biomass Production Tax Credit

Extend 1.5 cent per kWh production tax credit for electricity produced from "closed loop" biomass systems for five years

16. Modify Energy Investment Credit

Amend the Internal Revenue Code to allow the energy investment credit (10%) for solar and geothermal property to be applied against both the regular tax (as it does now) AND the alternative minimum tax.

17. Credit for use of Combined Heat and Power Systems

18. Tax Credits for the Purchase of Energy-efficient Residential Energy Property

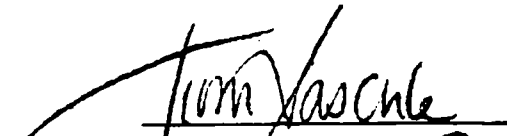
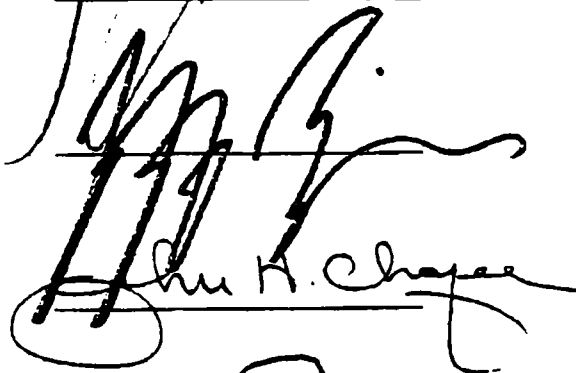
As you can see from the enclosed language, we have asked Legislative Counsel to draft additional sections addressing such items as tax incentives for investments in clean coal technology, renewable energy, and improving the energy-efficiency of industrial manufacturing operations.

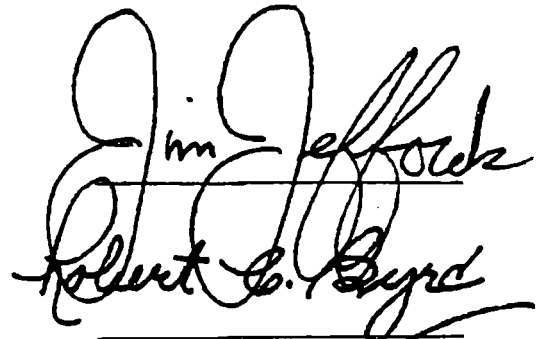
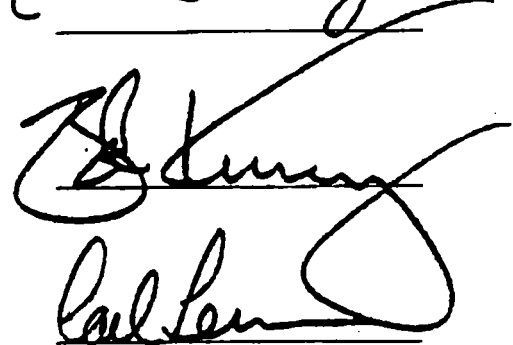
Ms. Lindy Paull
Page Three
July 15, 1998

We will forward these sections to you as they become available. If you or your staff have any questions, please contact Rick Samans of Senator Daschle's staff at 224-5556 (fax: 228-5645) or Eric Washburn of Senator Daschle's staff at 224-2321 (fax: 228-4136).

Thank you.

Sincerely,

Potential Changes to the CCTI Tax Credit Program

Renewable Energy Sources

The current tax credit requires that eligible projects for burning biomass be “closed loop” – i.e., that a dedicated source of biomass be associated with a combustor. This severely limits eligibility for the program. It also overlooks a potentially important role for biomass that involves its combustion in combination with coal in existing boilers. And finally, while considered and rejected last year, offering a tax credit for landfill and coalbed methane could reduce emissions by 6-8 million tons.

- Delete the provision requiring that biomass be “closed-loop.” Define eligible sources of biomass to include forest-related wastes, agricultural wastes, and animal manure but not to include municipal solid waste.
- Offer the credit to taxpayers who co-fire biomass with coal in proportion to the percentage of biomass burned. For instance, a facility that burned 10% biomass and 90% coal would receive a tax credit of .15 cent per kilowatt hour.
- Offer the credit to taxpayers who produce electricity from landfill and coalbed methane.

Rooftop Solar Equipment

The current tax credit proposal provides too many incentives for water heat. The program should be limited to only those systems capable of providing the majority of a home’s hot water. In addition, given that the technology for solar water hot water heating is fairly well developed, the dollar value of the credit is excessive. It would therefore be preferable to provide greater incentives to photovoltaics.

- Change the format of solar water heating proposal to a flat credit of \$500, provided that a majority of the energy used to provide the home’s hot water is derived from the sun
- Include expenditures for labor cost, property allowable for onsite preparation, piping and wiring.
- For photovoltaics, raise cap from \$2000 to \$2500

New Initiatives

Provide a Tax Credit for Distributed Generation

Distributed generation places small power generation units close to electric power users to help improve operation of the existing power distribution grid and reduce losses. A number of efficient and clean technologies could be used for distributed generation, including gas turbines or fuel cells. Cogeneration applications used in distributed generation are an extremely efficient way to generate steam and electricity. Purchasing electricity from the electric grid and generating steam in a boiler yields efficiencies of 50 – 55 percent. In contrast, a boiler retrofit with a microturbine can generate steam and electricity together at efficiencies of 70 – 75 percent.

The proposal would institute a 10 percent investment credit for the establishment of cogeneration units of 50 kW or smaller capacity, including the retrofitting of existing boilers to meet the qualifications, or for electric generators under 50 kW. Microturbines, photovoltaics, biomass and fuel cell technologies used in cogeneration or electric only applications would be eligible for this tax credit. The proposed credit applies to both grid and non-grid connected generators. These small generators represent approximately 5 GW of potential capacity.

In a microturbine retrofit, investment costs are estimated at \$925 per kW. With 5 GW of assumed economically-viable potential, and given a 10 percent tax credit, the estimated cost of this credit would be \$462,500,000 over the years 1999 - 2003.

Any natural gas cogeneration project would have to meet minimum efficiency standards to qualify for the tax credit. Taxpayers claiming this tax credit would not be eligible for credits under the wind and biomass tax credit.

Improve tax treatment of reforestation expenses

The US government provides reforestation tax credits to promote tree planting on non-industrial private lands. Under current tax code provisions, landowners can: 1) take a 10% tax credit on reforestation expenses, with a cap of \$1,000 credit, and 2) deduct up to \$10,000 of reforestation expenses, amortized over 7 years. Landowners can take advantage of both the tax credit and deductions, but if the tax credit is taken, the landowner must reduce the costs amortized by one-half the value of the tax credit.

Options:

- raise or eliminate the \$10K cap on expenses
- shorten the amortization period to 5 years.
- establish a tax-deferred account from timber harvests receipts that could be used in future years for forestation.

Tax Credit Options to Reduce Greenhouse Gas (GHG) Emissions from Agriculture

Agriculture can improve the storage of carbon by adopting practices that reduce tillage, improve nutrient management, provide residue cover, and encourage methane capture. With the exception of methane capture, the extent to which the U.S. would receive credit for these actions would depend on how parties define implementation of Article 3.4 of the Kyoto Protocol. In addition, it is often difficult to measure changes in the amount of carbon storage resulting from alternative agricultural practices. Nonetheless, specific options include:

1) Credits for “Integrated” Cropping Systems – An “integrated” farm is one that employs reduced tillage, nutrient planning, and grass waterways to reduce runoff. Nearly a third of U.S. crop acreage currently uses one or more of these practices. Under this option, USDA would certify the acreage under the “integrated” practice. Farmers would receive a tax credit of \$10 per acre under integrated management. Sinks and GHG emission reductions from this option could exceed 20 MMTC/yr. Revenue losses from this credit could amount to \$2 billion.

2) Credits for Planting Cover on Bare Land and Enrolling It in a Reserve – A tax credit of \$15-20 per acre would be used to enroll marginal lands into a reserve and to establish and preserve cover (with an emphasis on tree cover). USDA would certify that the land remains in the reserve and that adequate cover is established. Approximately 20-30 million acres of land would participate in this program, which would increase carbon sinks by about 20 million tons.

3) Credits for Range Improvement Using Fencing and Rotational Grazing Structures - Rotational grazing systems use fences to contain and rotate cattle, giving range or pasture land covers an opportunity to grow. The costs of tax credits for installing an USDA approved rotational grazing system would be about \$6 per acre/yr. GHG benefits are currently unquantified. There are approximately 20-30 million acres that would participate in the program.

4) Credits for Manure Storage or Lagoon Covering Structures - Manure storage pits are environmentally friendly and inexpensive on most farms, and nutrient conservation benefits from improved handling of manure nutrients often compensate for the costs of building pits. Lagoons are not nearly as environmentally friendly as manure pits, but where lagoons already exist, use of methane as fuel can compensate for some costs of covering lagoons and purchasing electricity (from methane) generation equipment. Tax credits could provide a portion of the costs of USDA approved manure pit or lagoon covering structures. Although lagoons account for nearly 16 MMTC/yr, it is difficult to predict how many farms would respond to tax credits for either manure pits or lagoon covers or what magnitude of credit would be appropriate.

Global Climate Change Tax incentive ideas for Agriculture

Potential role of tax credits for farm tractors and equipment etc to spur reductions in emissions of global warming gasses from farm operations and from farm and ranch lands and increased carbon sequestration in farm, range and forest lands.

Note: Current IRS codes permit farmers to write off as much as \$18,500 of equipment purchases in the year the equipment was purchased.

(1) Tax credits for "energy efficient farms"

- energy efficient homes on farms
- energy efficient irrigation pumps
- energy efficient heating and cooling (dairy, poultry, hogs) farm barns and livestock holding pens
- Purchase and installation of insulation

(2) Tax credit on purchase of energy efficient farm equipment

eg. Diesel powered tractors

?

20% tax credit on the net purchase price of new farm tractors.

Could be in lieu of the \$18,500 expensing provision or could be applied to the balance of the net purchase price, after having deducted up to the \$18,500 amount. Consistent with IRS code, farmers could carry back the ITC to the previous year or forward for 20 years.

