

## Overview to Appendix B

Appendix B contains descriptions of each area of government intervention, and presents the derivation of numerical estimates of subsidy magnitude and distribution. Descriptions for each agency program, each tax expenditure, and each direct intervention are provided. A short introductory section precedes each chapter and explains the manners in which the federal government confers benefits (or costs in the case of some provisions presented in the Other Interventions section) to particular energy types.

Appendix B comes in two volumes. Volume 1 includes three chapters. This **Overview**, in addition to describing the layout of the Appendix, contains summary charts for the each area of federal intervention. The second chapter, **Tax Subsidies to Energy**, details how each tax provision works, how it is calculated, and a brief historical description. Quantitative estimates and allocations follow for each provision included in our subsidy totals. The third chapter is **Special Excise Fees**. This chapter provides qualitative and quantitative information on each provision.

Volume 2 of Appendix B contains four chapters. The first chapter covers **Energy-Related Federal Agency Activities** and contains detailed information on agency programs related to energy. Text descriptions and quantitative estimates are included. Text descriptions of energy-related activities are included for some agencies for which we did not finalize quantitative estimates. The next chapter covers **Other Interventions**, and contains information on the Price-Anderson Act; the under-accrual for nuclear decommissioning; federal restrictions on pricing, supply, or demand options; and federal procurement of energy for its own use.

The last two chapters of the second volume of Appendix B provide supporting information for the quantitative calculations generated elsewhere in the report. **Background Information on Debt** provides details on the historical availability of long-term debt in the U.S., and the rationale for the method we used to calculate estimates of interest-rate and financial intermediation subsidies in federal programs. The **Statistical Background Data** chapter provides numerical spreadsheets of financial inputs; capital spending on energy; energy shares of rail and waterborne transport; historical federal spending on energy R&D; energy shares of particular environmental problems; a compendium of estimates for the costs of pollution and the costs of environmental regulation; and the derivation of derivation of subsidy intensity figures; and the electricity mix in 1989.

### Summary Charts

Key summary charts for federal subsidies to the energy sector in 1989 follow and provide a quick synopsis of the detailed sections that follow:

- The type of federal subsidies received by each energy type
- High and low estimates for each tax provision
- High and low estimates for each federal agency
- High and low estimates for federal assumption of legal risks
- Qualitative listing of energy excise taxes and intervention with pricing or supply and demand options
- Individual charts for each energy type presenting the life-cycle of federal interventions

# Spending Mix of Government Intervention in Energy Markets

Intervention Type	Total Energy	Coal	Oil	Gas	Oil/Gas Mix	Electric General	Electric Fission	Electric Oil	Electric Coal	Electric Gas	Electric Fossil	Electric Hydro	End Use Effic.	Supply Effic.	Biomass-Grid	Wind	Solar-Grid	Geotherm.	Other Renew.	Fusion	Biomass		Waste-to-Energy	Solar-Non-Grid	Percent Share																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
																					Non-Grid	Ethanol				Grants	High Est.	1,821.1	852.9	764.4	0.0	0.1	42.2	17.6	126.7	20.0	(0.4)	90.4	164.9	0.3	0.2	0.0	0.2	1.4	0.0	0.7	44.3	10.6	0.1	0.0	10.98%	Low Est.	1,820.9	852.9	764.4	0.0	0.1	42.2	17.6	126.7	20.0	(0.4)	90.4	164.9	0.3	0.2	0.0	0.2	1.4	0.0	0.7	44.3	10.2	0.1	0.0	18.65%	Ownership	High Est.	3,597.1	636.9	107.9	0.0	1.2	2,523.2	0.0	(131.8)	(18.7)	0.0	208.8	7.1	4.3	1.7	0.3	1.6	0.6	0.4	11.1	0.0	0.0	0.0	0.1	9.94%	Low Est.	2,168.1	514.5	75.9	0.0	1.2	1,544.1	0.0	(199.6)	(28.4)	0.0	39.9	(12.2)	4.3	1.7	0.3	1.6	0.6	0.4	11.1	0.0	0.0	0.0	0.1	10.31%	R&D Support	High Est.	2,140.5	96.4	42.0	0.0	42.8	366.6	3.0	211.1	4.7	(0.0)	4.3	226.4	165.8	66.8	22.9	98.5	43.4	21.9	392.6	5.9	0.5	0.0	31.5	5.93%	Low Est.	1,989.1	96.2	42.0	0.0	42.8	366.6	3.0	68.2	4.7	(0.0)	4.3	226.4	159.5	66.8	22.9	98.5	43.4	21.9	392.6	5.9	0.5	0.0	31.5	9.37%	Market Planning	High Est.	2,177.4	3.3	2,095.6	7.8	0.0	2.1	58.5	0.4	4.5	0.7	0.0	1.3	1.3	0.0	0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.3	6.04%	Low Est.	1,852.2	3.3	1,770.6	7.8	0.0	2.1	58.5	0.4	4.5	0.7	0.0	1.3	1.3	0.0	0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.3	8.72%	Loans/Guarantees/Insurance Programs	High Est.	2,415.2	431.4	100.6	26.7	(0.0)	0.0	377.1	204.1	675.4	176.7	(0.0)	92.7	0.1	0.5	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	6.70%	Low Est.	2,083.1	334.6	86.9	23.3	(0.0)	0.0	364.5	189.1	630.0	157.5	0.0	84.9	0.1	0.4	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	9.81%	Admin./Reg. Costs	High Est.	700.4	267.0	43.6	(5.4)	0.0	(2.4)	376.6	0.0	0.3	0.0	(3.1)	7.3	0.0	1.6	0.4	2.2	1.0	1.5	9.1	0.0	0.0	0.6	1.94%	Low Est.	638.4	265.4	43.5	(5.4)	0.0	(2.4)	316.4	0.0	0.3	0.0	(3.1)	7.3	0.0	1.6	0.4	2.2	1.0	1.5	9.1	0.0	0.0	0.6	3.01%	Tax benefits	High Est.	18,145.5	4,553.4	2,969.4	0.0	0.0	3,687.4	153.3	2,628.9	179.0	0.0	226.7	576.3	0.0	229.2	40.4	28.8	206.9	0.0	0.0	32.0	538.4	404.3	10.6	50.30%	Low Est.	7,687.2	614.3	1,787.2	994.5	0.0	3.2	1,514.7	107.1	1,365.9	91.7	0.0	157.1	179.1	0.0	122.5	14.9	15.4	111.2	0.0	0.0	17.2	311.5	5.8	36.21%	Assumption of Legal Risk/Minimization	High Est.	2,947.3					2,947.3																		8.17%	Low Est.	832.0					832.0																		3.92%	Supply/Demand/Non-Federal Procurement	High Est.	0.0																							0.00%	Low Est.	0.0																							0.00%	Total - High Est.		36,074.3	4,527.7	8,379.7	3,912.8	(0.0)	43.7	10,578.9	378.5	3,515.1	362.3	623.4	983.3	172.1	299.5	64.2	132.8	253.8	23.9	413.6	82.3	879.3	404.4	43.1	100.00%	Total - Low Est.
Grants	High Est.	1,821.1	852.9	764.4	0.0	0.1	42.2	17.6	126.7	20.0	(0.4)	90.4	164.9	0.3	0.2	0.0	0.2	1.4	0.0	0.7	44.3	10.6	0.1	0.0	10.98%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	1,820.9	852.9	764.4	0.0	0.1	42.2	17.6	126.7	20.0	(0.4)	90.4	164.9	0.3	0.2	0.0	0.2	1.4	0.0	0.7	44.3	10.2	0.1	0.0	18.65%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Ownership	High Est.	3,597.1	636.9	107.9	0.0	1.2	2,523.2	0.0	(131.8)	(18.7)	0.0	208.8	7.1	4.3	1.7	0.3	1.6	0.6	0.4	11.1	0.0	0.0	0.0	0.1	9.94%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	2,168.1	514.5	75.9	0.0	1.2	1,544.1	0.0	(199.6)	(28.4)	0.0	39.9	(12.2)	4.3	1.7	0.3	1.6	0.6	0.4	11.1	0.0	0.0	0.0	0.1	10.31%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
R&D Support	High Est.	2,140.5	96.4	42.0	0.0	42.8	366.6	3.0	211.1	4.7	(0.0)	4.3	226.4	165.8	66.8	22.9	98.5	43.4	21.9	392.6	5.9	0.5	0.0	31.5	5.93%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	1,989.1	96.2	42.0	0.0	42.8	366.6	3.0	68.2	4.7	(0.0)	4.3	226.4	159.5	66.8	22.9	98.5	43.4	21.9	392.6	5.9	0.5	0.0	31.5	9.37%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Market Planning	High Est.	2,177.4	3.3	2,095.6	7.8	0.0	2.1	58.5	0.4	4.5	0.7	0.0	1.3	1.3	0.0	0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.3	6.04%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	1,852.2	3.3	1,770.6	7.8	0.0	2.1	58.5	0.4	4.5	0.7	0.0	1.3	1.3	0.0	0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.3	8.72%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Loans/Guarantees/Insurance Programs	High Est.	2,415.2	431.4	100.6	26.7	(0.0)	0.0	377.1	204.1	675.4	176.7	(0.0)	92.7	0.1	0.5	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	6.70%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	2,083.1	334.6	86.9	23.3	(0.0)	0.0	364.5	189.1	630.0	157.5	0.0	84.9	0.1	0.4	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	9.81%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Admin./Reg. Costs	High Est.	700.4	267.0	43.6	(5.4)	0.0	(2.4)	376.6	0.0	0.3	0.0	(3.1)	7.3	0.0	1.6	0.4	2.2	1.0	1.5	9.1	0.0	0.0	0.6	1.94%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Low Est.	638.4	265.4	43.5	(5.4)	0.0	(2.4)	316.4	0.0	0.3	0.0	(3.1)	7.3	0.0	1.6	0.4	2.2	1.0	1.5	9.1	0.0	0.0	0.6	3.01%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Tax benefits	High Est.	18,145.5	4,553.4	2,969.4	0.0	0.0	3,687.4	153.3	2,628.9	179.0	0.0	226.7	576.3	0.0	229.2	40.4	28.8	206.9	0.0	0.0	32.0	538.4	404.3	10.6	50.30%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	7,687.2	614.3	1,787.2	994.5	0.0	3.2	1,514.7	107.1	1,365.9	91.7	0.0	157.1	179.1	0.0	122.5	14.9	15.4	111.2	0.0	0.0	17.2	311.5	5.8	36.21%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Assumption of Legal Risk/Minimization	High Est.	2,947.3					2,947.3																		8.17%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	832.0					832.0																		3.92%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Supply/Demand/Non-Federal Procurement	High Est.	0.0																							0.00%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Low Est.	0.0																							0.00%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Total - High Est.		36,074.3	4,527.7	8,379.7	3,912.8	(0.0)	43.7	10,578.9	378.5	3,515.1	362.3	623.4	983.3	172.1	299.5	64.2	132.8	253.8	23.9	413.6	82.3	879.3	404.4	43.1	100.00%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Total - Low Est.	21,230.2	3,561.3	5,151.7	1,902.5	(0.0)	46.9	5,059.1	317.3	1,996.0	246.2	377.1	566.9	165.7	192.8	38.6	119.4	158.1	23.9	413.6	67.5	533.7	274.1	38.3	100.00%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

