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STRUCTURING AN ENERGY TAX SO THAT ENERGY BILLS DO NOT INCREASE

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A. Introduction and Summary

The Clinton Administration is considering proposing an increase in federal energy taxes as part of its deficit reduction strategy. A debate is underway concerning the advantages and disadvantages of different tax approaches, including a broad-based Btu or ad valorem tax, a gasoline tax, or a carbon tax. In comparing tax options, policy makers and other parties are considering impact on energy markets, consumers and the environment as well as impact on the deficit and the economy.

This paper shows that no matter which form of energy tax is adopted, **total national energy expenditures during the next decade could actually decline at the same time a new energy tax is implemented if about 15 percent of the tax revenue is recycled into energy efficiency programs.** Using energy more efficiently would also reduce our trade deficit, enhance energy security, and cut carbon dioxide emissions and other pollutants associated with energy use. In addition, certain energy efficiency programs, such as weatherization of low-income and public housing, directly address the regressivity of energy taxes.

We present a specific set of energy efficiency initiatives that are cost effective and provide high leverage in terms of energy, monetary, and pollutant savings. We find that by directing about $4 billion of energy tax revenue to energy efficiency programs annually, national energy use would be reduced by about five percent and consumers' energy bills would fall by nearly $32 billion per year by 1998. Within ten years (i.e., by 2003), national energy use would fall by over ten percent and consumers' energy bills would drop by around $77 billion per year. These reductions in energy demand are far greater than the reductions expected as consumers respond to a tax that produces a small increase in average energy prices. For the nation as a whole, the energy bill savings within five years more than offset the energy tax, assuming the tax raises $25-30 billion of new revenue annually.

Thus, policy makers have the opportunity to combine the bitter pill of energy taxes with the sweet syrup of energy efficiency. Taking advantage of this opportunity would benefit consumers, business, the Federal government, and the environment.

B. **Direct Tax Impacts**

An energy tax will have a direct impact on energy demand as some consumers change their behavior in response to higher energy prices. The response obviously depends on the scale of the tax and how it is implemented. For example, phasing the tax in gradually may have less of an impact than adopting it all at once. In fact, behavioral and social research shows that the way in which an energy conservation policy or program is communicated can be just as important if not more important than the size of a financial incentive (Stern and Aronson, 1984). The response to an energy tax is likely to be reduced if the tax is hidden from consumers or if conservation options are not clearly presented and easy to implement.

A tax that is broad-based, such as a Btu tax or ad valorem tax, appears to be preferred by the Clinton Administration because it would "spread the pain". The scale of the tax being discussed is relatively modest -- on the order of $25-30 billion of additional tax revenue per year when it is fully phased in. For comparison, the national energy bill (including most energy taxes) was $473 billion in 1990 (EIA 1992a). Energy prices have been relatively stable since then. Thus, a broad-based energy tax generating $25-30 billion per year would increase the average retail energy price by only 5-6 percent.

In the short run, demand for energy services is very inelastic. For example, the Department of Energy estimates that a five percent increase in gasoline costs would result in only a 0.35 percent decrease in travel (EIA 1990). Some economists estimate a higher long-run price response -- on the order of a 2.0-3.5 percent reduction in consumption for a five percent increase in energy price -- based on analysis of historical trends (Bohi 1981; Gately and Rappaport 1988). However, these studies fail to account for regulatory and other non-price factors that were influencing energy markets at the same time as price variations. Some studies that explicitly examine these multiple factors, such as analysis of the relative importance of changes in gasoline price and the CAFE standards on auto fuel economy, conclude that the standards were the decisive factor and that prices had a small impact (Greene 1990).

We conclude that an energy tax equivalent to about five percent of current energy costs is not likely to directly reduce energy consumption and corresponding pollutant emissions substantially. In order to achieve these objectives, a portion of the tax revenue will have to be targeted on reducing energy demand.

C. Energy Efficiency Initiatives

We suggest devoting about $3.3 billion of federal tax revenue initially, increasing to $4.5 billion by 1997 and thereafter, to the following set of energy efficiency initiatives:

- o Low-income weatherization
- o Public housing retrofits
- o Retrofits of federal buildings
- o Support for state building code adoption and implementation
- o State-based loan program for home weatherization
- o EPA Green programs
- o RD&D on improved equipment efficiency
- o Industrial energy efficiency initiatives
- o Investment Assistance for vehicle manufacturers
- o Level tax benefits for commuters

Some of these efforts build on current energy efficiency programs; others are new initiatives. Most of the initiatives are similar to proposals contained in the "Sustainable Energy Blueprint" developed recently by a broad coalition of environmental, energy, and consumer groups (CCMC 1992).

The energy efficiency programs as a whole are designed to: 1) generate a high level of private investment in energy efficiency, 2) accelerate the implementation of cost-effective efficiency measures and reduce energy demand in all sectors of the economy, and 3) specifically target low-income households to help address the regressivity problem presented by energy taxes. The energy efficiency programs would be based primarily at DOE, although a few are based at EPA or possibly at other agencies. New legislative authority may be needed in order to undertake some of the initiatives. Also, a number of the initiatives would be implemented through the states, where activities such as building codes or weatherization of low-income households are traditionally based.

The rationale for and descriptions of the ten initiatives are provided below, along with key assumptions about the effectiveness of each initiative. Our estimates of overall energy and economic impacts are presented in the next section of the paper.

1. Low-Income Weatherization

Low-income families typically spend about 25 percent of their income for energy and consume 20 percent more energy per square foot of living space compared to middle and upper income households (Vine and Reyes 1987). Because of inefficient housing and low family income, some poor families cannot afford to pay

their utility bills. This results in energy bill subsidies from the federal government as well as utilities, or service cut-offs.

The Weatherization Assistance Program (WAP) based at DOE funds energy efficiency improvements in households with incomes up to 150 percent of the poverty level. The budget is currently $185 million per year. In addition, states are allowed to shift up to 15 percent of Low-Income Home Energy Assistance Program (LIHEAP) funds into weatherization. They have used about $130 million per year for this purpose in recent years (OTA 1992). Together, the WAP/LIHEAP efforts are serving about 250,000 households annually, with about 3 million low-income units weatherized to date. Considering that there are 15-18 million eligible households that have not yet participated, reaching them would take another 60-70 years at current rates. There is an urgent need to expand the program.

We propose increasing the WAP program by $500 million per year (with a two-year phase-in) in order to more than double the number of households served each year by federally-funded weatherization efforts. In addition, this level of federal support should attract some private funding through utility DSM programs and other sources. We assume that each federal dollar attracts $0.25 of private funds, meaning a total of $625 million per year of additional investments in low-income weatherization.

Based on improvements in program performance that have occurred in recent years in a number of states, it is reasonable to assume end-use energy savings of 25 million Btu/yr per unit weatherized, at an average cost of around $1,500 per unit (Schlegal et al. 1991). This implies about 25 billion Btu/yr of primary energy savings per million dollars invested. Total energy savings from this initiative would reach 70 trillion Btus/yr after five years and 148 trillion Btus/yr after 10 years.

2. **Public Housing Retrofits**

Each year, HUD spends about $2-3 billion subsidizing the energy bills for the 3.6 million tenants that live in HUD-assisted housing units, i.e., public housing and so-called "Section 8" housing (OTA 1991). Public housing units on average consume significantly more energy than privately owned multifamily housing -- one study indicated 65 percent greater energy use (Greeley et al. 1987). Reducing energy waste in public housing is a smart investment for the federal government since it will recoup this investment through reduced publicly-paid energy bills.

The potential for conserving energy, increasing occupant comfort, and improving the quality of public housing is very large. One comprehensive study estimated over 30 percent savings potential in public housing with an average payback period of 4.5

years (HUD 1988). Evaluations of actual public housing retrofits indicate that savings of around 20 percent are common, although comprehensive rehabilitation and retrofit has resulted in measured savings of 44 percent (Ritschard and MacAllister 1992).

We propose devoting $400 million per year to retrofitting HUD-assisted housing (with a two-year phase-in). Assuming the more thorough rehab-retrofit strategy involving adding insulation, new windows where appropriate, and heating system upgrade or replacement, experience shows a cost of around $1,500 and annual end-use energy savings of 60 MBtu per housing unit (Ritschard and MacAllister 1992). This implies saving 58 billion Btu of primary energy annually per million dollars of expenditure. Also, there should be some leveraging of non-federal funds from utilities and other sources, say at the rate of $0.25 for every federal dollar. Total energy savings from this initiative are estimated to reach 130 trillion Btus/yr after five years and 276 trillion Btus/yr after 10 years.

3. **Retrofits of Federal Buildings**

Federal buildings consume 1 percent of national energy use at a cost of about $3.5 billion per year. Studies indicate that at least 25 percent energy savings are technically and economically feasible in federally owned or leased buildings (OTA 1991). Despite an Executive Order that set a goal of a 20 percent reduction in average energy use per square foot of floor area in federal buildings by 2000, very little is being done to improve energy efficiency in federal buildings. In fact, total federal spending on energy efficiency improvements declined from about $300 million in 1981 to just $50 million in 1990 (OTA 1991).

The Energy Policy Act of 1992 contains a wide range of provisions intended to increase the implementation of cost-effective efficiency measures. However, the Act does not provide an essential ingredient for making energy efficiency happen -- namely adequate funding. We propose investing $300 million per year of Federal energy tax revenue in retrofitting and evaluating the energy performance of Federal buildings over a ten-year period. With some use of utility rebates and energy service company financing, the total energy efficiency investment over a ten-year period could reach $4.2 billion, the level estimated to be necessary to achieve a 25 percent reduction in Federal energy use by the tenth year (Hopkins 1991).

Funding for Federal energy management should also be used for bulk purchases of energy-efficient products, particularly for new products where initial costs are still relatively high. This will help to establish markets for and reduce the cost of new energy efficiency measures. Savings from this type of action are not included in our analysis.

Based on the assumptions explained above, the level of energy savings would reach 105 trillion Btus/yr by 1998 and 210 trillion Btus/yr by 2003. The reduction in the Federal energy bill is estimated to be $280 million by 1995, $700 million by 1998 and $1.4 billion by 2003. Thus, the Federal government would save more than it invests beginning in the third year of the program.

4. State-Based Loan Program for Home Weatherization

While many electric utilities offer demand-side management programs, few gas utilities offer such programs, and for homes using oil, propane and other fuels, such programs are non-existent. In many states, even electric demand-side management programs are limited. Many energy conservation programs for homeowners were developed during the 1970s but have since been abandoned (e.g., the Federal Solar Energy and Energy Conservation Bank, which was administered by HUD and implemented by states). As a result, most middle-income homeowners have nowhere to turn if they need assistance financing energy efficiency measures. In order to help fill this gap, and assist homeowners to finance energy-saving improvements, several states have used oil overcharge funds to provide low-cost loans to homeowners wanting to implement energy efficiency measures. However, as these funds run out, most of these programs are ending. A federal program which provides grants to states to operate energy efficiency loan programs would allow these programs to continue, and would allow additional states to offer such programs.

We propose allocating $400 million per year to this effort (with a two year phase-in). Assuming that utilities add $1 for every $2 of Federal money, financing would be available for approximately 600,000 home retrofits annually. This level of activity and financing is consistent with the experience of a model loan program run for four years in Massachusetts (DOER 1993). Under the proposed program, homeowners would receive zero interest loans from local banks and utilities. State energy offices would contract with the banks and utilities to pay interest costs. Based on the Massachusetts experience, a typical loan for heating system improvements, insulation, and other weatherization improvements will average approximately $4000. Loan subsidies and administrative costs average about $1000 per loan, and thus total investment levels will be about four times the cost to the government (DOER 1993).

Based on the experience of the Solar Energy and Energy Conservation Bank and other retrofit programs, we assume that these home retrofits have an average simple payback of four years (OTA 1992). Total energy savings from this initiative reach 312 trillion Btus/year after five years and 684 trillion Btus/year after ten years.

5. Support for State Building Code Adoption and Implementation

All states have some form of energy efficiency requirements for new buildings, typically in state building codes. Approximately 30 states have mandatory statewide requirements while the other 20 leave the decision on code adoption to local jurisdictions (NCSBCS 1991). While some state energy codes are based on recent standards developed by the Council of American Building Officials (CABO), the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and other organizations, the majority of state codes have not been updated since the 1970s or early 1980s (ASE 1991).

Substantial energy can be saved if states adopt up-to-date codes. For example, use of the most recent major upgrade to the residential sections of the CABO Model Energy Code (CABO 1989) will result in energy savings of 15-20 percent (depending on climate) relative to earlier versions (ASE 1991). Similarly, use of the most recent ASHRAE standard for commercial buildings (ASHRAE 1989) will result in energy savings of approximately 15 percent relative to earlier versions (PNL 1987). New standards now under development will result in additional savings of approximately 20 percent for residential buildings (PNL 1992) and 30 percent or more for commercial buildings (ASHRAE 1992).

Furthermore, code adoption is only half the equation. If codes are not enforced, energy savings can be reduced dramatically. Analysis of code compliance in California estimated that immediately following adoption of a new code in 1988, only 50 percent of the energy savings embodied in the code were being captured. After extensive training and enforcement were undertaken, an estimated 75 percent of the available energy savings were being captured (Johnson 1992).

