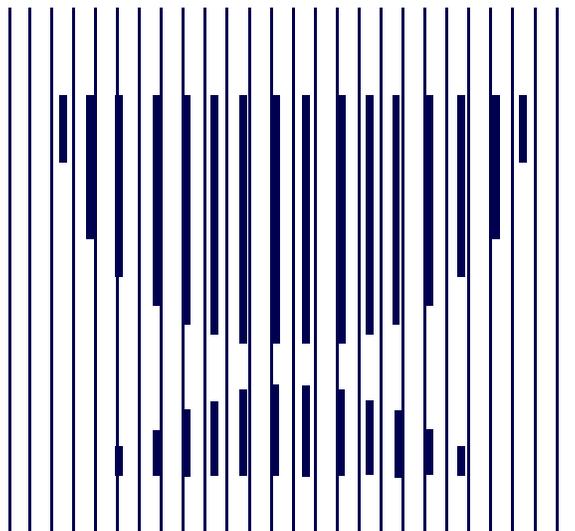




CBO MEMORANDUM

**PRICE INCREASES UNDER
FOUR ENERGY TAX OPTIONS**

February 1995



CONGRESSIONAL BUDGET OFFICE



CBO

MEMORANDUM

**PRICE INCREASES UNDER
FOUR ENERGY TAX OPTIONS**

February 1995



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

This Congressional Budget Office (CBO) Memorandum, prepared at the request of then Chairman Jim Sasser of the Senate Budget Committee, calculates the price increases that would occur under four alternative energy taxes if the prices of industrial commodities and consumer goods went up by the full amount of the tax on the energy used to produce them. It also describes how foreign competition, energy conservation, and fuel switching might restrain the price increases.

Jon Hakken of CBO's Tax Analysis Division prepared the memorandum under the supervision of Rosemary Marcuss and Frank Sammartino. Richard Farmer and Roger Hitchner of CBO provided valuable comments. Paul L. Houts edited the paper, and Denise Jordan prepared it for publication.

SUMMARY AND INTRODUCTION

To their advocates, energy taxes provide a way to raise revenue that also encourages energy conservation and reduces pollution. In its 1994 budget, the Clinton Administration proposed a broad tax on energy use based on heat content measured in British thermal units (Btus). The tax was scheduled to be phased in during the 1994-1997 period and would have raised net revenue by slightly more than \$20 billion per year by the late 1990s.

During the Congressional debate on the Administration's Btu tax, questions arose about how much the tax would add to the production costs of specific industries and whether producers would be able to pass on the added costs to the domestic and foreign purchasers of their products.

This memorandum provides an analysis of the price increases that would occur under four energy tax options. The analysis assumes that the prices of industrial commodities and consumer goods would go up by the full amount of the tax on the energy used to produce, transport, and market them. Although the analysis does not include the Administration's Btu tax as an option, it does include a generic Btu tax on the heat content of energy consumption along with an equally broad-based ad valorem tax on the value of energy consumption. The other two options tax the energy used by consumers, businesses, and governments on a more selective basis. The oil excise tax would only tax the use of petroleum products, and the motor fuels tax would only tax motor fuels used by vehicles on roads and highways. Tax rates were calibrated so that each option would have raised about \$25 billion in gross revenue in 1992--an amount that, in constant dollars, roughly would match the gross revenue from the Administration's Btu tax after it was phased in.

Assuming that producers add the cost of an energy tax to the price of their products, the price increases for particular goods and services would vary in size depending on which energy tax was imposed. Compared with a tax on all energy, for example, a tax only on oil that raised the same amount of revenue would impose a larger price increase on forestry products and transportation services because their production relies mostly on petroleum products for energy. At the same time, the oil tax would impose a smaller price increase on primary metals because their production mainly uses coal and electricity generated from water, coal, and nuclear power.

An energy tax would clearly make U.S. producers pay more for the taxed energy that they use and more for many of the other intermediate commodities and capital goods that they purchase. At the same time, many U.S. producers would be able to raise product prices enough to cover the additional cost of the energy tax because the tax would also increase the costs of their domestic competitors. Even in industries in which U.S. producers compete with foreign producers, price

increases for some commodities could be enough to cover the additional cost of the tax. In those cases, the tax would tend to reduce the exchange value of the dollar, which would increase the price of all imports (denominated in dollars) and decrease the price of all exports (denominated in foreign currencies). The size of the dollar's decline in value would roughly match the size of the average cost increase under the tax for producers of internationally traded commodities.

Competition from producers overseas would restrain domestic producers of some internationally traded commodities from increasing their prices enough to cover fully the additional cost of an energy tax. In general, foreign competition would limit price increases for internationally traded commodities that require more than an average amount of taxed energy to produce, but it would not limit price increases for commodities whose production requires only an average amount of energy or less. Thus, for example, a broad-based tax on energy use would reduce the competitiveness of U.S. producers of mineral ores and primary metals because those domestic producers are heavy users of energy. The same tax would not place U.S. producers of machinery and agricultural products at a disadvantage, however, because those commodities typically require only an average amount of energy to produce.