Percent Shares

## TAX-EXPENDITURE SUBSIDY ALLOCATIONS FOR FY89 - High Estimate

HIGH PRIORITY HIGH PRIORITY HIGH PRIORITY HIGH PRIORITY																							
	Status	Target Sector	Total Energy	Coal	Oil	Natural Gas	Solar Non-Grid	Ethanol	Biomass Non-Grid	Effic.-Supply	Effic.-End Use	Electric Coal	Electric Oil	Electric Gas	Electric Fission	Electric Hydro	Electric Waste-to-Energy	Electric Geotherm.	Electric Biomass	Electric Wind	Electric Solar	Electric General	Pct Share
TAX CREDITS																							
Alcohol Fuel Income Tax Credit	Active	Energy	20.0					20.0															0.11%
Alternative Fuel Production Credit	Active	Energy	29.0	5.0	5.0	5.0			5.0														0.11%
Enhanced Oil and Gas Recovery Credit	Began 1981	Energy	N/A																				0.00%
ITCs: New Machinery and Equipment	Residual	Gen. Cap.	1,959.3	167.3	616.8	435.1	0.8	5.8	2.6	0.0	37.9	195.3	5.5	12.8	427.0	11.7	14.7	12.2	17.3	4.7	1.8		10.65%
ITCs: Business Energy Credits-Conservation	Narrowed	Energy	1.3								1.3												0.01%
ITCs: Business Energy Credits-Supply	Narrowed	Energy	110.0				6.0																0.01%
ITCs: Residential Energy Credits-Conservation	Expired	Energy	N/A																				0.00%
ITCs: Residential Energy Credits-Supply	Expired	Energy	N/A																				0.00%
ITCs: Rehabilitation of Structures	Active	Other	2.7								2.7												0.01%
Research & Development Tax Credit	Renew Pend	Other	72.0		72.0																		0.40%
Tax Credit for Reforestation Expenses (Includes 7-yr. amortization as well)	Active	Other	36.2						4.7										31.5				0.20%
Tax Credit for Electric Cars	Begins 1983	Energy	N/A																				9.00%
Production Credit: Electricity from Wind & Biomass	Began 1992	Energy	N/A																				0.00%
OTHER REDUCTIONS IN THE EFFECTIVE TAX RATE																							
Activities or Products Exempt from Taxation																							
Alcohol Fuels Excise Tax Exemption	Active	Energy	495.0					495.0															2.67%
Tax-Exempt Bond Issues - Use of Proceeds Category																							
Public Power Facilities	Narrowed	Energy	1,387.5	0.0								408.4	23.3	7.9	820.1	45.2	24.5	20.4	28.9	7.8	3.0		7.65%
Gas Utilities	Narrowed	Energy	40.9			40.9																	0.23%
Pollution Control	Residual	Gen. Cap.	562.7	2.6	181.5	25.8						325.1	17.3	10.4	0.0	0.0							3.10%
Waste-to-Energy Plants, Energy Shares	Narrowed	Energy	276.8																				1.53%
Multiple Utilities	Narrowed	Energy	40.3	0.0													276.8						0.22%
Seaports, Harbors, Wharves	Narrowed	Other	78.7	25.2	53.5							11.8	0.7	0.2	23.8	1.3	0.7	0.6	0.8	0.2	0.1		0.43%
Envt Improvements to Hydroelectric Facilities	Begins 1993	Energy	N/A																				0.00%
Elect. Utility Tax-Exempt Dividend Reinvestment	Expired	Energy	N/A																				0.00%
Tax Exclusion, Utility Demand Reduction Payments	Began 1992	Energy	N/A																				0.00%
Exclusion of Construct. Pmts., Gas & Elect. Utils.	Repealed	Energy	N/A																				0.00%
Exclusion of Mortgage Int., Owner-Occupied Homes	Active	Other	139.8								139.8												0.77%
Tax-Exempt Blank Lung Benefits	Active	Energy	180	180																			0.99%
Entities Exempt from Taxation																							
Exclusion of Income from Electric & Telephone Coops	Active	Energy	564.7									416.1	29.9	56.9	59.3	1.9	0.7						3.11%
Tax-Exempt Publicly-Owned Utilities	Active	Energy	282.6									112.9	41.4	12.5	18.9	96.9					0.0		1.56%
Tax-Exempt Government-Owned Energy Enterprises	Active	Energy	N/E																				0.00%
Reduced Tax Rates																							
Cap. Gains Exclusion on Coal Royalties	Reactivated	Energy	N/A																				0.00%
Cap. Gains Exclusion on Standing Timber	Reactivated	Other	N/A																				0.00%
Graduated Corporate Income Tax	Active	Other	N/E																				0.00%
Reduced Rate on Nuclear Decommissioning Trusts	Begins 1994	Energy	N/A																				0.00%
Reduced Tax on Capital Gains (other than agribult., timber, iron ore, and coal)	Reactivated	Gen. Cap.	N/A																				0.00%
REDUCTIONS IN THE EFFECTIVE TAXABLE BASIS																							
Expensing of Costs Normally Capitalized																							
Expensing of Construction Period Interest	Repealed	Gen. Cap.	N/A																				0.00%
Expens. of Long-Term Research & Devel.	Active	Other	79.2		79.2																		0.44%
Expensing of Oil & Gas Explor. & Devel. Costs	Narrowed	Energy	(300.0)		(204.5)	(95.5)																	0.00%
Expensing of Other Fasts Explor. & Devel. Costs	Narrowed	Energy	35.0	33.4																			0.00%

# TAX-EXPENDITURE SUBSIDY ALLOCATIONS FOR FY89 - High Estimate

HIGH/HIGH/HIGH/HIGH/HIGH/HIGH

	Target	Total	Coal	Oil	Gas	Non-Grid	Ethanol	Non-Grid	Biomass	Electric Supply	Electric End Use	Electric Coal	Electric Oil	Electric Gas	Electric Fossil	Electric Hydro	Waste-to-Energy	Electric Geotherm.	Electric Biomass	Electric Wind	Electric Solar	Electric General	Pct. Share
Expans. of Mine Closure & Reclamation Reserves	Narrowed	Energy	50.0	48.8											1.2								0.26%
Expens. of Mkt. period Timber Growing Costs	Active	Other	55.2																48.0				0.30%
Deduction for Clean Fuel Vehicles	Begins 1993	Energy	N/A						7.2														0.00%
Expensing of Tertiary Injectants	Active	Energy	20.0	20.0																			0.11%
Accelerated Depreciation of Certain Assets																							
7-yr Amortization of Reforestation Expenses	Active	Other	Included in Tax Credit for Reforestation Expenses line item																				0.00%
ACRS/ACRS Deprec. of Machin. & Equip.	Residual	Gen. Cap.	9,569.2	812.7	2,996.6	2,114.1	3.9	28.1	12.8	0.0	184.4	948.9	26.7	82.0	2,074.8	57.1	71.2	59.4	84.1	22.7	8.7		52.73%
Accel. Deprec., Rental Housing	Residual	Other	9.9								9.9												0.06%
Accel. Deprec., Buildings other than Rental Housing	Residual	Other	203.5								203.5												1.12%
Rapid Amortization of Railway Cars	Expired	Other	N/A																				0.00%
Rapid Amortization of Pollution Control Equip.	Expired	Gen. Cap.	N/A																				0.00%
Deferral of Required Income Tax Payments	Active	Other	76.4	16.4	60.0	0.0															0.0		0.42%
Special Deductions																							
Percentage Depletion Benefits, Oil and Gas	Narrowed	Energy	550.0		333.1	156.9																	2.92%
Percentage Depletion Benefits, Other Fuels	Narrowed	Energy	220.0	202.9											7.5			9.6					1.21%
Utility Normalization of Federal Tax Overcharges	Active	Energy	946.2														13.6	17.0	14.1	20.0	5.4	2.1	5.49%
Deduction for Motor Carrier Operating Rights	Expired	Other	N/A			187.6					0.0	225.9	6.4	14.8	489.3								0.00%
<b>SPECIAL DEFINITIONS OF THE TAXABLE ENTITY</b>																							
Benefits Due to Specific Congressional Exemptions																							
Gas and Oil Exemption to Passive Loss Restrictions	Active	Energy	360.0		204.5	95.5																	1.65%
Alternative Minimum Tax Relief, Oil & Gas Producers	Begins 1993	Energy	N/A																				0.00%
Special Treatment of Alaskan Native Corporations	Residual	Other	194.8		186.9							2.7	2.7	2.7									1.07%
Foreign Research Expend. Offset of Domestic Income	Active	Other	0.1		0.1																		0.00%
Domestic International Sales Corporations	Expired	Other	N/A																				0.00%
Western Hemisphere Trade Corporations	Expired	Other	N/A																				0.00%
Benefits Due to Transfer Pricing																							
Foreign Tax Credits - Oil & Gas Only	Narrowed	Other	N/A																				0.00%
Exclusion of Income, Foreign Sales Corps	Active	Other	N/A																				0.00%
Oil Shipping Subsidies	Repealed	Energy	N/A																				0.00%
Safe Harbor Leasing	Residual	Gen. Cap.	(113.3)	(13.9)	(51.2)	(36.1)	(0.1)	(0.5)	(0.2)	0.0	(3.1)	(16.2)	(0.5)	(1.1)	(35.4)	(1.0)	(1.2)	(1.0)	(1.4)	(0.4)	(0.1)		0.00%
<b>Total</b>			18,145.5	1,480.3	4,553.4	2,969.4	10.6	538.4	32.0	0.0	576.3	2,628.9	153.3	179.0	3,697.4	226.7	404.3	206.9	229.2	40.4	28.8	0.0	100.00%
<b>Percent of Total Shares</b>			18,145.5	8.16%	25.09%	16.36%	0.06%	2.97%	0.18%	0.00%	3.18%	14.49%	0.84%	0.99%	21.42%	1.25%	2.23%	1.14%	1.26%	0.22%	0.15%	0.00%	