On the basis of relative cost, a 20% tax credit on new farm tractors is not out of alignment with the ITC on new energy efficient automobiles.

Cost to Treasury?

Assuming a 33 % marginal tax rate, the \$18,500 expensing would cost \$6,100 the ITC cost about \$16,300 on the net purchase of a new \$100,000 tractor.

Utilization rate?

In 1996, farmers spent average of \$1500 on acquisition of new tractors. Farms with sales of \$500,000 or more spent about \$12,000.

(3) Tax credit on purchase of minimum till and precision farm equipment

to move away from traditional tillage with moldboard plow toward no till
to move towards more precise placement of pesticides, fertilizer, manure (to reduce total application levels) eg. Air drills, planters, chisel plows, rod weeders, monitoring instrumentation and planters, GIS fertilizer application equipment etc.
(carbon released during the 19 days following no till was only 27 % versus 134% loss with moldboard plow).

Utilization rate? In 1996 farmers spent about \$3,000 on "other" farm equipment. Farmers with sales over \$500,000 spent about \$28,000 per year.

(4) Tax credit for use of biofuels (Soybean diesel)

Both FY 99 Ag approps and DOE bills included language to allow credit for using 20% biodiesel in alternative fuel program (Energy Policy Act requirements re: federal fleet incentives).

 (5) Biomass Tax credits for electricity generation plants

Current law applies to dedicated facilities only. Explore elimination of this requirement?

(6) 5 year Farm and Ranch Risk Management Accounts

Up to 20% annual income per year in tax-free savings accounts.

(7) Accelerate health insurance deductibility for farmers from current phase in by year 2003 to phase in by 2000.

Climate Tax

November 4, 1998

MEMORANDUM**SUBJECT:** Options Memorandum on Vehicle Tax Credit**FROM:** Margo Oge, Director
Office of Mobile Sources
Environmental Protection AgencyMorley Winograd, Senior Policy Advisor
Office of the Vice PresidentLinda Lance, Associate Director for Transportation, Energy, and Lands
Management
Council on Environmental QualityHenry Kelly, Assistant Director for Technology
Office of Science and Technology Policy**Context for Consideration of Options**

In response to the President's January 1998 proposal for a fuel-efficient vehicle tax credit under the Climate Change Technology Initiative, the Department of Treasury initiated consultation meetings between March and May of 1998 with representatives of the domestic auto manufacturers, the import auto manufacturers, and environmental groups on the structure of the proposed credit. At those meetings, the Administration proposed credit eligibility requirements based on doubling or tripling fuel efficiency (2X/3X) relative to current size-based vehicle classes of passenger cars and light trucks. This technology-neutral, performance standard approach was designed to complement the 3X goal of the Partnership for a New Generation of Vehicles (PNGV), to launch the initial commercialization of high fuel economy PNGV-type vehicles, and to significantly offset the capital investment necessary to manufacture new and innovative vehicle powertrains. The proposal included a simple technique for establishing the baseline against which 2X and 3X increases would apply which ensured that the credit would not be given to vehicles which achieved high fuel economy by sacrificing vehicle performance. This also ensured equitable access to the credit for domestic and foreign producers.

While both the importers and the environmental groups expressed general support for the original Administration proposal, the domestic manufacturers have maintained steady opposition. General Motors offered a counterproposal crediting specific technologies, alone and in combination, rather than rewarding benchmark improvements in fuel efficiency. Credit-eligible technologies in the GM proposal included battery-electrics, fuel-cell electrics, certain hybrids (incorporating both a combustion engine and an electric motor, with regenerative

How diff from PNGV?

braking), compression-ignition direct-injection (CIDI) engines, and (in a subsequent revision) lightweight materials.

While providing incentives for technologies with the *potential* to increase fuel efficiency, GM has to date rejected guarantees that vehicles must translate that potential into specific, benchmark efficiency increases in order to be eligible for the tax credit. The GM proposal is less linked to the PNGV program and its goals, and runs the risk of subsidizing technologies the manufacturers would produce anyway, and in applications that benefit attributes like performance and size rather than fuel efficiency. An additional drawback of the GM proposal is that token designs could qualify under the definitions of eligible technologies, inviting gaming of the credit with no real boost to technology innovation and no real environmental benefit.

Based on the foregoing background and in response to your request, we are providing the following four options for proceeding with the vehicle tax credit.

Description of Options

Option 1: Provide smaller credits for specific new powertrain technologies that meet modest thresholds for fuel efficiency improvements, beginning with model year 2000.

Eligible vehicles under this option must incorporate (1) use of fuel cells or batteries as a substitute for internal combustion engines, or (2) a hybrid powertrain with a regenerative braking system that will recover at least 60% of the energy associated with a typical braking event from 70 mph to a complete stop. The level of credit under this option would be established by statute and would be dependent on the improvement in fuel efficiency of the candidate vehicle relative to the average of its vehicle class in a base year, as follows:

- \$1000 credit for 40% to 60% improvement
- \$2000 credit for greater than 60% improvement

Pros of this option:

- Domestic manufacturers *might* support now due to incorporation of technology-based elements.
- Promotes introduction of technologies with at least some significant fuel economy improvements in the model year 2000 timeframe.
- Establishes a methodology (based on adjustments for size and acceleration) which provides a solid basis for giving credits for more ambitious efficiency gains in the future.

Cons of this option:

- Reducing the efficiency improvement thresholds from the 2X/3X levels makes it much easier for vehicles to qualify, which could significantly increase the number of eligible vehicles, and thus the cost to the Treasury.
- Accepting only modest efficiency improvements decouples the credit from PNGV and could suggest that the administration was backing away from an expectation that PNGV vehicles would be produced early in the next century.

enviro reaction

Picks technology winners and losers.

Option 2: Provide smaller credits for specific new powertrain technologies meeting fuel efficiency thresholds to be determined by a follow-on public process.

As in Option 1, eligible vehicles under this option would have to incorporate (1) use of fuel cells or batteries as a substitute for internal combustion engines, or (2) a hybrid powertrain with a regenerative braking system that will recover at least 60% of the energy associated with a typical braking event from 70 mph to a complete stop. The level of credit and the associated fuel efficiency improvements would be determined by a follow-on EPA public rulemaking, but the enabling statute would require that the ultimate efficiency improvement be no less than 50%.

Pros of this option:

- Domestic manufacturers *might* support now due to incorporation of technology-based elements.
- Buys time on determining the actual improvement necessary to achieve a given level of tax credit; makes Federal cost implications of the final policy a product of public process.

Cons of this option:

- Same as for Option 1, subject to the outcome of the rulemaking on the actual level of efficiency improvement that would be required to receive the tax credit.

Option 3: Implement 2X/3X performance-based credits beginning with model year 2002.

This is the original Administration proposal, delayed by two model years.

Pros of this option:

- Probable lower costs to the Treasury than options with technology-based standard and more modest efficiency improvement requirements.
- Two-year delay for achieving 2X/3X targets addresses manufacturer need to solidify confidence in candidate technologies.
- Given more time, the domestic manufacturers may well change their opposition to the Administration proposal in response to the current flux in the industry (e.g., the Daimler/Chrysler merger, William Clay Ford's ascent as CEO at Ford Motor Company, the European voluntary fuel efficiency agreements, and the outcome of Buenos Aires, recent statements by GM in support of environmentally sensitive technologies).
- Retains direct linkage to the PNGV 3X goal, enhances manufacturer focus on that target, and supplies market-based incentive that is critical to successful launch of PNGV 3X vehicles.
- Doesn't pick technology winners/losers
- Written support from import manufacturers

Cons of this option:

- Delays implementation of at least some market incentives for successful launch of 2X/3X vehicles until model year 2002.

Companies still shift us

Completed November EPA

??

Against

Option 4: Provide smaller credits for specific new powertrain technologies that meet modest thresholds for fuel efficiency improvements beginning with model year 2000, and in addition, implement 2X/3X performance-based credits beginning with model year 2002.

This option simply combines Options 1 and 3, providing two pathways to credit eligibility.

Pros of this option:

Represents "best of both worlds" compromise position between GM and Administration proposals.

Two-year delay for achieving 2X/3X targets addresses manufacturer need to solidify confidence in candidate technologies.

Given more time, the domestic manufacturers may well change their opposition to the Administration proposal in response to the current flux in the industry (e.g., the Daimler/Chrysler merger, William Clay Ford's ascent as CEO at Ford Motor Company, the European voluntary fuel efficiency agreements, and the outcome of Buenos Aires, recent statements by GM in support of environmentally sensitive technologies).

Retains direct linkage to the PNGV 3X goal, enhances manufacturer focus on that target, and supplies market-based incentive that is critical to successful launch of PNGV 3X vehicles.

Promotes introduction of technologies with at least some significant fuel economy improvements in the model year 2000 timeframe, and vehicles with "leapfrog" technology improvements in the 2002 timeframe.

Cons of this option:

Allowing the pathway with efficiency improvement thresholds that are reduced from the 2X/3X levels makes it much easier for vehicles to qualify, which could significantly increase the number of eligible vehicles, and thus the cost to the Treasury.

Need for Cost Scoring of the Options

As a part of the evaluation and decision making on these options, we would view a necessary next step as a cost scoring of the options. This is particularly important because ultimate Federal cost of the program will be highly dependent on the credit level as a function of the criteria for improved fuel efficiency and projections for the number of vehicles that would be eligible for the credits. On the other hand, if the scoring process shows savings for some of the options compared to the original proposal, there may be limited opportunities for shifting funds to other components of the larger Administration tax credit package.

*Combines
short & long
term
\$1.4 Billion*



Monkey - 6-2830
Elgie - 5-4639
R. Ballantine - 6-6468
Frampton - 6-2710

**DEPARTMENT OF THE TREASURY
OFFICE OF TAX ANALYSIS
1500 PENNSYLVANIA AVENUE, NW
WASHINGTON, DC 20220**

Number of pages to follow: 1

Date: November 24, 1998

To: Sally Katzen 456-1605
Todd Stern 456-2215

From: Geraldine Gerardi
Tel: (202) 622-1782
Fax: (202) 622-2969

Comments: Attached are the estimates you requested on options for vehicle tax credits.

