

# SPECIAL REPORT

March 1994  
Number 29

## The Taxation of Energy in the U.S.: Who Pays?

By Arthur P. Hall, Ph.D.  
Senior Economist  
Tax Foundation

Governments at all levels in the United States have become increasingly interested in using energy consumption as a tax base, as the escalating tax burden depicted in *Figure 1* shows. The Clinton administration's unsuccessful proposal for a tax based on British Thermal Units (or BTUs) in its fiscal year 1994 budget received high-profile attention and opposition. In the end, Congress instead passed

a gasoline tax increase of 4.3 cents per gallon. Thirteen states followed this example — continuing a trend that began in 1990 — and enacted higher gasoline tax rates for fiscal year 1994. Furthermore, not including the more than \$200 million in motor fuel tax increases, \$160.6 million (3.9 percent) of all state tax increases enacted for fiscal year 1994 were energy-related taxes.

The interest in energy taxes typically couples a perceived need for greater tax revenue with arguments about the need for greater energy conservation and environmental protection. These arguments have continued despite the sparse amount of information about the total amount of energy-related taxes Americans already pay.

*Table 1* breaks down the various categories of energy-related taxes and the 1993 tax burden for each category by income class. (*Table 4* shows the totals for each state.) The categories are arranged according to state- and federal-level taxes. *Table 2* shows the 1993 per-household burden of each category of energy-related taxes according to income group. (The side bar on page 10 provides definitions for the various tax categories.)

### Tax Incidence: Understanding Who Bears the Economic Burden of Energy Taxes

Tax incidence analysis seeks to discover who bears the real economic burden of a tax. The analysis focuses, therefore, on direct taxes as well as indirect taxes. That is, it investigates whose income is reduced through the indirect taxation of goods and services or the taxation of business entities.

In a market economy, a person or institution that pays the government money as the result of

*Figure 1*  
Total Energy-Related Excise Taxes, 1950-1994  
(Constant 1993 Dollars)

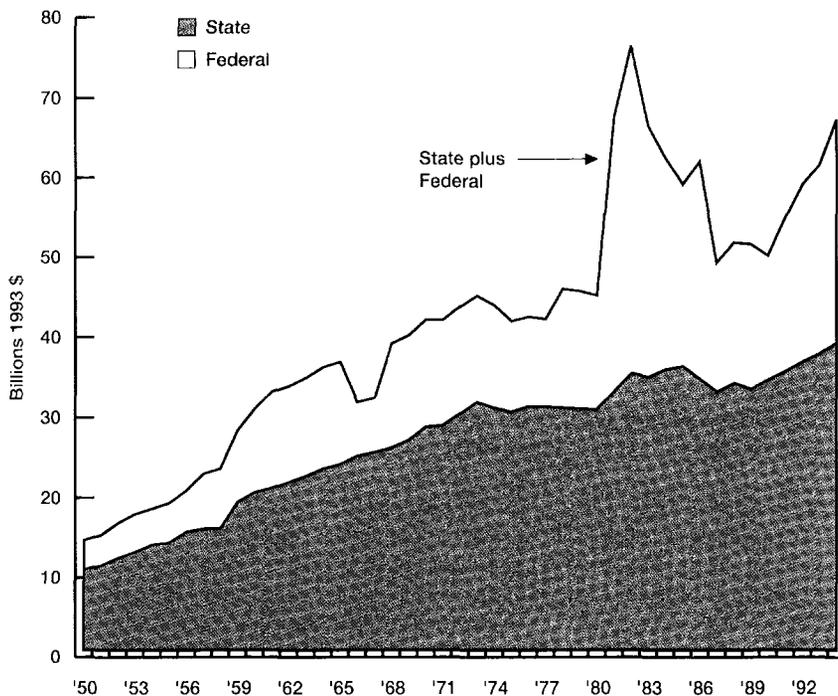
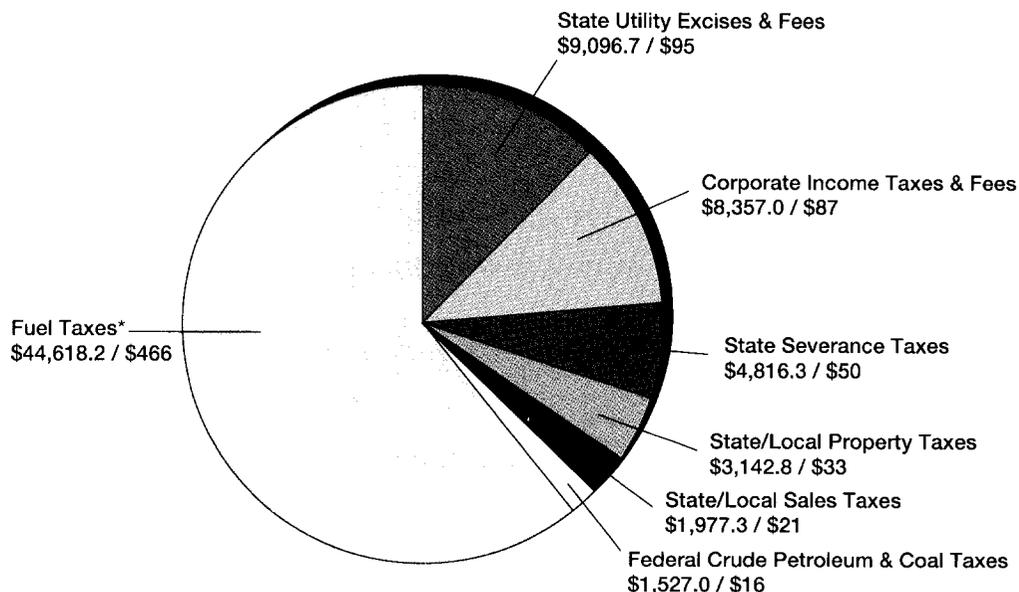


Figure 2  
Federal and State Energy-Related Tax Collections by Source, 1993  
(Millions\$ / Average Per Household)



\* Includes gasoline, diesel, and aviation fuel.