We propose that $25 million per year be provided to states to fund state-level code adoption, training, and enforcement efforts. This level of funding is proportionally scaled to California's current level of energy code expenditures ($3.2 million). When this initiative is fully implemented, we assume it reduces energy use in new buildings by 7.5 percent on average. This assumption is derived from a combination of improved codes in some states and better code implementation in all states. Due to the time needed to ramp-up this program, we assume only half this level of savings in the first five years. We also estimate that new residential and commercial construction would otherwise add 1.68 Quads/yr to nationwide energy use by 2003 (based on EIA 1993). The total energy savings from this initiative reach 63 trillion Btus/yr after five years and 126 trillion Btus/yr after ten years.

6. **EPA Green Programs**

The Global Change Division of the U.S. EPA is sponsoring a set of "Green Programs" devoted to saving energy and thereby preventing pollution. These are voluntary programs such as Green Lights, Energy Star Computers, and the Golden Carrot Super-Efficient Refrigerator Program. The initial results for these programs are very encouraging. For example, over 700 organizations joined the Green Lights program by the end of 1992; Intel has agreed to incorporate energy-savings features into its microprocessors in response to the Energy Star Computer program; and 25 utilities have pooled $30 million in incentives to accelerate the commercialization of super-efficient, non-CFC refrigerators (EPA 1992).

This initiative involves expanding the EPA Green Programs and greatly increasing their overall funding. Total federal funding for the programs would be increased to $150 million per year, over ten times their budget in recent years. New funding would be used to increase promotion within current programs, extend the Green Lights concept to other major energy end uses in buildings, extend the Energy Star concept to other types of equipment such as printers, air conditioners, or cooking equipment, and extend the Golden Carrot concept to other products such as heat pumps, clothes washers, or clothes dryers.

Based on information provided by EPA, we estimate that every dollar of Federal expenditure on Green Programs will lead to about $34 of total investment in energy efficiency measures during the next ten years. We further estimate primary energy savings of 57 billion Btus/yr on average per million dollars invested. By rapidly scaling up the Green Programs and extending them to a wide range of end uses and technologies in the residential, commercial, and industrial sectors, primary energy savings could reach 1,930 trillion Btus/yr by 1998 and 3,590 trillion Btus/yr by 2003.

7. **RD&D on Improved Equipment Efficiency**

The U.S. Department of Energy presently spends about $40 million annual on research, development, and demonstrations (RD&D) of new energy saving technologies for buildings. This research is primarily carried out by national laboratories and tends to be long-term in nature. Over the past 15 years this program has accelerated the commercialization of many products including electronic ballasts, low-emissivity window coatings, improved compressors for refrigeration equipment, and heat pump water heaters (Geller et al. 1987).

However, in addition to the long-term work presently supported by DOE, there is a need to conduct shorter-term RD&D work in conjunction with manufacturers. Many energy-saving

technologies have been partially developed by manufacturers, but work to complete their development is proceeding slowly due to cutbacks in manufacturer R&D budgets and/or to manufacturer concerns that consumers will not be interested in energy-efficient equipment. Among the promising products whose commercialization could be accelerated by DOE co-funding are incandescent lamps that are 25-50% more efficient than today's products, microwave and heat pump clothes dryers, new "electronic" motors that operate at high efficiency even under part-load conditions, and high efficiency commercial air conditioning equipment (Nadel et al. 1993).

We propose that $25 million in Federal funds be added to energy efficiency RD&D programs each year, with the private sector required to match these funds dollar for dollar. Based on the results of three of DOE's most successful R&D efforts in the 1975-1985 period, we estimate that benefits in the tenth year of this initiative will be five times greater than the cumulative RD&D expenditures through that year (Brown, Berry and Goel 1989). Savings are assumed to begin in the fourth year of the initiative, with linear increases thereafter. Total investments by consumers in energy-efficient equipment are estimated assuming a three year simple payback. Under these assumptions, savings reach 98 trillion Btus/yr after five years and 328 trillion Btus/yr after ten years.

8. **Industrial Energy Efficiency Initiatives**

There are many opportunities for energy efficiency improvements in the industrial sector. One study sponsored by DOE shows that industrial energy intensity could be reduced by 24% through investments in cost-effective efficiency measures (Carlsmith et al. 1990). A variety of obstacles hamper industrial energy efficiency efforts, however. Outside of a few industries, energy is a small cost of production and plant managers are more concerned about capacity, output, and product quality. In many industries, energy conservation projects must offer a payback of two years or less in order to be implemented (Geller et al. 1991). And some industries lack capital or technical know-how.

In order to accelerate industrial energy efficiency improvements and enhance the competitiveness of American industry, we are proposing a combination of technical assistance efforts, loan guarantees and interest rate buydowns, and grants for demonstration of innovative industrial process improvements or equipment. The total Federal cost for these activities is estimated to be $500 million per year when the programs are fully phased-in four years. Two activities build on successful but small-scale projects already occurring at DOE, the Energy Analysis and Diagnostic Centers (EADC) program and the National Industrial Competitiveness through Efficiency: Energy,

Environment, Economics (NICE3) program. These programs would be greatly expanded and a new energy productivity fund would be established. The fund would be used to reduce the effective interest rate on private capital borrowed by industries for projects that reduce energy intensity, prevent pollution, and enhance competitiveness. Industries could also use the fund for collateral to secure private loans where necessary.

Considering the experience with the EADC program as well as the fact that the fund can leverage substantial private capital if it is carefully designed, we assume that each federal dollar in this area will leverage six dollars of total investment. Also, based on broad experience with industrial energy efficiency improvements, we assume a 2.5 year payback on average (Alliance to Save Energy 1983; Ross 1987). This implies 100 billion Btus of primary energy savings per million dollars of investment. The overall energy savings from this initiative reach 840 trillion Btus/yr by 1998 and 2,340 trillion Btus/yr by 2003.

9. **Investment Assistance for Vehicle Manufacturers**

The fuel economy of new cars and light trucks (known as light vehicles) peaked at 25.9 miles per gallon (mpg) in 1988 and has recently hovered around 25.0 mpg. The large increases in fuel economy that occurred through 1988 were due mainly to the original CAFE standards, along with the oil price shocks, shortages, and expectations of much higher prices (Greene 1990). Short of another oil crisis, significant increases in fuel economy will only occur if there are new federal policies specifically directed at new vehicle efficiency improvement, such as stronger CAFE standards plus a program of fees and rebates or an expanded gas guzzler tax.

Increased fuel economy can offset the consumer impacts of a higher fuel tax. However, substantial investments are needed to develop new vehicles and retool for production. Although automakers continually upgrade their products in order to remain competitive, there is nevertheless a rationale for earmarking a portion of the new tax revenues for automotive industry investment assistance tied to mandated fuel economy improvements. Assisting with capital investments for production of more efficient vehicles in the United States also would enhance the competitiveness of our auto industry.

We propose a $2 billion annual investment assistance program during a ten year period, in conjunction with steady increases in automobile and light truck fuel economy such that a 40 percent overall improvement is achieved within ten years. The investment assistance program would allocate grants to automakers for capital expenditures associated with new or retooled facilities needed to build efficient vehicles in the United States. To qualify for a grant, automakers would make proposals showing

product plans for vehicles that will exceed the CAFE standards in their model year of release. If automakers do not comply with strengthened CAFE standards, we suggest that they be required to repay their grants to the Federal government (i.e., the grants could be converted to loans). Other details of such a program, including where it is administered, terms of grant applications, restrictions, and other issues, will have to be worked out.

We project that the Federal grants would leverage substantial private investments in energy efficiency measures in order for vehicle producers to improve average fuel economy by 40 percent within ten years. According to our estimates, total investments in energy efficiency measures would reach $5.6 billion by 1998 and $11 billion by 2003.

Increasing the average fuel economy of new light vehicles approximately four percent per year over 10 years will yield primary energy savings of 0.8 Quads by 1998 and 2.6 Quads by 2003. Because it takes several years for more efficient vehicles to penetrate the on-road vehicle stock, the savings are small at first, but grow rapidly by the end of the decade and beyond.

10. **Level Tax Benefits for Commuters**

Currently, the Federal government encourages driving alone by allowing employers to provide their workers with free parking as a non-taxable benefit. The parking benefit is tax-exempt up to $155 per month, while employer reimbursement for mass transit use is only tax-exempt up to $60 per month. No tax-exempt benefit is available to cover other commuting costs incurred by workers who walk, bike, or rideshare (such as shared vehicle costs, other than workplace parking, in a carpool). The parking subsidy is most probably regressive and unfair to people who live in cities or small towns but do not drive to work.

We propose leveling the playing field between automobiles and other commuting modes by raising the tax-free benefit limit for mass transit use to $155 per month and by requiring that employers who offer a parking subsidy also offer a similar benefit to their employees who do not drive to work. This would establish a broad, tax-exempt commuter allowance, based on the local market value of workplace parking, up to the current parking benefit limit.

Currently, 91.2% of commuters go to work by private motor vehicle (Hu and Young 1992). About 90% of these receive free parking at a national average cost of $30 per month, amounting to an aggregate subsidy of $30 billion per year (Shoup 1992). Assuming that 33% of the remaining 8.8% of workers are given a comparable general commuting subsidy implies an annual cost of $1 billion. A 20% business tax deduction would provide an inducement for employers who might prefer to increase their

employee commuting benefits (instead of reducing parking benefits so as to hold their expenses constant). This would cost the U.S. Treasury about $200 million per year. We assume that the Federal cost begins at this level and increases slightly over time due to population growth (Spencer 1989).

Energy savings would come from employees now driving who switch modes or rideshare in order to "cash-out" the commuter benefit. We estimate energy savings of 0.14 Quads/yr and fuel cost savings of $1.5 billion/yr by 1998, with slightly greater savings thereafter. In making these estimates, we assume that the tax modification stimulates five percent of commuters to stop driving alone to work by 1998.

D. **Overall Energy and Economic Savings**

In performing our savings analysis, we considered: 1) the stream of federal investments in the ten programs during 1994-2003, 2) the stream of total investment in energy efficiency measures during this period resulting from the federal initiatives, 3) the expected primary energy savings during 1994-2003 resulting from the ten initiatives, and 4) the overall energy bill savings during 1994-2003 as a consequence of the energy efficiency actions. We have not estimated energy and economic savings beyond the ten-year period even though large savings will continue to occur beyond 2003. Thus, our projections of benefits are conservative. Also, we have attempted not to "double count" energy savings that result from other energy efficiency efforts (e.g., appliance standards or utility DSM programs).

To estimate total investments in energy efficiency and primary energy savings, each program was evaluated separately. For converting energy savings into energy bill reductions, we used the most recent price projections from the U.S. Department of Energy (EIA 1993), along with an assumed new five percent energy tax starting in 1994. Our energy price assumptions are shown in Table 1. For most of the programs, average sectoral energy prices (constant 1990 dollars per million Btus of primary energy) were used to estimate energy bill savings. For the two transportation-related programs, gasoline prices were used since the initiatives pertain to light vehicles.

As mentioned previously, proposed Federal expenditures for the ten programs total $3.3 billion in 1995, rising to $4.5 billion by 1997 and thereafter (Table 2). Assuming a new energy tax produces $25-30 billion per year of revenue, our proposed set of initiatives absorbs about 15 percent of the revenue. The grants for vehicle manufacturers represent about half the proposed funding package.

We estimate that the initiatives would result in about $8

billion/yr of total investment in energy efficiency measures in 1994, rising to around $22 billion/yr of investment by 1996 and thereafter (Table 3). The cumulative investment from 1994 through 2003 would be nearly $200 billion. The EPA Green programs and the investment assistance for vehicle manufacturers proposals each provide about one-third of the total energy efficiency investment, while the home weatherization loan program and industrial energy efficiency proposals each provide about 11 percent of the total.

For the set of initiatives as a whole, we estimate about $4.50 of total investment in energy efficiency for each Federal dollar. The programs that result in the greatest leveraging of private funds are the EPA Green programs, support for state building code activities, and RD&D on improved equipment efficiency.

We project that these initiatives would save about 2.0 Quads of primary energy by 1996, 4.5 Quads by 1998, and 10.5 Quads by 2003 (Table 4). Achieving savings of this magnitude would reduce national energy consumption by five percent in 1988 and by over ten percent in 2003, relative to current DOE projections (EIA 1993). The EPA Green Programs, investment assistance for vehicle manufacturers, and industrial energy efficiency initiatives provide the most energy savings.

Even if there is a relatively high price elasticity, the projected energy savings from the energy efficiency initiatives far exceeds the energy savings that would result from consumers responding to a modest energy tax. For example, assuming a relatively high price elasticity of -0.5 and a five percent energy tax, the direct energy savings in 2003 would be about 2.5 Quads -- less than one-fourth the projected savings from the ten efficiency initiatives.

The projected energy bill savings build up over time, reaching about $14 billion in 1996, $31.5 billion in 1998, and $77 billion in 2003 (Table 5). The EPA Green programs and investment assistance for vehicle manufacturers provide about two-thirds of the total projected bill savings. All of the programs except low-income weatherization provide energy bill savings that are greater than the sum of Federal expenditures over the ten-year period. Low-income weatherization, because of its relatively long average payback period, requires additional years of energy savings before the benefits exceed Federal costs.