NOTE: THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHOM IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND/OR RESTRICTED AS TO OR EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. If the recipient of this message is not the addressee (i.e., the intended recipient), you are hereby notified that you should not read this document and that any dissemination, distribution, or copying of this communication except insofar as necessary to deliver this document to the intended recipient, is strictly prohibited. If you have received this communication in error, please notify the sender immediately by telephone, and you will be provided further instruction about the return or destruction of this document. Thank you.

UNCLASSIFIED

Tax Credits for Fuel Efficient Vehicles

Preliminary Options for FY 2000 Budget Proposal

Current Law:

The Partnership for a New Generation of Vehicles (PNGV) program is developing automobiles that will use advanced new technologies, such as so-called "hybrid" engines, light composite construction, etc., to produce vehicles with fuel efficiencies of two to three times current mileage ratings. There is currently no generally-available income tax credit for investment in high-mileage vehicles. A credit is available under IRC Section 30 for certain qualified electric vehicles.

FY 1999 Budget Proposal:

The FY99 Budget included a proposal that would provide a credit of \$4,000 for each 3X vehicle (a vehicle which achieves a fuel economy rating three times a 1997-based class standard, as set by EPA). The credit would begin in 2003, phase down beginning in 2007, and phase out by 2010. A similar credit of \$3,000 would also be provided for purchases of 2X vehicles, beginning in 2000. This credit would phase down beginning in 2004 and phase out by 2008.

FY 2000 Budget Preliminary Options:

- Option 1: \$1000 credit for 1.4X and \$2000 credit for 1.6X, beginning in 2000.
- Option 2: Implement original 2X/3X credits beginning in 2002 for 2X (instead of in 2000), and in 2003 for 3X (as before).
- Option 3: Combination of options 1 and 2.
- Option 4: \$2000 technology credit through 2005.
- Option 4 revised: \$1000 technology credit through 2005.
- Option 4 rev. with opt. #1: \$1000 technology credit through 2005, plus \$1000 credit for 1.4X and \$2000 credit for 1.6X, beginning in 2000.
- Option 4 rev. with opt. #2: \$1000 technology credit through 2005, plus implement original 2X/3X credits beginning in 2002 for 2X (instead of in 2000), and in 2003 for 3X (as before).

(fiscal years in millions of dollars)

	<u>1998-2003</u>	<u>1998-2008</u>
<u>FY 1999 Budget Proposal:</u>	<u>FY99 Budget Figure</u>	
2X/3X	(660)	(4,660)
	<u>1999-2004</u>	<u>1999-2009</u>
<u>FY 1999 Budget Proposal:</u>		
Using original scoring through 2004	(1,360)	(5,460)
<u>FY 2000 Budget Preliminary Options:</u>		
Option 1	(1,478)	(2,816)
Option 2	(637)	(6,392)
Option 3	(1,748)	(7,382)
Option 4	(3,864)	(7,077)
Option 4 revised	(1,725)	(3,873)
Option 4 rev. with option 1	(2,480)	(5,806)
Option 4 rev. with option 2	(1,886)	(6,349)



Julie M. Anderson
10/05/98 07:55:28 PM

Record Type: Record

To: Todd Stern/WHO/EOP

cc: Roger S. Ballentine/WHO/EOP, Lisa M. Kountoupes/WHO/EOP

Subject: tax credit extenders

The latest I've heard is that a small paid for (\$6B) extenders bill may have a chance of passing. It may only provide for 8 month extensions for various expiring credits. I think if this is done all of the issues regarding how to modify sections 45 or 29 are put off until next Congress. I think substantively it makes sense for us to reassess what modifications to both of these provisions would be desirable - but I sense that is a longer term proces.

In the short term: I think it would helpful for you to weigh in with Larry Summers to ensure that short term extension of Section 45 or even short term extension of sections 45 and 29 end up in the extender bill (FYI: an 8 month extension of sec. 29 does not alter the playing field for coke facilities; a 24 month extension gives an advantage to the Pitts. facility). I believe that we have support for a short term extension of these provisions in the Senate. HOwever, Archer is apparently opposed to the wind credit because it pits him against all of his ethanol foes. Thus, I think it is important to enure that internally we keep this issue on the list of extenders.

ENERGY EFFICIENCY TAX INCENTIVES

The bill provides for \$3.6 billion in tax incentives over 5 years to decrease energy costs for American families and businesses, increase our economic competitiveness, lower our dependence on foreign oil, and protect our environment through improved air quality and reduced emissions of greenhouse gases.

This environmentally and economically sound package of tax credits covers four sectors of the economy. Specifically, the bill includes:

Buildings

- ***A 20 % credit for highly energy efficient building equipment to reduce costs to both consumers and manufacturers.*** This credit will encourage the purchase of fuel cells, electric heat pump water heaters, natural gas water heaters, electric and natural gas heat pumps, and advanced central air conditioners.
- ***Up to \$2,000 credit to consumers who purchase new energy efficient homes.*** This credit will increase the use of energy efficient building practices and help spur innovation in housing design and construction, providing significant long-term environmental and economic benefits.

Electricity

- ***An Extension of credit for electricity produced from wind and biomass.*** This credit helps make electricity produced from wind and biomass, which produce no greenhouse gas emissions, competitive with other forms of electricity.

Industry

- ***A 10% credit for combined heat and power systems.*** This credit will encourage and accelerate investment in these systems which use energy otherwise wasted to achieve greater efficiency, lower energy costs and reduce emissions of greenhouse gases.

Transportation

- ***Equalizes treatment of parking and transit benefits.*** This proposal would allow employers to offer transit and vanpool benefits in lieu of compensation thus equalizing the tax incentives provided for these benefits and parking benefits.

- ***Up to \$4,000 credit to consumers who purchase highly efficient vehicles.*** This credit will help move vehicles with two to three times the fuel efficiency of today's vehicles from the laboratory to the highway.



122 C St., NW, Fourth Floor
Washington, D.C. 20001
(202) 383-2500 Fax (202) 383-2505

FAX TRANSMITTAL

TO: Roger Bollentine FAX: _____

FROM: Jaime Steve 202-383-2506

DATE: 7/14

PAGE(S) 3 (including cover sheet)

Please respond by calling:

main line: 202-383-2500

fax #: 202-383-2505

202-383-2_____

MESSAGE: Re: Wind Tax Credit

* Latest list of co-sponsors.

Q: Would you be available Mon. (7/20)
or Wed. (7/22) to meet with a
small group of wind industry leaders
on the Production Tax Credit?

Thanks Jaime

AWEA, formed in 1974, is the national trade association of the U.S. wind energy industry. The association's membership of more than 700 includes turbine manufacturers, wind project developers, utilities, academicians, and interested individuals from 49 states. More information on wind energy is available at the AWEA web site: <http://www.econet.org/awea>, or email: windmail@mclmail.com

Membership and publications information is available from AWEA's Fax-on-Request service at (800) 634-4299 or contact AWEA at (202) 383-2500.

wind energy

Production Tax Credit (PTC)

SPONSORS

SENATE: S. 1459

HOUSE: H.R. 1401

REPUBLICANS [3]

Charles Grassley (R-IA)
James Jeffords (R-VT)
Frank Murkowski (R-AK)

REPUBLICANS [28]

Bill Thomas (R-CA)
Henry Bonilla (R-TX)
L. Diaz-Balart (R-FL)
John Ensign (R-NV)
Amo Houghton (R-NY)
Jim Leach (R-IA)
Rob Portman (R-OH)
I. Ros-Lehtinen (R-FL)
Chris Shays (R-CT)
Jerry Weller (R-IL)

Roscoe Bartlett (R-MD)
Mary Bono (R-CA)
Jennifer Dunn (R-WA)
Mark Foley (R-FL)
Scott Klug (R-WI)
James McCrery (R-LA)
Jim Ramstad (R-MN)
Dan Schaefer (R-CO)
Cliff Stearns (R-FL)
Sherwood Boehlert (R-NY)
Jim Bunning (R-KY)
Vern Ehlers (R-MI)
Elton Gallegly (R-CA)
Tom Latham (R-IA)
Jim Nussle (R-IA)
Frank Riggs (R-CA)
E. Clay Shaw, Jr. (R-FL)
Wes Watkins (R-OK)

DEMOCRATS [8]

Barbara Boxer (D-CA)
Kent Conrad (D-ND)
Diane Feinstein (D-CA)
Tom Harkin (D-IA)
Tim Johnson (D-SD)
Bob Kerrey (D-NE)
Patty Murray (D-WA)
Jav Rockefeller (D-WV)

DEMOCRATS [48]

Neil Abercrombie (D-HI)
Leonard Boswell (D-IA)
Benjamin Cardin (D-MD)
Diana DeGette (D-CO)
Vic Fazio (D-CA)
Ralph Hall (D-TX)
William Jefferson (D-LA)
Jerry Kleczka (D-WI)
Barbara Lee (D-CA)
Robert Matsui (D-CA)
Carrie Meek (D-FL)
Richard Neal (D-MA)
Frank Pallone (D-NJ)
Lynn Rivers (D-MI)
Bart Stupak (D-MI)
Esteban Torres (D-CA)
John Baldacci (D-ME)
Allen Boyd (D-FL)
James Davis (D-FL)
Peter Deutsch (D-FL)
Martin Frost (D-TX)
Alcee Hastings (D-FL)
Marcy Kaptur (D-OH)
Dennis Kucinich (D-OH)
Sander Levin (D-MI)
Karen McCarthy (D-MO)
George Miller (D-CA)
James Oberstar (D-MN)
Collin Peterson (D-MN)
Robert C. Scott (D-VA)
Ellen Tauscher (D-CA)
Robert Wexler (D-FL)
Earl Blumenauer (D-OR)
Lois Capps (D-CA)
Peter DeFazio (D-OR)
Calvin Dooley (D-CA)
Elizabeth Furse (D-OR)
Maurice Hinchey (D-NY)
Barbara Kennelly (D-CT)
Nick Lampson (D-TX)
John Lewis (D-GA)
Jim McDermott (D-WA)
David Minge (D-MN)
John Olver (D-MA)
Earl Pomeroy (D-ND)
David Skaggs (D-CO)
Karen Thurman (D-FL)
Lynn Woolsey (D-CA)

SUMMARY

A straight 5-year extension (through July 1, 2004) of this existing provision providing a 1.5 cent per kilowatt-hour tax credit (adjusted for inflation) for electricity produced using wind resources (current PTC expires July 1, 1999).