Energy conservation and fuel switching would also restrain price increases under an energy tax by reducing the demand for goods and services that are more heavily taxed and increasing the demand for goods and services that are less heavily taxed. For example, the price of airline transportation would be restrained slightly under a broad-based tax if consumers limited their travel or if they switched to more energy-efficient modes of transportation such as bus or rail.

ENERGY TAX OPTIONS

The Congressional Budget Office's (CBO's) analysis calculates price increases under four energy tax options. The options include a generic Btu tax on the heat content of primary energy use, an ad valorem tax on the value of final energy use, an excise tax on domestic and imported oil, and a tax on motor fuels used by vehicles on roads and highways.¹

1. The options analyzed here are similar, but not identical, to the options CBO presents to reduce the deficit. For a description of those options and a discussion of their advantages and disadvantages, see Congressional Budget Office, *Reducing the Deficit: Spending and Revenue Options* (March 1994), pp. 339-341, 344-346.

The generic Btu tax would be levied on coal, crude oil, and natural gas at a single rate of 30 cents per million Btus.² (A million Btus of energy equals about 8 gallons of gasoline or about 1,000 cubic feet of natural gas.) The energy used to generate and distribute electricity would also be taxed at a rate of 30 cents per million Btus. Because energy is lost during the generation and distribution process, however, the implicit tax rate for electricity delivered to final users would be about \$1 per million Btus. Imports of crude oil and petroleum products would be taxed on the basis of their heat content plus the energy loss during refining.

The ad valorem tax on the value of final energy use would be levied on coal, petroleum products, natural gas, and electricity at a 5 percent rate. Compared with the tax on heat content, the tax on value would be lower for cheap sources of energy, such as coal, and higher for expensive sources of energy, such as electricity. Moreover, the tax on value would typically be higher for residential users than for industrial users because bigger purchasers of energy often get a price discount. A 5 percent tax on the value of energy (at 1992 prices) would be equivalent to a tax of about 7 cents per million Btus for coal and 45 cents per million Btus for motor gasoline. For residential use, a 5 percent tax on value would be equivalent to a tax per million Btus of about 29 cents for natural gas, 33 cents for heating oil, and \$1.19 for electricity. For industrial use, a 5 percent tax on value would be equivalent to a tax per million Btus of about 14 cents for natural gas, 24 cents for heating oil, and 74 cents for electricity.

The oil excise tax would be levied at a rate of 80 cents per million Btus, which is equivalent to a \$4.65 tax on a barrel of oil. Imports of crude oil and petroleum products would be taxed on the basis of their heat content and the energy loss during refining.

The motor fuels tax would be levied at a rate of \$1.45 per million Btus, which is equal to a per-gallon tax increase of 18 cents for gasoline and 20 cents for diesel fuel. The tax would be imposed on all fuels used by vehicles on roads and highways without any exemptions.

2. The Clinton Administration proposed a somewhat different Btu tax in its fiscal year 1994 budget. The Administration's Btu tax, when it was fully phased in, would have had a base tax rate of 25.7 cents per million Btus and a supplemental tax rate of 34.2 cents per million Btus on all petroleum products except home heating oil and liquified petroleum gases. The implicit tax on the use of electricity would have been about 77.8 cents per million Btus based on the amount of energy needed to produce it and deliver it to customers. Unlike the generic Btu tax, the Administration's Btu tax exempted energy used as a feedstock for petrochemicals (for example, natural gas used to make ammonia for fertilizers).

DATA AND METHODOLOGY

CBO's analysis calculates price increases for 91 categories of industrial output and 81 categories of consumption using the 1982 benchmark input-output accounts and the 1982 energy-use accounts from the Department of Commerce. The energy-use accounts measure the amount of energy used by each industry, by type of energy and use. The input-output accounts measure how much of each industry's output is needed to produce each industrial commodity and each item of consumption. Together, these accounts can be used to determine the total amount of each type of energy needed to produce a given amount of any industrial commodity or item of consumption. Even though the energy requirements are based on the production techniques used in 1982, because production techniques change quite slowly, the requirements are still fairly up-to-date.

The calculated price increases assume that the tax on energy would be shifted forward so that the price of each good would go up by the full amount of the tax on the energy used to produce it. Such price increases approximate the rises that would result from economic competition if all users of taxed energy were subject to the tax and if energy conservation and fuel switching by producers and consumers were minimal.

The calculated price increase for each category of consumer purchases was measured on a percentage basis relative to the 1992 purchasers' price. Because the 1982 input-output accounts valued consumer purchases at 1982 prices, separate price indices for each category of consumption were used to inflate 1982 prices to 1992 prices. The price adjustments are important, not only because the nominal prices of consumer purchases have gone up since 1982, but also because relative prices have changed considerably since then.