Source: Tax Foundation.

an indirect tax probably does not bear the whole economic burden. As individuals and businesses attempt to shift the tax onto others, the real burden is spread around.

A key aspect of tax incidence analysis centers on the idea that businesses do not pay taxes, people pay taxes. Levies on business, direct or indirect, can be disbursed in any of four different ways, either separately or in combination. For example, an excise tax imposed on oil production may be (1) shifted forward to consumers of oil in the form of higher prices; (2) shifted backwards onto labor by reducing wages (or wage rate growth); (3) absorbed (by reducing interest, rent, or royalty payments) by people who have invested not in the producing company, but in the company's debt or in property the company rents; or (4) absorbed by the producer, thereby reducing profits for the owners of the producing company.

Understanding how market forces will distribute the tax incidence among these four possibilities has tax policy implications because it helps inform policy makers about the distribution of a particular tax's burden over various income groups. Taxes that tend to fall more heavily (as a percent of income) on higher-income groups are called "progressive" taxes. Taxes that fall more heavily on lower-income groups are called

"regressive" taxes. Typically, excise taxes are considered the most regressive type of tax, and, as Table 1 shows, most energy-related taxes are excise taxes.

The "Total" column reported in Table 3 supports the notion that energy taxes tend to have a regressive tax incidence. The table reports, by type of tax and income class, the estimated amount of energy-related taxes paid as a percent of personal income in 1993. Examination of each type of tax in Table 3 reveals, however, that certain categories of energy taxation have more regressive or progressive properties than energy-related taxation as a whole. This finding is broadly consistent with other research on energy tax incidence.

For example, a 1993 study by economists Stephen Casler and Aisha Rafiqui of Allegheny College demonstrate that the incidence of a tax changes when one distinguishes between the direct and indirect consumption of a taxed energy source. For example, a tax on natural gas is assumed to increase its market price. Consumers will bear the price increase directly if they purchase natural gas, or indirectly if they purchase a product that required natural gas to make it.

Casler and Rafiqui show that when one combines the indirect price effects of energy

excise taxes with the direct price effects of these taxes, energy taxes become much less regressive — almost proportional across income groups in some cases. That is, when one considers that increased energy costs due to taxation are factored into the price of almost every type of good produced (energy and non-energy), the taxes fall on higher-income groups more heavily than otherwise. Lower-income groups tend to consume more of their energy directly, while higher-income groups tend to consume their energy indirectly through the goods they purchase. That is why the regressive burden of gasoline changes the least when one accounts for indirect consumption. Most gas consumption tends to occur directly at the household level.

*Table 5* shows estimates of direct consumer expenditures on different types of energy as a percent of personal income. In each category of *Table 5*, the lower a family's income, the greater the fraction of personal income represented by direct energy expenditures. Consequently, lower-income groups will bear a relatively larger share of direct energy-related taxes if producers pass the tax forward in the form of higher prices.

On the other hand, if market forces shift energy taxes forward to consumers both directly and indirectly, then broad-based energy taxes—like the recently proposed federal BTU tax or a carbon tax—may burden different income groups almost proportionately. However, no hard evidence exists to suggest that all energy-related taxes get passed forward in the form of higher prices. Moreover, even broad-based energy taxes, not to mention the targeted excises listed in *Table 1*, may have an unequal burden on various goods, inputs, or outputs. Any unequal tax burden will alter business's production decisions and thereby alter the labor and investment income earned from different enterprises.

Among the taxes listed in *Table 1*, gasoline taxes (and perhaps some portion of noncommercial aviation fuel and coal excises) are probably passed forward the most. Gasoline is consumed predominantly at the household level and the federal gas tax (which is an excise at the manufacturer's level) affects all gasoline producers equally. The producers can therefore successfully pass the tax forward, even though higher prices for gasoline reduce consumption and consequently reduce the amount of labor and capital employed in gasoline production.

Every other tax listed in *Table 1* raises the cost of production of specific goods or services in specific market segments. As a result, a larger share of the tax incidence is probably shifted onto labor or investment income. Moreover, any fraction of the tax passed forward to final consumer goods necessarily reduces the value of

people's income, regardless of whether that income came from labor or investments.

Take state severance taxes on oil drilling for example. These taxes directly increase the cost of drilling for oil. The increased cost of production must somehow be absorbed or passed forward. If the cost is to be absorbed, oil producers must lower the return they pay to their current investors, reduce the wages they offer their employees, or both. Neither the investors nor the employees will accept this situation, however, if alternatives exist. Current investors, will only accept lower returns if they are unable to pass the higher tax costs onto others. Employees, on the other hand, will be able to resist bearing the tax only to the extent that the employer is unable to replace them with prospective employees who would be willing to perform the same job at a lower wage.

To the degree that oil producers can pass the taxes forward to businesses that use oil to produce other goods — and evidence suggests that severance taxes do get passed forward to a large extent — then the business that uses the oil must go through the same process to determine which group will bear the tax. Furthermore, this process repeats itself simultaneously for every type of tax levy. In this way, a tax that seems targeted to a specific group or economic sector gets distributed to people throughout the economy.

## State-by-State Distribution of Energy Taxes

California, Texas, New York, Illinois, and Florida are the top five states with the highest total energy-related tax burden. These states typically hold the top spots of any tax ranking because of their sheer size. Similarly, the small states of Vermont, South Dakota, Delaware, Rhode Island, and North Dakota rank as the bottom five. (The District of Columbia, if a state, would have the lowest total energy-related tax burden.)

More insightful information on energy-related tax burdens comes from evaluating two other categories of statistics: the energy-related tax burdens per household in the various states, and the total state tax burden, per tax category, relative to what the state collected in revenue per tax category.

A major source of the energy-related tax burden in the United States is the burden placed on the various energy-related business enterprises — coal mining, oil and gas extraction, petroleum and coal products, pipelines, and electric and gas services. Combined, these enterprises account for about 4.5 percent of gross domestic product (or about \$242.4 billion in 1993).