Assuming the new energy tax raises increases energy costs by $25-30 billion per year, the energy bill savings from our proposed energy efficiency programs more than offset the tax by the fifth year (1998). Over the ten-year period, the estimated energy bills savings of $370 billion exceed the total tax increase. Thus, the combination of the energy tax and energy

efficiency programs results in **lower** consumer energy costs, compared to the scenario where neither action is taken.

Additional economic benefits will result when consumers reinvest their energy bill savings in sectors of the economy that are more labor-intensive than the energy industries. In other words, investing in energy efficiency can be considered a stimulus for long-term economic growth and employment as well as an improvement of economic efficiency (Geller, DeCicco, and Laitner 1992). We intend to examine these issues quantitatively in a follow-up analysis.

The energy savings will, of course, also reduce the tax revenues collected. Cutting energy use in 2003 by ten percent cuts energy tax revenues an equivalent amount. The net effect on the federal budget will be much different, however, because federal agencies realize some of the energy savings. For example, all of the $1.4 billion savings in 2003 in federal buildings, plus a portion of the $2.3 billion savings in public housing, will represent cuts in federal spending. Also, the economic growth and increases in net business income will enhance general tax revenues. Although we have not attempted to model these second-order effects, it is clear that the net benefits of energy efficiency investments will be strongly positive for the country as a whole.

E. **Conclusion**

The goals of deficit reduction, consumer protection, economic stimulus, and environmental improvement are not mutually exclusive. By recycling about 15 percent of new energy tax revenues into energy efficiency programs, total national energy expenditures during the next decade could actually decline at the same time that the Federal budget deficit is reduced. Using energy more efficiently also would reduce our trade deficit, enhance energy security, and cut emissions of carbon dioxide and other pollutants associated with energy use. In addition, certain energy efficiency programs, such as weatherization of low-income and public housing, directly address the regressivity of energy taxes.

A relatively modest energy tax, for example a tax that raises energy prices by five percent on average and provides about $25 billion in new tax revenue, will not substantially reduce energy use as a result of consumers changing their behavior in response to the tax. A much greater reduction in energy use and consequently pollutant emissions will occur if a portion of the tax is dedicated to a broad and comprehensive set of energy efficiency programs.

We recommend using tax revenue to expand or initiate ten different energy efficiency initiatives, including home

weatherization, support for state building code adoption and implementation, EPA Green programs, investment assistance for auto manufacturers, and technical and financial assistance to increase energy efficiency and improve competitiveness throughout U.S. industries. Wide-ranging and well-funded initiatives are needed in order to realize the savings described above.

In summary, the Clinton Administration and the Congress have the opportunity to combine the bitter pill of energy taxes with the sweet syrup of energy efficiency. Taking advantage of this opportunity would benefit consumers, businesses, the Federal government, and the environment.

References

ASE 1983, **Industrial Investment in Energy Efficiency: Opportunities, Management Practices, and Tax Incentives**, Alliance To Save Energy, Washington, DC.

ASE 1991, **Better Building Codes for Energy Efficiency**, Alliance to Save Energy, Washington, DC.

ASHRAE 1989, "ASHRAE Standard 90.1 National Energy Model," American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., Atlanta, GA.

ASHRAE 1992, memo to criteria development panel re: ASHRAE Standard 90.1 National Energy Model - Version 2.0, November 12, 1992, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA.

Bohi, D.R. 1981, **Analyzing Demand Behavior: A Study of Energy Elasticities**, Resources for the Future, Johns Hopkins University Press.

Brown, M.A., L.G. Berry and R.K. Goel 1989, "Commercializing Government-Sponsored Innovations: Twelve Successful Buildings Case Studies," Oak Ridge National Laboratory, Oak Ridge, TN.

CABO 1989, **Model Energy Code**, Council of American Building Officials, Falls Church, VA.

Carlsmith, R.S., W.U. Chandler, J.E. McMahon, and D.J. Santini 1990, "Energy Efficiency: How Far Can We Go," ORNL/TM-11411, Oak Ridge National Laboratory, Oak Ridge, TN.

CCMC 1992, "A Sustainable Energy Blueprint," Communications Consortium Media Center, Washington, DC.

DOER 1993, personal communication from John Manning regarding HEAT Information, February 4, 1993, Department of Energy Resources, Cambridge, MA.

EIA 1990, **Model Documentation Report for the Annual Energy Outlook 1990**, Energy Information Administration, U.S. Department of Energy, Washington, DC.

EIA 1992a, **State Energy Price and Expenditure Report, 1990**, DOE/EIA-0376(90), U.S. Department of Energy, Energy Information Administration, Washington, DC.

EIA 1992b, **State Energy Data Report, 1960-1990**, DOE/EIA-0214(90), U.S. Department of Energy, Energy Information Administration, Washington, DC.

EIA 1993, **Annual Energy Outlook 1993**, Energy Information Administration, U.S. Department of Energy, Washington, DC.

EPA 1992, "Office of Atmospheric Programs -- 1992 Accomplishments and Prospects for 1993," Vol. 1: Global Change Division, EPA 430-K-92-031, U.S. Environmental Protection Agency, Washington, DC.

Gately, D. and P. Rappaport 1988, "The Adjustment of U.S. Oil Demand to the Price Increases of the 1970s," **The Energy Journal 9**(2).

Geller, H. et al. 1987, "The Role of Federal Research and Development in Advancing Energy Efficiency: A $50 Billion Contribution to the U.S. Economy," **Annual Review of Energy 1987**, Annual Reviews, Inc., Palo Alto, CA.

Geller, H.S., E. Hirst, E. Mills, A.H. Rosenfeld, and M. Ross, 1991, "Getting America Back on the Energy-Efficiency Track: No-Regrets Policies for Slowing Climate Change," American Council for an Energy-Efficient Economy, Washington, DC.

Geller, H., J. DeCicco and S. Laitner 1992, "Energy Efficiency and Job Creation: The Employment and Income Benefits from Investing in Energy Conserving Technologies," American Council for an Energy-Efficient Economy, Washington, DC.

Greely, K., E. Mills, C. Goldman, R. Ritschard, and M. Jackson 1987, "Baseline Analysis of Measured Energy Consumption in Public Housing," LBL-22854, Lawrence Berkeley Laboratory, Berkeley, CA.

Greene, D.L. 1990, "CAFE or Price? An analysis of the effects of federal fuel economy regulations and gasoline price on new car MPG, 1978-1989," **The Energy Journal 11**(3).

Hopkins, M. 1991, "Energy Use in Federal Facilities: Squandering Taxpayer Dollars and Needlessly Polluting the Environment," Alliance to Save Energy, Washington, DC.

Hu, P.S., and J. Young 1992, "1990 National Personal Transportation Survey (NPTS), Summary of Travel Trends," Report FHWA-PL-92-027, Federal Highway Administration, Washington, DC.

HUD 1988, "Study of the Modernization Needs of the Public and Indian Housing Stock," HUD-1130-PDR, U.S. Department of Housing and Urban Development, Washington, DC.

Johnson, Jeffrey A. 1992, "Changing the Efficiency in New Buildings: California's Perspective," **Proceedings ACEEE 1992 Summer Study on Energy Efficiency in Buildings**, Vol. 6, American Council for an Energy-Efficient Economy, Washington, DC.

Nadel, S. D. Bourne, M. Shepard, L. Rainer, and L. Smith 1993, "Emerging Technologies to Improve Energy Efficiency in the Residential and Commercial Sectors," American Council for an Energy-Efficient Economy, Washington, DC.

NCSBCS 1991, **Energy Directory: 1991 Edition**, National Conference of States on Building Codes & Standards, Herndon, VA.

OTA 1991, **Energy Efficiency in the Federal Government: Government by Good Example?**, OTA-E-492, Office of Technology Assessment, U.S. Congress, Washington, DC.

OTA 1992, **Building Energy Efficiency**, OTA-E-518, Office of Technology Assessment, U.S. Congress, Washington, DC.

PNL 1987, tables & graphs on ASHRAE Standard 90.1 savings, Pacific Northwest Laboratory, Richland, WA.

PNL 1992, "Proposed Revision of the Model Energy Code Thermal Envelope Requirements - Review Draft," Pacific Northwest Laboratory, Richland, WA.

Ritschard, R. and A. MacAllister 1992, "Persistence of Savings in Multifamily Public Housing," **Proceedings of the ACEEE 1992 Summer Study on Energy Efficiency in Buildings**, Vol.4, American Council for an Energy-Efficient Economy, Washington, DC.

Ross, M. 1987, "Industrial Energy Conservation and the Steel Industry in the United States," **Energy 12** (10/11), pp. 1135-1152.

Schlegel, J., J. McBride, S. Thomas, and P. Berkowitz 1991, "Low-Income Weatherization: Past, Present, and Future," in E. Vine and D. Crawley, eds., **State of the Art of Energy Efficiency: Future Directions**, American Council for an Energy-Efficient Economy, Washington, DC.

Shoup, D.C. 1992, "Cashing Out Employer-Paid Parking," Office of Technical Assistance and Safety, Federal Transit Administration, U.S. Department of Transportation, Washington, DC.

Spencer, G. 1989, "Projections of the population of the United States, by age, sex, and race: 1988 to 2080," Current Population Reports, Series P-25, No. 1018, Bureau of the Census, Washington, DC.

Stern, P.C. and E. Aronson 1984, **Energy Use: The Human Dimension**, W.H. Freeman, New York, NY.

Vine, E. and I. Reyes 1987, "Residential Energy Consumption and Expenditure Patterns of Low-Income Households in the United States," Lawrence Berkeley Laboratory, Berkeley, CA.

TABLE 1

Energy price assumptions

Sector	Average energy price, constant 1990$ per Million Btu										Average Rate of Escalation
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	%/yr
Residential	7.52	7.59	7.67	7.75	7.82	7.90	7.98	8.06	8.14	8.22	1.0
Commercial	6.53	6.57	6.61	6.65	6.69	6.73	6.77	6.81	6.85	6.89	0.6
Industrial	3.74	3.79	3.85	3.90	3.95	4.01	4.07	4.12	4.18	4.24	1.4
Transportation (gasoline only)	9.96	10.06	10.17	10.27	10.37	10.47	10.58	10.68	10.79	10.90	1.0

Note: Prices include existing state and federal taxes plus an assumed 5% energy tax increase.

TABLE 2

Proposed Federal Expenditures for Energy Efficiency Programs

	Annual Expenditures, Million 1990$										Cumulative	
Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	5 yrs	10 yrs
1 Low-income weatherization	250	500	500	500	500	500	500	500	500	500	2,250	4,750
2 Public housing retrofits	200	400	400	400	400	400	400	400	400	400	1,800	3,800
3 Retrofits of Federal buildings	300	300	300	300	300	300	300	300	300	300	1,500	3,000
4 EPA Green Programs	150	150	150	150	150	150	150	150	150	150	750	1,500
5 State building code adoption & implementation	25	25	25	25	25	25	25	25	25	25	125	250
6 RD&D on improved equipment efficiency	25	25	25	25	25	25	25	25	25	25	125	250
7 State loan programs for home weatherization	133	267	400	400	400	400	400	400	400	400	1,600	3,600
8 Industrial sector efficiency	50	100	250	500	500	500	500	500	500	500	1,400	3,900
9 Investment assistance for vehicle manufacturers	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	10,000	20,000
10 Level tax benefits for commuters	200	202	204	206	208	210	212	214	216	218	1,019	2,087
TOTAL	3,333	3,969	4,254	4,506	4,508	4,510	4,512	4,514	4,516	4,518	20,569	43,137

TABLE 3

Projected Total Expenditures for Energy Efficiency Programs

	Total Annual Expenditures (Public and Private), Million 1990$										Cumulative	
Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	5 yrs	10 yrs
1 Low-income weatherization	312	625	625	625	625	625	625	625	625	625	2,812	5,937
2 Public housing retrofits	250	500	500	500	500	500	500	500	500	500	2,250	4,750
3 Retrofits of Federal buildings	420	420	420	420	420	420	420	420	420	420	2,100	4,200
4 EPA Green Programs	2,370	6,270	9,830	10,890	7,890	6,420	5,440	4,930	4,390	3,830	37,250	62,260
5 State building code adoption & implementation	250	250	250	250	250	250	250	250	250	250	1,250	2,500
6 RD&D on improved equipment efficiency	0	0	0	119	238	357	476	595	714	833	357	3,333
7 State loan programs for home weatherization	800	1,600	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	9,600	21,600
8 Industrial sector efficiency	300	600	1,500	3,000	3,000	3,000	3,000	3,000	3,000	3,000	8,400	23,400
9 Investment assistance for vehicle manufacturers	2,900	3,800	4,700	5,600	6,500	7,400	8,300	9,200	10,100	11,000	23,500	69,500
10 Level tax benefits for commuters	200	202	204	206	208	210	212	214	216	218	1,019	2,087
TOTAL	7,802	14,267	20,429	24,010	22,031	21,582	21,623	22,134	22,615	23,076	88,539	199,567

