THE WHITE HOUSE

WASHINGTON

February 5, 1993

MEMORANDUM FOR THE PRESIDENT

FROM: ROBERT E. RUBIN

SUBJECT: Energy Tax Decision Memorandum

Energy taxation can play an integral part in your strategy to make the U.S. economy more efficient and competitive. Revenues raised can reduce the deficit, put the government on a more appropriate pay-as-you-go basis for needed public programs, and encourage energy efficiency and fuel mix choices better reflecting the true environmental and security costs of energy use. An energy tax can help move the U.S. economy from income-based to consumption-based taxation, with attendant benefits to saving, investment and returns to work effort. Introduced in a phased manner, it can mesh with the desired time profile of stimulus - deficit reduction and send an important signal up front: that to become a more competitive nation we must fully recognize the costs of high energy use in our workplaces and lifestyles; shocks to the system will be avoided, time for adjustment will be provided, but a change must come.

However enlightened this message may be as policy, politically it will be extremely difficult. While an organized constituency for energy taxation is beginning to form, principally among the environmental community, the public debate is still characterized by broad consumer antipathy and powerful, focussed opposition from particularly-affected parties, notably producer industries and states. Their arguments include regional hardship, regressivity, and international competitive disadvantage. Any energy tax proposal will raise taxes on average families and thus will likely encounter political difficulty on this ground alone, particularly when campaign statements on this issue are taken into account.

Decisions you make on energy taxation can help address these concerns. Those decisions are presented here as (1) the form of energy tax, (2) the amount of tax and (3) the adjustments, if any, for adverse regional, sectoral or income distributional impacts. The focus here is on question (1), which tax. The other questions are integral to formulating an energy tax proposal, but require more work to present and evaluate specific options. They are included here for completeness and to get a signal from you about where to concentrate further work. While these materials focus on the choice among energy tax options, they should also be useful on deciding the more fundamental

question of whether the economic package should include a large energy tax component.

Within question (1), the focus is on ad valorem and BTU taxes. These are broad-based taxes which permit relatively low tax rates for any given revenue target. This both limits impacts on the real economy and spreads them broadly across sectors and regions. For comparison purposes, other energy tax options -- carbon tax, motor fuels tax and oil import fee -- have also been evaluated. A carbon tax is more heavily weighted toward coal. The motor fuels tax requires a higher, and highly visible, tax on a narrower base, and runs counter to a campaign pledge. An import fee requires the highest rate of all on the narrowest, least stable base and, absent countervailing taxation, produces large income windfalls to domestic producers. More detailed information on all the taxes considered is found in the attached tabs.

1. **Which tax?**

With a common broad tax base (See Tab A for tax specifications) and a common revenue target, ad valorem and BTU taxes have similar overall economic effects (See Table 1 at the end of this memo and Tab B for comparison of the impacts of alternative taxes.) They do have differential effects on the prices of different fuels, as seen in the following chart for a $22 billion tax:

	AVERAGE PRICE		Year 2000 % change from base case		
	1990 Actual	2000 Before Tax	BTU	Ad Valorem (source)	Ad Valorem (end use)
Coal (short ton)	31.57	35.62	17.6%	12.4%	0.7%
Petroleum Products (gallon)	1.02	1.05	2.5%	6.2%	4.3%
Natural Gas (mcf)	4.02	4.77	6.9%	9.7%	4.2%
Electricity (kWh)	0.068	0.069	6.1%	4.2%	5.0%

However, because user demands are only moderately responsive to these price changes, fuel consumption will change much less:

	AVERAGE PRICE		Year 2000 % change from base case		
	1990 Actual	2000 Before Tax	BTU	Ad Valorem (source)	Ad Valorem (end use)
Coal (million ton)	897	959	-2.3%	-0.9%	-1.3%
Oil (mmb/d)	17.3	19.0	-0.9%	-2.1%	-1.1%
Natural Gas (tcf)	18.8	22.8	-0.8 to -3.7%	-2.1%	-1.2%

Changes in production are correspondingly small. Thus, these tax alternatives differ somewhat as to who will pay greater taxes -- e.g. coal users or oil users -- but little as to which fuels will be produced or consumed. Increases over the period due to economic growth are forecast for both consumption and production. These increases substantially exceed any absolute or differential effects of these taxes, leaving aggregate levels well above those of today and fuel shares virtually unchanged.

The three alternatives reduce carbon dioxide emissions 1-2% in the year 2000. While this is a small absolute reduction, it is significant in the context of meeting the U.S. goal under the Global Climate Convention of returning its greenhouse gas emissions to 1990 levels. The environment benefits from energy taxation both because of conservation and because tax differences among fuels may cause cleaner fuels to substitute for dirtier fuels. More natural gas is conserved for the same percentage price increase than either oil or coal. Conservation tends to be more important than fuel substitution in producing carbon dioxide emission reductions for the three taxes under consideration. The BTU tax is the most efficient reducer of carbon dioxide emissions, but its long run effect is lessened since it is not indexed to inflation. Ad valorem tax receipts will increase over time with energy price inflation, but a BTU tax will erode in real terms unless it is indexed.

Regional impacts of the three taxes are quite similar (Tab C.) Across all regions, taxes are increased an average of $88 per capita, which varies from $96-103 in New England to $79-81 in Mississippi, Alabama, Tennessee and Kentucky. With the limited changes in production cited above, producer-industry and producer-state impacts are also limited. However, an ad valorem (source) tax, unless based on a national average price, would shift some production from Appalachia and the midwest to cheaper

(minemouth) western coal. This might amount to 0.5-1.0% of total production, or 15 million short tons/year, for a $22 billion tax in the year 2000.

Energy taxes are all regressive when viewed across income classes, although less so when looked at across expenditure classes. (Tab D.) While expenditure classes are a more accurate measure of well-being, income comparisons have been more influential politically, and were used by Democrats to criticize Bush Administration proposals. These three broad-based taxes have similar distributional effects, which may be more regressive than some alternative ways of reducing the budget deficit, but less regressive than many others.

The effects on U.S. industry costs vary somewhat, with an ad valorem (use) tax imposing the least burden (Tab E.) This is because the use tax strikes capital as well as fuel costs of energy generation - i.e. is less narrowly targeted to fuel. Overall, the deterioration in competitive position of U.S. energy-intensive industries from these three taxes is expected to be offset by improvements to the trade balance from modestly declining oil imports and lower interest rates due to credible deficit reduction.

The Treasury Department considers these alternatives to be of comparable administrative difficulty (Tab A.)

Without major differential impacts driving the choice of tax, you are able to choose a variant based on what it is you want to accomplish. Clearly, all three alternatives raise revenues and promote energy conservation. The question is how to do that.