**Table 1**  
*Energy Tax Burden by Income Class and Type of Tax, 1993*  
(Millions\$)

Income Class	State					State & Local	
	Motor Fuel Taxes	Public Utility Taxes	Severance Taxes	Income Taxes & Corp. Fees	Public Utility Fees	Sales Taxes	Property Taxes
under \$15,000	\$4,093.6	\$1,016.2	\$553.2	\$234.8	\$31.5	\$237.2	\$91.3
\$15,000 under \$22,500	2,971.8	739.6	425.4	182.2	32.2	172.7	106.7
\$22,500 under \$30,000	2,950.7	752.7	410.8	174.4	31.9	175.7	123.8
\$30,000 under \$35,000	1,904.1	465.4	246.0	103.9	27.7	108.7	130.9
\$35,000 under \$45,000	1,835.2	532.8	347.1	151.4	25.5	124.4	141.1
\$45,000 under \$60,000	3,247.8	971.2	541.4	230.7	49.4	226.7	348.7
\$60,000 under \$75,000	2,056.6	817.5	412.3	172.6	41.3	190.8	340.6
\$75,000 under \$115,000	2,461.1	1,164.9	582.1	243.4	79.0	271.9	562.6
\$115,000 under \$150,000	788.9	472.1	246.6	103.9	47.1	110.2	276.6
\$150,000 under \$300,000	647.4	540.0	320.9	138.1	75.0	126.1	358.1
\$300,000 under \$750,000	264.5	381.1	249.4	108.8	60.0	89.0	244.7
\$750,000 or more	146.2	617.2	481.2	214.5	125.5	144.1	417.9
Total	\$23,368.0	\$8,470.6	\$4,816.3	\$2,058.8	\$626.1	\$1,977.3	\$3,142.8

\* Includes boat fuel tax, "gas guzzler" tax, Leaking Underground Storage Tank Trust Fund tax, and gasohol tax.

Source: Tax Foundation.

**Table 2**  
*Energy Tax Burden per Household by Income Class and Type of Tax, 1993*

Income Class	State					State & Local		Federal					Total	
	Motor Fuel Taxes	Public Utility Taxes	Severance Taxes	Income Taxes & Corp. Fees	Public Utility Fees	Sales Taxes	Property Taxes	Motor Gasoline Excises*	Income Tax	Diesel Fuel Excises	Petroleum Excises	Coal Excises		Aviation Fuel Excises
under \$15,000	\$128	\$32	\$17	\$7	\$1	\$7	\$3	\$90	\$23	\$18	\$3	\$2	\$0**	\$332
\$15,000 under \$22,500	327	81	47	20	4	19	12	230	61	45	9	6	1	860
\$22,500 under \$30,000	288	73	40	17	3	17	12	202	52	40	8	6	1	759
\$30,000 under \$35,000	235	57	30	13	3	13	16	165	40	32	6	4	1	617
\$35,000 under \$45,000	280	81	53	23	4	19	22	197	69	45	9	6	1	808
\$45,000 under \$60,000	311	93	52	22	5	22	33	219	68	51	10	7	2	895
\$60,000 under \$75,000	285	113	57	24	6	26	47	201	75	62	12	9	2	920
\$75,000 under \$115,000	317	150	75	31	10	35	72	223	98	83	16	11	3	1,124
\$115,000 under \$150,000	359	215	112	47	21	50	126	252	147	118	23	16	6	1,492
\$150,000 under \$300,000	417	348	207	89	48	81	231	293	270	192	37	26	11	2,250
\$300,000 under \$750,000	553	796	521	227	125	186	511	389	681	439	84	60	23	4,597
\$750,000 or more	948	3,999	3,118	1,390	813	934	2,708	666	4,077	2,205	420	301	124	21,702

\* Includes boat fuel tax, "gas guzzler" tax, Leaking Underground Storage Tank Trust Fund tax, and gasohol tax.

\*\* 13 cents.

Source: Tax Foundation.

Aside from an array of excise taxes, these businesses "pay" income taxes at the federal level and income, sales, and property taxes at the state and local level. The distribution of these enterprises among the states, combined with each state's energy consumption, helps determine the distribution of the energy-related tax burden.

Except for electric and gas services (primarily utilities), the largest component of the

energy sector is the oil and gas extraction industry. Not surprisingly, the energy producing states bear the heaviest household burden from the state and federal taxation of this industry.

As *Table 1* shows, the federal income tax is about three times more burdensome than state-level income taxes. A large part of this federal burden falls on the oil and gas extraction industry. Beginning with the Tax Reform Act of

Motor Gasoline Excises*	Income Tax	Federal				Aviation Fuel Excises	Total (Millions)
		Diesel Fuel Excises	Petroleum Excises	Coal Excises			
\$2,879.3	\$723.4	\$560.2	\$106.6	\$76.6	\$4.2	\$10,607.9	
2,090.3	556.2	407.8	77.6	55.7	4.9	7,823.1	
2,075.4	537.2	415.0	79.0	56.7	5.7	7,788.9	
1,339.3	321.7	256.6	48.8	35.1	6.0	4,994.2	
1,290.8	454.0	293.8	55.9	40.1	6.5	5,298.7	
2,284.4	707.9	535.4	101.9	73.2	16.0	9,334.7	
1,446.5	539.1	450.7	85.8	61.6	15.6	6,630.9	
1,731.0	761.2	642.2	122.2	87.8	25.8	8,735.2	
554.9	322.5	260.3	49.5	35.6	12.7	3,280.9	
455.3	419.6	297.7	56.7	40.7	16.4	3,491.8	
186.1	326.1	210.1	40.0	28.7	11.2	2,199.8	
102.9	629.2	340.3	64.8	46.5	19.2	3,349.4	
\$16,436.1	\$6,298.2	\$4,670.1	\$888.7	\$638.3	\$144.1	\$73,535.4	