The calculated price increase for each category of industrial output was measured on a percentage basis relative to the 1982 producers' price. (The producers' price equals the purchasers' price minus wholesale and retail trade margins and transportation costs from factory to market.) Because price indices for specific categories of industrial output are not available, 1982 prices could not be adjusted to 1992 prices. Instead, tax rates (expressed in dollars per million Btus) were deflated from 1992 dollars to 1982 dollars, and price changes for producers were measured relative to 1982 prices. Although the 5 percent tax rate under the ad valorem tax could have been converted to dollars per million Btus and deflated from 1992 dollars to 1982 dollars, the resulting 1982 tax rate for each source of energy would have been a poor proxy for an ad valorem tax in 1982 because the price of oil fell dramatically between 1982 and 1992 compared with

the prices of other commodities, including other sources of energy.³ Because producer price increases under the ad valorem tax could not be determined in a way that was consistent with the other price increases, they were omitted from the analysis.

PRICE INCREASES CHARGED BY PRODUCERS

A tax on energy use would raise costs for producers in three ways. First, producers would pay more for the energy they use directly in production. Second, they would pay more for the other intermediate commodities they use in production because making such commodities requires energy. Third, as investment goods (machines and buildings) wear out, producers would pay more to replace them because their production also requires energy. The price increases calculated by CBO assume that all those additional costs would be included fully in the prices that producers charge. The calculated price increases are summarized in Table 1. (The calculated price increases for all categories of industry output are shown in Table A-1.)

The largest price increases under the generic Btu tax would occur in transportation, mining, and basic manufacturing. Transportation prices would go up by 0.6 percent to 1.5 percent depending on the mode of transportation, with transportation by water (barge transport) increasing the most and transportation by pipeline the least. The prices of mining products would rise by about 0.8 percent to 1.6 percent, and the prices of basic chemicals and primary metals would rise by about 1.4 percent.

Price increases for most other commodities under the Btu tax would be modest. Price hikes for farm products and many manufactured commodities would increase about one-half of 1 percent, and price increases for most services would average only one-quarter of 1 percent.

Because the transportation sector relies almost exclusively on petroleum products for its energy, it would shoulder the largest price increases under the oil excise tax. The price of water transport, for example, would increase by 3.4 percent. Prices of forestry and fishery products also would rise more than average, climbing more than 1 percent. In contrast, the price of primary metals would go up by only 0.4 percent because their production relies primarily on coal, natural gas, and electricity for energy. The price increases for agricultural products and

3. Another approach would be to calculate the price increases for a 5 percent energy tax in 1982. Given the high price of oil in 1982, however, such an approach would have caused the ad valorem tax to raise much more revenue than the other options at 1982 prices, making price comparisons with other options meaningless.

TABLE 1. EFFECTS OF ALTERNATIVE ENERGY TAXES ON PRODUCER PRICES (In percent)

Producer Commodities	Percentage Increase in Price Under		
	Btu Tax on All Energy (30 cents per million Btus)	Oil Excise Tax (80 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Agriculture, Forestry, and Fisheries			
Agricultural products	0.5	0.5 to 0.6	0.3
Forestry and fishery products	0.6	1.2	0.2
Mining			
Coal mining	0.4	0.4	0.2
Crude petroleum and natural gas	0.3	0.2	0.1
All other mining	0.8 to 1.6	0.5 to 0.7	0.2 to 0.3
Construction	0.3 to 0.4	0.4	0.2 to 0.3
Manufacturing			
Primary iron and steel manufacturing	1.4	0.4	0.2
Primary nonferrous metals manufacturing	1.2	0.4	0.3
Paper and allied products, except containers	1.0	0.6	0.2
Chemicals and selected chemical products	1.4	0.5	0.2
Plastics and synthetic materials	1.3	0.4	0.2
Glass and glass products	1.0	0.3	0.2
Stone and clay products	0.9	0.5	0.3
Machinery and equipment	0.3 to 0.4	0.2 to 0.3	0.1 to 0.2
All other manufacturing	0.2 to 0.8	0.2 to 0.7	0.1 to 0.7
Transportation			
Transportation by water	1.5	3.4	0.2
Transportation by air	1.0	2.3	0.1
Motor freight transportation and warehousing	0.6	1.1	1.8
Pipelines, except natural gas	0.6	0.3	0.1
Wholesale and Retail Trade	0.3	0.3	0.4
Services, Except Government Enterprises	0.2 to 0.4	0.1 to 0.4	0.1 to 0.3

SOURCE: Congressional Budget Office.

NOTE: The calculated price increases assume that energy taxes are passed on and added to the price of commodities. The price increases shown for energy products do not include the tax on their energy content. Price ranges cover different products within the commodity category.

manufactured goods under the oil excise tax would roughly match those under the Btu tax.

An increase in the motor fuels tax, which would be levied only on gasoline and diesel fuel for on-road use by autos, trucks, and buses, would increase the costs of those modes of transportation by nearly 2 percent. The prices of other goods and services would generally go up less than they would under either the Btu tax or the oil excise tax.

Price increases under the ad valorem tax (which are not shown in Tables 1 and A-1) would be most like those under the Btu tax because both tax all uses of energy. Given that manufacturers typically receive volume discounts on their energy purchases, one would expect that price increases for industrial commodities would be smaller under the ad valorem tax than they would be under the Btu tax. Moreover, because coal is a relatively cheap source of energy that would be taxed at a much lower rate under the ad valorem tax than under the Btu tax, one would expect the price increases under the ad valorem tax for primary iron and steel products and other products produced using coal to be smaller as well.