TABLE 4

Projected Primary Energy Savings from Energy Efficiency Programs

Program	Annual Energy Savings, Quads (10^{15} Btu/year)										Cumulative	
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	5 yrs	10 yrs
1 Low-income weatherization	0.008	0.023	0.039	0.055	0.070	0.086	0.102	0.117	0.133	0.148	0.195	0.781
2 Public housing retrofits	0.014	0.044	0.072	0.102	0.130	0.160	0.188	0.218	0.246	0.276	0.362	1.450
3 Retrofits of Federal buildings	0.021	0.042	0.063	0.084	0.105	0.126	0.147	0.168	0.189	0.210	0.315	1.155
4 EPA Green Programs	0.170	0.480	0.960	1.500	1.930	2.300	2.650	3.010	3.320	3.590	5.040	19.910
5 State building code adoption & implementation	0.013	0.025	0.038	0.050	0.063	0.076	0.088	0.101	0.113	0.126	0.189	0.693
6 RD&D on improved equipment efficiency	0.000	0.000	0.000	0.049	0.098	0.145	0.192	0.238	0.283	0.328	0.147	1.334
7 State loan programs for home weatherization	0.027	0.079	0.158	0.235	0.312	0.388	0.463	0.537	0.611	0.684	0.810	3.493
8 Industrial sector efficiency	0.030	0.090	0.240	0.540	0.840	1.140	1.440	1.740	2.040	2.340	1.740	10.440
9 Investment assistance for vehicle manufacturers	0.060	0.180	0.340	0.560	0.840	1.140	1.480	1.860	2.240	2.640	1.980	11.340
10 Level tax benefits for commuters	0.028	0.056	0.084	0.112	0.140	0.141	0.143	0.144	0.145	0.147	0.420	1.140
TOTAL	0.370	1.020	1.993	3.288	4.527	5.702	6.893	8.133	9.321	10.489	11.198	51.736

TABLE 5

Projected Energy Bill Reductions from Energy Efficiency Programs

	Nationwide Savings in Annual Energy Bills, Million 1990$										Cumulative	
Program	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	5 yrs	10 yrs
1 Low-income weatherization	60	180	300	420	550	680	810	940	108	122	1,510	4,170
2 Public housing retrofits	105	334	552	791	1,017	1,264	1,500	1,757	2,002	2,269	2,799	11,591
3 Retrofits of Federal buildings	137	276	416	558	702	847	995	1,144	1,294	1,447	2,089	7,816
4 EPA Green Programs	1,037	2,951	5,953	9,380	12,171	14,627	16,995	19,468	21,656	23,616	31,490	127,852
5 State building code adoption & implementation	89	180	272	365	461	557	656	756	857	960	1,367	5,153
6 RD&D on improved equipment efficiency	0	0	0	357	714	1,071	1,429	1,786	2,143	2,500	1,071	10,000
7 State loan programs for home weatherization	200	602	1,208	1,820	2,438	3,063	3,693	4,330	4,974	5,623	6,269	27,953
8 Industrial sector efficiency	112	341	923	2,106	3,322	4,572	5,855	7,174	8,529	9,920	6,805	42,856
9 Investment assistance for vehicle manufacturers	598	1,812	3,456	5,749	8,710	11,939	15,655	19,872	24,171	28,772	20,325	120,734
10 Level tax benefits for commuters	279	564	854	1,150	1,452	1,480	1,509	1,538	1,568	1,599	4,298	11,992
TOTAL	2,617	7,240	13,934	22,696	31,536	40,101	49,097	58,765	67,302	76,828	78,024	370,117

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DOE Nuclear Energy Budget

Table 1

Possible Reductions Over Four Years—Projected from FY 1993 Base (millions of dollars)						
	FY 93 Actual (Base)	FY 93-97 Projected from Base	FY 93 Revised Funding	FY 94 Proposed Funding	FY 95-97 Annual Average	FY 93-97 Reduction from Base
Civilian Energy						
Light Water Reactors:	**$59**	**$295**	**$40**	**$31**	**$5**	**$-209**
Certification	32	160	32	26	0	-102
First-of-a-Kind	16	80	0	0	0	-80
Early Site Permit	3	15	3	0	0	-12
License Renewal	3	15	0	0	0	-15
Other	5	25	5	5	5	0
Advanced Reactors:	**60**	**300**	**60**	**0**	**0**	**-240**
Facilities	**94**	**470**	**94**	**15**	**0**	**-361**
Argonne-West	78	390	78	0	0	-312
ETEC	14	70	14	14	0	-42
Other	2	10	2	1	0	-7
Pu^{238} Production	**14**	**70**	**0**	**0**	**0**	**-70**
Program Direction	**14**	**70**	**14**	**9**	**8**	**-23**
Policy & Management	**35**	**175**	**35**	**23**	**20**	**-57**
Atomic Energy Defense						
Plutonium Burnup	**30**	**150**	**30**	**0**	**0**	**-120**
High-Level Waste	**100**	**500**	**100**	**0**	**0**	**-400**
TOTALS	$406	$2030	$373	$78	$33	$-1480

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Table 2

Possible Sources of Increased Revenue Over Four Years—Projected from 1993 Base (millions of dollars)						
DOE Account	FY 93 Actual (Base)	FY 93-97 Projected from Base	FY 93 Revised Revenue	FY 94 Proposed Revenue	FY 95-97 Annual Average	FY 93-97 Addition to Base
Uranium Enrichment	$0	$0	$0	$+330	$+330	$+1320
Index Waste Fund Fee	0	0	0	+50	+50	+200
TOTALS	$0	$0	$0	$+380	$+380	$+1520

Table 3

Summary of Net Budget Changes from Possible Reductions and Revenue Increases—Projected from 1993 Base (millions of dollars)				
	FY 93 Change from Base	FY 94 Change from Base	FY 95-97 Annual Average Change	FY 93-97 Total Change from Base
Possible Reductions	$33	$328	$373	$1480
Revenue Increases	0	380	380	1520
TOTAL NET CHANGE	$33	$708	$753	$3000

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POSSIBLE REDUCTIONS IN DOE NUCLEAR ENERGY BUDGET

OVERVIEW ON PROGRAM REDUCTIONS

The attached list identifies possible reductions in certain DOE nuclear programs. Priority for funding has been given to programs that have: (1) a potential near-term application; (2) substantial cost-sharing from industry; and (3) a clear federal responsibility.

Estimates for possible reductions in DOE's nuclear energy budget assume a straight-line projection of FY 1993 appropriations as a four-year base for FY 1994-1997. The list of proposed reductions could possibly save nearly $1.5 billion when compared to this projected base for FY 1993-1997.

This list of possible reductions is not necessarily a complete list of reductions that could be made to the DOE nuclear energy budget. Conversely, this list does not include possible increases in funding that may required for certain activities such as program termination costs. This list is intended only to identify possible reductions that could be made to certain programs. A discussion of related budget issues for these programs follows.

Note: proposed reductions for FY 1993 would require recisions in appropriated levels. However, many recommended redirections for FY 1993 could be accomplished through approval of reprogramming requests.

LIGHT WATER REACTORS

DOE's Light Water Reactor (LWR) program supports continued use of current LWRs and the commercialization of a new generation of advanced LWR. LWRs offer the greatest promise for near-term commercial application of any reactor type, and many of DOE's LWR programs are cost-shared. However, most of the LWR programs are devoted to subsidizing industry activities that are not generally considered to be a federal responsibility, such as paying for regulatory compliance or non-R&D related commercial costs.

Certification

This LWR program cost-shares the application by industry to the Nuclear Regulatory Commission (NRC) for safety certification of four generic advanced LWR designs. Although it is questionable whether cofounding this activity should be a federal responsibility (since certification is not R&D but is a regulatory process), this program is near completion with an estimated cost of only $26 million remaining. However, the federal contribution to cost-sharing should be capped at this level in contracts with industry to prevent future increases in the federal share.

First-of-a-Kind (FOAK)

This program cost-shares commercial standardization work other

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than safety that will be required to prepare an advanced LWR for construction (such as engineering designs) and has an overall federal funding cap of $100 million. This kind of post-R&D commercial activity is not a traditional federal responsibility and therefore could be terminated in light of competing budget demands.

The FOAK program received $16 million in FY 1993 to commence negotiations with industry to contract for FOAK activities. Therefore, FY 1993 funds should be redirected to pay for program termination costs before contracts are signed, preventing future program obligations.

Early Site Permits

This program cost-shares the application to the NRC by industry for an early site permit for the construction of a nuclear power plant in the future. Again, this activity supports regulatory compliance, a nonfederal responsibility. Furthermore, there is no overall cap on the federal contribution. Therefore, the total federal contribution under the current contract should be capped at the $3 million provided in FY 1993 with no future funding.

License Renewal

This program cost-shares the application to the NRC by industry of an extension of a utility's license to operate a nuclear power plant beyond the current 40-year limit. Again, this program supports regulatory compliance, a nonfederal responsibility, and has no overall cap on the federal contribution. Furthermore, the previous applicant under this program retired prematurely, and the current potential applicant has placed its application on hold. Therefore, the $3 million provided in FY 1993 should be rescinded, and no future funds should be provided.

Other Safety and Licensing Support

DOE's LWR program could be redirected to help owners of current LWRs confront the many problems they face to continue to operate LWRs safely and economically. For example, greater emphasis could be given to providing technical assistance on such issues as preventing premature reactor aging or reducing decontamination and decommissioning costs.

ADVANCED REACTORS

DOE's advanced reactor program supports development of the Advanced Liquid Metal Reactor (ALMR) and the Modular High Temperature Gas Reactor (MHTGR). This program co-developed these reactors with the New Production Reactor (NPR) program because of the ability of these reactors to breed additional fissionable material. In addition, these designs are being studied for potential uses in nuclear waste disposal.

However, low world uranium prices and the collapse of the NPR

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program mean that advanced reactors can no longer be expected to provide economical electricity in the near-term, if ever. In fact, development of advanced reactors are viewed as a low priority by industry which does not cost-share this program. Furthermore, there are many unresolved safety and environmental problems with advanced reactors, including serious nonproliferation concerns.

FY 1993 funding for advanced reactors includes $60 million in the regular DOE program, with additional expenditures in the facilities, program direction, waste management, and policy and management accounts. In addition, $30 million was provided from the NPR program to study plutonium disposal, tritium production and electricity production.

Therefore, termination of the advanced reactor program would yield major out-year budget savings. The $90 million in FY 1993 advanced reactor funding and its associated expenditures in other accounts should be redirected towards beginning to pay program termination costs. If it is decided that it is desirable to continue R&D on the use of nuclear reactors for waste disposal, then consideration should be given to shifting this activity to the Fast Flux Test Facility (FFTF), perhaps paying for this work out of the FFTF's current budget.

FACILITIES

Most of the funding for DOE facilities supports the advanced reactor program and could be eventually saved following that program's termination. The largest amount of funding goes to Argonne-West, which could be closed. Savings from ongoing environmental corrective actions and waste management at Argonne-West could help to pay termination costs, including environmental restoration. Work at the other principal facility, the Energy Technology Engineering Center (ETEC) is already scheduled for shutdown following completion of component testing in FY 1994

PLUTONIUM-238 PRODUCTION

DOE radioisotope program is currently planning to resume plutonium production at Savannah River in support of NASA's space efforts. However, resuming production has raised serious questions about potential costs and safety and environmental hazards. Therefore, funding for PU-238 should be rescinded until other options are reviewed, including acquiring additional supplies from international sources such as the Russians or producing PU-238 at the FFTF, perhaps within its current budget.

PROGRAM DIRECTION/POLICY AND MANAGEMENT

These accounts support DOE's nuclear program activities and therefore should decline as these program activities decrease. For purposes of this analysis, reductions in these accounts have been made in proportion to the overall reduction in the funding for DOE's related programs, not all of which are shown here.

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ATOMIC DEFENSE

Accounts programs in DOE's Atomic Defense program are occasionally used to help underwrite activities in DOE's civilian nuclear program. The example of advanced reactor funding in the NPR program has already been discussed.

An additional $100 million was provided from Atomic Defense in FY 1993 to support DOE's high-level waste disposal program, although the previous Administration had maintained that the government's share of high-level waste disposal should not be paid until time to dispose of the government's waste. Instead of relying on irregular contributions, DOE could consider developing a plan for the payment of the government's share of costs that ensures that the government pays an appropriate amount at the right time.

POSSIBLE SOURCES OF INCREASED REVENUE

OVERVIEW OF INCREASED REVENUES

In addition to the potential for achieving substantial savings through reductions to the DOE nuclear budget, it may be possible to raise supplemental revenue for programs that continue. The amount that could be raised from the following examples exceeds $1.5 billion. Given the difficulty of passing legislation requiring the raising of this revenue, administrative collections under current authority should be considered.

INDEXING OF THE NUCLEAR WASTE FEE

The General Accounting Office (GAO) has recommended that the fee for the nuclear waste fund be indexed to inflation to help ensure the fund's long-term solvency. Current authority under the Nuclear waste Policy Act permits periodic adjustment of the fee by the Secretary of the DOE.