PROBLEM

Although the PTC is a production tax credit available only for energy that is actually produced, the credit is inextricably linked to financing and developing continued wind energy production capacity. The

(over)

financing and permitting requirements for a typical wind energy installation require two to three years of lead time at a minimum. Yet the PTC is now scheduled to expire in just over one year. This situation is already drying up investments and halting future project planning just as wind stands to assume a new and competitive role in the domestic energy market.

PTC SPONSORS REPRESENTING 32 STATES

ALASKA:	Murkowski
CALIFORNIA:	Boxer, Feinstein, Bono, Capps, Dooley, Fazio, Gallegly, Lee, Matsui, G. Miller, Riggs, Tauscher, Thomas, Torres, Woolsey
COLORADO:	DeGette, Schaefer, Skaggs
CONNECTICUT:	Shays
FLORIDA:	Boyd, Davis, Deutsch, Diaz-Balart, Foley, Hastings, Meek, Ros-Lehtinen, Shaw, Stearns, Thurman, Wexler
GEORGIA:	Lewis
HAWAII:	Abercrombie
ILLINOIS:	Weller
IOWA:	Grassley, Harkin, Boswell, Latham, Leach, Nussle
KENTUCKY:	Bunning
LOUISIANA:	McCrery, Jefferson
MAINE:	Baldacci
MARYLAND:	Bartlett, Cardin
MASSACHUSETTS:	Neal, Olver
MICHIGAN:	Ehlers, Levin, Rivers, Stupak
MINNESOTA:	Minge, Oberstar, Peterson, Ramstad
MISSOURI:	McCarthy
NEBRASKA:	Kerrey
NEVADA:	Ensign
NEW JERSEY:	Pallone
NEW YORK:	Boehlert, Hinchey, Houghton
NORTH DAKOTA:	Conrad, Pomeroy
OHIO:	Kaptur, Kucinich, Portman
OKLAHOMA:	Watkins
OREGON:	Blumenauer, DeFazio, Furse
SOUTH DAKOTA:	Johnson
TEXAS:	Bonilla, Frost, Hall, Lampson
VERMONT:	Jeffords
VIRGINIA:	Scott
WASHINGTON:	Dunn, McDermott
WEST VIRGINIA:	Rockefeller
WISCONSIN:	Kleczka, Klug

[6/26/98]

Tax Initiatives to Promote Energy Efficiency and Improve the Environment

The bill would provide \$3.6 billion of tax incentives that will encourage energy efficiency and help develop low-carbon energy sources. The tax initiative covers the four major carbon-emitting sectors of the economy (buildings, industry, transportation and electricity).

Buildings

- The **20 percent tax credit for highly energy-efficient building equipment** encourages the purchase of equipment that will improve the energy efficiency of both residential and commercial buildings: certain fuel cells, electric heat pump water heaters, natural gas water heaters, electric heat pumps, natural gas heat pumps, and advanced central air conditioners. This credit will be available from 1999 through 2003 (2000 through 2004 for fuel cells).
- The **tax credit of up to \$2,000 for new energy-efficient homes** encourages the purchase of homes that use at least 50 percent less energy for heating, cooling and hot water than the Model Energy Code standard for single family residences. The credit would be 1 percent of the purchase price of the home up to a maximum credit of \$2,000. The maximum credit would be available from 1999 through 2003, and would phase down to \$1,000 in 2004 and 2005, and phase out in 2006.
- The **15 percent tax credit for rooftop solar systems** would encourage the purchase of rooftop photovoltaic systems and solar water heating systems solar systems. Energy produced by these systems generates no greenhouse gases. This tax initiative will help to achieve the President's goal of one million solar roofs by 2010.

Industry:

- The **10 percent tax credit for combined heat and power (CHP) systems** encourages investments in systems that produce both electricity and process heat and/or mechanical power from the same primary energy source. This credit would be available from 1999 through 2003.
- The **10 percent tax credit for replacement of certain circuit breaker equipment** that are prone to leak sulfur hexafluoride (SF6). SF6 is used in some large power circuit breakers used in the transmission and distribution of electric power. This credit would be available from 1999 through 2003.
- The **10 percent tax credit for perfluorocompound (PFC) and hydrofluorocarbon (HFC) recycling equipment** would encourage the recovery of PFCs and HFCs used in the production of semiconductors. This credit would be available from 1999 through 2003.

Transportation

- Two tax credits would be provided for the purchase of **highly fuel efficient vehicles**:

- **\$4,000 credit for vehicles with triple the base fuel economy for its class.** This credit would be available for purchases of qualifying vehicles from 2003 through 2006. The credit amount would phase down to \$3,000 in 2007, \$2,000 in 2008, and \$1,000 in 2009, and would phase out in 2010.
- **\$3,000 credit for vehicles with twice the base fuel economy for its class.** The \$3,000 credit would be available for purchases of qualifying vehicles from 2000 through 2003. The credit amount would phase down to \$2,000 in 2004, \$1,000 in 2005, and would phase out in 2006.
- **Equalize the tax treatment of parking and transit benefits.** This initiative would equalize the tax treatment of parking benefits and transit and vanpool benefits. To encourage public transportation and vanpools, employers would be allowed to provide tax free transit and vanpool benefits in lieu of compensation, up to the same amount that they can provide for parking beginning January 1, 1999.

Electricity

- **Extension of tax credit for electricity produced from wind and biomass.** To encourage the production of electricity from wind and certain biomass, a 5-year extension is proposed for the present 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992). The present credit, which applies to facilities placed in service before July 1, 1999, would be extended for five years.

Revenue Effect

Tax Incentives	Revenue effect (dollars in billions)
	Total FY1999-2003
Buildings	
Provide tax credit for energy-efficient building equipment	-1.4
Provide tax credit for new energy-efficient homes	-0.2
Provide tax credit for rooftop solar systems	-0.1
Industry	
Provide tax credit for combined heat and power systems	-0.9
Provide tax credit for certain circuit breaker equipment	*
Provide tax credit for PFC/HFC recycling equipment	*
Transportation	
Provide tax credits for highly fuel efficient vehicles	-0.7
Equalize tax treatment of parking and transit and vanpool benefits	-0.1
Electricity	
Extend tax credit for electricity produced from wind and biomass	-0.2
Total	-3.6

* Less than -\$50 million.

PROVIDE TAX CREDIT FOR ENERGY-EFFICIENT BUILDING EQUIPMENT

Current Law

No income tax credit is provided currently for investment in energy-efficient building equipment.

Reasons for Change

A credit for types of equipment that have substantially increased energy efficiency over conventional equipment will help to accelerate the development and distribution of energy-efficient technologies. A credit would reduce costs to consumers, increasing demand for the equipment and reducing manufacturing costs, while also spurring technological innovation.

Proposal

A credit would be provided for the purchase of certain types of highly efficient building equipment: fuel cells, electric heat pump water heaters, advanced natural gas and residential size electric heat pumps, and advanced central air conditioners. The credit would equal 20 percent of the purchase price, subject to a cap. The credit would be nonrefundable. For businesses, it would be subject to the limitations on the general business credit and would reduce the basis of the equipment. The credit would generally be available for final purchases from unrelated third parties between January 1, 1999 and December 31, 2003 for use within the United States. (Because of the current state of technology, the credit for fuel cells would be available for purchases between January 1, 2000 and December 31, 2004.)

To be eligible for the credit, the specific technologies would have to meet the following criteria:

Fuel cells generate electricity and heat using an electrochemical process. To qualify for the credit, fuel cell technologies would be required to have an electricity-only generation efficiency greater than 35 percent. Fuel cells with a minimum generating capacity of 50 kilowatts would be eligible for the credit.

Electric heat pump hot water heaters use electrically powered vapor compression cycles to extract heat from air and deliver it to a hot water storage tank. Qualifying heat pump water heaters would be required to yield an Energy Factor greater than or equal to 1.7 in the standard Department of Energy (DOE) test procedure.

Electric heat pumps use electrically powered vapor compression cycles to extract heat from air in one space and deliver it to air in another space. EHP technologies with a heating efficiency greater than or equal to 9 HSPF and a cooling efficiency greater than or equal to 15 SEER would qualify for the credit.

Natural gas heat pumps use either a gas-absorption cycle or a gas-driven engine to power the vapor compression cycle to extract heat from one source and deliver it to another. Qualifying natural gas heat pumps would be those with a coefficient of performance for heating of at least 1.25 and for cooling of at least 0.70.

Central air conditioners would be required to have an efficiency equal to or greater than 15 SEER to qualify for the credit.

Advanced natural gas water heaters use a variety of mechanisms to increase steady state efficiency and reduce standby and vent losses. Only natural gas water heaters with an energy factor of at least 0.80 in DOE test procedures would qualify for the credit.

PROVIDE TAX CREDIT FOR PURCHASE OF NEW ENERGY EFFICIENT HOMES

Current Law

No deductions or credits are provided currently for the purchase of energy efficient new homes.

Reasons for Change

Residences, which account for about one-sixth of all U.S. greenhouse gases, offer one of the largest single sources of carbon-saving potential. Some States and certain Federal programs require new houses to meet Model Energy Code standards for insulation and related construction standards, and for heating, cooling and hot water equipment. By the use of cost-effective means, many new homes could reduce energy consumption by 50 percent or more as compared to the Model Energy Code standard. A targeted credit for such highly energy efficient new housing could increase the use of energy efficient building practices and efficient heating and cooling equipment. In addition, it could help spur innovation in house design and construction, thereby providing significant environmental benefits over the long term.