PRICE INCREASES PAID BY CONSUMERS

In addition to the price that producers charge for their goods and services, the price that consumers pay includes wholesale and retail trade margins and the cost of transportation to market. Because trade and transportation services use energy as they add value to the goods and services that consumers purchase, energy taxes would not affect the prices that consumers pay and the prices that producers charge in exactly the same way. The price increases calculated by CBO assume that the tax on energy used for trade and transportation would be fully passed on to consumers. The calculated price increases are summarized in Table 2. (The calculated price increases for all categories of consumption are shown in Table A-2.)

By far, the largest price increases under the Btu tax would be for the energy purchased for auto transportation and for the heating, cooling, and lighting of homes. Residential natural gas would go up 6.3 percent in price. Moreover, prices for home heating oil and electricity would increase by 5.0 percent and 4.5 percent, respectively. The price of gasoline would rise by 3.8 percent.

The next largest price hike under the Btu tax would be for commercial passenger transportation. Transportation by air would increase by about 1.3 percent and other modes by about 0.8 percent. Price increases for manufactured

TABLE 2. EFFECTS OF ALTERNATIVE ENERGY TAXES ON CONSUMER PRICES (In percent)

	Percentage Increase in Price Under			
	Btu Tax on All Energy (30 cents per million Btus)	Ad Valorem Tax on All Energy (5 percent of value)	Oil Excise Tax (80 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Consumer Goods and Services				
Food				
Food purchased for off-premise consumption	0.4	0.4	0.4	0.3
Purchased meals and beverages	0.3	0.3	0.2	0.2
Clothing, Accessories, and Jewelry	0.3 to 0.5	0.3 to 0.4	0.3	0.2 to 0.3
Housing	0.1	0.1	0.1	0.1
Household Operation				
Electricity	4.5	5.2	1.1	0.2
Natural gas	6.3	5.4	0.2	0.2
Fuel oil and coal	5.0	5.6	8.7	0.3
All other, except domestic service	0.2 to 0.9	0.2 to 0.5	0.1 to 0.5	0.1 to 0.6
Medical Care	0.1 to 0.3	0.1 to 0.3	0.1 to 0.3	0.1 to 0.2
Transportation				
New autos	0.5	0.4	0.3	0.3
Tires, tubes, accessories, and other parts	0.7	0.5	0.5	0.4
Gasoline and oil	3.8	5.5	8.6	14.6
Local bus transportation	0.8	0.8	1.2	1.7
Taxicab transportation	0.8	0.8	1.2	1.8
Commuter rail transportation	0.7	0.6	1.4	0.2
Intercity rail transportation	0.6	0.5	1.2	0.2
Intercity bus transportation	0.8	0.7	1.1	1.7
Airline transportation	1.3	1.0	2.8	0.2
Recreation	0.2 to 0.6	0.2 to 0.5	0.2 to 0.5	0.1 to 0.5
Private Education	0.2 to 0.3	0.2	0.2	0.1
Total Consumption	0.6	0.6	0.6	0.7

SOURCE: Congressional Budget Office.

NOTE: The calculated price increases assume that energy taxes are passed on and added to the price of goods and services. The price increases shown for energy products include the tax on their energy content. Price ranges cover different goods and services within the category.

goods would average about one-half of 1 percent and price increases for services would average about one-quarter of 1 percent.

The price increases under the 5 percent ad valorem tax (at 1992 prices) would be very similar to those under the Btu tax. Under the ad valorem tax, the prices of electricity and gasoline would rise a little more and the prices of natural gas and heating oil would rise a little less. (All of the price increases for fuel purchases by consumers would slightly exceed the 5 percent tax rate because of the tax on energy needed to transport those fuels to the consumer.) The price increases for nonenergy goods and services under the ad valorem tax would be indistinguishable from those under the Btu tax.

The oil excise tax would increase the price of gasoline by 8.6 percent and the price of home heating oil by 8.7 percent. Airline transportation would go up 2.8 percent in price and other commercial transportation would rise about 1.2 percent. The price increases for electricity and natural gas would be much smaller under an oil excise tax than under the Btu tax. Price increases for other goods and services would be similar to those under the Btu tax.

The rise in the motor fuels tax would increase the price of gasoline by 14.6 percent. Taxicab and bus transportation would go up about 2 percent. The price of most other goods and services would climb by only a few tenths of 1 percent.

As noted earlier, the calculated price increases assume that the energy taxes would be passed on so that the price of each good would increase by the full amount of the tax levied directly and indirectly on it. But energy conservation, fuel switching, and most important, competition from foreign producers would tend to limit the largest price hikes.