1. The BTU tax rationale is **environmental**. The BTU tax results in the highest CO_2 emission reduction per dollar of revenue collected, although it does affect natural gas consumption slightly more than oil consumption.

2. The ad valorem end-use tax is the most **neutral** in its effects on primary fuel prices. It also keeps rates low with a **broad tax base** which includes energy generation and delivery capital, particularly affecting electricity.

3. **Energy security** is a rationale for the ad valorem (source) tax, which shows the greatest reduction in oil consumption and imports.

Multiple objectives may be met with hybrid options. These may be combinations of taxes, such as the European Community's blended carbon/BTU tax proposal, a BTU/gasoline tax combination, or design modifications such as (1) modified tax base definitions (2) variations in imposition points or (3) differential tax rates. Up to a point, such tailoring may serve policy goals, but may be hard to present as coherent policy.

DECISION:

____BTU Tax ____Ad Valorem (Source) Tax ____Ad Valorem (Use)Tax

Hybrid _____

No energy tax_____
Other _____

2. **What amount?**

Deficit reduction targeted in the economic package can be achieved with an estimated $22 billion energy tax (See Tab A for annual revenue estimates.) This can be raised with an energy tax scaled to bring in $22 billion, or it can be accomplished with a larger tax and a give-back in other taxes. The give-back alternative:

- permits some action on middle class tax relief as promised in the campaign.
- shifts the tax structure somewhat away from returns to labor and investment and toward consumption.
- imposes a larger tax burden on energy consumers, with an attendant increase in absolute regional differences, in any regressive effects, and in the competitiveness burden on energy-intensive U.S. industries.
- increases the energy tax impacts on the real economy -- consumption, production -- with greater potential for short-term economic dislocation but concomitant conservation, environmental and security benefits.
- increases Federal outlays as a result of inflation, requiring higher tax rates to achieve any desired net budget position.

Broad give-back options include the personal income tax and the payroll tax. Particulars of such an arrangement remain to be developed and are not posed as a choice here. Of course, the

combination of energy tax and give-back could be scaled to any ratio desired.

DECISION:

_____ $22 Billion Energy Tax _____ Larger Energy Tax with Significant Give-Back through Other Taxes

Other _____

3. **What adjustments?**

The greatest policy challenge of energy taxes is not a matter of economic impact or administrative difficulty but of public acceptability, most often expressed in terms of effects on regional producers and consumers, on energy-intensive sectors (drivers, industries) and on lower-income households. Specific actions to address these concerns can be packaged with an energy tax proposal. On the other hand, as the energy tax is embedded in a much larger economic package within an even larger economic policy agenda, specific energy-tax-linked mitigation may not be appropriate. Indeed, configuring components of the economic package to be judged individually, when they have been fashioned jointly for desirable overall benefits, may facilitate their being picked off and hung separately.

Regarding regional impacts, the most-often-expressed view of potentially-affected states is "send money" -- i.e., some untied sharing of revenue. Regarding sector impacts, possible remedies include investment and R&D tax credits, enterprise zones, manufacturing extension programs -- items already on your agenda. That agenda also includes a number of proposals, e.g., defense conversion and trade, where assistance to cope with economic dislocation will be warranted, making a general approach desirable. Compared with the impacts of these other proposals, a phased-in energy tax will not be a leading source of dislocation. Thus general mitigation seems most appropriate here.

Regarding regressivity, the uniformity and strength of public opinion about this issue warrants special attention to it, even though regressivity may not be as great as generally believed (Tab D.) Mitigation may be available through personal income tax adjustments (earned income tax credit; other exemptions, deductions or credits), payroll tax reductions, or targeted assistance programs. However, a better solution would be to address regressivity of all new tax proposals at one time, as part of a comprehensive package of tax measures. Any decision to proceed with energy-tax-tied mitigation will require further specification work.

DECISION:

Develop energy-tax-specific mitigation for:

___Regional Impacts ___Sector Impacts ___Distributional Impacts

Address mitigation measures in context of overall economic package_____

Other_____

Table 1: Comparison of Alternative Energy Taxes

	Economic Growth	Fuel Markets	Environment	Competitiveness	Other
Ad Valorem At-Source	Similar effects on economy. All taxes depress short-term economic growth unless offset by expansionary monetary or fiscal policy. Ad valorem options provide constant real revenue; real revenues for other taxes fall unless indexed for inflation.	Heaviest burden on oil of three major options; lightest on coal. Accentuates price shocks.	Generally similar carbon reductions, with Btu tax most efficient per dollar of revenue raised. Other benefits include reduced environmental costs related to automobile use.	Energy intensive firms hurt. Others helped somewhat by deficit reduction. Coordination with EC and Japan could reduce competitiveness costs.	Distributionally similar, by income and region.
Ad Valorem End-Use		Has smallest effect on fuel markets, because tax base includes capital as well as energy. Accentuates price shocks.			
Btu Tax		Impact on coal falls between ad valorem taxes and carbon tax.			
Carbon Tax		Largest tax upon coal.	Most targeted at carbon emissions.		
Motor Fuels Tax		Only burdens oil.	Greatest reduction in auto use, but small carbon reductions.	Most targeted to consumption, as opposed to production, of all taxes considered. Smallest effect on U.S. industrial energy prices.	Somewhat more regressive and less uniform regionally than broad-based taxes.
Oil Import Fee	Hardest to accommodate with monetary policy.	Domestic oil producers get windfall gains. Significant drilling increase, with lesser production increase. Speeds depletion of U.S. reserves.	Largest carbon reductions in near term because of large impact on energy prices.	Potential GATT and NAFTA problems. U.K., Venezuela, Mexico, and Canada would likely seek exemptions.	

Energy Tax Alternatives:

Specifications, Revenues, and Administrative Considerations

Energy Tax Alternatives

1. **Btu Tax**. The tax is based on the average or actual heat content (measured in British thermal units) of energy consumed in the United States.

2. **Ad Valorem - at source**. The tax is based on the average or actual value of energy at the first point of sale (excluding exports).

3. **Ad Valorem - end use**. The tax is based on the average or actual value of energy sold to end users (excluding exports).

4. **Carbon Tax**. The tax is based on the average or actual carbon content of domestically consumed fossil fuels (and possibly other carbon sources, such as cement manufacturing).

5. **Gasoline Tax**. The excise tax on motor fuels (including diesel) used by highway vehicles could be increased. The base could be broadened to include diesel used by railroads, aviation fuel, and other uses of motor fuels.

6. **Oil Import Fee**. The tax is a unit tax imposed on imported crude oil and petroleum products.