Proposal

A tax credit of up to \$2,000 would be available to purchasers of highly energy efficient new homes. To claim the credit, the taxpayer must use the new home as the taxpayer's principal residence, and the new home must use at least 50 percent less energy for heating, cooling and hot water than the Model Energy Code standard for single family residences. The tax credit would be one percent of the purchase price of the home up to a maximum credit of \$2,000 for eligible homes purchased in the five-year period beginning January 1, 1999 and ending December 31, 2003. The credit would be available for an additional two years, i.e., for homes purchased January 1, 2004 through December 31, 2005, with a maximum credit of \$1,000.

PROVIDE TAX CREDIT FOR HIGH-FUEL-ECONOMY VEHICLES

Current Law

No generally available income tax credit for purchases of fuel-efficient vehicles is provided currently. A 10 percent tax credit is provided for the cost of a qualified electric vehicle, up to a maximum credit of \$4,000. A qualified electric vehicle is a motor vehicle that is powered primarily by an electric motor drawing current from rechargeable batteries, fuel cells, or other portable sources of electrical current, the original use of which commences with the taxpayer, and that is acquired for the use by the taxpayer and not for resale. The full amount of the credit is available for purchases prior to 2002. The credit begins to phase down in 2002 and phases out in 2005.

Certain costs of qualified clean-fuel vehicle property may be deducted when such property is placed in service. Qualified electric vehicles do not qualify for the clean-fuel vehicle deduction. The deduction phases down in the years 2002 through 2004.

Reasons for Change

The transportation sector now accounts for one-third of greenhouse gas emissions in the United States. Cars, sport utility vehicles, light trucks and minivans alone account for 20 percent of our greenhouse gas emissions.

The proposed credits will encourage the early introduction and purchase of highly fuel-efficient vehicles and will help to move ultra fuel efficient vehicles with three times the fuel efficiency of today's vehicles from the laboratory to the highway. These vehicles can significantly reduce emissions of carbon dioxide, the most prevalent greenhouse gas.

Proposal

The proposal would provide two temporary tax credits for the purchase of fuel efficient vehicles:

(1) Credit for vehicles with triple the base fuel economy. This credit would be \$4,000 for each vehicle that has three times the base fuel economy for its class. The \$4,000 credit would be available for purchases of qualifying vehicles after December 31, 2002, and before January 1, 2007. The credit amount would phase down to \$3,000 in 2007, \$2,000 in 2008, and \$1,000 in 2009, and would phase out in 2010.

(2) Credit for vehicles with twice the base fuel economy. This credit would be \$3,000 for each vehicle that has twice the base fuel economy for its class. The \$3,000 credit would be available for purchases of qualifying vehicles after December 31, 1999 and

before January 1, 2004. The credit amount would phase down to \$2,000 in 2004, \$1,000 in 2005, and would phase out in 2006.

These credits would be available for all qualifying light vehicles, including cars, minivans, sport utility vehicles, light trucks, and hybrid and electric vehicles. Taxpayers who claim one of these credits would not be able to claim the qualified electric vehicle credit or the deduction for clean-fuel vehicle property for the same vehicle.

EQUALIZE TREATMENT OF PARKING AND TRANSIT BENEFITS

Current Law

Under current law, qualified transportation fringe benefits provided by an employer are excluded from income. Qualified transportation fringe benefits include parking, transit passes, and vanpool benefits. For taxable years beginning after December 31, 1997, parking is excludable from gross income even when provided in lieu of other compensation payable to an employee. Transit passes and vanpool benefits, however, are only excludable if provided in addition to, and not in lieu of, any compensation otherwise payable to an employee.

Under current law, up to \$155 (in 1993 dollars) per month of employer-provided parking benefits is excludable from income; in 1998 the limit is \$175 per month. Up to \$60 (in 1993 dollars) per month of employer-provided transit and vanpool benefits is excludable from income; in 1998 the limit is \$65 per month.

Reasons for Change

The tax treatment of transit and vanpool benefits should be equalized with the tax treatment of parking benefits. This equalization would eliminate the tax disincentives for providing transit and vanpool benefits relative to parking benefits.

Proposal

Under the proposal, employers would be allowed to offer their employees transit and vanpool benefits in lieu of compensation, beginning January 1, 1999. The proposal would enact the same change for transit and vanpool benefits that the Taxpayer Relief Act of 1997 enacted for parking benefits.

The proposal also would raise the monthly limit on employer-provided transit and vanpool benefits excludable from income to \$155 (in 1993 dollars) per month, i.e., the limit on parking benefits. As under current law, the amount of the benefits would be indexed for inflation.

PROVIDE INVESTMENT TAX CREDIT FOR COMBINED HEAT AND POWER (CHP) SYSTEMS

Current Law

Combined heat and power (CHP) systems are used to produce electricity and process heat and/or mechanical power from a single primary energy source. A tax credit is currently not available for investments in CHP systems.

Depreciation allowances for depreciation for CHP property vary by asset use and capacity. Assets employed in the production of electricity with rated total capacity in excess of 500 kilowatts, or employed in the production of steam with rated total capacity in excess of 12,500 pounds per hour, and used by the taxpayer in an industrial manufacturing process or plant activity (and not ordinarily available for sale to others), have a general cost recovery period of 15 years. Electricity or steam production assets of lesser rated capacity generally are classified with other manufacturing assets and have cost recovery periods of five to ten years. Assets used in the steam power production of electricity for sale, including combustion turbines operated in a combined cycle with a conventional steam unit, have a 20 year recovery period. Other turbines and engines used to produce electricity for sale have a 15 year recovery period. Assets that are structural components of buildings have a recovery period of either 39 years (if nonresidential) or 27.5 years (if residential). For assets with recovery periods of 10 years or less, the 200 percent declining balance method may be used to compute depreciation allowances. The 150 percent declining balance method may be used for assets with recovery periods of 15 or 20 years. The straight-line method must be used for buildings and their structural components.

Reasons for Change

Combined heat and power systems utilize thermal energy that is otherwise wasted in the process of producing electricity by more conventional methods. CHP systems achieve greater energy efficiency, lessen the consumption of primary fossil fuels, lower total energy costs, and reduce carbon emissions. An investment tax credit for CHP assets is expected to encourage and accelerate investment in such systems. The increased demand for CHP equipment should, in turn, reduce manufacturing costs and spur technological innovation in improved CHP systems.

Proposal

The proposal would establish a 10 percent investment credit for certain CHP systems with an electrical capacity in excess of 50 kilowatts (or with a capacity to produce mechanical power equivalent to 50 kilowatts). Investments in qualified CHP systems that are assigned cost recovery periods of less than 15 years would be eligible for the credit, provided that a 15 year recovery period and 150 percent declining balance method are utilized to calculate depreciation allowances. Property placed in service outside the United States would be ineligible for the credit.

A qualified CHP system would be defined as equipment used in the simultaneous or sequential production of electricity, thermal energy (including heating and cooling and/or mechanical power), and mechanical power. A qualified CHP system would be required to produce at least 20 percent of its total useful energy in the form of both (i) thermal energy, and (ii) electric and/or mechanical power. For CHP systems with an electrical capacity of 50 megawatts or less, the total energy efficiency of the system would have to be greater than 60 percent. For larger systems, the total energy efficiency would have to exceed 70 percent. For this purpose, total energy efficiency would be calculated as the sum of the useful electrical, thermal, and mechanical power produced, measured in Btus, divided by the lower heating value of the primary energy supplied. Taxpayers would be required to obtain proper certification by qualified engineers for meeting the energy efficiency and percentage-of-energy tests, pursuant to regulations to be issued by the Secretary of the Treasury.

The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit. Regulated public utilities claiming the credit would be required to use a normalization method of accounting with respect to the credit. Taxpayers using the credit for CHP systems would not be entitled to any other tax credit for the same equipment. The credit would apply to investments in CHP systems placed in service after December 31, 1998, but before January 1, 2004.

PROVIDE TAX CREDIT FOR REPLACEMENT OF CERTAIN CIRCUIT BREAKER EQUIPMENT

Current Law

No tax credits are provided currently for the purchase of large power circuit breakers used in the transmission and distribution of electricity.

Reasons for Change

Some power circuit breakers used in the transmission and distribution of electric power use sulfur hexafluoride (SF6). Certain older circuit breakers that use a dual pressure technology are especially prone to leak SF6 gas. Of all greenhouse gases, SF6 is among the most potent because it has an expected atmospheric lifetime of over three thousand years, and a global warming potential 23,900 times that of carbon dioxide, the most abundant greenhouse gas.

Proposal

A tax credit would be available for the installation of new power circuit breaker equipment to replace certain older power circuit breakers. The tax credit would be 10 percent of qualified investment. To be eligible for the credit, the replaced power circuit breakers must be dual pressure circuit breakers that contain SF6, have a capacity of at least 115kV, and have been installed by December 31, 1985. The replaced circuit breaker equipment must be destroyed so as to prevent its further use. The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit claimed. The new equipment must be placed in service in the five year period beginning January 1, 1999 and ending December 31, 2003.

PROVIDE TAX CREDIT FOR CERTAIN PERFLUOROCOMPOUND (PFC) AND HYDROFLUOROCARBON (HFC) RECYCLING EQUIPMENT

Current Law

No tax credits are provided currently for the purchase of perfluorocompound (PFC) and hydrofluorocarbon (HFC) recycling equipment. Semiconductor manufacturers who install equipment to recover or recycle PFC and HFC gases used in the production of semiconductors may depreciate the cost of that equipment over 6 years.

Reasons for Change

Of all greenhouse gases, PFCs and certain HFCs are among the most potent because of their extreme stability in the atmosphere and strong absorption of radiation. PFCs commonly have expected atmospheric lifetimes of thousands of years, and a global warming potential thousands of times greater than that of carbon dioxide, which is the most abundant greenhouse gas. PFCs and certain HFCs are used extensively in the semiconductor manufacturing industry. Because of the anticipated rapid growth of the semiconductor industry, annual emissions of PFCs would grow from 0.2 million metric tons of carbon equivalent (MMTCE) in 1990 to as much as 26 MMTCE by 2010 if no control measures were undertaken. Anticipated voluntary measures by the semiconductor industry to reduce emissions are expected to limit annual emissions to 13 MMTCE by 2010. Installation of additional equipment to recover and recycle PFC and HFC gases could eliminate most of the remaining emissions. While new methods of manufacturing semiconductors are expected ultimately to eliminate PFC and HFC emissions, emissions from existing plants would continue until the plants were eventually replaced or recycling equipment is installed.