EFFECTS OF FOREIGN COMPETITION ON THE PRICE INCREASES

Because the energy used by foreign producers to make goods and services overseas would generally not be taxed by the United States when the goods are imported, price increases under all of the energy tax options would be held down by competition from foreign producers. Not all imported goods, however, would be exempt from the energy taxes. For example, the Btu tax and the oil excise tax would be levied on imports of both crude oil and refined petroleum. But imports of manufactured goods such as steel, aluminum, and chemicals would not be taxed, despite the large amount of energy used to make them.

The extent to which foreign competition would restrain the price increases caused by energy taxes would depend on two factors: how much the energy tax

burden varied in size among domestically produced goods that are traded internationally, and how easily and thoroughly foreign goods could be substituted for domestically produced goods. For example, if an energy tax raised the prices of all traded goods by a given percentage, the dollar's value in foreign currencies would fall by roughly the same percentage. The dollar's decline would raise the price of imports (denominated in dollars) and lower the price of exports (denominated in foreign currencies), thereby restoring the pretax terms of trade. Under such circumstances, foreign competition would not restrain the price increases for import-competing goods at home or for exports abroad.

Given that an energy tax would typically raise the prices of some traded goods more than others and that the dollar's value would only fall enough to offset the average price increase for all traded goods, domestic products whose prices increased more than average would face stronger competition from foreign products. In contrast, domestic products whose prices increased less than average would face weaker competition from foreign products. Above-average price increases would be restrained more for domestic products with good foreign substitutes than for domestic products with poor foreign substitutes.

Most agricultural products and manufactured goods are traded internationally, as are financial services. But many other services are not. Utility services, transportation services, and wholesale and retail trade services, for example, are not traded extensively between the United States and other countries. Consequently, foreign competition would not restrain price increases for those services. Although unprocessed mining products are not traded extensively, processed mining products are. Because the price of the unprocessed products is closely tied to the price of the processed ones, the price increases for unprocessed mining products generally would be restrained as if those products were traded internationally.

Under the Btu tax, competition from foreign producers would restrain the price increases for metal ores, primary metals, chemicals, glass and paper products, and other standardized products with large energy requirements and above-average price increases. In the short run, the Btu tax would depress profits in the domestic industries that produce such products. In the longer run, those domestic industries would shrink in size, forcing laid-off workers to find jobs in other industries. After the contraction, prices would rise enough for the remaining domestic producers in those industries to earn a normal rate of profit.

Conversely, competition from foreign producers would not restrain price increases under the Btu tax for agricultural products, machinery, or transportation services. In the case of agricultural products and machinery, price increases would not be restrained because their price increases would be about average for traded

goods. Therefore, the decline in the exchange value of the dollar that would accompany the tax would raise the price of foreign substitutes by approximately the same percentage. In the case of transportation services, price increases would not be restrained by foreign competition because, by and large, those services are not traded internationally. Although foreign competition exists for international transportation by air and water, domestic and foreign carriers would purchase the fuel they need at any location at the same price. Thus, fuel purchased in the United States would include the Btu tax, regardless of the nationality of the carrier, and fuel purchased outside the United States would be exempt from the tax.

Under the oil excise tax, competition from foreign producers would restrain the price increases for forestry and fishery products and chemicals the most. Price hikes for primary metals and glass and paper products would be less than they would under the Btu tax, and as a consequence, foreign competition would restrain them less.

Under the increased motor fuels tax, foreign competition would not temper any price increase by much. The price increases for traded goods, which are fairly uniform, would nearly match the price increase for foreign substitutes after the dollar's exchange value declined because of the tax. Moreover, as with the other energy taxes, the large price increases for transportation services would be insulated from foreign competition.

EFFECTS OF ENERGY CONSERVATION AND FUEL SWITCHING ON THE PRICE INCREASES

Foreign competition would not be the only restraint on price increases under an energy tax. Energy conservation and fuel switching by consumers and domestic producers would also limit the price hikes. Those additional restraints, however, require changes in consumption and production that would only occur slowly, making the eventual outcome of this kind of restructuring hard to predict.

Under an energy tax, producers would try to conserve taxed energy by changing their method of production. In general, the change in production would use additional energy-saving equipment. Prices would be constrained because the saving in energy costs and energy tax would be greater than the added cost of the machinery.

Consumers would try to conserve taxed energy by shifting their consumption from goods that require a large amount of taxed energy to make to goods that require less energy. The shift in demand would lower the price of goods with high requirements of taxed energy. Lower prices would depress profits

in the industries that make those goods, causing them to shrink in size. In the long run, the laid-off workers would be reemployed in other industries that produce goods requiring less energy.

Under any energy tax, producers and consumers would have an incentive to switch to energy products that are taxed less heavily. The shift in demand would tend to keep the price increases for heavily taxed energy products in check. The incentive to switch fuels under the Btu tax would be fairly weak, however, since the tax would increase the cost of all major sources of energy. Conversely, because the oil excise tax would not tax the use of coal, natural gas, or electricity, the incentive to switch fuels would be quite strong. Under the increase in the motor fuels tax, prices would be restrained by switching modes of transportation instead of types of fuel.