Table 3  
Energy Tax Burden as a Percent of Personal Income by Type of Tax, 1993

Income Class	State					State & Local		Federal					Total	
	Motor Fuel Taxes	Public Utility Taxes	Severance Taxes	Income Taxes & Corp. Fees	Public Utility Fees	Sales Taxes	Property Taxes	Motor Gasoline Excises*	Income Tax	Diesel Fuel Excises	Petroleum Excises	Coal Excises		Aviation Fuel Excises
under \$15,000	0.618%	0.153%	0.083%	0.035%	0.014%	0.036%	0.005%	0.434%	0.109%	0.085%	0.016%	0.012%	0.001%	1.601%
\$15,000 under \$22,500	0.636	0.158	0.091	0.039	0.023	0.037	0.007	0.447	0.119	0.087	0.017	0.012	0.001	1.674
\$22,500 under \$30,000	0.602	0.154	0.084	0.036	0.025	0.036	0.007	0.423	0.110	0.085	0.016	0.012	0.001	1.589
\$30,000 under \$35,000	0.617	0.151	0.080	0.034	0.042	0.035	0.009	0.434	0.104	0.083	0.016	0.011	0.002	1.619
\$35,000 under \$45,000	0.593	0.172	0.112	0.049	0.046	0.040	0.008	0.417	0.147	0.095	0.018	0.013	0.002	1.712
\$45,000 under \$60,000	0.520	0.155	0.087	0.037	0.056	0.036	0.008	0.366	0.113	0.086	0.016	0.012	0.003	1.494
\$60,000 under \$75,000	0.371	0.147	0.074	0.031	0.061	0.034	0.007	0.261	0.097	0.081	0.015	0.011	0.003	1.195
\$75,000 under \$115,000	0.310	0.147	0.073	0.031	0.071	0.034	0.010	0.218	0.096	0.081	0.015	0.011	0.003	1.100
\$115,000 under \$150,000	0.251	0.150	0.078	0.033	0.088	0.035	0.015	0.176	0.102	0.083	0.016	0.011	0.004	1.042
\$150,000 under \$300,000	0.194	0.162	0.096	0.041	0.107	0.038	0.022	0.136	0.126	0.089	0.017	0.012	0.005	1.045
\$300,000 under \$750,000	0.120	0.173	0.113	0.049	0.111	0.040	0.027	0.084	0.148	0.095	0.018	0.013	0.005	0.997
\$750,000 or more	0.048	0.202	0.157	0.070	0.137	0.047	0.041	0.034	0.206	0.111	0.021	0.015	0.006	1.095
Total	0.434%	0.157%	0.089%	0.038%	0.058%	0.037%	0.012%	0.305%	0.117%	0.087%	0.016%	0.012%	0.003%	1.365%

\* Includes boat fuel tax, "gas guzzler" tax, Leaking Underground Storage Tank Trust Fund tax, and gasohol tax.

Source: Tax Foundation.

1969, a series of legislative measures in the 1970s increased the federal income tax burden on energy production and exploration substantially, mostly by eliminating or curtailing past provisions that allowed for the deduction of production and exploration costs. In 1980 came the crude oil windfall profits excise tax, whose burden shows up clearly in *Figure 1*. Congress repealed this tax in 1988, but not before passing the Tax Reform Act of 1986. This Act, with its alternative

minimum tax provision, substantially increased the burden and complexity of the federal income tax as it relates to energy production and exploration. The AMT not only made the income tax regressive with regard to energy producers (less profitable producers bear a greater tax burden), it also increased the cost of income tax compliance. Compliance costs alone for the oil and gas industry significantly exceed the average cost of compliance among other industry groups.