# TAX-EXPENDITURE SUBSIDY ALLOCATIONS FOR FY89 - Low Estimate

## LOW FLOW LOW FLOW

Status	Target	Total	Coal	Oil	Natural Gas	Solar	Non-Grid	Ethanol	Biomass	Effic.	End-Use	Coal	Oil	Gas	Fission	Hydro	Waste-to-Energy	Geothermal	Biomass	Wind	Electric Solar	Electric General	Pct Share
Active	Energy	1.3																					0.02%
Active	Energy	10.0	2.5	2.5	2.5				1.3														0.13%
Began 1991	Energy	N/A							2.5														0.00%
Residual	Gen. Cap.	756.4	65.7	242.4	171.0	0.3	2.3		1.0	0.0	7.5	76.7	2.2	5.0	167.8	4.6	5.8	4.8	6.8	1.8	0.7		9.97%
Narrowed	Energy	1.3									1.3												0.02%
Narrowed	Energy	90.0																56.0			9.7		1.04%
Expired	Energy	N/A																					0.00%
Expired	Energy	N/A																					0.00%
Active	Other	1.3								1.3									21.0				0.02%
Renew. Pend. Other	Other	28.3		28.3																			0.37%
Active	Other	24.1							3.1														0.31%
Begins 1993	Energy	N/A																					0.00%
Began 1992	Energy	N/A																					0.00%
Active	Energy	300.0						300.0															3.90%
Narrowed	Energy	1,137.5																					14.80%
Narrowed	Energy	33.6			33.6							33.2	19.1	6.5	672.3	37.0	20.1	16.7	23.7	6.4	2.5		0.44%
Residual	Gen. Cap.	461.3	2.1	148.8	21.1							266.5	14.2	8.5	0.0	0.0							6.00%
Narrowed	Energy	226.9																					2.96%
Narrowed	Energy	33.1																					0.43%
Narrowed	Other	64.5	20.7	43.9								9.7	0.6	0.2	19.6	1.1	0.6	0.5	0.7	0.2	0.1		0.84%
Begins 1993	Energy	N/A																					0.00%
Expired	Energy	N/A																					0.00%
Began 1992	Energy	N/A																					0.00%
Repeated	Energy	N/A																					0.00%
Repeated	Energy	75.5								75.5													0.00%
Active	Other	110	110																				0.96%
Active	Energy	110																					1.41%
Active	Energy	403.3										297.2	21.4	40.6	42.4	1.3	0.5						5.25%
Active	Energy	262.6										112.9	41.4	12.5	18.9	96.9							3.58%
Active	Energy	N/A																					0.00%
Reactivated	Energy	N/A																					0.00%
Reactivated	Other	N/A																					0.00%
Active	Other	N/A																					0.00%
Begins 1994	Energy	N/A																					0.00%
Reactivated	Gen. Cap.	N/A																					0.00%
Reactivated	Gen. Cap.	N/A																					0.00%
Active	Other	50.9		50.9																			0.00%
Narrowed	Energy	165.0		144.3	(20.7)																		0.00%
Narrowed	Energy	20.0	19.1																				0.00%

## TAX CREDITS

Alcohol Fuel Income Tax Credit  
Alternative Fuel Production Credit  
Enhanced Oil and Gas Recovery Credit  
ITCs New Machinery and Equipment  
ITCs Business Energy Credits-Conservation  
ITCs Business Energy Credits Supply  
ITCs Residential Energy Credits-Conservation  
ITCs Residential Energy Credits Supply  
ITCs Rehabilitation of Structures  
Research & Development Tax Credit  
Tax Credit for Reforestation Expenses  
(Includes 7-yr. amortization as well)  
Tax Credit for Electric Cars  
Production Credit: Electricity from Wind & Biomass

## OTHER BENEFITS IN THE EFFECTIVE TAX RATE

Activities or Products Exempt from Taxation  
Alcohol Fuels Excess Tax Exemption  
Tax-Exempt Bond Issues - Use of Proceeds Category  
Public Power Facilities  
Gas Utilities  
Pollution Control  
Waste-to-Energy Plants, Energy Share  
Multiple Utilities  
Seaports, Harbors, Wharves  
Envir. Improvements to Hydroelectric Facilities  
Elect. Utility Tax-Exempt Dividend Reinvestment  
Tax Exclusion, Utility Demand Reduction Payments  
Exclusion of Constrict. Pmts., Gas & Elec. Util.  
Exclusion of Mortgage Int., Owner-Occupied Homes  
Tax-Exempt Black Lung Benefits  
1 million Exempt from Taxation  
Exclusion of Income from Electric & Telephone Coops  
Tax-Exempt Publicly-Owned Utilities  
Tax-Exempt Government-Owned Energy Enterprises  
Reduced Tax Rates  
Cap. Gains Exclusion on Coal Royalties  
Cap. Gains Exclusion on Standing Timber  
Graduated Corporate Income Tax  
Reduced Rate on Nuclear Decommissioning Trusts  
Reduced Tax on Capital Gains (other than agricultural, timber, iron ore, and coal)

## REDUCTIONS IN THE EFFECTIVE TAXABLE BASIS

Expensing of Costs Normally Capitalized  
Expensing of Construction Period Interest  
Expn. of Long-Term Research & Devel.  
Expensing of Oil & Gas Explor. & Dev. Costs  
Expensing of Other Fuels Explor. & Dev. Costs

# TAX-EXPENDITURE SUBSIDY ALLOCATIONS FOR FY89 - Low Estimate

LOW\*LOW\*LOW\*LOW\*LOW

	Status	Target Sector	Total Energy	Coal	Oil	Natural Gas	Solar	Non-Grid Ethanol	Biomass- Non-Grid	Effic.- Supply	Effic.- End-Use	Electric Coal	Electric Oil	Electric Gas	Electric Fission	Electric Hydro	Electric Waste-to-Energy	Electric Geotherm.	Electric Biomass	Electric Wind	Electric Solar	Electric General	Pct Share
Expen. of Mine Closure & Reclamation Reserves	Narrowed	Energy	40.0	39.0												1.0							0.52%
Expen. of Multi-period Timber Growing Costs	Active	Other	53.4						6.9										46.5				0.76%
Deduction for Clean Fuel Vehicles	Expires 1993	Energy	N/A																			0.00%	
Expensing of Ferryway Investments	Active	Energy	20.0		20.0																	0.26%	
<b>Accelerated Depreciation of Certain Assets</b>																							
7-yr Amortization of Reforestation Expenses	Active	Other	Included in Tax Credit for Reforestation Expenses line item																				0.00%
ACRS/Sec'd. Deprec. of Machin. & Equip.	Residual	Gen. Cap.	2,753.0	237.0	873.8	616.4	1.1	8.2	3.7	0.0	26.9	276.7	7.8	18.1	605.0	16.6	20.8	17.3	24.5	6.6	2.5		35.94%
Acc'd. Deprec. Rental Housing	Residual	Other	2.5								2.5												0.03%
Acc'd. Deprec. Bldgs. other than Rental Housing	Residual	Other	64.9								64.9												0.84%
Rapid Amortization of Railway Cars	Expires	Other	N/A																				0.00%
Rapid Amortization of Pollution Control Equip.	Expires	Gen. Cap.	N/A																				0.00%
Deferral of Required Income Tax Payments	Active	Other	10.4	0.5	6.3	0.3															3.2		0.14%
<b>Special Deductions</b>																							
Percentage Depletion Benefits: Oil and Gas	Narrowed	Energy	390.0		245.1	144.9																	5.07%
Percentage Depletion Benefits: Other Fuels	Narrowed	Energy	135.0	124.5															5.9				1.75%
Utility Normalization of Federal Tax Overcharges	Active	Energy	0.0																			0.00%	
Deduction for Motor Carrier Operating Rights	Expires	Other	N/A																				0.00%
<b>SPECIAL DEFINITIONS OF THE TAXABLE ENTITY</b>																							
Benefits Due to Specific Congressional Exemptions																							
Gas and Oil Exemption to Passive Loss Restrictions	Active	Energy	135.0	92.0	43.0																		0.20%
Alternative Minimum Tax Relief: Oil & Gas Producers	Expires 1993	Energy	N/A																				1.75%
Special Treatment of Alaskan Native Corporations	Residual	Other	194.7	102.4										0.8	0.8								0.30%
Foreign Research Expend. Offset of Domestic Income	Active	Other	0.0	0.0																		1.35%	
Domestic International Sales Corporations	Expires	Other	N/A																				0.00%
Western Hemisphere Trade Corporations	Expires	Other	N/A																				0.00%
<b>Benefits Due to Transfer Pricing</b>																							
Foreign Tax Credits: Oil & Gas Only	Narrowed	Other	N/A																				0.00%
Exclusion of Income, Foreign Sales Corps	Active	Other	N/A																				0.00%
Oil Shipping Subsidies	Expires	Energy	N/A																				0.00%
Safe Harbor Leasing	Residual	Gen. Cap.	(76.8)	(6.8)	(24.9)	(17.6)	(0.0)	(0.2)	(0.1)	0.0	(0.8)	(7.9)	(0.2)	(0.5)	(17.2)	(0.5)	(0.5)	(0.5)	(0.7)	(0.2)	(0.1)		0.99%
<b>Total</b>			7,587.2	614.3	1,787.2	994.5	5.8	311.5	17.2	0.0	193.1	1,365.9	107.1	91.7	1,514.7	157.1	274.0	111.2	122.5	14.9	15.4	3.2	100.00%
<b>Percent of Total Shares</b>			7,587.2	7.99%	23.25%	12.94%	0.08%	4.05%	0.22%	0.00%	2.33%	17.77%	1.35%	1.15%	19.70%	2.04%	3.56%	1.45%	1.59%	0.19%	0.20%	0.04%	0.01%

## Notes and Sources to High and Low Estimates.

- (1) This table is a summary of data contained in the Tax Expenditures chapter of this report. The primary source data for most of these estimates are from the Tax Expenditures section of OMB, "Budget of the United States Government, Fiscal Year 1991," pp. AA-59 - A-76, and the Joint Committee on Taxation, "Estimate of Federal Tax Expenditures for Fiscal Years 1989-1993." OMB prints estimates prepared by the U.S. Treasury, Office of Tax Analysis. See individual sections for details on each estimate and allocation.
- (2) Negative values denote increased revenues for the Treasury over the collections with no provisions. These are nominal gains and reflect lower tax deductions at the end of an assets life, offsetting higher than normal deductions earlier on. The net present values of such provisions to Treasury are negative.
- (3) High and low estimates do not differ for every provision. Differences are due either to the measurement of pre-tax values (Revenue Loss) versus after tax values (Outlay Equivalents), or to differing assumptions and estimation approaches used by Treasury and JCT.
- (4) Estimates of \$1.3 million reflect Treasury estimates of "less than \$50 million", with \$25 million used as a proxy. Where JCT provided values for multiple years, but not individually in 1989, the average annual value was used.
- (5) Status codes: "Residual" means provision was repealed or expired, but tax losses continued through 1989 due to transition rules or stored credits. "Narrowed" refers to provisions still in effect, for which eligibility has been tightened. All other codes self-explanatory.
- (6) "N/A" refers to "Not Active" and describes expired, repealed, pending, or inactive provisions. "N/A" refers to active provisions with some benefit to the energy sector, but which were not estimated.