Blended Tax. An energy tax could use a rate that is a blend of the above taxes. The European Community (EC) has proposed an energy tax with a rate that is based half on Btu content and half on carbon content.

Specifications for Each Tax

This section provides a more detailed description of the base, collection point, and prices (for ad valorem taxes) that were used for analyzing the first six taxes listed above. The rates required for each tax to raise $22 billion in FY 1997, and alternatively to raise $40 billion in FY 1997 are also shown. It is assumed that

each tax would be effective 1/1/94, and phased in over four years in equal stages, with the full rates in effect 1/1/97 and thereafter.[1]

1. **Btu Tax**

Base is fuel uses of fossil fuels (oil, natural gas, and coal) consumed in the United States and electricity generated from hydro and nuclear power. Base excludes nonfuel uses of fossil fuels, nonconventional fuels (solar, wind, etc.), and exported fossil fuels. For nuclear-generated electricity, the Btu content of the nuclear fuel is the base; for hydro-generated and imported electricity, the average fossil fuel Btu input that would be required to generate the electricity is the base.

Collection point is the refinery for oil, importation point for electricity and refined petroleum products, the pipeline for natural gas, minemouth for coal, and the utility for hydro- and nuclear-generated electricity. Some downstream credits for nonfuel use are required.

Rates are $0.44/million Btu for the $22 billion alternative and $0.84/million Btu for the $40 billion alternative. One barrel of oil contains 5.8 million Btu's and a tax of $2.55 would be paid. One thousand cubic feet of gas contains 1.03 million Btu's; a tax of $0.45 would be paid. One short on of coal contains 21.8 million Btu's; a tax of $9.59 would be paid.

2. **Ad valorem - at source**

Base and collection points are the same as for a Btu tax.

Prices are refinery acquisition cost (RAC) for oil, the RAC equivalent for refined petroleum products, wellhead for natural gas, minemouth for coal, and fossil fuel-generated equivalent for hydro- and nuclear-generated and imported electricity.

Rates are 16 percent of the indicated prices for the $22 billion alternative and 30 percent for the $40 billion alternative.

3. **Ad valorem - end use**

Base excludes nonfuel uses of fossil fuels, nonconventional fuels, and fossil fuels sold to electrical generating plants. All electricity delivered to customers is

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[1] The four-year phase in would make 1/4 of the full rate in effect in 1994, 1/2 in 1995, 3/4 in 1996, and the full rate in 1997 and later years.

in base (i.e., transmission losses excluded). Natural gas used in pipelines is also excluded.

Collection point is the refinery for petroleum products, the pipeline for natural gas, and the utility for electricity.

Prices are end user prices.

Rates are 4.70 percent of end user prices for the $22 billion alternative and 8.65 percent for the $40 billion alternative.

4. **Carbon Tax**

Base is confined to fuel uses of fossil fuels.

Collection point is the refinery for oil, importation point for refined petroleum products, the pipeline for natural gas, and minemouth for coal. Some downstream credits for nonfuel use are required.

Rates are $22.00/short ton of carbon for the $22 billion alternative and $42.00/short ton of carbon for the $40 billion alternative.

5. **Gasoline Tax**

Base is "Highway Trust Fund Base," which is gasoline and diesel used as a motor fuel, excluding purchases by nonprofit organizations, state and local governments, farms, aviation, inland waterway transportation, intracity and school buses, and off-highway use.

Collection point is the same as current law.

Rates are $0.237/gallon for the $22 billion alternative and $0.442/gallon for the $40 billion alternative.

6. **Oil Import Fee**

Base is all imported crude oil and refined petroleum products (measured in crude equivalents).

Collection is at the point of importation.

Rates are $9.67/barrel for the $22 billion alternative and $21.33/barrel for the $40 billion alternative.

Preliminary Revenue Estimates

Table A-1 shows preliminary revenue estimates for each of the above energy taxes and for both revenue targets in FY 1997 ($22 billion and $40 billion). All of the energy tax alternatives, by design, would reach the revenue targets in FY 1997, and all would raise similar amounts of revenue over the FY 1994-1998 period. The ad valorem taxes, however would raise more revenue in FY 1998 and subsequent years.

Table A-1: Revenue Estimates for Alternative Energy Taxes

PART I. Revenue Target of $22 billion in FY 1997

Tax	Rate	Fiscal Year					
		1994	1995	1996	1997	1998	1994-1998
		(billions of dollars)					
1. Btu Tax	$0.44/million Btu	4.1	10.0	15.9	21.8	23.5	75.5
2. Ad Valorem - at source	15.0% of first sale (1)	3.8	9.6	15.7	22.1	24.7	75.6
3. Ad Valorem - end use	4.70% of end use price	3.7	9.3	15.3	21.8	24.5	74.6
4. Carbon Tax	$22.00/short ton	4.2	10.2	16.3	22.1	23.9	76.7
5. Gasoline Tax	$0.237/gallon	4.4	10.3	16.1	22.0	23.2	76.0
6. Oil Import Fee	$9.67/barrel	4.2	10.4	16.3	22.0	23.8	76.7

PART II. Revenue Target of $40 billion in FY 1997

Tax	Rate	Fiscal Year					
		1994	1995	1996	1997	1998	1994-1998
		(billions of dollars)					
1. Btu Tax	$0.84/million Btu	7.8	18.9	29.7	39.9	42.7	139.2
2. Ad Valorem - at source	30.0% of first sale (2)	7.1	17.7	28.8	39.9	43.9	137.4
3. Ad Valorem - end use	8.65% of end use price	6.8	17.0	28.1	40.0	44.9	136.8
4. Carbon Tax	$42.00/short ton	8.0	19.3	30.1	40.1	42.6	140.1
5. Gasoline Tax	$0.442/gallon	6.2	19.0	29.7	40.0	41.9	136.8
6. Oil Import Fee	$21.33/barrel	9.1	21.8	32.6	40.0	40.7	144.2

Source: Department of Treasury, Office of Tax Analysis

(1) The product equivalent rates in 1997 are $3.67/barrel of oil, $0.32/mcf of natural gas, $3.85/short ton of coal, and $2.05/000 kWh of hydro- and nuclear-generated electricity.

(2) The product equivalent rates in 1997 are $7.50/barrel of oil, $0.62/mcf of natural gas, $7.46/short ton of coal, and $3.97/000 kWh of hydro- and nuclear-generated electricity.

Administrative Considerations

This section describes the administrative considerations affecting the design of an energy tax. In general, the administrability of a tax is enhanced by adherence to the following principles:

- Rates should be expressed on a per-unit basis and should be based on averages rather than on actual energy content, carbon content, or price.
- The number of taxpayers should be minimized.
- The tax should be imposed as far upstream as possible.