CONCLUSION

A tax on energy use would raise costs for domestic producers. The cost increases would be fairly modest, however, except in a few industries whose production used a lot of taxed energy. Under a broad-based energy tax on either heat content or value, the largest cost increases would occur in the transportation and mining sectors, as well as in the manufacturing of chemicals and basic materials such as glass, paper, and primary metals. Under an oil excise tax, the largest cost increases would occur in transportation, forestry, and fishing. Under a motor fuels tax, the largest cost increases would be confined to transportation.

Even in the face of competition from foreign producers, domestic producers in most industries would be able to pass on most of the added cost of energy taxes to their customers. An energy tax would cause the value of the U.S. dollar to decline enough to offset the average cost increase for domestic producers of internationally traded commodities. Producers of commodities that require above-average amounts of taxed energy, however, would find their price increases restrained somewhat by foreign competition.

TABLE A-1. PRICE INCREASES CHARGED BY PRODUCERS UNDER ALTERNATIVE ENERGY TAXES (In percent)

	Percentage Increase in Price Under			
	Btu Tax on All Energy (30 cents per million Btus)	Ad Valorem Tax on All Energy (5 per- cent of value)	Oil Excise Tax (80 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Agriculture, Forestry, and Fisheries				
Livestock and livestock products	0.5	n.a.	0.5	0.3
Other agricultural products	0.5	n.a.	0.6	0.3
Forestry and fishery products	0.6	n.a.	1.2	0.2
Agricultural, forestry, and fishery services	0.6	n.a.	0.5	0.4
Mining				
Iron and ferroalloy ores mining	1.5	n.a.	0.7	0.3
Nonferrous metal ores mining	1.2	n.a.	0.7	0.3
Coal mining	0.4	n.a.	0.4	0.2
Crude petroleum and natural gas	0.3	n.a.	0.2	0.1
Stone and clay mining and quarrying	0.8	n.a.	0.7	0.3
Chemical and fertilizer mineral mining	1.6	n.a.	0.5	0.2
Construction				
New construction	0.4	n.a.	0.4	0.3
Repair and maintenance construction	0.3	n.a.	0.4	0.2
Manufacturing				
Ordinance and accessories	0.3	n.a.	0.2	0.1
Food and related products	0.5	n.a.	0.4	0.3
Tobacco manufactures	0.2	n.a.	0.2	0.1
Broad and narrow fabrics, yarn and thread mills	0.8	n.a.	0.4	0.2
Miscellaneous textile goods and floor coverings	0.8	n.a.	0.4	0.2
Apparel	0.4	n.a.	0.2	0.1
Miscellaneous fabricated textile products	0.5	n.a.	0.3	0.2
Lumber and wood products, except containers	0.6	n.a.	0.7	0.7
Wood containers	0.6	n.a.	0.6	0.5
Household furniture	0.4	n.a.	0.3	0.3
Other furniture and fixtures	0.4	n.a.	0.3	0.2
Paper and allied products, except containers	1.0	n.a.	0.6	0.2
Paperboard containers and boxes	0.7	n.a.	0.5	0.2
Printing and publishing	0.4	n.a.	0.3	0.2
Chemicals and selected chemical products	1.4	n.a.	0.5	0.2
Plastics and synthetic materials	1.3	n.a.	0.4	0.2
Drugs, cleaning, and toilet preparations	0.4	n.a.	0.2	0.1
Paints and allied products	0.7	n.a.	0.4	0.2
Petroleum refining and related industries	0.6	n.a.	0.4	0.1
Rubber and miscellaneous plastics products	0.7	n.a.	0.3	0.2
Leather tanning and finishing	0.7	n.a.	0.5	0.2
Footwear and other leather products	0.4	n.a.	0.3	0.2
Glass and glass products	1.0	n.a.	0.3	0.2
Stone and clay products	0.9	n.a.	0.5	0.3
Primary iron and steel manufacturing	1.4	n.a.	0.4	0.2
Primary nonferrous metals manufacturing	1.2	n.a.	0.4	0.3
Metal containers	0.8	n.a.	0.3	0.2
Heating, plumbing, and structural metal products	0.6	n.a.	0.3	0.2
Screw machine products and stampings	0.6	n.a.	0.3	0.2
Other fabricated metal products	0.6	n.a.	0.3	0.2
Engines and turbines	0.5	n.a.	0.2	0.1
Farm and garden machinery	0.4	n.a.	0.2	0.2
Construction and mining machinery	0.4	n.a.	0.2	0.1
Materials handling machinery and equipment	0.4	n.a.	0.2	0.1
Metalworking machinery and equipment	0.4	n.a.	0.2	0.1
Special industry machinery and equipment	0.5	n.a.	0.2	0.2
General industrial machinery and equipment	0.5	n.a.	0.2	0.1
Miscellaneous machinery, except electrical	0.4	n.a.	0.2	0.1
Office, computing, and accounting machines	0.3	n.a.	0.2	0.1
Service industry machines	0.4	n.a.	0.2	0.2
Electric industrial equipment and apparatus	0.4	n.a.	0.2	0.1
Household appliances	0.5	n.a.	0.2	0.2

(Continued)