**Table 4**  
**Total 1993 Energy Tax Burden by State and Type of Tax**  
**(\$Millions)**

State	State					State & Local	
	Motor Fuel Taxes	Public Utility Taxes	Severance Taxes	Income Taxes & Corp. Fees	Public Utility Fees	Sales Taxes	Property Taxes
Alabama	\$488.0	\$121.9	\$60.8	\$25.2	\$24.6	\$4.9	\$7.7
Alaska	40.8	18.2	130.7	162.0	0.8	1.1	114.5
Arizona	369.9	112.3	55.6	18.1	5.9	3.5	7.1
Arkansas	307.5	46.6	27.5	16.0	4.9	1.5	4.9
California	2,430.6	967.8	558.5	254.7	78.4	299.0	506.7
Colorado	380.7	180.1	57.8	25.3	5.3	13.2	94.4
Connecticut	379.8	150.3	89.2	21.9	9.5	5.0	7.6
Delaware	75.9	25.1	12.5	4.8	2.0	0.1	1.4
Dist. of Col.	34.0	28.6	13.4	1.7	1.5	0.2	1.9
Florida	1,188.3	440.8	242.6	61.4	35.3	37.1	27.0
Georgia	350.3	180.3	97.1	26.8	8.7	11.1	8.3
Hawaii	130.4	46.4	18.9	5.7	2.8	0.3	2.1
Idaho	147.4	20.9	11.6	3.4	6.3	0.2	1.1
Illinois	1,081.8	498.4	214.6	71.5	21.8	50.8	271.3
Indiana	603.6	151.0	81.0	24.9	7.2	8.2	11.6
Iowa	350.2	66.1	37.6	5.9	5.5	1.5	3.6
Kansas	263.6	66.6	51.8	29.1	4.8	37.8	130.0
Kentucky	374.5	80.7	73.5	33.4	4.5	4.2	12.8
Louisiana	493.9	92.3	118.2	122.2	5.3	78.8	142.2
Maine	138.5	31.8	17.6	4.4	1.7	0.4	2.8
Maryland	476.7	197.9	97.7	15.1	9.3	6.4	7.2
Massachusetts	557.1	239.2	130.1	26.5	13.2	10.1	8.9
Michigan	782.6	285.1	161.1	60.2	19.8	25.8	24.9
Minnesota	469.6	130.1	72.2	20.3	6.9	5.1	7.7
Mississippi	319.0	49.8	29.3	24.2	2.9	72.0	7.6
Missouri	458.9	137.7	77.3	18.8	11.5	6.0	5.6
Montana	115.9	9.8	28.1	12.7	1.4	0.2	6.6
Nebraska	231.1	38.7	22.2	2.6	2.2	0.2	1.2
Nevada	187.9	36.8	25.8	5.6	2.3	0.5	2.0
New Hampshire	97.1	45.0	23.5	2.9	3.7	0.3	2.0
New Jersey	412.0	734.2	193.3	57.8	19.8	27.0	26.3
New Mexico	190.1	34.1	53.0	35.7	1.7	14.8	65.2
New York	695.9	805.4	371.5	71.2	51.2	580.8	44.2
North Carolina	649.8	214.2	92.3	24.1	8.2	9.5	6.5
North Dakota	84.9	15.7	22.2	7.6	0.7	2.7	1.9
Ohio	1,174.5	401.2	168.1	74.9	15.4	40.2	31.8
Oklahoma	360.9	71.9	95.1	73.8	5.6	95.7	6.6
Oregon	282.4	71.9	40.0	6.9	6.3	1.3	4.8
Pennsylvania	683.9	367.8	193.0	104.1	122.3	53.1	245.2
Rhode Island	67.2	41.1	17.7	2.9	1.8	0.2	1.2
South Carolina	360.6	84.4	42.6	8.3	4.6	2.4	12.6
South Dakota	86.0	13.6	8.0	2.1	0.8	0.1	0.9
Tennessee	594.7	125.0	74.6	6.2	7.3	1.7	1.9
Texas	2,085.7	484.0	431.4	353.9	27.6	419.3	1,042.4
Utah	184.1	38.2	22.2	14.8	4.1	1.2	6.2
Vermont	58.1	8.1	9.0	1.3	0.9	0.1	8.0
Virginia	654.2	207.1	110.6	35.5	10.5	10.2	14.4
Washington	609.6	164.2	78.3	14.0	13.6	4.8	7.8
West Virginia	228.8	7.6	42.3	31.6	5.6	2.0	14.2
Wisconsin	535.7	72.8	75.5	17.2	7.2	5.1	13.0
Wyoming	43.5	11.8	38.4	7.9	1.1	19.9	155.0
All States	\$23,367.98	\$8,470.57	\$4,816.30	\$2,058.77	\$626.14	\$1,977.3	\$3,142.83

\* Includes boat fuel tax, "gas guzzler" tax, Leaking Underground Storage Tank Trust Fund tax, and gasohol tax.  
Note: Details may not add due to rounding.

Source: Tax Foundation.

Federal								
Motor Gasoline Excises*	Income Tax	Diesel Fuel Excises	Petroleum Excises	Coal Excises	Aviation Fuel Excises	Total (Millions)	Per Household	Household Rank by State
\$306.7	\$84.6	\$87.1	\$14.2	\$22.9	\$0.5	\$1,249.0	\$801	17
36.8	108.5	10.4	6.2	0.5	4.6	635.1	3,031	1
242.3	57.6	68.8	9.2	11.5	2.2	964.0	633	45
179.6	55.8	51.0	7.4	7.2	0.5	710.4	777	20
1,892.0	714.6	537.6	93.8	2.3	24.5	8,360.6	762	24
220.4	89.8	62.6	8.7	11.0	1.6	1,150.9	848	12
190.3	56.9	54.4	11.3	0.9	0.6	977.9	768	22
49.5	13.9	14.1	3.5	2.0	0.3	205.0	787	19
25.2	5.3	7.2	1.0	0.1	0.0	120.0	484	51
859.9	234.6	244.3	40.7	20.5	8.1	3,440.6	610	47
517.9	80.1	147.2	22.1	24.2	4.8	1,478.9	583	49
54.3	19.4	15.4	7.8	0.0	3.3	306.9	814	15
70.7	12.2	20.1	3.2	0.3	0.3	297.5	801	18
749.6	228.5	213.0	32.6	25.1	1.1	3,460.0	814	14
384.8	74.0	109.3	22.3	45.9	4.7	1,528.3	725	28
195.1	21.8	55.4	8.1	11.1	0.3	762.1	714	30
177.2	87.7	50.3	10.7	9.2	1.0	919.7	951	9
267.4	113.1	76.0	13.6	27.0	1.5	1,082.3	764	23
274.6	434.8	78.0	38.1	7.1	6.7	1,892.0	1,240	3
86.8	14.8	24.7	6.3	0.2	0.6	330.5	677	37
292.4	49.1	83.1	13.2	9.6	1.0	1,258.7	682	34
347.1	75.1	98.6	20.8	3.9	2.6	1,533.1	662	39
621.7	162.8	176.7	23.8	26.5	2.7	2,373.7	680	36
296.7	61.0	84.3	13.2	10.9	1.4	1,179.5	689	33
182.3	77.1	51.8	10.5	3.5	1.8	831.8	887	11
396.3	69.3	112.6	16.4	18.2	1.7	1,330.3	660	40
63.6	49.1	18.1	3.9	5.5	0.2	315.2	1,007	7
113.2	9.8	32.2	5.4	4.8	0.4	463.9	758	25
91.4	20.6	26.0	4.5	5.5	1.6	410.3	775	21
71.7	7.9	20.4	4.1	1.1	0.2	279.9	634	44
482.9	168.0	137.2	31.7	2.8	11.9	2,304.8	803	16
115.1	119.8	32.7	5.9	9.2	0.7	678.1	1,176	5
861.5	217.2	244.8	47.0	11.7	1.5	4,003.8	595	48
482.8	75.8	137.2	18.8	17.9	1.5	1,738.5	649	42
50.7	27.9	14.4	2.9	12.5	0.3	244.5	1,003	8
686.8	239.1	195.2	29.7	48.0	2.8	3,107.7	746	26
244.1	226.5	69.4	11.5	9.3	2.0	1,272.4	1,032	6
195.1	24.8	55.4	9.4	0.5	0.9	699.6	614	46
665.7	326.9	189.1	33.9	47.8	3.2	3,035.9	663	38
54.1	9.2	15.4	2.7	0.0	0.2	213.6	549	50
269.8	27.7	76.7	10.7	9.8	0.8	911.0	682	35
55.4	8.7	15.7	2.7	1.1	0.3	195.4	740	27
360.3	18.4	102.4	15.6	20.2	1.1	1,329.5	689	32
1,274.2	1,267.3	362.0	118.3	44.9	24.8	7,935.7	1,228	4
104.5	48.7	29.7	5.2	12.4	1.4	472.7	834	13
40.8	4.4	11.6	1.8	0.0	0.0	144.1	653	41
435.9	115.1	123.9	19.9	11.2	4.0	1,752.5	719	29
329.8	54.5	93.7	20.9	2.9	5.8	1,399.7	705	31
122.1	110.6	34.7	7.8	29.3	0.1	636.6	924	10
301.6	54.4	85.7	12.5	13.3	0.4	1,194.3	637	43
44.3	63.7	12.6	3.4	15.3	0.0	416.8	2,472	2
\$16,436.08	\$6,298.22	\$4,670.05	\$888.72	\$638.30	\$144.12	\$73,535.37	\$768	