Proposal

A tax credit would be available for the installation of PFC and HFC recovery/recycling equipment in semiconductor manufacturing plants. The tax credit would be 10 percent of qualified investment. The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit claimed. Equipment would qualify for the credit only if it recovers at least 99 percent of PFCs and HFCs, and the equipment is placed in service in the five-year period beginning January 1, 1999 and ending December 31, 2003.

PROVIDE TAX CREDIT FOR ROOFTOP SOLAR EQUIPMENT

Current Law

A 10 percent business energy investment tax credit is provided for qualifying equipment that uses solar energy to generate electricity, to heat or cool or provide hot water for use in a structure, or to provide solar process heat.

Reasons for Change

An investment tax credit for rooftop solar photovoltaic systems and solar water heating systems will reduce the cost of these investments and encourage individuals and businesses to adopt these systems. Heat and electricity from these sources produce no greenhouse gasses.

Proposal

Under this proposal, a tax credit would be available for purchasers of rooftop photovoltaic systems and solar water heating systems located on or adjacent to the building for uses other than heating swimming pools. The credit would be equal to 15 percent of qualified investment up to a maximum of \$1,000 for solar water heating systems and \$2,000 for rooftop photovoltaic systems. This credit would be nonrefundable. For businesses, this credit would be subject to the limitations of the general business credit. The depreciable basis of the qualified property would be reduced by the amount of the credit claimed. The credit would apply only to equipment placed in service in the five year period after December 31, 1998 and before January 1, 2004 for solar water heating systems and for the seven year period beginning after December 31, 1998 and before January 1, 2006 for rooftop photovoltaic systems. Taxpayers would have to choose between the proposed credit and the present tax credit for each investment.

EXTEND WIND AND BIOMASS TAX CREDIT

Current Law

Current law provides taxpayers a 1.5 cent per kilowatt hour tax credit, for electricity produced from wind or "closed-loop" biomass. The electricity must be sold to an unrelated third party and the credit is limited to the first 10 years of production. The credit applies only to facilities placed in service before July 1, 1999, after which it expires. The credit amount is indexed for inflation after 1992.

Reasons for Change

The tax credit helps make such electricity produced from wind and closed-loop biomass competitive with other forms of electricity. Electricity from these sources produces no greenhouse gases.

Proposal

The proposal would extend the current credit for five years, to facilities placed in service before July 1, 2004.

Other Technologies Not Chosen

QUESTION:

What other technologies were considered, and why were they not chosen?

ANSWER:

Among the other technologies considered were ground source heat pumps, gas engine-driven chillers, horizontal axis clothes washers and reflective roofing.

These technologies were judged to be less desirable for a tax credit than those selected because they have a least one of the following characteristics.

- 1) They already have a substantial market presence; that is, there would be a significant number of free riders.
- 2) The improvement relative to the tax dollars spent was not favorable. This means that the cost per ton of carbon avoided was poor.

More specifically,

- ◆ Ground source heat pumps potentially have a large number of free riders and also presently receive other types of support from DOE/EPA.
- ◆ Gas fired chillers is a commercial technology that has been well received and as a result a tax credit would have a high proportion of free riders.
- ◆ Horizontal axis washing machines are expected to be successful without a tax credit. Maytag's Neptune model is a demonstration of the success of this technology.
- ◆ Reflective (cool) roofing materials appear to have a relatively high cost per ton of carbon avoided.

DISCUSSION:

In developing a list of technologies to be considered it was decided that to assure the most effective use of limited tax dollars that we would avoid technologies with a high degree of convenience extra's that could be added. This effectively removed from consideration most types of electronic and kitchen appliances. For example, since the credit is based on the price of the equipment we did not want to subsidize ice makers with a credit on efficient refrigerators.

We also focused on household technologies since the commercial sector has appeared more willing to adopt highly efficient technologies than consumers. Hence the publicity value of a federal tax credit may be higher with consumers.

Tax Incentives for Energy Efficient Building Equipment: Are They Effective?

QUESTION:

Studies of the prior residential energy conservation tax credit found that those credits had little incentive effect and were largely a windfall, rewarding investments that would have been undertaken anyway. Why does the Administration believe that its proposed incentive will be better?

ANSWER:

- ◆ The types of building equipment eligible for the proposed credits were chosen specifically because they possess characteristics that make them promising candidates for effective credits.
 - ▶ They embody new, cutting edge technologies, generally capturing less than 1 percent of market sales. Therefore, few of the credits would go for purchases that would have been made anyway.
 - ▶ These top-tier technologies have substantial purchase prices and are not universally cost-effective. These high up-front costs are another reason not many would be purchased without the credit.
 - ▶ The technologies are currently available, not speculative. Therefore, it is realistic to expect that models will be available for purchase when the credits go into effect.
 - ▶ The additional volume of sales and production experience that would result from the credit could lower average production costs so that the equipment would remain economically viable after the credit ends.
 - ▶ These technologies offer superior energy efficiency. Widespread use of these technologies would provide production experience and help pull future generations of even more efficient products into the market.
- ◆ The prior residential energy credits largely promoted conservation measures that were widely available and commonly adopted at the time, such as insulation, storm windows and doors, and weatherstripping. The prior credit did not require the installation of highly energy efficient items. The subsidized items were standard, in many cases cost-effective, and likely to be installed anyway in response to rising energy prices in the late 1970s.

Why Not a Credit for More Energy Efficiency in Existing Homes?

QUESTION:

If the goal is energy efficiency, why not give tax credits for making existing homes more efficient?

ANSWER:

- ◆ The owners of existing homes can make use of some of the proposed energy credits aimed at new or state of the art technology. In particular, existing homeowners could obtain 20 percent tax credits (subject to a cap) for the cost of installing certain highly efficient electric and natural gas heat pumps, electric heat pump and natural gas water heaters, and advanced central air conditioners.
- ◆ Providing broad-based tax credits for improving the energy efficiency of existing homes would be prohibitively expensive. For example, giving a \$500 tax credit to all homeowners to improve energy efficiency could cost as much as \$33 billion, almost 10 times as much as allowed for all of the energy related incentives.
- ◆ The Administration has adopted a more targeted approach: tax credits for highly efficient new homes and tax credits for certain highly efficient equipment in existing homes.

January 20, 1998

Does the CHP Credit Differ from the Previous Tax Credit for Cogeneration Equipment?

QUESTION:

We tried an investment tax credit for cogeneration equipment in the early 1980s. Does the Administration's proposal for a Combined Heat and Power (CHP) investment credit differ from the prior tax incentive?

ANSWER:

- ◆ The CHP tax incentive we are proposing is broader in scope, and has a rationale different from that of the previous cogeneration tax credit:
 - The prior credit discouraged investments in oil- or natural gas-fired cogeneration equipment by placing severe limits on the use of such fuels in order to qualify for the credit. The prior credit also failed to require the achievement of any particular level of energy-efficiency. Furthermore, the credit was available only for increases in cogeneration capacity at existing industrial or commercial facilities. Public utility property was excluded from the credit.
 - Our proposed credit is designed to foster the development and implementation of energy-efficient cogeneration equipment, irrespective of the type of primary fuel or type of owner. We propose to require that qualified CHP systems with an electrical capacity of 50 megawatts or less achieve a total energy efficiency of at least 60 percent, and that larger systems achieve a total energy efficiency of at least 70 percent. CHP property covered by the proposal would include a wide variety of systems, including cogeneration facilities used by industrial and commercial taxpayers, district energy systems owned by public utilities, and waste fuel cogenerators (such as in the pulp and paper industry).

BACKGROUND:

- ◆ The Crude Oil Windfall Profit Tax Act of 1980 added a 10 percent cogeneration investment tax credit to the Code for taxable years beginning in 1980. The credit expired at the end of 1982.

Solar Roofs Credit

QUESTION:

Why does the solar roofs credit exclude solar systems that heat swimming pools?

ANSWER:

- ◆ Providing a tax credit for swimming pools would encourage taxpayers who otherwise would have not heated their pools to extend their swimming season by purchasing subsidized heaters. This would not reduce greenhouse gas emissions which is the purpose of the credit.
- ◆ Low temperature solar hot water heaters such as are used to heat swimming pools are fairly economical now and will be purchased without a substantial credit.

BACKGROUND:

- ◆ The proposal provides a tax credit for purchasers of rooftop photovoltaic systems and solar water heating system located on or adjacent to the building for uses other than heating swimming pools.
- ◆ The credit would be equal to 15 percent of qualified investment up to a maximum of \$1,000 for solar hot water heaters and \$2,000 for rooftop photovoltaic systems. The credit would be nonrefundable and, where applicable, be part of the general business credit.

Building Equipment Credit: Choice of Specific Technologies

QUESTION:

Why were these six technologies chosen for a credit? Are they the only worthwhile technologies around?

ANSWER:

The following were among the criteria used for choosing types of equipment to receive a credit:

- ◆ Technologies that are at the cutting edge in their areas, having the potential for substantial increases in energy efficiency over conventional equipment.
- ◆ Technologies whose per unit costs are likely to drop noticeably with an increase in volume such as the tax credit would induce. This also means that the equipment must be economically viable after the credit ends.
- ◆ Types of equipment with little "free rider" problems, that would have little market share without the tax credit so the credit would not be spent paying many purchasers for investments they would have made anyway.
- ◆ Technologies that could realistically be in the marketplace by the starting date.
- ◆ Technologies that could be defined precisely enough for a credit to be effective.

The Administration believes that encouraging these six technologies would be an effective use of scarce tax resources.

**Criticism of Targeted Tax Credits:
Potential Budgetary Inefficiency ("Free Riders")**

QUESTION:

A criticism of some targeted tax credits is that their budgetary cost can be large relative to the investment they induce in targeted activities. Is this a problem with the President's climate change proposals?