- The base should be defined so that taxability can be determined with certainty at the point of collection.
- The visibility of the tax should be minimized.
- To the extent possible, existing administrative structures that are consistent with the foregoing criteria should be used.

The considerations relating to broad based taxes (i.e., the Btu tax, both variants of the ad valorem tax, and the carbon tax) are similar and those taxes are discussed as a group. The oil import fee and the gasoline tax are each discussed separately.

BROAD BASED TAXES

Use of Average Rates. The taxes would impose significant administrative problems if imposed on the basis of actual energy or carbon content or actual price, determined on a transaction-by-transaction basis. For ease of administration, the taxes should be imposed on a per-unit basis (e.g., barrel of oil, ton of coal) at a rate based on a national average for each type of energy source. Thus, for example, the Btu tax imposed on a barrel of oil or a ton of coal would be based on the average energy content of oil or coal rather than on the actual energy content of the particular barrel of oil or ton of coal. Similarly, the ad valorem tax would be based on the average price in all transactions during a recent period (see below) rather than on the actual price in the particular transaction.

The different grades of coal vary significantly in their energy content, carbon content, and price. Thus, equity and regional balance may require that coal be treated as multiple products (e.g., bituminous, sub-bituminous, lignite), each subject to a different tax rate.

Tax rates would also be determined for the different types of refined petroleum products (e.g., gasoline, fuel oil). The end use ad valorem tax is imposed on both domestic and imported refined products at rates determined in the manner described above. The other taxes are imposed on imported (but not domestic) refined products at a rate equal to the average tax embedded in the cost of equivalent domestic products.

Except under a carbon tax, tax rates would also be determined for electricity from hydro and nuclear power. The tax per unit on electricity from these sources would be equal to the average tax embedded in the cost of electricity generated from fossil fuels.

Ad valorem taxes would be adjusted periodically to reflect changing prices for energy products. The adjustment mechanism should balance various factors including (1) the goal of reflecting current price levels as closely as possible, (2)

the advantages of stable rates, and (3) the lag time between a change in prices and a corresponding change in rates imposed by delays in data collection and the need to give reasonable advance notice to taxpayers. The rates for a Btu or carbon tax would generally remain constant over time (although some variance may occur if the mix of fuels used changes).

Minimizing Number of Taxpayers. The taxes are collected at the narrowest point in the chain of production and distribution so the IRS can focus its collection efforts on the smallest possible number of taxpayers. For example, the tax on crude oil (or, in the case of the end use ad valorem tax, refined petroleum products) is collected at the refinery.

Upstream Imposition. The taxes are generally imposed at or near the producer level (i.e., upstream) and before the point at which the product is likely to be put to a taxable use. This minimizes the potential for avoidance from the taxable use of a product before it reaches the point at which tax is imposed.

Definition of Base. The taxation of all energy sources, without exception, would simplify the administration of the tax. To the extent the base is narrowed through exemptions, it may not be possible to determine until the product is actually used whether tax should be imposed. The tax-free sale and refund mechanisms typically provided when products are purchased for or used in an exempt use increase administrative burdens and opportunities for avoidance.

The broad based taxes minimize these problems. In general, the only significant exemption under all of the taxes is for nonfuel uses. In the case of the end use ad valorem tax, however, fossil fuel (principally coal) used to produce electricity is also exempt.

Visibility. Taxes are most visible to the public when they are imposed on retail sales and are separately stated in the amount charged to customers. In addition, a tax that results in a substantial increase in the price of a product is likely to be visible even if it is not separately stated.

The broad based taxes are generally imposed before the retail sale and would not be separately stated. (Note that utilities would prefer a tax that is imposed on the customer and collected by the utility. They are concerned that otherwise there would be a significant delay in their ability to pass the tax along to the customer. Such a tax would be highly visible if separately stated on utility bills.) In addition, none of the broad based taxes should cause a noticeable increase in retail prices for any product.

Use of Existing Administrative Structures. A new tax is easiest to implement if it is imposed at the same point and collected from the same person as an existing tax on the same product. In that case, the administrative structures used for the existing tax can be extended, without significant modification, to the new tax. The existing tax on crude oil is imposed on receipt at the refinery and collected

from the refiner and the existing tax on coal is imposed at the minemouth and collected from the producer. Thus, administrative structures for these taxes could be extended to a Btu tax, carbon tax, or at source ad valorem tax.

Floor Stocks Tax. A floor stocks tax may be imposed when a tax takes effect or its rate increases. The purpose is to ensure that tax is paid on products that are already past the point at which tax is generally imposed. Floor stocks taxes involve large numbers of taxpayers and are difficult to administer. Nevertheless, they are generally considered necessary to prevent stockpiling prior to the effective date of a new tax or a higher tax rate.

Oil Import Fee

The oil import fee is a per-barrel fee on crude oil and petroleum products imported into the United States. Although there may be more importers than refiners of imported crude oil, the tax must be collected at the point of importation because, once in the United States, imported and domestic petroleum are indistinguishable. (Note that a floor stocks tax would not be imposed for this reason.) On the other hand, although the base of the tax is relatively narrow, all imported petroleum products would be taxed (with a possible exception for products that are re-exported). Thus, taxability can be determined with certainty at the time of importation, minimizing the complexity and opportunities for avoidance associated with exemptions. The oil import fee, because of its narrow base, will have a noticeable effect on retail prices of petroleum products such as heating oil and gasoline. Thus, it is likely to be much more visible than the broad based taxes. Existing administrative structures can be used to collect the oil import fee on refined petroleum products, but there are no structures in place to collect the fee on crude oil imports.

Gasoline Tax

Implementation of an increase in the tax on gasoline and other motor fuels would require no new administrative structures. It should be noted, however, that existing structures are not satisfactory. IRS enforcement efforts are hampered by the large number of taxpayers as well as the exemptions for off-highway use and a variety of other uses. As a result, evasion of the motor fuels taxes is widespread. Moreover, the gasoline tax is the most visible of all the proposed alternatives. The effect of the proposed increase on the retail price of gasoline would be as great as that of an oil import fee and would be immediately reflected in prices at the pump.

Alternative Energy Taxes: Energy Market, Environmental, and Economy-wide Impacts

Total Energy Consumption

- Total 1992 U.S. energy consumption was 87.0 Quads. In the absence of energy taxes, consumption is projected to grow by 10% to 12% by 2000 and another 9% in the following decade, leading to increased reliance on imported energy.
- While the taxes analyzed would reduce energy use from projected levels, economic growth would raise energy consumption in the U.S. above 1992 levels under all of the scenarios analyzed.
- An energy tax netting $22 billion in FY 1997 would reduce projected energy consumption by 0.5% to 2.8% in the year 2000; a tax netting $40 billion would reduce consumption by 0.8% to 5.5%. The largest impacts on energy use would come from an oil import fee, while the smallest would come from a motor fuels tax and an end-use ad valorem tax.