URANIUM ENRICHMENT CLEANUP FUND

The Energy Policy Act requires that $480 million a year be deposited into a special fund to pay for cleaning up the DOE's uranium enrichment facilities. Of this amount, nuclear utilities that purchased DOE enriched uranium in the past are required to pay $150 million with the government paying the rest.

At the same time, a new Government Corporation has been established to operate the government's uranium enrichment activities in the future. Proceeds from the Corporation could be paid directly into the cleanup fund with an annual target of $330 million. Such an arrangement would help ensure that the Corporation yields a return to the government while contributing to a past uranium enrichment program cost.

Working Group on Infrastructure

An Infrastructure Proposal for Jobs, the Environment and Performance

presented to the Clinton-Gore Administration

February 3, 1993

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Working Group on Infrastructure: Proposal for Jobs, the Environment and Performance

Prepared by

Alliance to End Childhood Lead Poisoning
American Institute of Architects
American Oceans Campaign
American Planning Association
Bicycle Federation of America
Campaign for New Transportation Priorities
Chesapeake Bay Foundation
Energy Conservation Coalition
Environment and Energy Study Institute
Environmental Defense Fund
Friends of the Earth
Metropolitan Transportation Commission, San Francisco, CA
National Association of Rail Passengers
National Audubon Society
National Association of Regional Councils
National Rural Community Assistance Program
Natural Resources Defense Council
National Growth Management Leadership Project
Rails to Trails Conservancy
Union of Concerned Scientists
U.S. Public Interest Research Group

Executive Summary

To help the Clinton-Gore Administration, the Working Group on Infrastructure -- a broad coalition of environmental, professional planning, transportation, local governments and other organizations -- has prepared the following recommendations on infrastructure policy.

This proposal sets forth a positive infrastructure agenda that promotes jobs and economic growth while, at the same time, achieving dramatic gains in environmental protection. The Working Group believes that this important, early initiative by the Clinton-Gore Administration can firmly put to rest the misguided view that job creation and environmental protection are inconsistent objectives.

The following proposal clearly achieves both goals, and it does so using innovative, incentive-based approaches to encourage smart investments and discourage unproductive expenditures. Whether an investment is in transportation, sewage treatment, or energy efficiency, we believe that strong federal incentives to promote performance will not only stretch federal spending, but will promote environmental protection.

We recognize that certain macroeconomic issues have not yet been determined by the Administration. Specifically, we do not yet know what overall spending level will be provided for FY93 or for subsequent fiscal years. However, for program design purposes we have used the funding assumptions set forth in Putting People First. Using that document, our proposal is based on a $17.5 billion per year program.

From an economic standpoint, there seem to be three key conditions for effective short term spending: (1) immediate job creation; (2) an existing institutional apparatus to distribute and expend funds; and (3) a clear emphasis on capital investments that will have lasting economic and competitiveness benefits long after their construction.

Operating well within the constraints for short term spending, we believe a pro-jobs, pro-environment short term spending package can and should be adopted.

Total Spending. Overall, the Working Group proposes spending $8 billion per year on transportation investments, $5 billion on water investments, $1.1 billion on energy efficiency programs, $1 billion on recycling facilities, $.5 billion on lead abatement and $2

billion on natural infrastructure. All spending is made through existing federal programs, to ensure that spending can occur quickly and can generate jobs. Also, each investment will have both short term and long term economic, as well as environmental, value to the nation. (Figure 1).

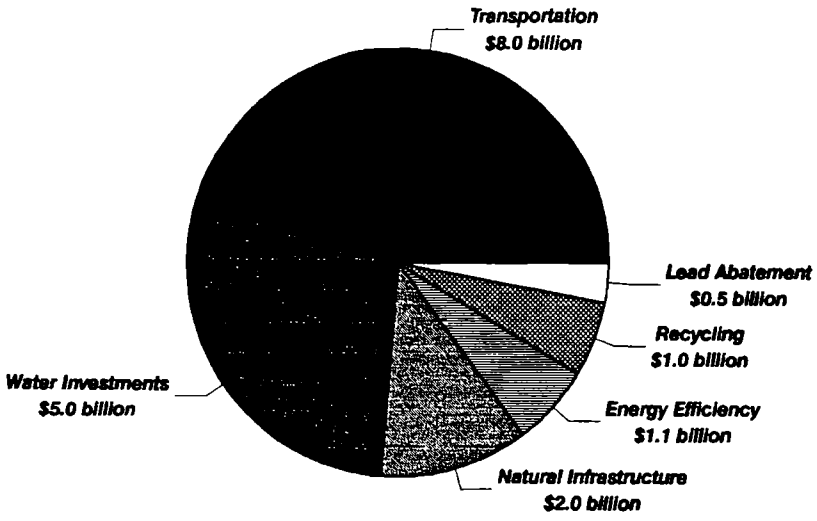

Fig. 1 - Total Spending

Transportation. The Working Group proposes $8 billion in additional transportation spending for FY93 split between traditional transportation spending, new investments in intercity rail, and in an important incentive program to encourage states and local governments to pursue efficient, environmentally beneficial projects.

We recommend that modifications be made in ISTEA to increase funding to metropolitan communities. Many metropolitan areas around the nation face both high unemployment and tough Clean Air Act requirements and the Working Group believes that increased spending in those areas will create jobs and improve air quality. We also propose increases in spending on mass transit and intercity rail. For too long, the U.S. has relied almost exclusively on the single occupant automobile to meet its transportation needs -- one of the most energy-intensive, environmentally harmful and economically inefficient modes of transportation. It is time to bring greater balance to federal transportation investments by providing increased funding for mass transit and rail.

To encourage greater spending on more efficient, environmentally friendly transportation, the Working Group proposes that a Transportation Performance Fund be established to be allocated among states and localities based upon the real world

performance of their transportation systems. Today, states receive a fixed share of federal funding whether they use those funds to worsen or improve air quality, increase or decrease traffic congestion, or encourage rather than discourage energy consumption. Our proposed Transportation Performance Fund will provide a "carrot" to reward states and local governments to invest in projects that will further national objectives. (Fig. 2)

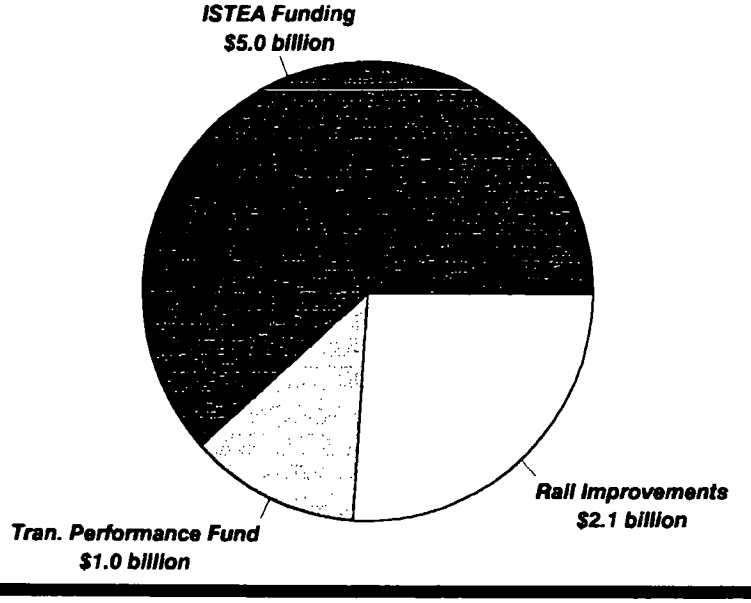

Fig. 2 - Transportation Spending

Water Infrastructure. The Working Group proposes $5 billion in additional spending for wastewater and water supply infrastructure. The Environmental Protection Agency (EPA) estimates that over $110 billion is needed for wastewater treatment construction alone. The Association of State and Interstate Water Pollution Control Administrators identified $3.9 billion in "ready-to-go" projects for FY93. In the face of these clear needs, the Working Group proposes $2 billion in supplemental appropriations for the existing State Revolving Loan Fund (SRF).

In addition, the Working Group urges the Administration to provide at least $700 million in loans and grants targeted to rural and low income communities. These communities are often unable to access SRF funds, and yet one in six wastewater treatment facilities serving these communities lack secondary treatment, as required by the Clean Water Act.

Also, like transportation spending, the Working Group believes that performance incentives can encourage sound investments in water projects. We propose a $300 million Wastewater Performance Fund that will provide loan forgiveness to those jurisdictions who make strides to increase water conservation and reduce the need for more expensive treatment facilities. Encouraging water conservation is both good for the environment and a cost-effective use of federal monies.

Finally, the Working Group proposes $2 billion in long overdue spending for water supply investments. Unhealthy drinking water supplies are a serious problem in small communities and the continued use of lead service lines has been shown to cause excessive lead levels in the tap water of hundreds of the nation's water systems. (Fig. 3).

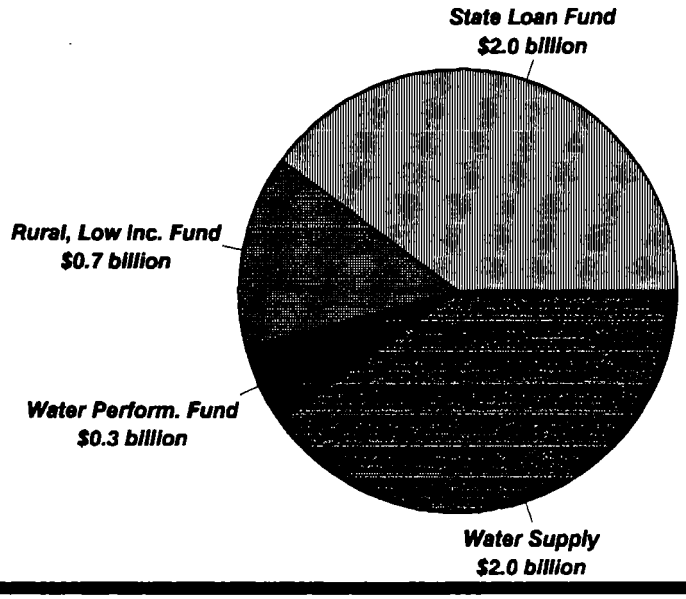

Fig. 3 - Water Spending

Energy Efficiency, Lead Abatement, and Waste Recycling. The Energy Policy Act of 1991 provide much needed impetus to promote energy efficiency investments, and the Working Group is recommending that $1.1 billion be divided between programs to finance energy efficiency improvements in federally owned and leased buildings and for increased federal assistance under the Federal Low-Income Weatherization Program.

We also propose spending $450 million to address the pressing need for lead abatement in the nation's housing stock. Although dangerously high levels of lead are

the norm in many urban areas, few federal funds have been spent to tackle this important health problem. The Working Group recommends $450 million in increased spending to establish the necessary state programs and worker training to implement responsible abatement efforts.

The growing problems of solid waste have made recycling a common phenomenon across the nation. But, one significant impediment to effective recycling is a lack of material recovery facilities (MRFs) that can efficiently turn waste into valuable products. The Working Group proposes $1 billion in new spending to speed construction and operation of these important facilities.

Natural Infrastructure. Finally, the Working Group proposes spending $2 billion investing in the restoration of the natural infrastructure provided by aquatic ecosystems. We believe these investments can provide both immediate and long-term benefits to the economy.

In the short-term, a large number of jobs can be created quickly by putting people to work in projects such as wetlands re-establishment; stream and lake-side revegetation; stream channel and bank restoration; and abandoned mine reclamation. These jobs can be targeted to areas of high unemployment, by training out-of-work loggers in the Northwest to restore salmon habitat and inner city residents in hard-hit urban areas to restore degraded urban waterways (thus saving money by taking these workers off the unemployment roles). In the long-run, such projects can revive and protect vital economies, such as commercial, recreational and subsistence fisheries, and water-based tourism.

Working Group on Infrastructure

Introduction: A Proposal for Performance-Based Investments

To help the Clinton-Gore Administration, the Working Group on Infrastructure -- a broad coalition of environmental, professional planning, transportation, local governments and other organizations -- has prepared the following recommendations on infrastructure policy.

This proposal sets forth a positive infrastructure agenda that promotes jobs and economic growth while, at the same time, achieving dramatic gains in environmental protection. The Working Group believes that this important, early initiative by the Clinton-Gore Administration can firmly put to rest the misguided view that job creation and environmental protection are inconsistent objectives.

The following proposal clearly achieves both goals, and it does so using innovative, incentive-based approaches to encourage smart investments and discourage unproductive expenditures. Whether an investment is in transportation, sewage treatment, or energy efficiency, we believe that strong federal incentives to promote performance will not only stretch federal spending, but will promote environmental protection.

In the last few years, many public spending programs have been justifiably criticized for "pork barrel" spending, as increasing amounts of taxpayer funds were spent on questionable projects. Unfortunately, nothing in federal law penalized states or local governments for such misguided spending and nothing in federal law rewarded more thoughtful investment decisions. States and localities received a formula-based allocation of funds, whether their investments furthered or worsened federal objectives. We believe that our proposal's emphasis on performance can be used to strongly discourage "pork barrel" spending and to encourage cost-effective investments by tying funding allocations directly to performance criteria.

Although we believe the following proposal fosters both economic growth and environmental protection, we are understandably concerned with certain infrastructure spending that would almost assuredly harm the environment. To aid the Administration in distinguishing between environmentally "good" and "bad" infrastructure spending, we have prepared several checklists or "screens" to help the Administration's evaluation of other spending proposals.