ANSWER:

The proposed credits would largely target leading-edge technologies and technologies that are highly energy efficient. By setting very high energy efficiency standards for eligibility for the credits, we believe that we have minimized the chances that taxpayers would receive a credit for an investment they would have made anyway.

For example:

- ◆ The high-fuel-economy vehicles would have two or three times the base fuel economy for their classes.
- ◆ The energy-efficient new homes must use 50 percent less energy than a typical new home.
- ◆ The models of energy-efficient building equipment eligible for a credit (including electric and natural gas heat pumps, heat pump water heaters, fuel cells, central air conditioners, and natural gas water heaters) would be among the top 1 percent in terms of energy efficiency.
- ◆ The combined heat and power systems must meet energy efficiency requirements.

Minimum Size of Qualifying Fuel Cells

Question:

Why must fuel cells have an electricity generating capacity of at least 50 kW to qualify for a credit?

Answer:

- ◆ Because of the current state of technology, we want to encourage larger rather than smaller fuel cells.
 - ▶ Fuel cells of about 50 kW or more are closer to being economically viable than are small fuel cells.
 - ▶ Larger fuel cells can produce electricity less expensively and more efficiently than can small fuel cells.
- ◆ Small fuel cells can raise concerns of potential abuse of the definition of a fuel cell. A product might be able to meet the technical definition of a fuel cell (yet to be developed) at a small size without being energy efficient. We want to avoid the problem that unintended items may be able to qualify for the credits.
- ◆ In the current state of technology, fuel cells are inefficient in residential use in this country and we do not want to encourage that application. Fuel cells are most efficient with continuous demands for electricity, not in situations such as homes where the peak demands (of about 10-15 kW in morning and evening) are much higher than the base demands (of about 1 kW). For residential use, fuel cells would be paired with backup batteries, which are expensive and offset energy efficiency gains from fuel cell technology.

Solar Roofs Credit

QUESTION:

Isn't there already a solar credit?

ANSWER:

- ◆ The current credit is available only for businesses.
- ◆ The proposed credit is available for all taxpayers and includes solar investments for individual residences.
- ◆ Business taxpayers would have to choose between the proposed credit and the existing credit for each investment.

BACKGROUND:

- ◆ The current credit provides a 10 percent business investment tax credit for qualifying equipment that uses solar energy to generate electricity, to heat or cool or provide hot water for use in a structure, or to provide solar process heat.

wind energy Production Tax Credit (PTC)

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SUMMARY

A straight 5-year extension (through July 1, 2004) of this existing provision providing a 1.5 cent per kilowatt-hour tax credit (adjusted for inflation) for electricity produced using wind resources (current PTC expires July 1, 1999).

BACKGROUND

The PTC, enacted as part of the Energy Policy Act of 1992 (EPAct), is a sound, low-cost investment in an emerging sector of the energy industry. Yet, because of factors not envisioned when the credit was first created, the domestic wind energy industry has not been able to make full use of this credit in recent years. The credit is now scheduled to expire just as it is needed most to allow the domestic wind energy industry to install new capacity to make the transition to the anticipated deregulated marketplace.

The PTC currently provides a 1.5 cent per kilowatt-hour credit for energy produced from a new facility brought on-line after December 31, 1993 and before July 1, 1999 for the first ten years of the facility's existence. Despite the availability of the credit, relatively little new capacity has been built to make use

(OVER)

of this production incentive. Price fluctuations in the energy market combined with anticipated electric restructuring have generated considerable market uncertainty which has hampered the efforts of wind energy producers to enter the commercial marketplace in the U.S.

PROBLEM

Although the PTC is a production tax credit available only for energy that is actually produced, the credit is inextricably linked to financing and developing continued wind energy production capacity. The financing and permitting requirements for a typical wind energy installation require two to three years of lead time at a minimum. Yet the PTC is now scheduled to expire in just over one year. This situation is already drying up investments and halting future project planning just as wind stands to assume a new and competitive role in the domestic energy market.

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[5/27/98]

PROVIDE TAX CREDIT FOR HIGH-FUEL-ECONOMY VEHICLES

Current Law

No generally available income tax credit for purchases of fuel-efficient vehicles is provided currently. A 10 percent tax credit is provided for the cost of a qualified electric vehicle, up to a maximum credit of \$4,000. A qualified electric vehicle is a motor vehicle that is powered primarily by an electric motor drawing current from rechargeable batteries, fuel cells, or other portable sources of electrical current, the original use of which commences with the taxpayer, and that is acquired for the use by the taxpayer and not for resale. The full amount of the credit is available for purchases prior to 2002. The credit begins to phase down in 2002 and phases out in 2005.

Certain costs of qualified clean-fuel vehicle property may be deducted when such property is placed in service. Qualified electric vehicles do not qualify for the clean-fuel vehicle deduction. The deduction phases down in the years 2002 through 2004.

Reasons for Change

The transportation sector now accounts for one-third of greenhouse gas emissions in the United States. Cars, sport utility vehicles, light trucks and minivans alone account for 20 percent of our greenhouse gas emissions.

The proposed credits will encourage the early introduction and purchase of highly fuel-efficient vehicles and will help to move ultra fuel efficient vehicles with three times the fuel efficiency of today's vehicles from the laboratory to the highway. These vehicles can significantly reduce emissions of carbon dioxide, the most prevalent greenhouse gas.

Proposal

The proposal would provide two temporary tax credits for the purchase of fuel efficient vehicles:

(1) Credit for vehicles with triple the base fuel economy. This credit would be \$4,000 for each vehicle that has three times the base fuel economy for its class. The \$4,000 credit would be available for purchases of qualifying vehicles after December 31, 2002, and before January 1, 2007. The credit amount would phase down to \$3,000 in 2007, \$2,000 in 2008, and \$1,000 in 2009, and would phase out in 2010.

(2) Credit for vehicles with twice the base fuel economy. This credit would be \$3,000 for each vehicle that has twice the base fuel economy for its class. The \$3,000 credit would be available for purchases of qualifying vehicles after December 31, 1999 and

before January 1, 2004. The credit amount would phase down to \$2,000 in 2004, \$1,000 in 2005, and would phase out in 2006.

These credits would be available for all qualifying light vehicles, including cars, minivans, sport utility vehicles, light trucks, and hybrid and electric vehicles. Taxpayers who claim one of these credits would not be able to claim the qualified electric vehicle credit or the deduction for clean-fuel vehicle property for the same vehicle.

EQUALIZE TREATMENT OF PARKING AND TRANSIT BENEFITS

Current Law

Under current law, qualified transportation fringe benefits provided by an employer are excluded from income. Qualified transportation fringe benefits include parking, transit passes, and vanpool benefits. For taxable years beginning after December 31, 1997, parking is excludable from gross income even when provided in lieu of other compensation payable to an employee. Transit passes and vanpool benefits, however, are only excludable if provided in addition to, and not in lieu of, any compensation otherwise payable to an employee.

Under current law, up to \$155 (in 1993 dollars) per month of employer-provided parking benefits is excludable from income; in 1998 the limit is \$175 per month. Up to \$60 (in 1993 dollars) per month of employer-provided transit and vanpool benefits is excludable from income; in 1998 the limit is \$65 per month.

Reasons for Change

The tax treatment of transit and vanpool benefits should be equalized with the tax treatment of parking benefits. This equalization would eliminate the tax disincentives for providing transit and vanpool benefits relative to parking benefits.

Proposal

Under the proposal, employers would be allowed to offer their employees transit and vanpool benefits in lieu of compensation, beginning January 1, 1999. The proposal would enact the same change for transit and vanpool benefits that the Taxpayer Relief Act of 1997 enacted for parking benefits.

The proposal also would raise the monthly limit on employer-provided transit and vanpool benefits excludable from income to \$155 (in 1993 dollars) per month, i.e., the limit on parking benefits. As under current law, the amount of the benefits would be indexed for inflation.

PROVIDE INVESTMENT TAX CREDIT FOR COMBINED HEAT AND POWER (CHP) SYSTEMS

Current Law

Combined heat and power (CHP) systems are used to produce electricity and process heat and/or mechanical power from a single primary energy source. A tax credit is currently not available for investments in CHP systems.

Depreciation allowances for depreciation for CHP property vary by asset use and capacity. Assets employed in the production of electricity with rated total capacity in excess of 500 kilowatts, or employed in the production of steam with rated total capacity in excess of 12,500 pounds per hour, and used by the taxpayer in an industrial manufacturing process or plant activity (and not ordinarily available for sale to others), have a general cost recovery period of 15 years. Electricity or steam production assets of lesser rated capacity generally are classified with other manufacturing assets and have cost recovery periods of five to ten years. Assets used in the steam power production of electricity for sale, including combustion turbines operated in a combined cycle with a conventional steam unit, have a 20 year recovery period. Other turbines and engines used to produce electricity for sale have a 15 year recovery period. Assets that are structural components of buildings have a recovery period of either 39 years (if nonresidential) or 27.5 years (if residential). For assets with recovery periods of 10 years or less, the 200 percent declining balance method may be used to compute depreciation allowances. The 150 percent declining balance method may be used for assets with recovery periods of 15 or 20 years. The straight-line method must be used for buildings and their structural components.

Reasons for Change

Combined heat and power systems utilize thermal energy that is otherwise wasted in the process of producing electricity by more conventional methods. CHP systems achieve greater energy efficiency, lessen the consumption of primary fossil fuels, lower total energy costs, and reduce carbon emissions. An investment tax credit for CHP assets is expected to encourage and accelerate investment in such systems. The increased demand for CHP equipment should, in turn, reduce manufacturing costs and spur technological innovation in improved CHP systems.

Proposal

The proposal would establish a 10 percent investment credit for certain CHP systems with an electrical capacity in excess of 50 kilowatts (or with a capacity to produce mechanical power equivalent to 50 kilowatts). Investments in qualified CHP systems that are assigned cost recovery periods of less than 15 years would be eligible for the credit, provided that a 15 year recovery period and 150 percent declining balance method are utilized to calculate depreciation allowances. Property placed in service outside the United States would be ineligible for the credit.