**Table 5**  
*Estimates of Energy Expenditures as a Percent of Personal Income, 1993*

Income Class	Natural Gas	Electricity	Gasoline & Motor Oil	Total*
under \$15,000	1.21%	3.37%	3.68%	8.66%
\$15,000 under \$22,500	0.98%	3.05%	3.78%	8.18%
\$22,500 under \$30,000	0.83%	2.69%	3.58%	7.42%
\$30,000 under \$35,000	0.78%	2.77%	3.67%	7.55%
\$35,000 under \$45,000	0.77%	2.54%	3.53%	7.12%
\$45,000 under \$60,000	0.69%	2.15%	3.09%	6.18%
\$60,000 under \$75,000	0.50%	1.61%	2.21%	4.51%
\$75,000 under \$115,000	0.40%	1.31%	1.84%	3.71%
\$115,000 under \$150,000	0.31%	1.03%	1.49%	2.95%
\$150,000 under \$300,000	0.23%	0.76%	1.15%	2.24%
\$300,000 under \$750,000	0.13%	0.44%	0.71%	1.34%
\$750,000 or more	0.04%	0.15%	0.28%	0.50%
Total	0.63%	1.97%	2.58%	5.41%

\* Includes fuel oil, coal, bottled gas, wood, and other fuels.

Source: Tax Foundation estimates based on 1992 Census Bureau data.

On the state and local level, Allan Pulsipher, Robert Baumann, and Wumi Iledare of Louisiana State University have discovered that the 11 major oil and gas producing states — Alaska, California, Colorado, Kansas, Louisiana, Mississippi, New Mexico, North Dakota, Oklahoma, Texas, and Wyoming — place a relatively uniform tax burden on energy producers. When examined on a per-barrel basis, North Dakota, Alaska, and Wyoming have above-average energy tax burdens; Oklahoma and California have below-average burdens.

When the tax burden on oil and gas production is measured as a percent of the energy's market value, the rankings shift somewhat. The variations come from the various mix of taxes, particularly property versus severance taxes, and the various definitions of the property tax base — e.g., property taxes based on the value of the oil under the ground or simply the value of the equipment and structures. (Many states, like South Carolina and Illinois, also impose property taxes exclusively on utilities.)

As *Table 4* shows, the major energy producing states dominate the top end of the per-household ranking of energy-related tax burdens. However, these burdens are lower than state revenue collections would indicate because sizeable portions of the tax burden have been exported or shifted to the citizens of other states. For example, although at \$624 Alaskans have the highest household burden due to

severance taxation, *Table 4* shows that this figure derives from a total burden of \$130 million, not the \$1.15 billion Alaska collected in severance taxes in 1993.

Alaska and the other states that levy severance taxes exported much of their severance tax burden to the many states that levy no severance taxes. For example, Connecticut collected no severance taxes in 1993, but, as *Table 4* shows, the market-driven process of tax shifting places an \$89 million severance tax burden on the citizens of Connecticut, the eighth highest per-household severance tax burden (\$70). The process of tax exportation and shifting tax incidence arguably occurs for every tax evaluated herein, except, perhaps, for state and federal gasoline taxes.

One key implication of this process is that, while state governments may derive considerable revenue from energy taxation, the country as a whole becomes economically worse off, because energy is a primary input in the production of almost every good or service and energy taxation increases the cost of this vital input. A similar conclusion is found in the many studies of federal energy tax levies, broad-based or otherwise: The loss of economic well-being resulting from energy taxes exceeds the revenue generated for the government. And, as *Table 4* shows, the loss of well-being seems to be greatest for the lower-income citizens of the United States.

### **Tax Allocation Methods**

*With the exception of state motor fuels taxes and the federal gasoline excise tax, all of the excise tax categories show a tax burden allocated according to the respective share of labor and capital income in each state and the income classes within each state. The state motor fuel and federal gas taxes were allocated according to the findings of the latest (1992) Consumer Expenditure Survey conducted by the Bureau of the Census.*

*The allocation of the corporate income tax burden and state severance taxes assumed a 50-50 split between labor and capital income. The property tax allocation split the tax burden equally between capital income and property income. And the corporate franchise taxes and state public utility fees were allocated to capital income.*

*To estimate the energy sector's share of corporate income taxes (and the state franchise taxes not explicitly imposed upon energy-related businesses), along with sales and property taxes at the state and local levels, energy-sector shares of gross domestic product and gross state product were employed. In the case of property taxes, the estimates also*