## Summary of Agency Spending, Loans, and Loan Guarantees: HIGH ESTIMATE

Agency	Total Energy (3)	Coal	Oil	Gas	Solar Non-Grid	Ethanol	Biomass- Non-Grid	Effic- Supply	Effic- End-Use	Electric- Coal	Electric- Oil	Electric- Gas	Electric- Fission	Electric- Hydro	Waste-to- Energy	Electric- Geotherm.	Electric- Biomass	Electric- Wind	Electric- Solar	Electric- Fossil (5)	Other Renew. (5)	Fusion (5)	Electric Central Stations (5)	Percent Stations	
Department of Agriculture																									
Agricultural Research Service	NE																								0.00%
Commodity Credit Corporation	326.5	0.0	0.0	0.0	0.0	326.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.18%
Conservation Reserve Program	10.6	0.0	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07%
Federal Crop Insurance Corporation	3.3	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02%
Forest Incentives Program	NE																								0.00%
Forest Service	NE																								0.00%
Rural Electrification Administration	1,183.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	607.3	193.5	58.4	321.6	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.90%
Soil Conservation Service	NE																								0.00%
Executive Branch, Miscellaneous Functions																									
Council on Environmental Quality	NE																								0.00%
Office of the U.S. Trade Representative	NE																								0.00%
Office of Management and Budget	NE																								0.00%
Office of Science and Technology Policy	NE																								0.00%
International Development Assistance	NE																								0.00%
Agency for International Development	NE																								0.00%
Multilateral Development Banks	179.1	0.0	14.3	14.3	0.0	0.0	0.0	0.0	0.8	42.2	9.7	5.2	1.9	89.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.22%
Department of Commerce																									
International Trade Administration	NE																								0.00%
Export Administration	NE																								0.00%
National Oceanic and Atmospheric Admin.	NE																								0.00%
Natl. Inst. of Standards and Technology	NE																								0.00%
Department of Defense																									
Army Corps of Engineers Civil Program	643.0	199.6	417.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Navy Supervisor of Salvage	18.5	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.29%
Department of Energy																									
Energy R&D, Waste Management, and Admin.	2,782.4	385.4	120.8	49.3	32.5	0.6	5.9	156.7	240.1	36.3	3.2	4.9	1,012.6	5.6	0.0	45.4	70.3	23.7	103.9	0.0	23.9	413.6	47.7	18.57%	
Clean Coal Program	190.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	0.0	176.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.27%
Energy Information Administration	52.7	3.1	31.0	5.4	0.0	0.0	0.0	1.3	1.3	3.6	0.4	0.6	5.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35%
Federal Energy Regulatory Commission	(17.8)	0.0	(0.4)	(9.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.0)	-0.12%
Naval Petroleum and Oil Shale Reserves	136.0	0.0	103.9	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.91%
Nuclear Waste Fund	181.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	181.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.21%
Power Marketing Administrations																									
Alaska Power Administration	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05%
Bonneville Power Administration	441.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	381.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.96%
Southwestern Power Administration	71.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.46%
Southwestern Power Administration	42.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28%
Western Power Administration	53.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35%
Strategic Petroleum Reserve	2,061.9	0.0	2,061.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.75%
Uranium Enrichment Enterprise	1,026.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,026.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.85%
Department of Health and Human Services																									
Centers for Disease Control	NE																								0.00%
National Institutes of Health	NE																								0.00%
National Cancer Institute	NE																								0.00%
National Heart, Lung, and Blood Inst.	NE																								0.00%
Natl. Inst. of Environ. Health Sciences	NE																								0.00%
Social Security Admin. Black Lung Payments	892.0	892.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Low Income Home Energy Assistance Program	1,513.0	44.3	347.7	751.9	0.0	0.0	44.3	0.0	163.8	89.8	9.1	15.4	30.6	15.3	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.10%
Department of Housing and Urban Development																									
Department of the Interior	NE																								0.00%
Bureau of Indian Affairs	NE																								0.00%
Bureau of Land Management	NE																								0.00%
Bureau of Mines	NE																								0.00%

# Summary of Agency Spending, Loans, and Loan Guarantees: HIGH ESTIMATE

Agency	Total Energy (3)	Coal	Oil	Gas	Solar Non-Grid	Solar Grid	Ethanol	Non-Grid	Biomass	Effic. End Use	Electric Coal	Electric Oil	Electric Gas	Electric Fission	Electric Hydro	Electric Waste-to-Energy	Electric Geotherm	Electric Biomass	Electric Wind	Electric Solar	Electric Fossil (5)	Other Renew. (5)	Fusion	Electric General (5)	Percent Shares
Bureau of Reclamation	NE																								0.00%
Fish and Wildlife Service	NE																								0.00%
Minerals Management Service	167.7	0.0	93.1	74.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.12%
Office of Surface Mining Reclamation and Enforcement	878.7	878.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.86%
U.S. Geological Survey	NE																								0.00%
Department of Labor																									0.00%
Black Lung Program	348.7	348.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.33%
Mine Safety and Health Administration	116.7	116.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.78%
Occupational Safety and Health Admin	NE																								0.00%
Department of State																									0.00%
International Atomic Energy Agency	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32%
United Nations Environmental Program	NE																								0.00%
Department of Transportation																									0.00%
Coast Guard	484.5	78.3	406.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.23%
Federal Highway Administration	NE																								0.00%
Federal Railroad Administration	17.6	16.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.12%
Maritime Administration	143.7	32.9	111.3	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.96%
National Highway Traffic Safety Admin.	NE																								0.00%
Saint Lawrence Seaway Development Corp	NE																								0.00%
Independent Agencies																									0.00%
Environmental Protection Agency	NE																								0.00%
Export Import Bank	499.9	51.9	96.7	24.9	0.0	0.0	0.0	0.0	0.0	0.0	62.7	9.4	117.6	55.1	78.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.33%
Federal Emergency Management Agency	NE																								0.00%
Federal Maritime Commission	NE																								0.00%
Fed. Mine Safety and Health Review Comm	NE																								0.00%
International Trade Commission	NE																								0.00%
National Aeronautics and Space Admin.	NE																								0.00%
National Institute of Building Sciences	NE																								0.00%
National Science Foundation	NE																								0.00%
National Transportation Safety Board	NE																								0.00%
Nuclear Regulatory Commission	347.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	347.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.32%
Occupational Safety and Health Review Comm.	NE																								0.00%
Railroad Retirement Board	NE																								0.00%
Tennessee Valley Authority	129.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(132.1)	0.0	(18.8)	331.3	(42.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.87%
Legislative Branch																									0.00%
Commission on Catastrophic Nuclear Accidents	NE																								0.00%
Commission on Railroad Retirement Reform	NE																								0.00%
Congressional Budget Office	NE																								0.00%
Congressional Research Service	NE																								0.00%
General Accounting Office	NE																								0.00%
Joint Committee on Taxation	NE																								0.00%
Office of the Nuclear Waste Negotiator	NE																								0.00%
Office of Technology Assessment	NE																								0.00%
Total Government Support	14,981.5	3,047.4	3,826.2	943.5	32.5	341.0	50.2	172.1	407.0	866.2	225.2	183.4	3,744.2	396.8	6.1	46.9	70.3	23.7	104.0	10.4	0.0	0.0	0.0	0.0	100.00%
Percent Shares	100.00%	20.34%	25.54%	6.30%	0.22%	2.28%	0.34%	1.15%	2.72%	5.92%	1.50%	1.22%	24.99%	2.65%	0.00%	0.47%	0.31%	0.16%	0.69%	-0.00%	0.00%	0.16%	2.76%	0.23%	

This is a summary spreadsheet of data contained in the individual agency listings in the Agency Intervention chapter. Please refer to questions. Negative numbers reflect cross-subsidies between fuels or net gains on licensing fees.

High and low estimates reflect differences in assumptions, data, third party estimates, or estimating methods. Not every agency has high and low estimates.

(1) "E" signifies agencies with some energy-related spending, but which were not estimated in this report.

(2) "NE" signifies agencies with no energy-related spending.

(3) "NE" signifies agencies with no energy-related spending.

(4) "NE" signifies agencies with no energy-related spending.

(5) "NE" signifies agencies with no energy-related spending.

(6) "NE" signifies agencies with no energy-related spending.

(7) "NE" signifies agencies with no energy-related spending.

(8) "NE" signifies agencies with no energy-related spending.

(9) "NE" signifies agencies with no energy-related spending.

(10) "NE" signifies agencies with no energy-related spending.

(11) "NE" signifies agencies with no energy-related spending.

(12) "NE" signifies agencies with no energy-related spending.

(13) "NE" signifies agencies with no energy-related spending.

(14) "NE" signifies agencies with no energy-related spending.

(15) "NE" signifies agencies with no energy-related spending.

(16) "NE" signifies agencies with no energy-related spending.

(17) "NE" signifies agencies with no energy-related spending.

(18) "NE" signifies agencies with no energy-related spending.

(19) "NE" signifies agencies with no energy-related spending.

(20) "NE" signifies agencies with no energy-related spending.

(21) "NE" signifies agencies with no energy-related spending.

(22) "NE" signifies agencies with no energy-related spending.

(23) "NE" signifies agencies with no energy-related spending.

(24) "NE" signifies agencies with no energy-related spending.

(25) "NE" signifies agencies with no energy-related spending.

(26) "NE" signifies agencies with no energy-related spending.

(27) "NE" signifies agencies with no energy-related spending.

(28) "NE" signifies agencies with no energy-related spending.

(29) "NE" signifies agencies with no energy-related spending.

(30) "NE" signifies agencies with no energy-related spending.

(31) "NE" signifies agencies with no energy-related spending.

(32) "NE" signifies agencies with no energy-related spending.

(33) "NE" signifies agencies with no energy-related spending.

(34) "NE" signifies agencies with no energy-related spending.

(35) "NE" signifies agencies with no energy-related spending.

(36) "NE" signifies agencies with no energy-related spending.

(37) "NE" signifies agencies with no energy-related spending.

(38) "NE" signifies agencies with no energy-related spending.

(39) "NE" signifies agencies with no energy-related spending.

(40) "NE" signifies agencies with no energy-related spending.

(41) "NE" signifies agencies with no energy-related spending.

(42) "NE" signifies agencies with no energy-related spending.

(43) "NE" signifies agencies with no energy-related spending.

(44) "NE" signifies agencies with no energy-related spending.

(45) "NE" signifies agencies with no energy-related spending.

(46) "NE" signifies agencies with no energy-related spending.

(47) "NE" signifies agencies with no energy-related spending.

(48) "NE" signifies agencies with no energy-related spending.

(49) "NE" signifies agencies with no energy-related spending.

(50) "NE" signifies agencies with no energy-related spending.

(51) "NE" signifies agencies with no energy-related spending.

(52) "NE" signifies agencies with no energy-related spending.

(53) "NE" signifies agencies with no energy-related spending.

(54) "NE" signifies agencies with no energy-related spending.

(55) "NE" signifies agencies with no energy-related spending.

(56) "NE" signifies agencies with no energy-related spending.

(57) "NE" signifies agencies with no energy-related spending.

(58) "NE" signifies agencies with no energy-related spending.

(59) "NE" signifies agencies with no energy-related spending.

(60) "NE" signifies agencies with no energy-related spending.

(61) "NE" signifies agencies with no energy-related spending.

(62) "NE" signifies agencies with no energy-related spending.