A qualified CHP system would be defined as equipment used in the simultaneous or sequential production of electricity, thermal energy (including heating and cooling and/or mechanical power), and mechanical power. A qualified CHP system would be required to produce at least 20 percent of its total useful energy in the form of both (i) thermal energy, and (ii) electric and/or mechanical power. For CHP systems with an electrical capacity of 50 megawatts or less, the total energy efficiency of the system would have to be greater than 60 percent. For larger systems, the total energy efficiency would have to exceed 70 percent. For this purpose, total energy efficiency would be calculated as the sum of the useful electrical, thermal, and mechanical power produced, measured in Btus, divided by the lower heating value of the primary energy supplied. Taxpayers would be required to obtain proper certification by qualified engineers for meeting the energy efficiency and percentage-of-energy tests, pursuant to regulations to be issued by the Secretary of the Treasury.

The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit. Regulated public utilities claiming the credit would be required to use a normalization method of accounting with respect to the credit. Taxpayers using the credit for CHP systems would not be entitled to any other tax credit for the same equipment. The credit would apply to investments in CHP systems placed in service after December 31, 1998, but before January 1, 2004.

PROVIDE TAX CREDIT FOR REPLACEMENT OF CERTAIN CIRCUIT BREAKER EQUIPMENT

Current Law

No tax credits are provided currently for the purchase of large power circuit breakers used in the transmission and distribution of electricity.

Reasons for Change

Some power circuit breakers used in the transmission and distribution of electric power use sulfur hexafluoride (SF6). Certain older circuit breakers that use a dual pressure technology are especially prone to leak SF6 gas. Of all greenhouse gases, SF6 is among the most potent because it has an expected atmospheric lifetime of over three thousand years, and a global warming potential 23,900 times that of carbon dioxide, the most abundant greenhouse gas.

Proposal

A tax credit would be available for the installation of new power circuit breaker equipment to replace certain older power circuit breakers. The tax credit would be 10 percent of qualified investment. To be eligible for the credit, the replaced power circuit breakers must be dual pressure circuit breakers that contain SF6, have a capacity of at least 115kV, and have been installed by December 31, 1985. The replaced circuit breaker equipment must be destroyed so as to prevent its further use. The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit claimed. The new equipment must be placed in service in the five year period beginning January 1, 1999 and ending December 31, 2003.

PROVIDE TAX CREDIT FOR CERTAIN PERFLUOROCOMPOUND (PFC) AND HYDROFLUOROCARBON (HFC) RECYCLING EQUIPMENT

Current Law

No tax credits are provided currently for the purchase of perfluorocompound (PFC) and hydrofluorocarbon (HFC) recycling equipment. Semiconductor manufacturers who install equipment to recover or recycle PFC and HFC gases used in the production of semiconductors may depreciate the cost of that equipment over 6 years.

Reasons for Change

Of all greenhouse gases, PFCs and certain HFCs are among the most potent because of their extreme stability in the atmosphere and strong absorption of radiation. PFCs commonly have expected atmospheric lifetimes of thousands of years, and a global warming potential thousands of times greater than that of carbon dioxide, which is the most abundant greenhouse gas. PFCs and certain HFCs are used extensively in the semiconductor manufacturing industry. Because of the anticipated rapid growth of the semiconductor industry, annual emissions of PFCs would grow from 0.2 million metric tons of carbon equivalent (MMTCE) in 1990 to as much as 26 MMTCE by 2010 if no control measures were undertaken. Anticipated voluntary measures by the semiconductor industry to reduce emissions are expected to limit annual emissions to 13 MMTCE by 2010. Installation of additional equipment to recover and recycle PFC and HFC gases could eliminate most of the remaining emissions. While new methods of manufacturing semiconductors are expected ultimately to eliminate PFC and HFC emissions, emissions from existing plants would continue until the plants were eventually replaced or recycling equipment is installed.

Proposal

A tax credit would be available for the installation of PFC and HFC recovery/recycling equipment in semiconductor manufacturing plants. The tax credit would be 10 percent of qualified investment. The credit would be subject to the limitations on the general business credits. The depreciable basis of qualified property for which the credit is taken would be reduced by the amount of the credit claimed. Equipment would qualify for the credit only if it recovers at least 99 percent of PFCs and HFCs, and the equipment is placed in service in the five-year period beginning January 1, 1999 and ending December 31, 2003.

PROVIDE TAX CREDIT FOR ROOFTOP SOLAR EQUIPMENT

Current Law

A 10 percent business energy investment tax credit is provided for qualifying equipment that uses solar energy to generate electricity, to heat or cool or provide hot water for use in a structure, or to provide solar process heat.

Reasons for Change

An investment tax credit for rooftop solar photovoltaic systems and solar water heating systems will reduce the cost of these investments and encourage individuals and businesses to adopt these systems. Heat and electricity from these sources produce no greenhouse gasses.

Proposal

Under this proposal, a tax credit would be available for purchasers of rooftop photovoltaic systems and solar water heating systems located on or adjacent to the building for uses other than heating swimming pools. The credit would be equal to 15 percent of qualified investment up to a maximum of \$1,000 for solar water heating systems and \$2,000 for rooftop photovoltaic systems. This credit would be nonrefundable. For businesses, this credit would be subject to the limitations of the general business credit. The depreciable basis of the qualified property would be reduced by the amount of the credit claimed. The credit would apply only to equipment placed in service in the five year period after December 31, 1998 and before January 1, 2004 for solar water heating systems and for the seven year period beginning after December 31, 1998 and before January 1, 2006 for rooftop photovoltaic systems. Taxpayers would have to choose between the proposed credit and the present tax credit for each investment.

EXTEND WIND AND BIOMASS TAX CREDIT

Current Law

Current law provides taxpayers a 1.5 cent per kilowatt hour tax credit, for electricity produced from wind or "closed-loop" biomass. The electricity must be sold to an unrelated third party and the credit is limited to the first 10 years of production. The credit applies only to facilities placed in service before July 1, 1999, after which it expires. The credit amount is indexed for inflation after 1992.

Reasons for Change

The tax credit helps make such electricity produced from wind and closed-loop biomass competitive with other forms of electricity. Electricity from these sources produces no greenhouse gases.

Proposal

The proposal would extend the current credit for five years, to facilities placed in service before July 1, 2004.

PROVIDE TAX CREDIT FOR ENERGY-EFFICIENT BUILDING EQUIPMENT

Current Law

No income tax credit is provided currently for investment in energy-efficient building equipment.

Reasons for Change

A credit for types of equipment that have substantially increased energy efficiency over conventional equipment will help to accelerate the development and distribution of energy-efficient technologies. A credit would reduce costs to consumers, increasing demand for the equipment and reducing manufacturing costs, while also spurring technological innovation.

Proposal

A credit would be provided for the purchase of certain types of highly efficient building equipment: fuel cells, electric heat pump water heaters, advanced natural gas and residential size electric heat pumps, and advanced central air conditioners. The credit would equal 20 percent of the purchase price, subject to a cap. The credit would be nonrefundable. For businesses, it would be subject to the limitations on the general business credit and would reduce the basis of the equipment. The credit would generally be available for final purchases from unrelated third parties between January 1, 1999 and December 31, 2003 for use within the United States. (Because of the current state of technology, the credit for fuel cells would be available for purchases between January 1, 2000 and December 31, 2004.)

To be eligible for the credit, the specific technologies would have to meet the following criteria:

Fuel cells generate electricity and heat using an electrochemical process. To qualify for the credit, fuel cell technologies would be required to have an electricity-only generation efficiency greater than 35 percent. Fuel cells with a minimum generating capacity of 50 kilowatts would be eligible for the credit.

Electric heat pump hot water heaters use electrically powered vapor compression cycles to extract heat from air and deliver it to a hot water storage tank. Qualifying heat pump water heaters would be required to yield an Energy Factor greater than or equal to 1.7 in the standard Department of Energy (DOE) test procedure.

Electric heat pumps use electrically powered vapor compression cycles to extract heat from air in one space and deliver it to air in another space. EHP technologies with a heating efficiency greater than or equal to 9 HSPF and a cooling efficiency greater than or equal to 15 SEER would qualify for the credit.

Natural gas heat pumps use either a gas-absorption cycle or a gas-driven engine to power the vapor compression cycle to extract heat from one source and deliver it to another. Qualifying natural gas heat pumps would be those with a coefficient of performance for heating of at least 1.25 and for cooling of at least 0.70.

Central air conditioners would be required to have an efficiency equal to or greater than 15 SEER to qualify for the credit.

Advanced natural gas water heaters use a variety of mechanisms to increase steady state efficiency and reduce standby and vent losses. Only natural gas water heaters with an energy factor of at least 0.80 in DOE test procedures would qualify for the credit.

PROVIDE TAX CREDIT FOR PURCHASE OF NEW ENERGY EFFICIENT HOMES

Current Law

No deductions or credits are provided currently for the purchase of energy efficient new homes.

Reasons for Change

Residences, which account for about one-sixth of all U.S. greenhouse gases, offer one of the largest single sources of carbon-saving potential. Some States and certain Federal programs require new houses to meet Model Energy Code standards for insulation and related construction standards, and for heating, cooling and hot water equipment. By the use of cost-effective means, many new homes could reduce energy consumption by 50 percent or more as compared to the Model Energy Code standard. A targeted credit for such highly energy efficient new housing could increase the use of energy efficient building practices and efficient heating and cooling equipment. In addition, it could help spur innovation in house design and construction, thereby providing significant environmental benefits over the long term.

Proposal

A tax credit of up to \$2,000 would be available to purchasers of highly energy efficient new homes. To claim the credit, the taxpayer must use the new home as the taxpayer's principal residence, and the new home must use at least 50 percent less energy for heating, cooling and hot water than the Model Energy Code standard for single family residences. The tax credit would be one percent of the purchase price of the home up to a maximum credit of \$2,000 for eligible homes purchased in the five-year period beginning January 1, 1999 and ending December 31, 2003. The credit would be available for an additional two years, i.e., for homes purchased January 1, 2004 through December 31, 2005, with a maximum credit of \$1,000.