Table B-1: Energy Consumption In Year 2000
(percentage change from Base Case)

Net Revenue Target of $22 Billion in FY 1997 *

		1990	Base Case 2000	Btu Tax	Ad Valorem Tax (At Source)	Ad Valorem Tax (End Use)	Carbon Tax	Motor Fuel Tax	Oil Import Fee
Oil (All)	mmb/d	17.31	18.97	-0.9%	-2.1%	-1.1%	-1.1%	-1.8%	-4.5%
Oil (Imported)	mmb/d	7.58	10.72	-0.1%	-3.4%	-1.8%	-1.9%	-3.1%	-15.6%
Coal	mill. tons	897	959	-2.3%	-0.9%	-1.3%	-2.8%	0%	-0.8%
Natural Gas	tcf	18.8	22.8	-0.8% to -3.7%	-2.1%	-1.2%	0% to -3.7%	0.4%	-0.6%
Electricity	tWh	2830	3250	-1.6%	-0.9%	-1.3%	-0.9% to -2.3%	0%	-1.1%

Table B-2: Energy Consumption In Year 2010
(percentage change from Base Case)

Net Revenue Target of $22 Billion in FY 1997 *

		1990	Base Case 2010	Btu Tax	Ad Valorem Tax (At Source)	Ad Valorem Tax (End Use)	Carbon Tax	Motor Fuel Tax	Oil Import Fee
Oil (All)	mmb/d	17.31	20.66	-0.8%	-2.9% to -7.3%	-1.3%	-1.0%	-1.6%	-4.3%
Oil (Imported)	mmb/d	7.58	13.00	-1.1%	-4.4%	-1.9%	-1.4%	-2.4%	-10.6%
Coal	mill. tons	897	1094	-1.9%	+0.6% to +7.0%	+0.8%	-2.8%	+0.2%	+1.0% to +7.0%
Natural Gas	tcf	18.8	25.0	-2.2%	-2.9% to -8.9%	-1.8%	-0.5% to -3.9%	-0.2%	-5.4% to +3.6%
Electricity	tWh	2830	3960	-2.1%	+0.7% to -2.6%	-2.1%	-2.1%	+0.1%	-1.0%

* NOTE: Effects for a $40 billion revenue target are roughly double.

Energy Consumption Shares

- With the exception of oil import fees, none of the taxes analyzed has large effects on the relative market shares of coal, oil, and natural gas. These remain within percentage points of base case shares. Markets for each fuel will be larger in 2000 in absolute terms than they are today.
- At a revenue level of $22 billion, carbon and Btu taxes reduce total coal production by 2% to 3% in the year 2000; at a level of $40 billion they reduce production by 4% to 5%.
- The coal market impact of an ad valorem tax depends on where it is collected. A tax levied on the price at the source encourages switching from eastern to western coal because the latter would have a much lower price for tax purposes. This result, however, is dependent on the specification of the tax.
- The oil import fee has the greatest effect on domestic energy producers, boosting domestic oil production by as much as 11% with a $22 billion tax (approximately one million barrels per day). If natural gas prices also move upward as a result of the fee, gas could become less competitive in the market for electric utility fuels. Alternatively, increases in domestic oil exploration and production activity could increase natural gas supplies and reduce the price of natural gas.

Table B-3: Producer Prices in Year 2000 (percentage change from Base Case)

Net Revenue Target of $22 Billion in FY 1997 *

		1990	Base Case 2000	Btu Tax	Ad Valorem Tax (At Source)	Ad Valorem Tax (End Use)	Carbon Tax	Motor Fuel Tax	Oil Import Fee
World Oil - Crude	barrel	20.03	22.95	-0.0%	-1.0%	-0.5%	-0.4%	-1.1%	-4.1%
Coal - Minemouth	short ton	21.71	26.45	-0.4%	-0.1%	-0.2%	-0.4%	0.0%	-0.2%
Natural Gas - Wellhead	mcf	1.71	2.56	-0.8%	-0.5%	-0.4%	0.0%	0.4%	-4.3%

Table B-4: End-Use Prices in Year 2000 (percentage change from Base Case)

Net Revenue Target of $22 Billion in FY 1997 *

		1990	Base Case 2000	Btu Tax	Ad Valorem Tax (At Source)	Ad Valorem Tax (End Use)	Carbon Tax	Motor Fuel Tax	Oil Import Fee
Coal - Utilities	short ton	31.32	34.38	17.7%	12.2%	0.0%	20.1% to 36.7%	0.0%	1.6%
Gasoline - Retail	gallon	1.26	1.44	2.6%	6.3%	4.5%	3.4%	12.5%	11.7%
Household Oil	gallon	1.12	1.08	3.7%	8.7%	4.5%	4.4%	-0.3%	15.9%
Household Natural Gas	mcf	6.10	6.90	4.3%	6.7%	4.6%	4.2%	0.1%	-1.5% to 8.8%
Electricity -- Residential	kWh	0.08	0.08	5.8%	3.8%	5.3%	5.3%	0.0%	1.5%

* NOTE: Effects for a $40 billion revenue target are roughly double.

Primary and Secondary Fuel Prices

- The effects of taxes expressed in nominal terms (e.g., cents per gallon) are eroded over time due to inflation. Over a twenty year period, the impacts of tax rates on inflation-adjusted prices would be reduced 40% to 60%. The effects of ad valorem taxes, which are specified as a percentage of the sales price, do not erode over time.
- Ad valorem taxes will amplify any price shocks that occur in energy markets unless some alternative provision is made.
- Carbon and Btu taxes have the largest effects on the price of coal. Btu, carbon, and end-use ad valorem taxes affect electricity prices the most.
- Because of their narrower tax bases, gasoline taxes and oil import fees involve higher price increases on the fuels affected by those taxes than broader based taxes, such as those based on carbon, btu's, or value.

Table B-5: Change in CO_2 Emissions (percentage change from baseline)

Net Revenue Target of $22 Billion in FY 1997 *

Year	1990	2000
Baseline Emissions (mmtc)	1349	1497

	Percentage Change from Baseline
Btu	-1.4% to -2.1%
Ad Valorem (At Source)	-1.5% to -2.0%
Ad Valorem (End Use)	-1.1% to -1.3%
Carbon	-1.3% to -2.6%
Gasoline	-0.6% to -1.1%
Oil Import Fee	-2.3% to -3.0%

* NOTE: Effects for a $40 billion revenue target are roughly double.