(63) "NE" signifies agencies with no energy-related spending.

(64) "NE" signifies agencies with no energy-related spending.

(65) "NE" signifies agencies with no energy-related spending.

(66) "NE" signifies agencies with no energy-related spending.

(67) "NE" signifies agencies with no energy-related spending.

(68) "NE" signifies agencies with no energy-related spending.

(69) "NE" signifies agencies with no energy-related spending.

(70) "NE" signifies agencies with no energy-related spending.

(71) "NE" signifies agencies with no energy-related spending.

(72) "NE" signifies agencies with no energy-related spending.

(73) "NE" signifies agencies with no energy-related spending.

(74) "NE" signifies agencies with no energy-related spending.

(75) "NE" signifies agencies with no energy-related spending.

(76) "NE" signifies agencies with no energy-related spending.

(77) "NE" signifies agencies with no energy-related spending.

(78) "NE" signifies agencies with no energy-related spending.

(79) "NE" signifies agencies with no energy-related spending.

(80) "NE" signifies agencies with no energy-related spending.

(81) "NE" signifies agencies with no energy-related spending.

(82) "NE" signifies agencies with no energy-related spending.

(83) "NE" signifies agencies with no energy-related spending.

(84) "NE" signifies agencies with no energy-related spending.

(85) "NE" signifies agencies with no energy-related spending.

(86) "NE" signifies agencies with no energy-related spending.

(87) "NE" signifies agencies with no energy-related spending.

(88) "NE" signifies agencies with no energy-related spending.

(89) "NE" signifies agencies with no energy-related spending.

(90) "NE" signifies agencies with no energy-related spending.

(91) "NE" signifies agencies with no energy-related spending.

(92) "NE" signifies agencies with no energy-related spending.

(93) "NE" signifies agencies with no energy-related spending.

(94) "NE" signifies agencies with no energy-related spending.

(95) "NE" signifies agencies with no energy-related spending.

(96) "NE" signifies agencies with no energy-related spending.

(97) "NE" signifies agencies with no energy-related spending.

(98) "NE" signifies agencies with no energy-related spending.

(99) "NE" signifies agencies with no energy-related spending.

(100) "NE" signifies agencies with no energy-related spending.



## Summary of Agency Spending, Loans, and Loan Guarantees: LOW ESTIMATE

Agency	Total Energy (3)	Coal	Oil	Gas	Solar Non-Grid	Ethanol	Biomass Non-Grid	Effic. Supply	Effic. End-Use	Electric Coal	Electric Oil	Electric Gas	Electric Fission	Electric Hydro	Waste-to-Energy	Electric Geotherm.	Electric Biomass	Electric Wind	Electric Solar	Electric Fossil (5)	Other Renew. (5)	Fusion (5)	Electric General (5)	Percent Shares
<b>Department of Agriculture</b>																								
Agricultural Research Service	NE																							0.00%
Commodity Credit Corporation	208.4	0.0	0.0	0.0	0.0	208.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Conservation Reserve Program	10.2	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.64%
Federal Crop Insurance Corporation	3.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.08%
Forest Incentives Program	NE																							0.02%
Forest Service	NE																							0.00%
Rural Electrification Administration	1,123.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	569.8	179.8	54.2	316.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Soil Conservation Service	NE																							8.84%
<b>Executive Branch, Miscellaneous Functions</b>																								0.00%
Council on Environmental Quality	NE																							0.00%
Office of the U.S. Trade Representative	NE																							0.00%
Office of Management and Budget	NE																							0.00%
Office of Science and Technology Policy	NE																							0.00%
<b>International Development Assistance</b>																								0.00%
Agency for International Development	NE																							0.00%
Multilateral Development Banks	179.1	0.0	14.3	14.3	0.0	0.0	0.0	0.0	0.8	42.2	9.7	5.2	1.9	88.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
<b>Department of Commerce</b>																								1.41%
International Trade Administration	NE																							0.30%
Export Administration	NE																							0.00%
National Oceanic and Atmospheric Admin	NE																							0.00%
Natl Inst of Standards and Technology	NE																							0.00%
<b>Department of Defense</b>																								0.00%
Army Corps of Engineers Civil Program	843.0	199.6	417.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Navy Supervisor of Salvage	NE													0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.06%
<b>Department of Energy</b>																								0.00%
Energy R&D, Waste, Mgmt., and Admin	2,782.4	385.4	120.8	49.3	32.5	0.6	5.9	156.7	240.1	36.3	3.2	4.9	1,012.6	5.6	0.0	45.4	70.3	23.7	103.9	0.0	23.9	413.6	47.7	21.89%
Clean Coal Program	40.9	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	33.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.32%
Energy Information Administration	52.7	3.1	31.0	5.4	0.0	0.0	0.0	1.3	1.3	3.6	0.4	0.6	5.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.41%
Federal Energy Regulatory Commission	(17.8)	(17.8)	(10.4)	(9.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.14)%
Naval Petroleum and Oil Shale Reserves	NE													0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
Nuclear Waste Fund	NE													0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%
<b>Power Marketing Administrations</b>																								0.00%
Alaska Power Administration	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.05%
Renewable Power Administration	297.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.9)	0.0	0.0	0.0	354.5	(52.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.34%
Southeastern Power Administration	59.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.47%
Southwestern Power Administration	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.27%
Western Power Administration	30.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.24%
Strategic Petroleum Reserve	1,736.7	0.0	1,736.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.66%
Uranium Enrichment Enterprise	279.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	279.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.20%
<b>Department of Health and Human Services</b>																								0.00%
Centers for Disease Control	NE																							0.00%
National Institutes of Health	NE																							0.00%
National Cancer Institute	NE																							0.00%
National Heart, Lung, and Blood Inst	NE																							0.00%
Natl Inst of Environ Health Sciences	NE																							0.00%
Social Security Admin Back Lung Payments	892.0	892.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.02%
Low Income Home Energy Assistance Program	1,513.0	44.3	347.7	751.9	0.0	0.0	44.3	0.0	163.8	89.8	9.1	15.4	30.6	15.3	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	11.96%
<b>Department of Housing and Urban Development</b>																								0.00%
<b>Department of the Interior</b>																								0.00%
Bureau of Indian Affairs	NE																							0.00%
Bureau of Land Management	NE																							0.00%
Bureau of Mines	NE																							0.00%

## Summary of Agency Subsidizing, Loans, and Loan Guarantees: LOW ESTIMATE

Agency	Total Energy	Coal	Oil	Gas	Solar	Ethanol	Non-Grid	Electric Coal	Electric Oil	Electric Gas	Electric Fission	Electric Hydro	Electric Waste-to-Energy	Electric Geothermal	Electric Biomass	Electric Wind	Electric Solar	Electric Fossil	Other Renew.	Fusion	Electric General	Percent Shares	
	(3)												(4)				(5)	(5)	(3)		(5)		
Bureau of Reclamation	NE																					0.00%	
Fish and Wildlife Service	NE																					0.00%	
Minerals Management Service	167.7	0.0	93.1	74.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.32%	
Office of Surface Mining Reclamation and Enforcement	878.7	878.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.91%	
U.S. Geological Survey	NE																					0.00%	
Department of Labor																						0.00%	
Black Lung Program	260.1	260.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
Mine Safety and Health Administration	116.7	116.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.05%	
Occupational Safety and Health Admin	NE																					0.92%	
Department of State																						0.00%	
International Atomic Energy Agency	49.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
United Nations Environmental Program	NE																					0.36%	
Department of Transportation																						0.00%	
Coast Guard	484.5	78.3	406.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.81%	
Federal Highway Administration	NE																					0.00%	
Federal Railroad Administration	13.5	12.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
Maritime Administration	143.7	32.9	111.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11%	
National Highway Traffic Safety Admin	NE																					1.13%	
Saint Lawrence Seaway Development Corp.	NE																					0.00%	
Transportation Agencies																						0.00%	
Environmental Protection Agency	NE																					0.00%	
Export-Import Bank	434.4	43.8	85.1	21.5	0.0	0.0	0.0	0.4	0.0	102.6	47.8	70.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.42%	
Federal Emergency Management Agency	NE																					0.00%	
Federal Maritime Commission	NE																					0.00%	
Fed. Mine Safety and Health Review Comm.	NE																					0.00%	
International Trade Commission	NE																					0.00%	
National Aeronautics and Space Admin	NE																					0.00%	
National Institute of Building Sciences	NE																					0.00%	
National Science Foundation	NE																					0.00%	
National Transportation Safety Board	NE																					0.00%	
Nuclear Regulatory Commission	287.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	287.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
Occupational Safety and Health Review Comm.	NE																					2.26%	
Railroad Retirement Board	NE																					0.00%	
Tennessee Valley Authority	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
Legislative Branch																						0.00%	
Commission on Catastrophic Nuclear Accidents	NE																					0.00%	
Commission on Railroad Retirement Reform	NE																					0.00%	
Congressional Budget Office	NE																					0.00%	
Congressional Research Service	NE																					0.00%	
General Accounting Office	NE																					0.00%	
Joint Committee on Taxation	NE																					0.00%	
Office of the Nuclear Waste Negotiator	NE																					0.00%	
Office of Technology Assessment	NE																					0.00%	
Total Government Support	12,711.0	2,946.9	3,354.6	908.0	32.5	222.2	50.2	165.7	387.7	610.1	210.2	154.5	2,632.4	220.0	0.1	46.9	70.3	104.0	(0.4)	23.9	413.6	43.7	100.00%
Percent Shares	100.00%	23.18%	26.47%	7.14%	0.26%	1.75%	0.40%	1.30%	3.05%	4.96%	1.65%	1.22%	21.18%	1.73%	0.00%	0.37%	0.55%	0.82%	-0.00%	0.19%	3.25%	0.34%	0.0%

PDF compliments of www.earthtrack.net

(1) This is a summary report of data contained in the individual agency listings in the Agency Intervention chapter. Refer there for questions. Negative numbers reflect cross-subsidies between fuels or net gains on financing fees.

(2) High and low estimates reflect differences in assumptions, data, third party estimates, or estimating methods. Not every agency has different high and low estimates.

(3) "E" signifies agencies with some energy-related spending, but which were not estimated in this report.

(4) Note: In Energy estimates include energy share of spending only.

(5) "Renewables" includes hydropower, ocean thermal, and spending which could not be broken out into constituent fuels. General and fossil electric also contain cross-cutting spending.

# Summary of Federal Assumption of Legal Risks - High and Low Estimates

Agency	Total Energy (3)	NE														(4)					(5)					Fusion	Other Renew.	Electric General	Percent Shares	
		Coal	Oil	Gas	Non Grid	Solar	Ethanol	Non Grid	Biomass	Effic. Supply	Effic. End Use	Coal	Oil	Gas	Electric Fission	Electric Hydro	Waste to Energy	Electric Geothermal	Electric Biomass	Electric Wind	Electric Solar	Electric Fossil								
HIGHESTIMATE																														
Price Anderson Cap on Nuclear Accident Liability	2,750.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,750.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.37%	
Under accrual for Nuclear Decommissioning	197.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	197.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.70%	
Total Government Support	2,947.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,947.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Percent Shares	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
LOWESTIMATE																														
Price Anderson Cap on Nuclear Accident Liability	832.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	832.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%	
Under accrual for Nuclear Decommissioning	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00%	
Total Government Support	832.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	832.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Percent Shares	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Notes:

(1) This is a summary spreadsheet of data contained in the detailed sections on Price-Anderson and Decommissioning in the "Other Interventions" chapter.