TABLE A-1. CONTINUED

Producer Commodities	Percentage Increase in Price Under			
	Btu Tax on All Energy (30 cents per million Btus)	Ad Valorem Tax on All Energy (5 percent of value)	Oil Excise Tax (80 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Manufacturing (Continued)				
Electric lighting and wiring equipment	0.5	n.a.	0.2	0.1
Radio, TV, and communication equipment	0.3	n.a.	0.2	0.1
Electronic components and accessories	0.5	n.a.	0.2	0.2
Miscellaneous electrical machinery and supplies	0.5	n.a.	0.3	0.2
Motor vehicles and equipment	0.5	n.a.	0.2	0.2
Aircraft and parts	0.3	n.a.	0.2	0.1
Other transportation equipment	0.4	n.a.	0.2	0.2
Scientific and controlling instruments	0.3	n.a.	0.2	0.1
Optical, ophthalmic, and photographic equipment	0.3	n.a.	0.2	0.1
Miscellaneous manufacturing	0.4	n.a.	0.3	0.2
Transportation, Communications, and Utilities				
Transportation and warehousing				
Railroads and related services	0.7	n.a.	1.4	0.2
Private local and interurban passenger transit	0.8	n.a.	1.3	1.9
Motor freight transportation and warehousing	0.6	n.a.	1.1	1.8
Transportation by water	1.5	n.a.	3.4	0.2
Transportation by air	1.0	n.a.	2.3	0.1
Pipelines, except natural gas	0.6	n.a.	0.3	0.1
Freight forwarding and misc. transportation	0.4	n.a.	0.6	0.8
Arrangement of passenger transportation	0.1	n.a.	0.1	0.1
Communications, except radio and television				
Radio and television broadcasting	0.2	n.a.	0.1	0.1
Private electric, gas, water, and sanitary services				
Private electric services (Utilities)	0.4	n.a.	1.0	0.1
Private gas production and distribution (Utilities)	0.8	n.a.	0.2	0.1
Private water supply and sewerage systems	1.7	n.a.	0.8	0.8
Sanitary services, steam supply, and irrigation	0.5	n.a.	0.5	0.6
Wholesale and Retail Trade				
Wholesale trade	0.3	n.a.	0.3	0.4
Retail trade	0.3	n.a.	0.3	0.4
Finance, Insurance, and Real Estate				
Finance and insurance	0.2	n.a.	0.2	0.2
Real estate and rental	0.1	n.a.	0.1	0.1
Services				
Hotels, and personal and repair services (Except auto)	0.4	n.a.	0.3	0.2
Business services	0.2	n.a.	0.1	0.1
Eating and drinking places	0.3	n.a.	0.2	0.2
Automobile repair and services	0.4	n.a.	0.4	0.3
Amusements	0.2	n.a.	0.2	0.2
Health, educational, and social services and nonprofits	0.3	n.a.	0.2	0.1
Federal government enterprises				
U.S. Postal Service	0.2	n.a.	0.2	0.1
Federal electric utilities	n.a.	n.a.	n.a.	n.a.
Other federal government enterprises	0.1	n.a.	0.1	0.1
State and local government enterprises				
State and local government passenger transit	n.a.	n.a.	n.a.	n.a.
State and local electric utilities	n.a.	n.a.	n.a.	n.a.
Other state and local government enterprises	0.5	n.a.	0.3	0.2

SOURCE: Congressional Budget Office.

NOTES: The calculated price increases assume that energy taxes are passed on and added to the price of commodities. The price increases shown for energy products do not include the tax on their energy content.

n.a. = not available.

TABLE A-2. PRICE INCREASES PAID BY CONSUMERS UNDER ALTERNATIVE ENERGY TAXES (In percent)