Environmental Impacts

- At the Rio Summit, the U.S. signed a climate convention that included the goal of returning its greenhouse gas (GHG) emissions to 1990 levels. (GHGs include carbon dioxide (CO_2), methane, and nitrous oxide.) If all elements of the U.S. *Action Plan* are successfully implemented, GHG emissions are predicted to be 1.4% to 6% higher in the year 2000 than in 1990. The addition of energy taxes considered here could result in emission reductions that would meet this goal.
- Because energy use is likely to grow steadily in an expanding economy, CO_2 emissions in the U.S. are predicted to grow by roughly 10% over the next decade. (CO_2 is the predominant GHG.) The energy taxes designed to raise $22 billion in 1997 would reduce CO_2 emissions by up to 3% in the year 2000. With the higher revenue goal of $40 billion, CO_2 emission reductions of up to 6% could be achieved by the year 2000. Thus, by themselves, the energy taxes of the magnitude under consideration here cannot be expected to return CO_2 emissions (as opposed to all greenhouse gas emissions) to 1990 levels.
- Outside of the oil import fee, the carbon tax results in the highest CO_2 emission reduction per dollar of revenue collected, followed by the Btu and the at-source ad valorem taxes. The motor fuels tax and the end-use ad valorem tax have the lowest carbon reduction efficiency. The emission reduction benefits of the carbon and Btu taxes are roughly similar.
- Beyond the year 2000, CO_2 emissions projections are necessarily more uncertain, especially for ad valorem taxes. The carbon and Btu taxes continue to reduce the most CO_2 per dollar of revenue raised, but since their specified rates were not indexed to inflation, their CO_2 reduction benefits decline over time. It appears that the CO_2 reduction effect of the oil import fee falls dramatically after the year 2000.
- Ad valorem taxes rise with inflation. Therefore, they have an increasing effect on both conservation and fuel substitution over time. If conservation in oil and gas outweighs fuel switching towards coal in the electric utility sector, the at-source ad valorem tax has larger CO_2 reduction benefits in 2010 than the end-use tax and other taxes. Should utility fuel switching dominate, the CO_2 benefits of the at-source tax in 2010 would be substantially lower.
- The energy taxes will result in other environmental benefits including lessening of urban smog, acid rain, waste disposal problems and oil spills. These additional benefits, however, are likely to be relatively modest. For example, a gasoline tax of $0.25/gallon (approximately equivalent to the motor fuels tax associated with the $22 billion revenue target) will reduce volatile organic compounds (VOCs) that cause urban smog by roughly 20,000 tons, or 0.4% of total U.S. emissions in the year 2000.

Economy-wide Impacts

GDP Effects

- A new energy tax, like any other tax increase, if unaccompanied by accommodative monetary policy or other offsets, would reduce economic growth and aggregate employment over the short to medium term (on the order of 0.5%). Adverse GDP and employment effects could be reduced or even eliminated if accommodative monetary policy is undertaken or if the financial markets view the deficit reduction program as credible, thereby reducing interest rates and spurring growth.

- Of the taxes considered, the oil import fee is likely to have the greatest negative impact on national economic growth per unit of revenue raised. While the oil import fee will boost regional economic activity in the oil producing regions, its inflationary impacts are the largest of the taxes under consideration. As a result, monetary authorities would be more constrained in their ability to accommodate the tax package.

Industry-Specific Effects

- Energy taxes would cause specific industries to gain at the expense of others. Those most likely to gain would be non-energy intensive manufacturing concerns with a large export market. Some of these industries would be able to take advantage of the decline in the U.S. exchange rate that would follow the adoption of an energy tax by itself. These industries include: construction equipment, aircraft, industrial machinery such as metal working machinery, and copiers. Industries most negatively affected would be energy-producing and energy-intensive manufacturing industries, such as mining, electric utilities, and the chemical and pulp and paper industries.

Table C-1: Regional Impacts on Consumers of Alternative Energy Taxes

Net Revenue Target of $22 Billion in FY 1997 *

Census Region	Tax Increase Per Capita (Dollars)			Tax Increase as a Percent of Income (Percent)		
	Btu Tax	Ad Valorem At Source	Ad Valorem End Use	Btu Tax	Ad Valorem At Source	Ad Valorem End Use
New England	$96	$103	$100	0.50%	0.54%	0.52%
Middle Atlantic	92	93	94	0.50	0.50	0.51
South Atlantic	88	88	88	0.56	0.55	0.56
East North Central	90	88	89	0.56	0.55	0.56
East South Central	81	79	79	0.61	0.59	0.59
West North Central	89	87	87	0.58	0.57	0.57
West South Central	85	84	84	0.61	0.60	0.60
Mountain	84	82	83	0.58	0.57	0.57
Pacific	85	87	86	0.49	0.50	0.49

Table C-2: Relative Regional Impacts on Consumers of Alternative Energy Taxes

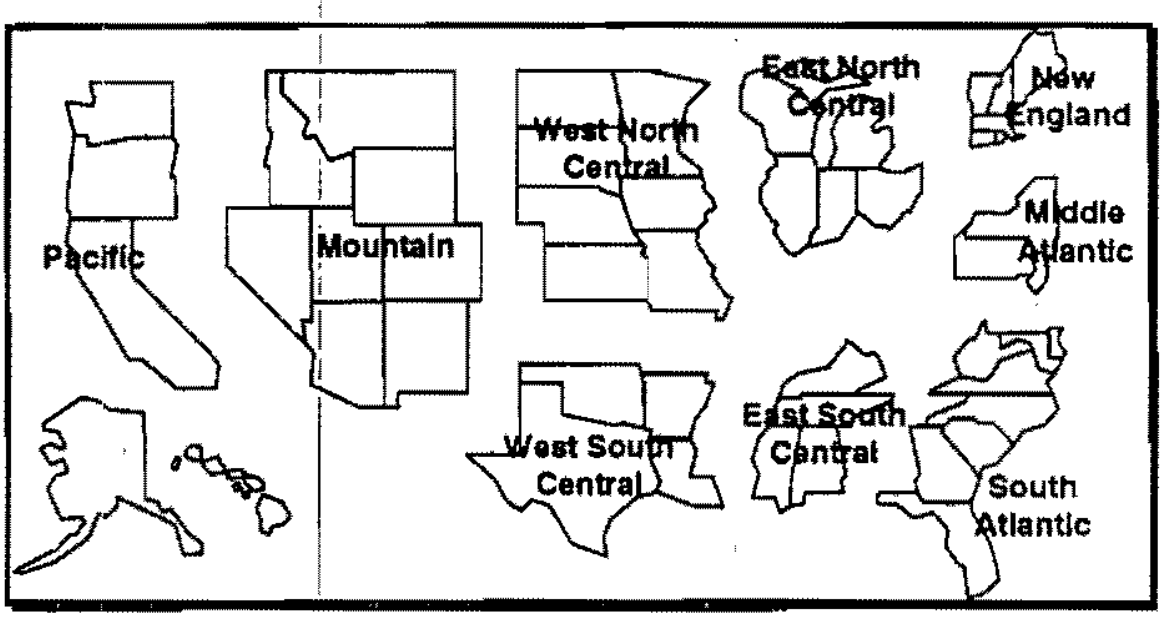
Net Revenue Target of $22 Billion in FY 1997 *