(2) High and low estimates reflect differences in assumptions, data, third party estimates, or estimating methods.

(3) The high estimate for the Price-Anderson cap relies on Dubin, Jeffrey and Geoffrey Rothwell, "Subsidy to the Commercial Nuclear Power Industry Through the Price-Anderson Liability Limit," CEA, Stanford University Center for Economic Policy Research, Feb. 1990.

## Appendix A-10: Summary of Federal Intervention in Energy Markets through Regulations on Pricing, Access, Terms of Sale, or through Energy Procurement for Internal Use\*\* (listed by point of intervention)

<i>Direct Federal Market Intervention</i>	<i>Fuels Affected</i>	<i>Current Status</i>	<i>Impact on Market</i>
<b>Supply-Side Interventions Other Than Price</b>			
Federal ownership of natural resources	Coal, oil, gas, uranium, geothermal, electricity	Active	Variable
<b>Licensing and rights of way</b>			
Licensing of fuel minerals	Coal, oil, gas	Active	Variable
Licensing of hardrock minerals	Uranium, synfuels	Active	Decreases costs due to antiquated-law
Licensing of hyrdoelectric facilities	Hydroelectric	Active	Variable
Land grants for rights-of-way	Coal, oil, gas, electric	Active	Facilitated market development; current impacts centered on transmission line and pipeline rights-of-way
Licensing of patents from government energy research	All fuels and efficiency; likely to be correlated with R&D spending mix	Active	Decreases cost of innovation
<b>Interference with Rights and Options of Private Suppliers</b>			
<i>Export Restrictions</i>			
Restriction on nuclear exports	Fission	Active	Increases costs by reducing utilization of economies of scale
Restriction on timber exports	Wood	Active	Negligible
Restriction of crude oil exports	Oil	Active	May slightly reduce domestic oil prices regionally
<i>Restrictions on Production Decisions</i>			
Connally Hot Oil Act restrictions on intrastate production	Oil	Inactive	Decreased long-term costs by maintaining drilling pressures; increased short-term energy costs
Jones Act restrictions on use of foreign shipping vessels	Oil, coal	Active	Increases cost of transport
<b>KEY:</b> Inactive Status refers to interventions that have expired, been eliminated, or were one-time grants. Variable Impact means that the intervention can increase or decrease prices, market certainty, or market interest depending on how it is applied. Facilitated Market Development refers to interventions which, had they not occurred, would have made widespread use of the fuel unlikely.			

**\*\*Since these interventions affect the market clearing conditions, each may potentially also affect the market for energy efficiency as a substitute for increased competition**

*Alliance to Save Energy and Douglas Koplow, April 1993*

<i>Direct Federal Market intervention</i>	<i>Fuels Affected</i>	<i>Current Status</i>	<i>Impact on Market</i>
Restrictions on choice of fuels for electric utilities	Oil, gas, coal	Inactive	Increased costs of electricity production
Transport restrictions on gas pipelines	Gas	Inactive	Increased costs of electricity production
Contractual abrogation during natural gas shortage in 1973	Gas	Inactive	Increased costs by increasing market uncertainty
Monopoly problems with electric wheeling	Electricity	Active**	Increases costs by precluding arbitrage between power districts
Restrictions on organization form of utilities	Electricity	Active	Prevents monopoly pricing; may also increase costs by reducing administrative economies of scale
Residential conservation service provision of efficiency audits	Efficiency	Inactive	Potentially decreases costs through demand reduction
<i>Performance Thresholds</i>			
Automobile and appliance efficiency standards	Efficiency	Active	May increase cost of manufacture and of purchase; will generally reduce life-cycle costs of ownership
CAFE exceptions for multi-fueled vehicles	Methanol, ethanol	Active	May decrease efficiency improvements of automobile fleet
Required conservation efforts to get access to federal power from WAPA	Efficiency	Active	Will probably decrease utility operating costs
<i>Direct Ownership of Capacity</i>			
Release of fission power technology to private industry	Fission	Inactive	Facilitated market development
Direct federal ownership of uranium enrichment services	Fission	Active	Decreases costs through below-cost sales
Direct federal ownership of electric generation	Electricity	Active	Decreases regional costs through subsidized infrastructure development
<b>Demand-Side Interventions Other Than Price</b>			
<b>Import restrictions</b>			
Import restrictions on uranium	Fission	Inactive	Protects domestic producers; increases costs to industry
Oil import quotas and allocations	Oil	Inactive	Increased domestic production in short term; will reduce it in long run; increases prices by restricting lower-cost supply
<p>** Although the Energy Policy Act of 1992 gives FERC the power to force utilities to wheel power.</p> <p>KEY:  Inactive Status refers to interventions that have expired, been eliminated, or were one-time grants.  Variable Impact means that the intervention can increase or decrease prices, market certainty, or market interest depending on how it is applied.  Facilitated Market Development refers to interventions which, had they not occurred, would have made widespread use of the fuel unlikely.</p>			

*Alliance to Save Energy and Douglas Koplow, April 1993*

<i>Direct Federal Market Intervention</i>	<i>Fuels Affected</i>	<i>Current Status</i>	<i>Impact on Market</i>
<b>Price Controls</b>			
<b>Required Purchases of Particular Energy Services</b>			
PURPA-required purchases	Gas, coal, renewables	Active	Increases market access for small-scale power
Oil Overcharge Fund allocation to efficiency projects	Efficiency	Active	Increases demand for efficiency services
Petroleum price controls and oil overcharge settlements	Oil	Inactive	Reduced domestic prices, reduced domestic production, created supply shortages; overcharge payments subsidize low-income energy purchases, alternative fuels and efficiency
Oil pipeline rates	Oil	Inactive	Facilitated markets in early years; after established, impact depends on actual prices set and monopoly characteristics of the line
Natural gas price controls	Gas	Inactive	Led to shortages from below-market pricing
Average cost pricing for wholesale power rates and power marketing administrations	Natural gas and electricity	Active	Avoids monopoly pricing; reduces pressures to improve cost efficiency; distorts price signals regarding need for marginal capacity
<b>Federal Procurement of Energy Services for Internal Use</b>			
Procurement of energy services for government use	All fuels	Active	Variable; can create markets
Energy efficiency requirements in government buildings and vehicles	Efficiency	Active	Moves energy procurement practices closer to behavior in a competitive market
Federal procurement preference for gasohol	Gasohol	Active	Increases demand for gasohol
Federal procurement preference for alternative-fueled vehicles	Gasohol, natural gas	Active	Increases demand for alternative-fueled vehicles; increases costs of federal fleet procurement
Implementation of energy efficiency efforts in federal power projects	Efficiency	Active	Increases demand for efficiency services; may decrease energy costs to government
Required purchases of coal by Department of Defense	Anthracite coal	Active	Protects domestic hard coal miners; increases energy costs to DOD
Overpurchase of uranium	Fission	Inactive	Protects domestic producers; increases costs to taxpayers
<p><b>KEY:</b>            Inactive Status refers to interventions that have expired, been eliminated, or were one-time grants.            Variable Impact means that the intervention can increase or decrease prices, market certainty, or market interest depending on how it is applied.            Facilitated Market Development refers to interventions which, had they not occurred, would have made widespread use of the fuel unlikely.</p>			

*Alliance to Save Energy and Douglas Koplow, April 1993*

## Appendix A-2: Federal Intervention in Energy Markets (by Energy Type and Point of Intervention)

**T**o better illustrate the point that federal intervention is pervasive in energy markets, we have summarized this intervention by energy type and point in the energy development process on the following charts. These charts provide a qualitative illustration of the frequency and point of government intervention into the markets for particular fuels.

These charts represent a "best effort" to identify and categorize federal intervention. However, due to the scope and duration of intervention in energy markets, these charts should not be viewed as all-inclusive. Oil, coal and natural gas that is converted into electricity are subject to all the interventions contained both on their respective fuel charts and on the one for fossil electric. Subsidy items are shown preceded by a dash (-), cost-increasing government intervention (for reasons unrelated to health or environmental externalities, or management of support programs) is denoted by a plus sign (+), and interventions which are likely to have a neutral net effect are preceded by an asterisk (\*). Neutral items are primarily trust funds to deal with energy-related externalities which are financed by fuel excise taxes.

The categories across the top of the charts refer to the primary activities of the enterprise during the entire product life cycle. The support activities, listed vertically, correspond to functional activities of the firm during every stage of product development. The rows represent major components of industry cost-structure. Procurement involves the purchase cost of production inputs, or the sale price of outputs. Technological development includes both product and process innovation. Cost of labor, capital or operations is self-explanatory. The industry infrastructure category includes federal intervention through ownership or infrastructure construction which radically alters the operating environment and cost structure for that sector of the energy industry (e.g. tax-exemption of some utilities but not others). Risk reduction includes

federal risk absorption and shifting, or federal market planning functions. Externality control includes federal involvement to assess and mitigate externalities created by the particular energy type.

Note that these charts, as was true for the main report, do not list externalities which the federal government is not spending money on. Items listed as "pending" were passed in the Energy Policy Act of 1992 and will be implemented in the near future.

While a variety of government interventions may be used to support each stage of the product life cycle, there are some fairly intuitive patterns that become apparent. Research support is the strongest prior to product introduction, and tax benefits are most common during the procurement of capital for the production or transportation infrastructure. Since toxic emissions may occur throughout exploration, extraction, production, transportation and closure, government intervention for health, safety, and environmental protection occurs across many of these categories. Many of the items listed on the following charts may have incremental benefits to the recipient through the use of the federal government as an intermediary.

While the number of items on a chart gives some indication of the "messiness" of the markets, this conclusion should be tempered by a number of caveats. First, the frequency of intervention and the magnitude of subsidization are not necessarily correlated. In addition, the inclusion of some expired provisions to show how strong a role the federal government has played historically makes the charts look more cluttered even where intervention is less severe today. Finally, the chart for fission-electric comprises extraction through the conversion to electricity, while the fuel cycles for oil, gas and coal are spread onto two sheets as mentioned above. The charts should be viewed as a starting point for the examination of the more important questions of the magnitude of intervention.