By identifying potential environmental concerns with infrastructure spending, we do not mean to imply that all spending will harm the environment. Indeed, the major reason we crafted this proposal was to show that urgent funding needs could be met in a

between environmentally sound and environmentally disastrous projects. We hope this additional guidance will help the Administration in making these critical distinctions.

Key Assumptions

We recognize that certain macroeconomic issues have not yet been determined by the Administration. Specifically, we do not yet know what overall spending level will be provided for FY93 or for subsequent fiscal years. However, for program design purposes we have used the funding assumptions set forth in Putting People First.

Based on that document, we assume that the proposed infrastructure program will be approximately $20 billion per year. We further assume that $2.5 to $3 billion per year will be spent on housing and community development programs. Thus, our proposal is based on a $17.5 billion per year program.

It is important to emphasize that should these numbers change, particularly if they increase substantially, it would not necessarily be appropriate to simply increase each of our proposed funding categories proportionately. The following figures were based on absolute needs, and revisions would be required if these assumptions are wrong.

From an economic standpoint, there seem to be three key conditions for effective short term spending: (1) immediate job creation; (2) an existing institutional apparatus to distribute and expend funds; and (3) a clear emphasis on capital investments that will have lasting economic and competitiveness benefits long after their construction.

It should be noted that the policy principles contained in this proposal would apply to both a short-term and long-term funding program. But, we suggest that long term spending should be developed in a larger economic and strategic context. The health of our economy depends, in part, on the smooth functioning of large, regionally oriented metropolitan areas which cut across local government boundaries and, in some cases, state and national boundaries. Effective long term infrastructure spending must recognize the regional scope of these needs and must therefore use a comprehensive and inclusive process to map growth and change.

However, operating well within the constraints for short term spending, we believe a pro-jobs, pro-environment short term spending package can and should be adopted. Each element of our proposal is described below, accompanied by a policy discussion and an assessment of political feasibility.

Transportation Infrastructure

1. Increase Funding for the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) for FY93.

a. Amount: $5 Billion.

b. Program Description:

We propose spending an additional $5 billion over FY93 appropriated levels for implementation of ISTEA, provided that ISTEA be amended to provide that:

(1) $2 billion be added specifically to the Surface Transportation Program's suballocation program to aid metropolitan communities with populations of 200,000 or more,

(2) $1.5 billion be provided to fully fund authorized transit activities.

(3) All remaining program categories under ISTEA (e.g., Interstate Maintenance, Bridge) would receive an approximate 10 percent increase over currently appropriated funding, which would total roughly $1.5 billion.

(4) In order to accelerate spending, eligible transportation control measures (TCMs) required for compliance with the Clean Air Act would enjoy a waiver from the state or local funding match requirement. To ensure that the match waiver is not used as a substitute for planned spending, we propose a "maintenance of effort" provision, which would require states or localities to demonstrate that funds were not used to replace historic levels of funding.

(5) All $5 billion would be allocated based on each state's current percent share of all federal aid highway funding (except for transit funds, which would be allocated based on formulas contained in the transit title of ISTEA)..

(6) Ensure that 10 percent of the $2 billion in suballocated Surface Transportation Program funds be dedicated to the enhancement program, as defined in ISTEA.

c. Discussion.

ISTEA is widely hailed by transportation professionals, economists, as well as environmentalists, as a revolutionary step forward in transportation policy. However, appropriations have been less than ISTEA's authorized spending. A stimulus package which increases funds for this program will only help reinforce ISTEA's reforms.

Designating $1.5 billion for transit would simply appropriate the level of spending authorized in ISTEA.

Earmarking $2 billion for ISTEA's metropolitan suballocation program represents a change in ISTEA authorizations. This proposal would provide more funding directly to metropolitan areas than would otherwise be available simply by fully funding ISTEA. We believe added emphasis on spending targeted for metropolitan communities is appropriate because current productivity losses from congestion largely occur in these areas and, the resulting congestion also worsens air pollution and makes it more difficult for these areas to meet their compliance obligations under Clean Air Act. Added funding can help alleviate both congestion and air quality concerns, while reinvesting in our urban infrastructure and addressing growth management concerns.

The significance of this change is that a greater proportion of a state's funds must be "suballocated" to that state's larger metropolitan areas. For example, the state of Illinois would receive the same percentage share of federal funds, but a greater, guaranteed share of those funds would go to Chicago.

The proposed amendment to ISTEA would accomplish two key objectives. First, it would ensure that funds earmarked for air quality improvements are actually spent, and second, it would give metropolitan areas a clear sense of available funding enabling them to immediately plan for useful projects.

2. Transportation Performance Fund.

a. Amount: $1 billion.

b. Program Description.

We propose establishing a new program under ISTEA which would provide $1 billion in state/local match-forgiveness to be distributed among the states based upon key performance criteria. Specifically,

(1) All funding would be allocated among the states based upon each state's relative progress in reaching economic and environmental goals.

(2) The funding allocation formula for the Transportation Performance Fund would be based on each state's current share of highway funds under ISTEA multiplied by a performance factor, such as reductions in vehicle miles travelled per capita (VMT/Capita). Better performance equals a larger multiplier and greater funding.

(3). All funds must be spent in accordance with the requirements of ISTEA's planning requirements (i.e., sections 134, 135) and all other federal requirements affecting transportation investments..

c. Discussion.

We believe that the Federal government's longstanding practice of allocating a fixed percentage of federal funds regardless of the "performance" of the transportation system creates a proven risk that such additional funds would be used for "pork barrel" spending or environmentally damaging projects.

Although ISTEA made great strides to improve the transportation planning process, the Working Group believes that real change in transportation investments will not occur until the Federal government creates a powerful incentive to reward cost-effective, efficient investments.

For these reasons, the Working Group proposes the establishment of a new Transportation Performance Fund, which would allocate funding based on each state's performance relative to other states. As a simple, but powerful, measure of performance, we recommend using vehicle miles of travel per capita (VMT/capita). This measure avoids penalizing fast growing areas, promotes congestion management and will, in turn, reduce air pollution. It also promotes more productive use of the nation's existing roads and highways.

The Senate adopted a similar measure, developed by Senator Lieberman (D-CT), during its consideration of ISTEA, but the provision was not included in the ISTEA Conference Report.

We are prepared to develop more detail on the exact funding formula, but we believe it is critical for the Administration proposal to replace the historic pattern of penalty-free funding with an incentive-based program which rewards smart investments and penalizes poor ones.

3. Rebuild and Repair Fund.

a. Amount: To be determined.

b. Program Description:

ISTEA would be amended to establish a new Rebuild and Repair Fund that would be used to maintain and preserve the nation's existing investment in surface transportation (both highways and transit facilities), provided that

(1) No funds may be used to add single occupant vehicle capacity, including additional high occupancy vehicle capacity which allow single occupant vehicles during non-peak periods.

(2) Funds would be allocated based on each state's current percent share of all federal aid highway funding.

(3) To assist metropolitan communities, funds would be suballocated in the same manner as ISTEA's current Surface Transportation Program.

(4) Project selection and approvals would follow all existing planning requirements under ISTEA, the Clean Air Act and other environmental laws, including flexible designs to protect the historic and scenic character of our communities.

(5) Projects which are necessary to comply with the Americans with Disabilities Act would also be eligible for these funds.

c. Discussion.

The Working Group has serious questions whether additional large-scale transportation spending is either possible, given existing construction capacity, or whether it is wise. There are, however, many opportunities for small scale projects designed to improve transit, bicycling and walking and repair highway facilities.

If further transportation funding is deemed necessary, we recommend that it be spent on a new program to maintain and repair existing transportation facilities. Given the substantial repair needs for roads, bridges, transit systems, and other transportation infrastructure, we propose that any additional transportation spending be devoted to repair funding, for which all modes would be eligible (transit, highways, and bicycle and pedestrian facilities), including maintenance of transit facilities and equipment and related operating costs.

Because it is more cost effective to make better use of our existing infrastructure than it is to build new facilities, we propose that this new Rebuild and Repair Fund be restricted to repair work by making these funds ineligible for new, single occupant vehicle capacity projects. Thus, road resurfacing, bridge repair, bus replacement, track upgrades, and improvements designed to encourage bicycling and walking would be eligible under this program. New roads would be ineligible.

This emphasis on repair and maintenance was codified in ISTEA's Interstate Maintenance Program, which provided substantial funding to maintain the Interstate system, but prohibited the use of those funds for new single occupant vehicle capacity.

No one argues with the need for increased maintenance and repair funding. Also, DRI McGraw Hill macroeconomic studies indicate that there is basically no difference in job creation potential between maintenance and repair work on existing facilities compared with construction of new facilities.

From our perspective, maintenance and repair work is not only cost effective, but pro-environment because upgrading decaying transit systems will keep fare increases down, make these modes more attractive and either increase or maintain current levels of ridership. Perhaps more importantly, by prohibiting expenditures for new single occupant vehicle facilities, we avoid the potential future costs (i.e., increased air pollution, sprawl development) of new highway facilities.

Adherence to all existing planning and environmental requirements is critical, but not necessarily burdensome to these projects. Current review procedures under ISTEA for legitimate maintenance and repair projects are abbreviated and should not slow down work. However, certain projects, on rare occasions, can create environmental problems. For this reason, it is important to retain all existing planning and review requirements.

4. ISTEA Reforms.

To ensure that job creation and environmental protection, we believe it is vital to include the following four amendments to ISTEA.

a. Regulation Deadlines. ISTEA established a comprehensive new planning process for states and metropolitan regions, but USDOT has failed to write necessary implementing regulations. Until these regulations are issued, states and localities -- as well as the public -- will be forced to proceed cautiously in reviewing and approving projects. We propose establishing reasonable, but expeditious, statutory deadlines for promulgation of these essential regulations.

b. Remove Provision that Could Cut Off Funding. ISTEA establishes a plan to identify and fund a National Highway System (NHS). Environmental groups and many other organizations have raised serious questions about the merits of this new system, but of more immediate concern is that ISTEA mandates that further funding for the NHS program, as well as the Interstate Maintenance Program, could potentially terminate if Congress fails to act on a proposed designation of highways for this new highway system by 1995. The Working Group proposes amending ISTEA to allow continued funding of all ISTEA programs, whether or not Congress acts by the 1995 deadline.

c. Ensure Air Quality, Enhancements, and Scenic Byways Investments. Although ISTEA authorizes spending for projects designed to improve air quality and projects under the enhancements and scenic byways programs, current provisions of ISTEA discourage state spending on those projects. We propose changes in ISTEA to require that all Congestion Mitigation and Air Quality funds and obligation authority be suballocated to nonattainment areas in a state based on population; that enhancements expenditures be mandated, and that scenic byways investments are exempt from the calculations of minimum allocation.

d. Oversight of States' VMT/Capita Statistics by the Bureau of Transportation Statistics. The new Bureau of Transportation Statistics, established under ISTEA, is authorized with a broad mandate to coordinate and compile statistics. Specifically, it is mandated to "ensure that data collected under this subsection [data collection] is controlled for accuracy and disseminated to the States and other interested parties." Furthermore, the Bureau has the authority to issue guidelines "to ensure that such information is accurate, reliable, relevant, and in a form that permits systematic analysis." As such, the Bureau should be directed to oversee and issue guidelines for the States' compilation of VMT/capita statistics to ensure accuracy and reliability.

5. Rail Investments

a. Northeast Corridor Improvements

(i) Amount: $1 billion.

(ii) Description:

Contracts have already been let to begin electrification of the Northeast Rail Corridor (Amtrak) from New Haven to Boston. These funds are needed to reduce travel times from Boston to New York from more than four hours to three hours or less. This is the most congested air and automobile traffic corridor, and is the most cost-effective incremental

investment for high-speed rail in the country.

Funding can be provided to Amtrak through the Federal Railroad Administration (FRA) at USDOT. Amtrak already has procedures to make sure incremental funding is expended efficiently within the corridor. In fact, Amtrak believes it could commit $115 beyond existing appropriations for infrastructure work in FY93.

b. High-Speed Rail Pilot Projects.

(i) Amount: $500 million.

(ii) Description:

ISTEA authorized $5 million per year for improvements to five potential high-speed rail corridors to be designated by the Secretary of Transportation. The five selected corridors were (1) Florida (Miami-Tampa-Orlando), (2) Eugene-Portland-Seattle-Vancouver, (3) Washington, D.C.-Raleigh, N.C., (4) Los Angeles-San Francisco, Sacramento, and (5) Northeastern Illinois Cluster -- improvements to Detroit, St. Louis and Milwaukee from Chicago. This proposal would substantially expand funding for these selected corridors and for New York's Empire Corridor (New York-Albany-Buffalo-Niagara Falls), which also received $1 million from DOT in October.

(iii) Discussion:

There appears to be a consensus that incremental improvements to the existing Amtrak network to allow operation of high-technology trains (i.e., tilt-trains and/or low-center-of gravity) is the most efficient use of high-speed rail funds. This view is shared by the Transportation Research Board's (TRB's) High-Speed Rail Committee, the N.E. High-Speed Rail Task Force of the Coalition of Northeast Governors, the National Association of Railroad Passengers and environmental groups. The idea is to substantially increase operating speeds (now generally below 80 mph) in corridors of 150-600 miles in length where air and car traffic is most congested.