Census Region	Tax Increase Per Capita (Dollars)			Tax Increase as a Percent of Income (Percent)		
	Btu Tax	Ad Valorem At Source	Ad Valorem End Use	Btu Tax	Ad Valorem At Source	Ad Valorem End Use
New England	109	117	113	93	99	96
Middle Atlantic	104	106	107	91	93	94
South Atlantic	100	100	100	102	102	102
East North Central	102	100	101	104	102	103
East South Central	92	90	89	113	110	109
West North Central	101	99	99	108	106	106
West South Central	97	96	96	112	110	111
Mountain	95	93	94	107	105	105
Pacific	97	99	97	91	92	91

Regional Impacts on Consumers

- The above tables provide information on the regional impacts of the Btu and ad valorem energy tax alternatives, assuming a $22 billion revenue target in FY 1997. Table 1 shows by census region the dollar amount of tax that would be paid on a per capita basis. Table 1 also expresses the tax increases as a percent of disposable personal income in each region. Table 2 shows the same information as Table 1, but expressed as a percent of the national average. A map of census regions follows the tables.
- The tables indicate that the regional impacts of these three energy taxes are similar.
- Note that while the tax burden on a given region may be higher than the national average on a per capita basis, it is often lower than the national average as a percent of disposable personal income, and vice versa, for all three taxes.

Figure C-1: U.S. Census Regions and Divisions



Distributional Effects of Energy Taxes

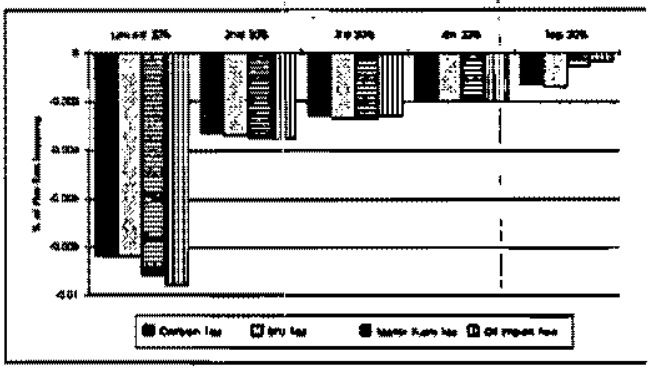


Figure D-1: Distributional Effects of Alternative Energy Taxes (average share of pre-tax income 2000-2004)

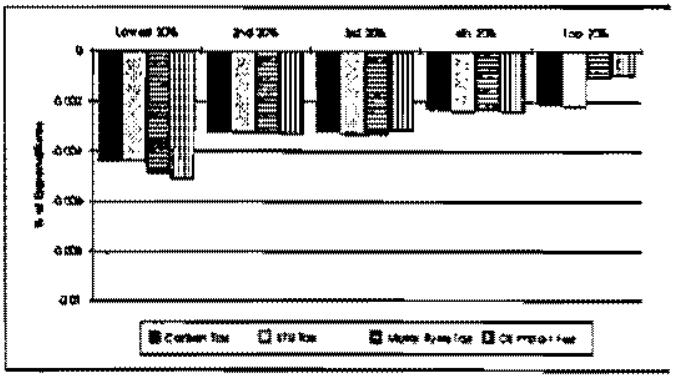


Figure D-2: Distributional Effects of Alternative Energy Taxes (average share of expenditures 2000-2004)

- Relative to annual income, the direct impact of broad-based energy taxes is regressive, although this regressivity is reduced when indirect effects — e.g., air travel price increases — are taken into account. Grouping households by annual expenditures also shows energy taxes to be much less regressive. This is a more accurate measure of well-being, especially in the lowest income quintile which exhibits the greatest regressivity effects on an income basis.
- All of the alternatives are about equal distributionally, so this feature does not provide a basis for distinguishing between taxes.
- Note that the distributions in the graphs above are *before* any possible give-back to mitigate regressivity, and do not reflect other elements of the tax package (e.g, higher rates on high-income taxpayers). Neither do they reflect any softening of the impact on low-income households through cost-of-living adjustments to transfer payments they receive.
- Distributions by annual income are the more influential politically (and were used by Democrats to criticize Bush Administration proposals).

Table E-1: Industrial Sector Fuel Prices in 2000 (percentage change from Base Case)

Net Revenue Target of $22 Billion in FY 1997 *

		Base Case 2010	Btu Tax	Ad Valorem Tax (At Source)	Ad Valorem Tax (End Use)	Carbon Tax	Motor Fuel Tax	Oil Import Fee
Oil (All)	$/gal	0.83	4.5%	11.9	4.1%	4.9%	-0.9%	19.3%
Oil (Imported)	$/mcf	3.99	7.6%	11.5%	4.6%	7.3%	0.5%	-2.6%
Coal	$/ton	34.75	7.5%	12.5%	4.8%	27.2%	0%	0%
Electricity	¢/kWh	5.35	6.6%	4.3%	4.9%	6.3%	0%	1.0%

* NOTE: Effects for a $40 billion revenue target are roughly double.

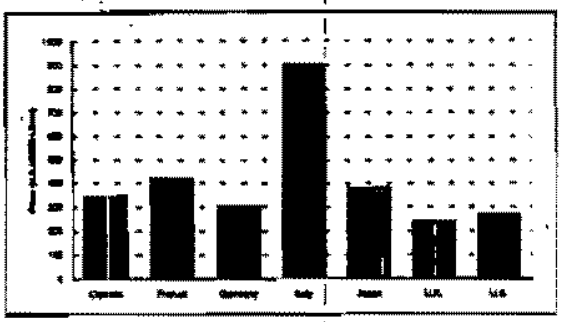
Industrial Competitiveness

- With regard to the industrial sector, the carbon and Btu taxes have similar impacts.
- The motor fuels tax has almost no affect on industrial prices.