## Federal Intervention in the Market for Oil

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>	<ul style="list-style-type: none"> <li>-USGS Surveys</li> <li>-NOAA mapping of energy resources</li> <li>-BIA resource development support</li> </ul>	<ul style="list-style-type: none"> <li>-Small refinery preference on sales from the Naval Petroleum and Oil Shale Reserves</li> </ul>	<ul style="list-style-type: none"> <li>+Jones Act restrictions on the use of foreign-built vessels</li> <li>-MARAD operating differential subsidies to U.S. fleets</li> <li>-Pipeline rate setting</li> <li>-Highway construction (net of Highway Trust Fund)</li> <li>-Foreign tax credit reduction via transfer pricing (narrowed)</li> <li>-Oil shipping subsidiary-related tax deferrals (repeated)</li> </ul>	<ul style="list-style-type: none"> <li>-Eximbank subsidized loans, loan guarantees, and defaults on export loans for oil equipment and services</li> <li>-Low Income Energy Home Assistance Program</li> <li>+Portion of excise tax used for general revenues</li> <li>-Oil import quotas and allocations (expired 1973)</li> <li>+Oil price controls and oil overcharge legal suits (expired)</li> <li>+Windfall profits tax</li> <li>-Higher tax exemption of automobile parking allowances than mass transit</li> <li>+Gas guzzler tax on inefficient automobiles</li> </ul>	
<b>Technological Development</b>	<ul style="list-style-type: none"> <li>-DOE R&amp;D on oil extraction technologies</li> <li>-R&amp;D tax credit</li> <li>-Expensing long-term R&amp;D expenses</li> <li>-DOE/NSF materials R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>-DOE fossil fuel research</li> <li>-EPA emissions control research</li> <li>-Enhanced oil recovery tax credits</li> <li>-Expensing of tertiary injectants</li> </ul>	<ul style="list-style-type: none"> <li>-EPA bioremediation research for spills</li> <li>-Federal Highway Administration R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>-EPA research into vapor recovery systems for gas stations</li> </ul>	
<b>Cost of Labor, Capital or Operations</b>		<ul style="list-style-type: none"> <li>-Expensing intangible development costs</li> <li>-Excess of percentage over cost depletion</li> <li>-Oil exception to passive loss restrictions</li> <li>-Special benefits to Alaskan Native Corporations</li> <li>-General ITCs, ACRS, and tax-exempt debt issues for pollution control impact (residual impact)</li> <li>-Rapid amortization of pollution control expenditures (expired)</li> <li>-Capital gains benefits</li> <li>-Expensing of construction-period interest (expired)</li> <li>-AMT relief for independent oil producers (pending)</li> </ul>	<ul style="list-style-type: none"> <li>-Deferral of tax on shipping companies</li> <li>-General ITCs and accelerated cost recovery (residual impacts)</li> <li>-Tax-exempt debt for docks, wharves and highways</li> <li>-Deduction of intangible motor carrier operating rights (expired)</li> </ul>	<ul style="list-style-type: none"> <li>-Special benefits for Alaskan Native Corporations</li> <li>-Grants and loans from the Multilateral Development Banks to the poorest developing countries to develop oil industry</li> </ul>	
<b>Industry Infrastructure</b>	<ul style="list-style-type: none"> <li>-BLM leasing decisions on oil tracts</li> </ul>		<ul style="list-style-type: none"> <li>-FERC pipeline regulation</li> <li>-Army Corps waterways construction and maintenance</li> <li>-St. Lawrence Seaway development corporation</li> <li>-Army Corps. construction of deep water ports &amp; harbors</li> <li>-Coast Guard bridge alterations and navigation aids</li> <li>-NOAA/NASA/DOD global positioning system and other navigational aids</li> </ul>	<ul style="list-style-type: none"> <li>-EIA data collection</li> <li>-Interstate highway and other road construction not paid for by road users (supporting oil-consuming vehicles)</li> <li>+Use of a portion of motor fuels excise tax receipts for mass transit</li> </ul>	
<b>Risk Reduction</b>	<ul style="list-style-type: none"> <li>-Study of the environmental impact of drilling in the Arctic National Wildlife Refuge (Fish &amp; Wildlife Service)</li> </ul>		<ul style="list-style-type: none"> <li>-Maritime safety</li> <li>-Provisions of war risk insurance</li> <li>-Military protection of Gulf oil shipping lanes</li> <li>-Cap on oil spill liability</li> </ul>	<ul style="list-style-type: none"> <li>-Strategic Petroleum Reserve</li> <li>-DOE emergency preparedness</li> </ul>	
<b>Externality Control</b>		<ul style="list-style-type: none"> <li>-OSHA regulation of drilling and refinery operations</li> </ul>	<ul style="list-style-type: none"> <li>-NOAA Damage Assessment and Restoration fund</li> <li>-F&amp;WS, Coast Guard, and Navy oil spill response</li> <li>-DOT Office of Pipeline Safety oversight and user fees</li> <li>-Army Corps aquatic plant control in waterways</li> <li>-EPA dredge disposal permits</li> <li>-F&amp;WS review of dredge disposal permits</li> <li>+NHTSA efficiency standards making and enforcement</li> </ul>	<ul style="list-style-type: none"> <li>-EPA auto emissions compliance</li> <li>-Global climate change, acid deposition, and air pollution research by DOE, EPA, NOAA, NASA and F&amp;WS</li> <li>-NIH research on lung ailments</li> <li>-EPA regulation of leaky underground storage tanks</li> <li>"Leaking underground storage tank fuel tax and trust fund"</li> </ul>	<ul style="list-style-type: none"> <li>-Bevill waste exclusion for oil drilling waste</li> <li>*Oil spill excise tax and Oil Spill Liability Trust Fund</li> <li>-EPA regulation of underground injection of drilling wastes</li> <li>-Oil-related Superfund sites</li> </ul>

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "\*" = Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplow, April 1993



## Federal Intervention in the Market for COAL

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>	-USGS Surveys -BIA resource development support		-Jones Act restrictions on the use of foreign-built vessels -MARAD operating differential subsidies to U.S. fleets	-Eximbank subsidized loans, loan guarantees and defaults on export loans for coal mining equipment and services -Low Income Home Energy Assistance Program -MMS leasing costs and delinquent royalties -DOD coal purchase requirements -Tax deduction for methanol fueled vehicles (pending)	
<b>Technological Development</b>	-BOM mineral research	-DOE R&D on coal production techniques such as underground gasification -BOM mining systems R&D -DOE Clean Coal program	-FRA R&D		
<b>Cost of Labor, Capital or Operations</b>		-General ITCs, accelerated cost recovery system, and tax exempt debt issues for pollution control equipment (residual impact) -Rapid amortization of pollution control expenditures (expired) -Capital gains treatment of coal royalties -Expensing intangible development costs -Excess of percentage over cost depletion -DOE Alternative Fuels Program (residual)	-General ITCs and accelerated cost recovery (residual impacts) -Tax-exempt debt for docks and wharves -Railroad retirement benefits subsidies -Rapid amortization of railroad rolling stock (expired)	-Grants and loans from the Multilateral Development Banks to developing nations for utilizing coal deposits	-Expensing mine closure and reclamation reserves
<b>Industry Infrastructure</b>	-Access to, and bidding for, coal leases		-Granting of rail rights-of-way -Army Corps of Engineers construction and maintenance of locks and dams -St. Lawrence Seaway development corporation -Construction and maintenance of ports by the Army Corps -Coast Guard bridge alternations and navigation aids	-EIA data collection	
<b>Risk Reduction</b>		-Limited enforcement of subsidence damage liability	-Maritime safety -Rail safety regulation	-DOE emergency preparedness	
<b>Externality Control</b>	-OSHA regulation of drilling operations	-NIH lung research -Mine health and safety programs: BOM, OSHA, OSMRM, MSHA -Reclamation requirements exemption for small mine operators -Inadequate bonding requirements for leases on federal lands -Interest forgiveness on Black Lung Trust Fund -SSA direct payments to black lung victims -Tax exemption of black lung payments +Excise tax on coal partially supporting Black Lung Trust Fund	-Army Corps aquatic plant control in waterways -EPA dredge disposal permits -Fish and Wildlife Service review of dredge disposal permits	-Global climate change, acid deposition and air pollution research by DOE, EPA, NOAA, NASA and F&WS -NIH research on lung ailments	-Bevill waste exclusion for mining wastes -Abandoned mine reclamation fund and excise tax -DOE cleanup of coal sites: Western Superfund, and Rocky Mountain underground coal gasification sites
KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "***" = Net Effect Probably Neutral					

Alliance to Save Energy and Douglas Koplow, April 1993

## Federal Intervention In the Market for NATURAL GAS

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>	<ul style="list-style-type: none"> <li>-USGS surveys</li> <li>-NOAA mapping of energy resources</li> <li>-BIA resource development support</li> </ul>		<ul style="list-style-type: none"> <li>-Pipeline rate setting</li> </ul>	<ul style="list-style-type: none"> <li>-Eximbank subsidized loans, loan guarantees, and defaults on export loans for gas extraction equipment and services</li> <li>-Low Income Home Energy Assistance Program</li> <li>-MMS leasing costs and delinquent royalties</li> <li>+Gas price controls through 1983</li> <li>-Federal purchase preference for alternative fueled vehicles, including natural gas</li> <li>-Tax deduction for natural gas fueled vehicles (pending)</li> </ul>	
<b>Technological Development</b>	<ul style="list-style-type: none"> <li>-DOE R&amp;D on gas extraction technologies</li> <li>-R&amp;D tax credit</li> <li>-Expensing long-term R&amp;D expenses</li> </ul>	<ul style="list-style-type: none"> <li>-DOE fossil fuel research</li> <li>-Enhanced gas recovery tax credit</li> <li>-Expensing of tertiary injectants</li> </ul>			
<b>Cost of Labor, Capital or Operations</b>		<ul style="list-style-type: none"> <li>-Expensing intangible development costs</li> <li>-Excess of percentage over cost depletion</li> <li>-Gas exception to passive loss restrictions</li> <li>-Special benefits to Alaskan Native Corporations</li> <li>-General ITCs, accelerated cost recovery system, and tax-exempt debt issues for pollution control equipment (residual impact)</li> <li>-Rapid amortization of pollution control expenditures (expired)</li> <li>-Capital gains benefits</li> <li>-Expensing of construction-period interest (expired)</li> <li>-Alternative minimum tax relief for independent gas producers (pending)</li> </ul>	<ul style="list-style-type: none"> <li>-General ITCs and accelerated cost recovery (residual impacts)</li> </ul>	<ul style="list-style-type: none"> <li>-Special benefits for Alaskan Native Corporations</li> <li>-Retention of excess deferred taxes by gas utilities following the decrease in tax rates in 1986</li> <li>-Grants and loans from the Multilateral Development Banks to developing nations to develop gas reserves</li> </ul>	
<b>Industry Infrastructure</b>	<ul style="list-style-type: none"> <li>-BLM leasing decisions on oil and gas tracts</li> </ul>	<ul style="list-style-type: none"> <li>-Tax-exempt status of some mutual, cooperative and municipal utilities</li> </ul>	<ul style="list-style-type: none"> <li>-FERC pipeline regulation</li> <li>-Federal Power Commission prohibition of intrastate gas flowing in interstate pipelines (expired)</li> </ul>	<ul style="list-style-type: none"> <li>-EIA data collection</li> <li>-Clean Air amendment requirements for introduction of natural gas vehicles</li> </ul>	
<b>Risk Reduction</b>	<ul style="list-style-type: none"> <li>-Study of the environmental impact of drilling in the Arctic National Wildlife Refuge (Fish &amp; Wildlife Service)</li> </ul>			<ul style="list-style-type: none"> <li>-DOE emergency preparedness</li> </ul>	
<b>Externality Control</b>		<ul style="list-style-type: none"> <li>-OSHA regulation of drilling operations</li> </ul>	<ul style="list-style-type: none"> <li>-DOE Liquefied Gaseous Fuels test facility</li> <li>-DOT Office of Pipeline Safety oversight and user fees</li> <li>-Alaskan gas pipeline inspector</li> </ul>		<ul style="list-style-type: none"> <li>-Bevill waste exclusion for oil and gas drilling wastes</li> <li>-EPA regulation of underground injection of drilling wastes</li> </ul>