Short term funding should be targeted to track straightening, better signalization, and elimination of grade crossings. Amtrak has a 20-year, $25 billion capital improvement program to develop high speed services on

the above-mentioned routes and the "Texas Triangle," and add other new routes.

c. Amtrak Rehabilitation and Improvement; Intermodal Terminals

(i) Amount: $100 million

(ii) Description:

In October, Amtrak furloughed 257 (one-quarter) of the workers at its only large heavy overhaul facility. Heavy overhauls have been seriously behind schedule for two years; if not corrected, this will result in a deterioration of service quality over the next few years. We recommend restoring production levels to at least pre-furlough levels.

Amtrak also needs funding for compliance with ADA and environmental laws and for additional rolling stock.

Major intermodal terminal investments are needed to follow up the eight planning grants DOT released in October and for work in other cities. The terminals will provide improved interconnections between Amtrak, intercity bus, airport limo, and local transit services. In some cases, rail terminals are proposed at airports.

d. Cross-Boston Rail Link

(i) Amount: $500 million

(ii) Description:

A consensus has emerged that a tunnel should be built to enable passenger trains to run directly between North and South stations to improve the region's commuter rail network and to enable Amtrak Northeast Corridor trains to serve Maine, New Hampshire, and northeastern Massachusetts. In compliance with ISTEA, FTA is currently studying possible rail alignments and their relationships with the multi-billion dollar Central Artery highway project that also runs between North and South Stations and whose construction is expected to begin in 1993..

e. Expensing Rail Infrastructure Investments for Tax Purposes

(i) Amount: To be determined (tax expenditure)

(ii) Description:

A major incentive to accelerate rail transportation infrastructure and technology investment would be to allow railroads to treat infrastructure investments as a normal business expense, rather than using existing tax depreciation methods. Most infrastructure for highways, waterways and airways is paid for by public funds. Those expenditures are paid with fuel taxes and fees that are expensed as operating expenses. This proposal would create a more level playing field for rationally allocating resources among transportation infrastructure expenditures, would reduce the need for future direct public investment in additional highway capacity, and would at the onset of the program create new jobs.

Water Infrastructure

1. Provide supplemental funding for Wastewater Treatment through the State Revolving Loan Fund (SRF) Program

a. Amount: $2 Billion.

b. Description:

We propose providing for increased wastewater infrastructure funding through a $2 billion supplemental appropriation for the existing SRF program in fiscal year 1993. This supplemental funding will provide jobs in needed wastewater construction, including projects identified in the National Estuary Program planning process as well as correcting infiltration/inflow problems in sewage conveyance systems. However, due to the fact that construction projects tend to take several years from start-up to completion the major infusion of jobs created by these funds may not be realized for at least two or three years. We therefore make this recommendation provided that:

(1) States provide loans to projects that are on the priority lists identified in their Comprehensive Conservation Management Plan, have already begun construction or have completed all planning and design phases so that they will be able to start-up and provide jobs in economically stressed communities during the 1993 construction season.

(2) In making funds available with this supplemental, States and EPA require that all projects apply the following screening criteria to ensure that taxpayer dollars provide the most environmental benefit. In addition, these criteria should apply to all water supply and wastewater projects funded as result of the Clinton/Gore economic stimulus package.

Fund only those projects that improve water quality.

Do not fund projects that degrade water quality or aquatic habitat, such as those constructed in waterways or wetlands. Do not fund projects that legitimize the destruction of habitat, such as mitigation banks for projects that destroy wetlands.

Fund infrastructure projects that meet current water quality needs only and that do not promote environmentally unsound sprawl development, and have undergone planning and environmental review processes.

Allow no waivers or weakening of existing environmental requirements.

All projects that are capacity related should be required to adopt least-cost planning.

This will ensure efficient use of taxpayer dollars and minimize adverse environmental impacts. Using practices that reduce the demand for water, municipalities will reduce the need for expanded water supply projects that tend to destroy aquatic habitat as well as reduce the need for costly expanded wastewater treatment capacity.

(3) To expedite the dispersal of these funds to municipalities the required state match should be eliminated for this one-time supplemental only.

c. Discussion:

EPA and the states estimate that there is over $110 billion in wastewater treatment construction needed to meet the goals of the Clean Water Act for the projected population of 2010. For the fiscal year 1993 construction season the Association of State and Interstate Water Pollution Control Administrators identified approximately $3.9 billion worth of projects that were ready to begin construction should funding become available.

For fiscal year 1993 Congress has appropriated $2.55 billion. Of that amount $1.927 billion was for SRFs, $345 million was for special cost-share wastewater treatment grants to large coastal cities with the remainder going to fund Congressional add-ons, wastewater treatment along the U.S./Mexican border and grants to the state for the control of polluted runoff. In keeping with the phase-out of federal funding for wastewater treatment envisioned in the 1987 Water Quality Act, the authorization for fiscal year 1993 is only $1.2 billion for SRFs. However there is broad consensus that federal funding should continue. Over the last several years Congress has provided between $2 - $2.5 billion for the Construction Grants, now State Revolving Fund programs.

A long-term water quality infrastructure program

We believe strongly that the Clean Water Act Reauthorization is the proper vehicle for any water quality related infrastructure authorizations going beyond fiscal year 1993. Long term funding should not be provided without needed statutory reforms to ensure their most beneficial use. In order to provide continuity in funding we urge the new administration to make the reauthorization of the Clean Water Act a top legislative

priority early on in the 103rd Congress.

Long term proposals should reauthorize the State Revolving Fund program, increase its funding to $5 billion per year, and expand its eligibilities to include combined sewer overflows abatement and water conservation measures. Funding should not be allowed to be used to pay for infrastructure that encourages sprawl development that degrades water quality. Municipalities should be required to have aggressive water conservation and reuse programs in place, and except in cases of economic hardship, user fees should reflect the true cost of system financing, operation, maintenance and replacement.

In addition, Clean Water Act reauthorization should also address the water quality needs of economically disadvantaged communities providing that they meet a means test for assistance and still pay to the best of their abilities through user fees.

2. Provide supplemental funding for Wastewater Infrastructure in Rural, Lower Income Communities

a. Amount $700 Million

b. Description:

We propose providing a $700 million supplemental appropriation for the Farmers Home Administration (FmHA) Water and Waste Disposal loan and grant program in fiscal year 1993 for needed rural wastewater infrastructure. Of this amount $450 million would be in loans and $250 million would be in grants for wastewater projects serving rural, lower income communities.

State Revolving Funds are not targeted to meet rural facility needs and funding terms are not based on the community's ability to pay. As a result, projects that serve rural lower income areas do not receive SRF funding priority. Yet, one in six wastewater treatment facilities serving these communities does not provide secondary treatment as required by the Clean Water Act.

Nearly 40 percent of FmHA water sewer funding has gone to rural wastewater projects. Demand continues to exceed supply, in light of the termination of the Construction Grants program. With $1 billion in current FmHA funding, there is a backlog of applications for more than $1 billion in loans and $490 million in grants.

3. Wastewater Performance Fund.

a. Amount: $300 Million

b. Description:

To encourage more cost-effective investments that encourage water conservation, rather than expanded wastewater capacity, the Working Group proposes $300 million in loan forgiveness for localities that achieve numeric milestones in reducing sewage flows, based principally on gallons treated per capita.

c. Discussion.

Just as the cheapest "sources" of new energy are investments in energy efficiency, so many of the cheapest sources of water treatment are investments in water conservation. Americans continue to use water wastefully. The direct result of wasteful usage is both increased water supply treatment costs and increased sewage treatment costs, both of which are driven primarily by the volume of water needing treatment.

Some cities, like New York City, are planning to spend hundreds of millions of dollars in rebates for low flow toilets, which much more cost effectively reduced the need for new treatment capacity.

Due to an adverse legal interpretation by EPA's general counsel, conservation investments are currently not eligible for SRF funding -- although a strong statutory argument could be made to the contrary. We propose making it clear in statutory language that SRF funds can be used for water conservation projects and programs.

In order to further encourage the implementation of these efficiency investments, we propose providing loan forgiveness (under the SRF) if water infrastructure investments lead to real reductions water usage (as measured under a simple performance test like sewage volume per capita). The more efficient you become, the more loan forgiveness.

4. Investment in Water Supply Infrastructure.

a. **Amount:** $2 billion

b. **Description:**

We propose spending $2 billion per year over the next four fiscal years, including FY93, to provide for pressing public health protection needs for the nation's public water supplies. Most funds would be used to help communities achieve more timely

compliance with the Safe Drinking Water Act.

1. Funding would focus in 4 areas:

   (a) physical consolidation of small systems that are having or expected to have problems complying with drinking water health protection standards;

   (b) upgrading of such small systems where consolidation is impossible;

   (c) replacement of lead service lines; and,

   (d) replacement of low-income peoples' lead-bearing plumbing with no lead, water-conserving plumbing or fixtures. Funding would be used only to meet existing needs, not for capacity expansion.

Categories (a) and (b) would be earmarked for $500 million together; category (c) would receive $1 billion; category (d) would receive $500 million.

2. No match in FY93; 25% non-federal match during FY94-96. Grantees in FY93 must demonstrate that they have established an affordability program for low-income consumers (i.e. those with incomes at 150% or less of poverty line) that reduces their water bill to at most 2% of their income. For grantees in FY94-96, the non-federal match can be satisfied by establishment of such affordability programs.

3. Each participating locality must commit to water conservation programs, metering for all customers; the affordability program could be lifted for any customer who uses excessive amounts of water (e.g. over 150% percent of mean per-capita local water use).

4. Funds would be distributed by the Environmental Protection Agency (EPA) to existing state drinking water infrastructure funding programs designated by the Governor to receive the federal funds in accordance with federal requirements (about 20 states have drinking water infrastructure programs; others may create them if U.S. funds become available).

If a state has no water supply infrastructure program, EPA may, for the first 18 months, ramp up its effort by entering into interagency agreements to manage the program. If funding continues beyond 18 months, EPA should be encouraged to manage the program itself, rather than enter into a memorandum of understanding with another agency.

c. Discussion.

The working group, the 400-member organizations of the Clean Water Network, the National Drinking Water Advisory Council (a broad-based group established by Congress to advise EPA on drinking water policy), and representatives of the Association of State Drinking Water Administrators, Association of Metropolitan Water Agencies, and (informally) EPA, have called for a water supply assistance program funding the elements proposed below in order to meet critical public health needs and to conserve existing water supplies. NDWAC recommended $2.2 billion per year in such spending. A recent EPA letter to the Chairman of the Senate Environment and Public Works Committee (attached) identified, on a state-by-state basis, "approximately $11 billion in drinking water-related projects [that] are at a stage for which construction contracts could be finalized by September 30, 1992."

Accelerated replacement of lead service lines would comprise the bulk of this effort. Waterborne lead is responsible for about 20 percent of the nation's exposure to lead, and the persistent nature of lead's health effects demand more timely action than contemplated by EPA under its recent Safe Drinking Water Act lead/copper rule. The elements proposed to be funded are:

- **Physical Consolidation of Small Public Water Systems.** Many small communities are facing compliance problems and high costs per customer to comply with Safe Drinking Water Act requirements, and could obtain the economies of scale through interconnection and consolidation. States can identify such situations and establish priorities. Light, low-tech civil construction (trenching, pipe laying, pump stations) can be done by local contractors. Recommended eligibility: small systems serving populations of fewer than 10,000 people, with priority given to those which are experiencing or expected to experience compliance problems.

- **Upgrading of Small Public Water Systems.** Extensive improvements will be needed for many small water systems that cannot feasibly be consolidated into a larger system or network of small systems, and those serving low income communities face the prospect of costs that exceed the ability of low income customers to pay. Even the existing Farmers Home Administration assistance program will not be able to bring these systems into compliance. In order to quickly meet public health needs, additional funds should be invested in these systems, based on state priorities. Small scale construction can be done by local contractors, but first year effort may be somewhat limited by system identification and planning. Recommended eligibilities: small systems serving fewer than 3,300 people, and low-income, where the average customer served is below the state's median nonmetropolitan household income.

- **Lead Service Line Replacement.** According to a 1992 EPA report, about one fifth of the Nation's 660 largest water systems have reported excessive lead levels at consumers' taps. About 7,000 medium-sized water systems will begin reporting lead levels to EPA in January, 1993. While many water utilities will be able to reduce lead through additional water treatment, other will require relatively costly replacement of old lead service and distribution lines that are contributing to excess levels of lead at customers' taps. EPA estimates that lead line replacement to achieve compliance will cost between $3.9 and $6.2 billion. Line replacement can be done by local contractors and water utilities, and some systems already have modest lead replacement programs underway, which can be accelerated.