**Table 6**  
*Federal Energy-Related Excise Tax Revenues by Type, 1950-1994*  
(*\$Millions*)

	Federal						State				Federal & State Total
	Gasoline <sup>a</sup>	Coal	Aviation Fuel <sup>b</sup>	Diesel Fuel	Petroleum <sup>c</sup>	Total <sup>d</sup>	Motor Fuels	Public Utilities	Severance	Total	
1950	\$526.7	\$0.0	\$0.0	\$0.0	\$96.5	\$709.0	\$1,544.5	\$194.6	\$210.7	\$1,949.8	\$2,658.7
1951	569.0	0.0	0.0	0.0	122.2	784.4	1,710.2	209.5	221.7	2,141.3	2,925.7
1952	713.2	0.0	0.0	0.0	122.2	888.4	1,870.3	241.9	271.7	2,384.0	3,272.4
1953	890.7	0.0	0.0	0.0	101.7	992.4	2,018.6	268.5	286.4	2,573.5	3,565.9
1954	836.9	0.0	0.0	18.0	97.8	952.6	2,218.1	279.8	312.0	2,810.0	3,762.6
1955	953.2	0.0	0.0	24.9	106.5	1,084.6	2,353.4	301.2	306.1	2,960.7	4,045.3
1956	1,030.4	0.0	0.0	24.5	110.3	1,165.1	2,687.1	318.7	360.7	3,366.5	4,531.6
1957	1,458.2	0.0	0.0	39.5	110.8	1,608.4	2,828.0	362.3	388.2	3,578.6	5,187.0
1958	1,636.6	0.0	0.0	46.1	105.1	1,787.8	2,918.8	365.8	369.5	3,654.1	5,441.9
1959	1,700.3	0.0	0.0	52.5	81.6	1,834.4	3,058.3	374.4	394.2	3,826.9	5,661.3
1960	2,015.9	0.0	0.0	71.9	81.7	2,169.5	3,335.4	389.0	419.7	4,144.1	6,313.5
1961	2,370.3	0.0	0.0	88.9	74.7	2,533.8	3,433.5	425.8	451.0	4,310.2	6,844.1
1962	2,412.7	0.0	0.0	105.2	73.1	2,591.0	3,667.1	442.4	450.9	4,560.4	7,151.3
1963	2,497.3	0.0	0.0	113.0	74.4	2,684.7	3,853.7	463.8	467.8	4,785.2	7,470.0
1964	2,618.4	0.0	0.0	128.1	76.3	2,822.8	4,058.7	527.1	489.5	5,075.4	7,898.1
1965	2,687.1	0.0	0.0	152.2	76.1	2,915.5	4,299.7	528.0	503.4	5,331.1	8,246.6
1966	1,465.0	0.0	0.0	80.6	45.3	1,590.9	4,626.6	582.4	545.3	5,754.3	7,345.2
1967	1,518.6	0.0	0.0	86.2	51.3	1,656.1	4,837.1	631.4	577.1	6,045.5	7,701.7
1968	3,030.8	0.0	0.0	201.9	92.3	3,325.0	5,178.2	699.9	618.4	6,496.5	9,821.5
1969	3,186.2	0.0	0.0	224.7	97.5	3,508.4	5,644.5	799.0	630.4	7,073.9	10,582.2
1970	3,430.1	0.0	0.0	257.7	87.5	3,775.3	6,282.9	959.0	685.9	7,927.8	11,703.1
1971	3,547.7	0.0	15.7	266.4	88.2	3,917.9	6,627.5	1,053.9	733.0	8,414.4	12,332.4
1972	3,741.2	0.0	28.2	298.6	95.5	4,163.5	7,216.2	1,257.9	757.6	9,231.7	13,395.1
1973	3,927.5	0.0	33.9	334.5	103.1	4,399.0	8,057.8	1,406.3	850.4	10,314.5	14,713.5
1974	4,087.7	0.0	42.8	373.4	105.7	4,609.6	8,206.6	1,503.4	1,255.0	10,965.0	15,574.7
1975	3,980.4	0.0	33.7	370.5	91.1	4,475.7	8,255.5	1,815.1	1,741.2	11,811.7	16,287.4
1976	4,180.9	0.0	39.8	390.2	95.6	4,706.5	8,659.7	2,142.3	2,028.7	12,830.8	17,537.2
1977	4,322.1	0.0	40.4	440.2	100.9	4,903.6	9,088.3	2,461.5	2,168.2	13,717.9	18,621.5
1978	6,555.7	0.0	42.2	481.4	105.2	7,184.6	9,501.3	2,725.8	2,492.9	14,720.0	21,904.6
1979	7,057.6	0.0	46.6	506.7	108.6	7,719.6	9,980.1	3,054.4	2,893.0	15,927.5	23,647.1
1980	4,219.9	251.3	47.4	512.7	3,160.1	8,191.4	9,721.6	3,488.4	4,167.4	17,377.4	25,568.8
1981	4,028.4	237.1	15.7	553.1	17,042.2	21,876.5	9,733.5	4,443.2	6,379.2	20,555.9	42,432.3
1982	4,244.8	426.6	1.0	598.8	22,356.4	27,627.7	10,437.4	5,101.9	7,829.7	23,369.0	50,996.7
1983	4,889.4	490.7	58.1	742.4	15,906.4	22,086.9	10,793.3	5,809.2	7,396.7	23,999.3	46,086.3
1984	9,070.0	525.4	75.7	1,571.4	8,159.9	19,402.4	12,395.6	6,064.8	7,266.4	25,726.8	45,129.2
1985	9,141.5	548.4	82.7	2,430.2	5,115.6	17,318.3	13,351.6	6,429.6	7,211.2	26,992.3	44,310.7
1986	9,097.0	561.2	78.0	2,614.0	8,878.7	21,228.8	14,086.9	6,284.4	6,125.4	26,496.7	47,725.5
1987	9,402.2	574.8	82.3	2,659.4	261.2	12,979.9	15,705.5	6,242.5	4,047.9	25,995.9	38,975.8
1988	9,751.3	601.3	223.8	3,148.7	928.8	14,653.9	17,196.2	6,426.2	4,326.4	27,948.9	42,602.7
1989	10,276.5	588.8	451.1	3,912.6	610.7	15,839.6	18,029.1	6,339.9	4,147.2	28,516.1	44,355.7
1990	9,857.2	649.5	220.0	3,134.2	227.8	14,088.7	19,379.2	6,781.3	4,682.5	30,843.0	44,931.8
1991	13,221.8	630.7	146.6	3,657.2	497.4	18,153.6	20,639.0	7,054.4	5,366.9	33,060.2	51,213.9
1992	15,717.8	630.6	146.0	4,158.4	826.7	21,479.6	22,197.9	8,054.0	4,647.5	34,899.4	56,379.0
1993	17,293.8e	638.2e	144.1e	4,669.9e	888.7e	23,634.7	22,867.3	9,216.7	4,988.9	37,072.9	60,707.6
1994e	22,152.9	654.1	198.9	4,838.0	955.4	28,799.3	24,760.1	9,811.0	4,946.9	39,518.1	