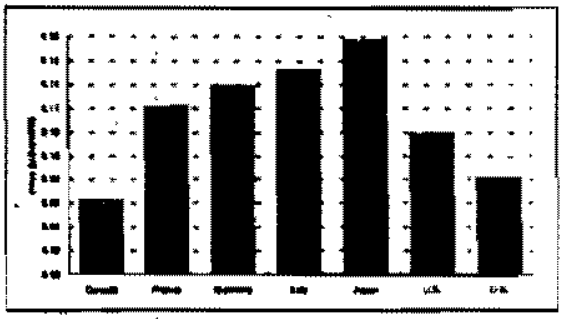
Trade and International Competitiveness Effects

- An energy tax could induce some displacement of energy-intensive industries to non-taxing countries, undercutting the revenue base and environmental benefits of the tax.
- On balance, deficit reduction financed partially through energy taxes could modestly boost U.S. international competitiveness. This is because:
  - Energy taxes would reduce slightly our dependence on imported oil (with the exception of the oil import fee which affects imports significantly), improving our trade balance
  - A credible deficit reduction package would lower interest rates, causing an outflow of capital from the U.S., lowering our exchange rates and making our exports more competitive
- Together these two factors could more than offset the loss in competitive position of U.S. energy-intensive industries, which would see a rise in their production costs *vis-a-vis* their overseas competitors.
- U.S fuel prices are generally among the lowest in the G7 (see following page). The taxes contemplated would not greatly change this situation.

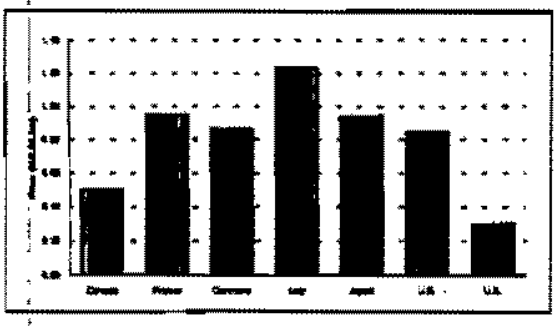
Figure E-1: Comparison of Fuel Types by G-7 Country



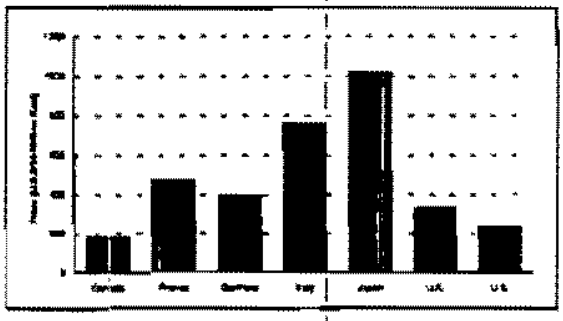
Light Fuel Oil Prices in G-7 Countries
(1991 Prices and Exchange Rates)



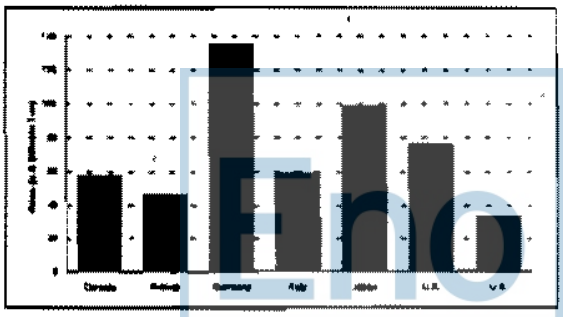
Electricity Prices in G-7 Countries
(1991 Prices and Exchange Rates)



Gasoline Prices in G-7 Countries
(1991 Prices and Exchange Rates)



Natural Gas Prices in G-7 Countries
(1991 Prices and Exchange Rates)



Coal Prices in G-7 Countries
(1991 Prices and Exchange Rates)

Import Fees/Customs Duties and International Obligations

- The tariff on crude oil can be raised (either directly or via an import fee) without violating our obligations under the General Agreement on Trade and Tariffs (GATT). However, the application of any tariff increase or import fee to imports of crude from Canada, and possibly Mexico and Venezuela, would be limited by other existing agreements (see below).

- The situation is different for petroleum products, where U.S. tariffs are bound under the GATT. Imposition of higher tariffs or import fees could make the U.S. liable to pay compensation under GATT, and subject the U.S. to retaliation.

- While the U.S. could invoke the "National Security" exception under GATT rules, the deficit reduction aim of the import fee would expose the U.S. to a challenge within GATT. A GATT panel could find the exception inapplicable and require the U.S. to pay significant compensation to the satisfaction of GATT member countries.

- Agreements with individual trading partners would impose additional constraints on the application of increased tariffs or import fees. The U.S. would likely need to:

  - Exempt Canada from the tariff, because of the U.S./Canada Free Trade Agreement (CFTA). Once the North American Free Trade Agreement (NAFTA), goes into effect, Mexico may also have to be exempted from the tariff.

  - Abrogate a U.S./Venezuela bilateral agreement that binds U.S. tariff rates on Venezuelan crude oil and petroleum products. "Most Favored Nation" obligations under GATT would not allow the U.S. to exempt Venezuela (with which the U.S. does not have a free trade agreement) from increased tariffs or import fees without extending similar benefits to all GATT members.

The European Commission's Btu/Carbon Tax Proposal

In 1991, the EC Commission suggested a Btu/carbon tax. The proposal, an element of the Commission's carbon dioxide limitation strategy, calls for a tax starting at the equivalent of $3 per barrel of oil in 1993, rising to the equivalent of $10 per barrel in 2000. Fossil fuel prices and use would be affected by both the energy and carbon components of the tax, while carbon-free energy sources, such as nuclear and hydro, would be affected only by the former. Thus, while affecting all energy, the tax offers a relative advantage to low- and no-carbon energy sources.

The formal proposal, put forward by the Commission in May 1992, provides that the application of the tax would be "conditioned on the adoption of similar measures" by other countries. The proposal also suggests that energy-intensive industries be given special treatment or exemptions from the tax to offset possible competitiveness effects. In addition, the proposal suggests that revenues be used to reduce other taxes, but leaves the decision to the individual member states since they, rather than the EC Commission, have competency in this area.

The EC Commission Btu/carbon tax must have unanimous approval from the EC Council of Ministers, representing the individual member state governments, before it can take effect. The Btu/carbon tax is being reviewed by three different sets of member country ministers: finance, energy, and environment. Views vary widely across both countries and ministries. To date, Council action has been in the form of a request for further analysis.

On January 28, 1993, the EC Commission issued the following statement:

The European Commission welcomes the recent declarations made in U.S. Government circles which demonstrate a willingness to seriously and efficiently tackle world energy and environment problems. The European Commission is especially pleased to see the new U.S. Administration thinking about measures regarding a possible environment and energy tax. The European Commission has already approved such measures but they are subject to a "conditionality clause."