- **Plumbing Replacement in Low-Income Residences.** Replacement of plumbing fixtures and fittings is a cost-effective way for communities to stretch existing water and sewer capacity, as well as to cushion the cost of water and wastewater system improvements upon low income customers. Dozens of utilities have initiated toilet and showerhead replacement programs, and others, including New York City, are prepared to begin in the coming year. Some are in the form of rebates to customers upon installation of qualifying products, while others include direct installation by utility contractors or staff. In addition to saving water, programs can be fashioned to replace pipes or faucets where necessary to reduce lead exposure. Community-based programs can be funded directly, and a preference for low-income housing would be appropriate. Since ample manufacturing and distribution capacity exists to sustain expanded plumbing replacement programs, and the installation is undertaken with local labor, first year obligations could be substantial. Recommended eligibility: low income households.

Energy Efficiency, Lead Abatement, and Waste Recycling

1. Buildings

Almost one-third of the nation's energy is consumed in buildings. Most of this is wasted due to inadequate insulation and inefficient appliances. Profitable investments in currently available energy efficient technology could cut in half building energy consumption per square foot of floor area, reducing carbon dioxide emissions in 2010 by more than 800 million tons. Multi-billion dollar savings from reduced energy bills will be re-spent in economic sectors with substantially higher multipliers, creating hundreds of thousands of additional jobs. In addition to setting aggressive efficiency standards for buildings and appliances, the federal government has two immediate opportunities to lead by example in order to achieve these benefits.

a. Federal Facilities.

(i) Amount: $500 million.

(ii) Description:

We propose that $500 million be dedicated to the Federal Energy Efficiency Fund established in the National Energy Policy Act of 1992 to finance energy efficiency improvements in federally owned and leased buildings. The Fund would be administered by DOE to finance specific energy efficiency projects at any of the federal agencies. Funds would be awarded to applicant agencies on a competitive basis, depending on the technical and economic merits of each project and other factors such as agency contribution, availability of utility rebates, etc. Funds would be repaid out of annual energy bill savings, with agencies allowed to retain a share of remaining savings.

(iii) Discussion:

The federal government is the nation's largest energy consumer, spending $3.5 billion to heat, cool, and power its buildings in 1989 alone. In sharp contrast, to the substantial efficiency improvements that were made by federal agencies prior to 1985, federal building energy efficiency has stagnated or even declined in recent years, due largely to a collapse in funding for efficiency improvements. The official goal of achieving a 20 percent reduction in federal building energy consumption by 2000 -- which is contained in both a 1991 Executive Order and the National Energy Policy Act of 1992 -- is unlikely to be realized in the absence of a dedicated capital fund.

The amount of funding proposed here would be sufficient to initiate meaningful progress toward that goal, though it by not means exhausts the cost-effective efficiency investment opportunities available to the federal government. The Office of Technology Assessment has concluded, for instance, that "there are several billion dollars' worth of highly cost-effective energy efficiency investment opportunities in federally owned and assisted buildings. Many of these measures have very high returns on investment, several times higher than the Treasury's costs of funds." According to other analysts, such investments could save taxpayers over $800 million in federal energy costs per year.

The Federal Energy Efficiency Fund could be coordinated with DOE's existing Federal Energy Management Program (FEMP) and the Interagency Energy Management Task Force.

b. Low Income Housing

(i). Amount: $600 million.

(ii). Description:

An additional $600 million should be provided for the Federal Low-Income Weatherization Program currently administered by DOE. Expanded funding for this program should be accompanied by additional quality control measures to ensure that weatherization programs capture all cost-effective efficiency improvements in participating homes. In addition, guidelines or other safeguards are needed to ensure that weatherization work is conducted in a manner that avoids creating additional lead hazards.

(iii). Discussion:

The federal government spends $3.9 billion per year to subsidize the energy costs of low-income households. Currently receiving only $200 million per year in federal funding and $115 million in state funding, local weatherization efforts have shrunk over the last few years by almost half, despite the fact that only about 20 percent of some 23 million eligible low-income households have been weatherized. Weatherization of the remaining households would translate into some $2.25 billion per year in additional income to poor families, or about $125 annually per family.

In addition, weatherization investments would reduce the energy consumption of poor households by about 20 percent and provide jobs.

Weatherization programs are primarily carried out by local Community Action Agencies which recruit and train low-income, disadvantaged employees. A three-fold increase in DOE weatherization fundings would directly generate 15,000 additional jobs; indirect impacts could raise employment creation to over 20,000 new jobs. This level of funding increase could be readily absorbed given the management and technical capacity that has been retained in the existing weatherization program.

Expanded weatherization funding should be explicitly tied to mandates to inspect for lead in surfaces to be disturbed during weatherization; if lead is present, HUD guidelines (or alternate practices approved by HUD) would be followed during the work.

c. Lead Abatement

(i) Amount: $450 million.

(ii) Program Description:

We propose spending $300 million to the Environmental Protection Agency under section 404(g) of the Toxics Substances Control Act to establish state programs for worker training and course certification in order to develop the needed trained workforce to address the nation's lead abatement needs. In addition, we propose an additional $150 million be appropriated under section 22(g) of the Occupational Safety and Health Act to give direct grants to state accredited training programs to speed the training of individual workers and supervisors.

(iii) Discussion:

Because of decades of use of lead-based paint in the nation's housing stock, along with inadequate maintenance of many units occupied by low-income families, dangerously high lead exposures are the norm in many urban areas. Lead exposure during early childhood causes IQ loss and reading disabilities, with attendant social costs substantially exceeding $10,000 per lead-poisoned child.

The Residential Lead-Based Paint Hazard Reduction Act of 1992 authorizes HUD to make state and local grants to abate priority hazards in low and moderate income housing, but FY93 appropriations are only $100 million (of $125 authorized for FY93). The Centers for Disease Control

estimate that over the next 20 years, a reasonably effective abatement program would cost $50 billion.

Despite the compelling need to undertake abatement work, the current pressing problem is a lack of trained workers and contractors. Because such contractors are currently in short supply, we propose a substantial increase in funding both to EPA and to NIOSH to fund the development of state programs to establish and operate worker training/contractor certification programs during the first year.

2. Recycling

(i) Amount: $1 billion.

(ii) Description:

Provide $1 billion in funding to the Economic Development Administration to initiate and enhance public sector recycling of municipal solid waste.

(iii) Discussion:

Municipal solid waste generation is reaching crisis proportions in the United States. Between 1988 and 1990 alone, garbage increased by 8 percent. Of the 195 million tons of trash generated in 1990, only 34 million tons (17 percent) were recycled. In 1991, taxpayers spent an estimated $30 billion to manage municipal waste. This could increase to $75 billion by the year 2000.

Recycling is an environmentally and economically viable solution to the growing solid waste crisis. Unfortunately, without assistance, many communities cannot afford to build the recycling infrastructure necessary to reduce harmful waste disposal. One critical element of this infrastructure is material recovery facilities (MRF's), which are the key link between collection, sorting, processing, and recycling. MRF construction costs an average of $15 million per facility.

The recommended level of spending would pay for a portion of the construction and operation of MRF's in America's largest cities. These MRFs would enable these communities to dramatically increase the recycling of their trash; a typical MRF can process an average of 400 tons per day of recyclable materials.

The Working Group recognizes that construction and operation of

recycling facilities alone will not assure increased recycling. Greater incentives to use recycled materials, such as improved federal procurement guidelines, are vital to the long term success of recycling efforts. However, within the context of infrastructure spending, we believe construction of MRFs is imperative.

Natural Infrastructure

1. INVESTING IN THE RESTORATION OF ENVIRONMENTAL INFRASTRUCTURE

a. Amount: $2 billion

b. Description:

A number of federal programs and authorities exist to invest in the restoration of "environmental infrastructure" -- wetlands, rivers and streams, forests, etc. These projects can create jobs, enhance environmental values, and increase long-term productivity by protecting or creating jobs in resource-based industries such as commercial fishing and tourism. Options for funding such projects include:

1. **$300 million for the National Estuary Program.** The National Program (NEP -- Section 320 of the Clean Water Act) has led to the creation of 17 estuary programs around the country, all of which have identified coastal resource protection projects which could create jobs while restoring critical coastal ecosystems. Funding for these programs can be targeted to provide jobs and environmental benefits to the most economically stressed urban and rural communities. Additional funding for the NEP was proposed last year in H.R. 5070, which would have provided additional program funding while ensuring that the new money is spent for on-the-ground projects that create jobs and restore coastal ecosystems. The legislation will be reintroduced during early February. Planned but unfunded projects that are not eligible for SRF funding include sediment remediation, wetland restoration and nonpoint source control measures.

2. **$100 million for Aquatic Ecosystem Restoration Pilot Projects.** Funding should be provided to the Fish and Wildlife Service (FWS) to restore aquatic ecosystems degraded by logging, mining and other activities. Funding can be targeted to areas where jobs in these industries are being or have been lost. For example, FWS is working on a program to take unemployed loggers on the Olympic Peninsula and put them to work on restoring stream reaches critical to salmon spawning. They estimate that with $4 million they can employ over 200 people. (Extrapolating these estimates, funding of $200 million could support 50 projects and employ over 10,000 people.)

3. **$100 million for Urban Watershed Restoration Pilot Projects.** Many of the Nation's urban waters are sorely neglected. Despite the fact that urban waters are used routinely for fishing and swimming by urban dwellers who cannot afford to travel to cleaner "resort" areas, they remain badly polluted. Funding can be targeted to cities with highly-used but polluted urban waters, which have not benefited from past cleanup

efforts, and with areas of high unemployment. Funds can be used to provide both immediate low-skill jobs, such as urban waterway revegetation efforts, and to train people in long-term watershed restoration skills that will be in demand for many years. An examples of a ready-to-go urban watershed restoration project is the Anacostia River restoration in Washington, D.C., which involves stream channel remediation, wetland restoration, stormwater controls, removal of barriers to fish passage, and streamside reforestation.

4. **$300 million per year for decommissioning roads and stream and riparian restoration on Forest Service lands.** Currently over 100,000 miles of roads in National Forests require decommissioning due to sedimentation impacts on watersheds and fisheries. Similarly, in concert with road decommissioning, riparian restoration is necessary to restore and maintain fisheries. Pilot projects have been developed for several National Forests, but to date, have not been funded.

5. **$30 million per year for Forest Service and Bureau of Land Management mitigation projects.** Over half of these agencies' approved mitigation measures for existing projects (such as timber sales) have not been implemented due to lack of funding.

6. **$10 million per year for restoration of livestock-caused riparian damage on BLM lands.** Livestock grazing on federal lands, particularly those administered by the Bureau of Lands Management, has done extensive damage to riparian areas. Restoration plans have been developed in 10 western states, but have not been implemented due to lack of funds.

7. **$1 billion expenditure of unobligated surplus in Abandoned Mine Reclamation Fund.** Currently there is an unobligated surplus of approximately $1 billion in the Abandoned Mine Reclamation Fund (Title IV of the Surface Mining Control and Reclamation Act). Some of this money could be spent to address public health and safety problems associated with coal mining in the East. (Note: according to the Bureau of Labor Statistics, each $1 million spent on mining reclamation generates 24 jobs.)

8. **$120 million per year for fuels management and increased use of prescribed fire by the Forest Service and Bureau of Land Management.** The fire suppression policy on federal lands has resulted in dramatic declines in forest health throughout the west. Fuels management and prescribed fire provides a long neglected and labor-intensive opportunity to restore forest health (and hence to sustain long-term forest productivity).

9. **$100 million per year for "Regreening Urban America."** Every major city

would be eligible to participate in a federal-match program which would set up teams of young people from inner-city communities, working out of schools, health clinics, day-care centers or community-based nonprofit organizations. These teams would select one or more vacant land parcels to clear, fence, and landscape with sod, young trees, and shrubs, and gravel paths, planter boxes, and benches. Selection of projects would use criteria including: broad-based community roots; solid support by mayors and parks and other relevant agencies; and fiscal commitment by cities and private community leaders.

c. Discussion:

Investing in the restoration of the natural infrastructure provided by aquatic ecosystems can provide both immediate and long-term benefits to the economy. In the short-term, a large number of jobs can be created quickly by putting people to work in projects such as wetlands re-establishment; stream and lake-side revegetation; stream channel and bank restoration; and abandoned mine reclamation. These jobs can be targeted to areas of high unemployment, by training out-of-work loggers in the Northwest to restore salmon habitat and inner city residents in hard-hit urban areas to restore degraded urban waterways (thus saving money by taking these workers off the unemployment roles). In the long-run, such projects can revive and protect vital economies, such as commercial, recreational and subsistence fisheries, and water-based tourism. Finally, by investing now to protect and restore the flood and water quality control benefits of natural wetlands, floodplains and other waterways, we can save money in the long run by eliminating the need to build more expensive but less effective artificial flood control, stormwater and other pollution controls.

In 1991, the National Academy of Sciences recommended that the Nation establish a goal of restoring approximately 10 million acres of wetlands and 400,000 miles of river systems. Because these projects are labor intensive, and because the task of restoring aquatic ecosystems is so immense, a large number of jobs can be created covering a broad range of skills and opportunities for job training that will be in demand for at least the next 20 years. Job opportunities range from unskilled laborers to heavy equipment operators, horticulturalists, fishery biologists, hydrologists and engineers. Existing research (by the Maryland Institute for Ecological Economics) shows a 30-35% higher rate of job creation per dollar invested in aquatic restoration than for highways of major defense spending.