	Percentage Increase in Price Under			
	Btu Tax on All Energy (30 cents per million Btus)	Ad Valorem Tax on All Energy (5 per- cent of value)	Oil Excise Tax (30 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Food and Tobacco				
Food purchased for off-premise consumption	0.4	0.4	0.4	0.3
Purchased meals and beverages	0.3	0.3	0.2	0.2
Food furnished to employees	0.5	0.4	0.4	0.3
Food produced and consumed on farms	0.5	0.4	0.4	0.3
Tobacco products	0.1	0.1	0.1	0.1
Clothing, Accessories, and Jewelry				
Shoes and other footwear	0.4	0.3	0.3	0.3
Women's and children's clothing	0.4	0.3	0.3	0.3
Men's and boys' clothing	0.4	0.3	0.3	0.3
Standard clothing issued to military personnel	0.5	0.4	0.3	0.2
Cleaning, storage, and repair of clothing and shoes	0.3	0.3	0.3	0.2
Jewelry and watches	0.4	0.3	0.3	0.3
Other clothing, accessories, and jewelry	0.3	0.3	0.3	0.2
Personal Care				
Toilet articles and preparations	0.4	0.3	0.3	0.2
Barbershops and beauty parlors	0.4	0.3	0.3	0.2
Housing				
Owner-occupied nonfarm dwellings (Implicit rental value)	0.1	0.1	0.1	0.1
Tenant-occupied nonfarm dwelling (Rent)	0.1	0.1	0.1	0.1
Rental value of farm dwellings	0.2	0.1	0.2	0.2
Other housing	0.3	0.2	0.2	0.2
Household Operation				
Furniture	0.5	0.4	0.4	0.4
Kitchen and other household appliances	0.6	0.5	0.4	0.4
China, glassware, tableware, and utensils	0.6	0.4	0.4	0.4
Other durable home furnishings	0.5	0.4	0.4	0.3
Semidurable home furnishings	0.5	0.4	0.3	0.3
Cleaning preparations and household supplies	0.5	0.4	0.4	0.3
Stationery and writing supplies	0.5	0.4	0.4	0.3
Electricity	4.5	5.2	1.1	0.2
Natural gas	6.3	5.4	0.2	0.2
Water and other sanitary services	0.9	0.5	0.5	0.4
Fuel oil and coal	5.0	5.6	8.7	0.3
Telephone and telegraph	0.2	0.2	0.1	0.1
Domestic service	0	0	0	0
Other household operation	0.3	0.3	0.5	0.6
Medical Care				
Drug preparations and sundries	0.3	0.2	0.2	0.2
Ophthalmic products and orthopedic appliances	0.3	0.3	0.3	0.3
Physicians	0.2	0.2	0.1	0.1
Dentists	0.2	0.2	0.1	0.1
Other professional medical services	0.2	0.2	0.2	0.1
Privately controlled hospitals and sanitariums	0.2	0.2	0.2	0.1
Health insurance	0.1	0.1	0.1	0.1
Personal Business				
Brokerage charges and investment counseling	0.3	0.2	0.3	0.3
Bank service charges and trust services	0.1	0.1	0.1	0.1
Financial services furnished without payment	0.1	0.1	0.1	0.1
Expense of handling life insurance	0.1	0.1	0.1	0.2
Legal services	0.1	0.1	0.1	0.1
Funeral and burial expenses	0.3	0.2	0.2	0.2
Other personal business	0.2	0.2	0.2	0.1

(Continued)

TABLE A-2. CONTINUED

Consumer Goods and Services	Percentage Increase in Price Under			
	Btu Tax on All Energy (30 cents per million Btus)	Ad Valorem Tax on All Energy (5 per- cent of value)	Oil Excise Tax (80 cents per million Btus)	Motor Fuels Tax (\$1.45 increase per million Btus)
Transportation				
New autos	0.5	0.4	0.3	0.3
Net purchases of used autos	0.1	0.1	0.1	0.1
Other motor vehicles	0.4	0.3	0.3	0.2
Tires, tubes, accessories, and other parts	0.7	0.5	0.5	0.4
Auto repair, greasing, washing, parking, and rental	0.4	0.3	0.3	0.3
Gasoline and oil	3.8	5.5	8.6	14.6
Bridge, tunnel, ferry, and road tolls	0.3	0.2	0.2	0.1
Auto insurance premiums less claims paid	0.1	0.1	0.1	0.1
Local bus transportation	0.8	0.8	1.2	1.7
Taxicab transportation	0.8	0.8	1.2	1.8
Commuter rail transportation	0.7	0.6	1.4	0.2
Intercity rail transportation	0.6	0.5	1.2	0.2
Intercity bus transportation	0.8	0.7	1.1	1.7
Airline transportation	1.3	1.0	2.8	0.2
Other intercity transportation	0.3	0.2	0.4	0.4
Recreation				
Books and maps	0.3	0.3	0.3	0.3
Magazines, newspapers, and sheet music	0.4	0.3	0.3	0.2
Nondurable toys and sport supplies	0.5	0.4	0.4	0.3
Durable toys, sports equipment, boats, and aircraft	0.4	0.3	0.3	0.3
Radios, TVs, records, and musical instruments	0.6	0.5	0.5	0.5
Radio and television repair	0.3	0.3	0.3	0.2
Flowers, seeds, and potted plants	0.4	0.4	0.5	0.4
Motion pictures	0.2	0.2	0.2	0.1
Legitimate theaters and opera	0.2	0.2	0.2	0.1
Spectator sports	0.2	0.2	0.2	0.1
Clubs and fraternal organizations	0.3	0.2	0.2	0.2
Amusements	0.4	0.3	0.5	0.3
Parimutuel net receipts	0.2	0.2	0.2	0.2
Other recreation	0.3	0.2	0.2	0.2
Private Education and Research				
Private higher education	0.2	0.2	0.2	0.1
Private elementary and secondary schools	0.3	0.2	0.2	0.1
Other private education and research	0.3	0.2	0.2	0.1
Other Consumption				
Religious and welfare activities	0.3	0.2	0.2	0.1
Foreign travel	0.5	0.4	1.2	0.1
Expenditures abroad	0	0	0	0
Total Consumption	0.6	0.6	0.6	0.6

SOURCE: Congressional Budget Office.

NOTE: The calculated price increases assume that energy taxes are passed on and added to the price of goods and services.