<sup>a</sup> Starting in 1980, gasoline totals include boat fuel, fuel economy tax on "gas guzzling" cars, and the fuel taxes that fund the Leaking Underground Storage Tank Trust Fund. Starting in 1986, includes taxes on gasohol.

<sup>b</sup> Starting in 1990, includes commercial aviation fuel tax for the Leaking Underground Storage Tank Trust Fund.

<sup>c</sup> Includes taxes on the transportation of petroleum and lubricating oils. Also includes crude oil windfall profits tax from 1980 to 1989.

<sup>d</sup> Totals from 1950-1952 include the federal excise tax on electrical energy, which was terminated beginning in 1953.

Note: 1993 and 1994 estimates based on OMB projections.

Source: Tax Foundation; Internal Revenue Service; Bureau of the Census.

employ the energy sector's "Current-Cost Gross Stock of Fixed Private Capital," as estimated by the Bureau of Economic Analysis for 1992. For the oil and gas extraction industry, the estimates incorporate the detailed research that has been done for the 11 states that account for most of the U.S. production of oil and natural gas.

In every percent-of-income calculation, personal income has been adjusted to account for the "missing" income often discovered among the lower-income groups. For example, families represented in the 1992 Bureau of the Census Consumer Expenditure Survey

categorized in the \$4,999 or less group, had an average before-tax "money income" of \$2,152. Yet families in this group had average annual expenditures amounting to \$13,300. For the \$5,000-\$9,999 group the figure was \$7,494 compared with \$12,250. For the \$10,000-\$14,999 group the figure was \$12,437 compared with \$17,391. Overall, families categorized in the under \$15,000 category have approximately 12.5 percent of total personal income. Much of this income takes the form of tax-financed transfer payments. About 17 percent of 1993 personal income took the form of transfer payments.

## Glossary

**State Motor Fuel Taxes:** Sales or gross receipt taxes on all forms of fuel used in motor vehicles, including aircraft.

**State Public Utility Taxes:** Taxes imposed distinctively on energy-related public utilities, such as light and power companies or natural gas companies, including local government owned utilities. The tax base varies across states according to gross receipts, gross earnings, or units of service sold.

**State Severance Taxes:** Taxes imposed distinctively on the removal of energy-related natural products from the earth, primarily oil, natural gas, and coal.

**State Corporate Income Taxes:** State corporate income taxes paid by businesses involved in energy-related enterprises. The five broad categories include coal mining, oil and gas extraction, petroleum and coal products, pipelines (except natural gas), and electric and gas services.

**State Corporate Fees:** Franchise license taxes and organization, filing, and entrance fees imposed upon the businesses identified under State Corporate Income Taxes.

**State and Local Property Taxes:** Property taxes paid by the businesses identified under State Corporate Income Taxes.

**State and Local Sales Taxes:** Sales taxes paid by the businesses identified under State Corporate Income Taxes.

**State Public Utility Fees:** License taxes imposed distinctively on energy-related public utilities, such as light and power companies or natural gas companies, including local government owned utilities.

**Federal Motor Gasoline Excises:** Federal taxes on gasoline, boat fuel, "gas guzzling" cars, gasohol, special motor fuels, and other miscellaneous fuel taxes that fund the Leaking Underground Storage Tank Trust Fund.

**Federal Corporate Income Tax:** Federal corporate income taxes paid by businesses involved in energy-related enterprises. The five broad categories include coal mining, oil and gas extraction, petroleum and coal products, pipelines (except natural gas), and electric and gas services.

**Federal Diesel Fuel Excises:** The various Federal excise taxes on all forms of diesel fuel.

**Federal Petroleum Excises:** Any excise relating to crude oil, or crude oil production and transportation, and lubricating oils. For the year 1993, these taxes primarily represent the taxes on petroleum used to fund the Leaking Underground Storage Tank and Oil Spill Liability Trust Funds.

**Federal Coal Excises:** The various excise taxes on coal used to fund the Black Lung Disability Trust Fund.

**Federal Aviation Fuel Excises:** The various excise taxes on noncommercial aviation gasoline and fuels used to fund the Airport and Airways Trust Fund. The taxes on commercial aviation fuel that help fund the Leaking Underground Storage Tank Trust Fund.

SPECIAL REPORT  
(ISSN 1068-0306) is published  
at least 8 times yearly by the  
Tax Foundation, an  
independent 501(c)(3)  
organization chartered in the  
District of Columbia.

4-12 pp.  
Annual subscription: \$25.00  
Individual issues \$5

The Tax Foundation, a  
nonprofit, nonpartisan  
research and public education  
organization, has monitored  
tax and fiscal activities at all  
levels of government since  
1937.

©1994 Tax Foundation

Librarians:  
Back issues (January 1990 -  
November 1992) have been  
numbered retroactively and  
are all available from the Tax  
Foundation.

Editor and Communications  
Director  
Stephen Gold

Tax Foundation  
1250 H Street, NW  
Suite 750  
Washington, DC 20005  
(202) 783-2760