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "" = Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplrow, April 1993

## Federal Intervention in the Market for FOSSIL ELECTRIC

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>			-Below-cost sales of power from TVA to DOE's Uranium Enrichment Enterprise	-Low Income Home Energy Assistance Program -PURPA-required purchases from fossil-fed cogeneration facilities -Tax credits and deduction for electric cars (pending) -Eximbank subsidized loans, loan guarantees, and defaults on exports of U.S. fossil-electric equipment and services	
<b>Technological Development</b>	-NIST materials research -DOE R&D on oil extraction technologies -R&D tax credit -Expensing long-term R&D expenses	-NIST manufacturing research	-R&D on superconductivity		
<b>Cost of Labor, Capital or Operations</b>		-Tax-exempt debt for public power construction -ITC, accelerated cost recovery system, and tax-exempt debt for pollution-control equipment (residual impact) -Safe harbor leasing (residual) -REA subsidized loans, loan guarantees and defaults -Tax-exempt dividend reinvestment for cooperatives (expired) -Exclusion of payments in aid of construction from taxable income (expired)	-ITC and accelerated cost recovery system for transmission construction (residual impact) -REA subsidized loans, loan guarantees and defaults	-Utility retention of excess deferred taxes following the 1986 drop in tax rates -Grants and loans to electric sector in developing countries through the Multilateral Development Banks	
<b>Industry Infrastructure</b>	-NIST standards setting	-Tax-exempt operation of mutuals, cooperatives, and public power +Fuel use act of 1978 restrictions on the use of oil and gas for electric generation (helped coal) (expired)	+FERC power to require wheeling (pending) -Transmission rights-of-way	+Wholesale power regulation using average cost rather than marginal cost pricing -EIA data collection	
<b>Risk Reduction</b>	-USGS earthquake assessments				
<b>Externality Control</b>		-DOE clean coal research -Global warming, acid deposition and air pollution research by DOE, EPA, NOAA, NASA and F&WS -NIH research on lung ailments	-Research into health effects of electromagnetic fields		-Bevill waste exclusion on certain slag and combustion ash

NOTE: Fossil electric also greatly benefits from reduced fuel costs due to federal subsidies to the coal, natural gas and oil input fuels  
 KEY: "-" = Subsidy to industry; "+" = Cost-Increasing to Industry; "\*\*\*" = Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplow, April 1993

## Federal Intervention in the Market for FISSION ELECTRIC

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>	-BLM uranium leasing -USGS uranium surveys	-UEE below-cost purchases of TVA power -Bonus payments for new uranium discoveries (expired) -10-year price guarantees for uranium ore (expired)		-Low Income Home Energy Assistance Program -UEE below-cost sales of enriched uranium, and resulting losses -UEE overcompensation and stockpiling of uranium (expired) +Import ban on uranium ore (expired) -Tax credit and deduction for electric cars (pending) -Eximbank subsidized loans, loan guarantees, and defaults on exports of U.S. fission-electric equipment and services (mostly in the 1970s)	
<b>Technological Development</b>	-NIST materials research -DOE reactor research and R&D spillover from defense reactor programs -DOE basic sciences and advanced materials research -DOE R&D on oil extraction technologies -R&D tax credits -Expensing long-term R&D expenses	-DOE alternative enrichment technology research (AVLIS) -NIST manufacturing research -DOE fission research -DOE joint research with other nations	-R&D on superconductivity -DOE research on nuclear waste shipping containers		-DOE research into nuclear waste vitrification and cleanup technologies -Extensive research and site assessment for commercial waste site
<b>Cost of Labor, Capital or Operations</b>		-ITCs, accelerated cost recovery, tax exempt debt for pollution control equipment and safe harbor leasing (residual impact) -Tax-exempt bonds and REA subsidized loans, loan guarantee and defaults (through partnerships with coops) -Cooperative tax-exempt dividend reinvestment (expired) -Exclusion of payments in aid of construction (expired) -Expensing of construction-period interest (expired)	-ITC and accelerated cost recovery system for transmission construction (residual impact) -REA subsidized transmission loans, loan guarantees, and defaults	-Utility retention of excess deferred taxes following the 1986 drop in tax rates	-Reduced tax rate on nuclear decommissioning, trust funds (pending)
<b>Industry Infrastructure</b>	-NIST standard setting -DOE ownership of research facilities -Atomic Energy Commission construction of access roads to uranium mines (expired)	-Tax-exempt operation of mutuals, cooperatives and public power -Government ownership and operation of UEE, with associated tax-exemptions and no rate of return -Allowance of private ownership of fissionable materials -Fuel Use Act restricting new oil and gas electric plants (expired) -Accelerated plant licensing (pending)	+FERC power to require wheeling (pending) -Transmission rights-of-way	+Export restrictions on nuclear technologies and fissionable materials +Wholesale rate regulation using average cost rather than marginal cost pricing -EIA data collection	-Potential under-accrual for decommissioning costs -Construction and operation of waste disposal site at Yucca Mountain -Office of Nuclear Waste Negotiator
<b>Risk Reduction</b>	-USGS earthquake assessments	-Price Anderson cap on liability for nuclear accidents -Government absorption of all operating liabilities associated with UEE	-Price Anderson indemnification of all transporters of uranium or radioactive wastes	-No risk sharing with private industry on UEE long-term power purchase contracts with TVA	-Government chain of control over nuclear waste from point it leaves the utility -Government absorption of all risks associated with waste transport and disposal, and the construction and operation of the disposal facility in return for a small tax now (Nuclear Waste Fund)
<b>Externality Control</b>		-DOE and EPA radiological research -NRC oversight of nuclear plants -FEMA radiological emergency preparedness	-Research into health effects of electromagnetic fields	-IAEA nuclear non-proliferation efforts, supported through the Department of State -IAEA safety training	-Decommissioning and decontamination at enrichment facilities and other DOE facilities at least partly serving commercial sector -Shippingport reactor decommissioning -Cap on utility share of D&D costs

KEY: "-" = Subsidy to Industry; "+" = Cost-increasing to Industry; "" = Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplrow, April 1993

## Federal Intervention in the Market for HYDROELECTRIC

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
Procurement				<ul style="list-style-type: none"> <li>-PURPA-required purchases of small-scale hydropower</li> <li>-Eximbank subsidized loans, loan guarantees, and defaults on export loans for hydroelectric equipment and services</li> <li>-Tax credit and deduction for electric vehicles (pending)</li> </ul>	
Technological Development			-R&D on superconductivity	<ul style="list-style-type: none"> <li>-Low Income Home Energy Assistance Program</li> <li>+Power repayment of irrigation assistance</li> </ul>	
Cost of Labor, Capital or Operations		<ul style="list-style-type: none"> <li>-Subsidized loans and long debt repayment periods for the Power Marketing Administrations</li> <li>-Tax-exempt bonds for environmental improvements to hydro facilities (pending)</li> </ul>		-No required rate of return on government-owned capacity	
Industry Infrastructure	<ul style="list-style-type: none"> <li>-Bureau of Reclamation and Army Corps of Engineers site and modification assessments</li> <li>-FERC licensing of hydro facilities</li> </ul>	<ul style="list-style-type: none"> <li>-Initial construction and continued maintenance of the dams by BuRec and Army Corps of Engineers</li> <li>-Cost allocation decision regarding power repayment on federal dams</li> <li>-Dam repair and rehabilitation by the Fish and Wildlife Service</li> <li>-Government ownership and operation of hydro capacity, with associated tax-exempt operations</li> </ul>	<ul style="list-style-type: none"> <li>+FERC power to require wheeling</li> <li>-FERC transmission line licensing and approval</li> </ul>	<ul style="list-style-type: none"> <li>-Wholesale rate regulation using average cost rather than marginal cost pricing</li> <li>-EIA data collection</li> <li>+Cross subsidies to irrigation and fission power by hydro users at Power Marketing Administrations and TVA</li> <li>-Grants from Multilateral Development Banks to developing countries for constructing hydroelectric infrastructure</li> </ul>	
Risk Reduction		-Government assumption of all liability of operations for PMAs			
Externality Control		<ul style="list-style-type: none"> <li>-Fish and wildlife protection</li> <li>-FERC oversight</li> <li>-F&amp;WS flow assessments</li> </ul>			

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "" Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplow, April 1993

## Federal Intervention in the Market for ALL RENEWABLES AND WASTE-TO-ENERGY

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production R&D	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
Procurement	-USGS surveys for geothermal deposits	-Water, energy and agricultural subsidies regarding production inputs to biomass fuels, such as ethanol from corn (biomass)		-PURPA-required renewables purchases (some biomass) -Alcohol fuels excise tax exemption for mixtures with at least 10% alcohol, and pro-ration for mixtures of less than 10% (biomass) -Federal purchase preference for gasohol or alternate fueled vehicles -Exceptions to CAFE requirements for alternate fueled vehicles -Tax deductions for ethanol and hydrogen fueled vehicles (pending)	
Technological Development	-DOE renewables research				
Cost of Labor, Capital or Operations		-DOE Geothermal Resources Development fund -Tax-exempt debt for waste-to-energy plants -Business energy supply ITCs (solar and geothermal) -Excess of percentage over cost depletion for geothermal energy -Alternative fuel production tax credit (ethanol) -Alcohol fuel income tax credit -Expensing of multi-period timber growing costs -Capital gains treatment of standing timber -General ITC and accelerated depreciation (residual impact) -1.5-cent/KWh production credit for wind and closed-loop biomass power generation (pending)		-Residential energy supply credits (expired)	-Rapid amortization of reforestation expenses (biomass)
Industry Infrastructure	-Licensing of geothermal plants -Allowance of free firewood removal from certain national forests -Forest Service and BLM timber leasing		-Forest Service subsidized road construction (biomass)	-EIA data collection	
Risk Reduction	-USDA and DOE loans and loan guarantees for ethanol production facilities	-Commodity Credit Corporation price supports and disaster payments for ethanol feedstocks -Federal Crop Insurance Corporation subsidized insurance for ethanol feedstocks		-Forest service forgiveness of high-priced timber contracts when the market declined (biomass)	
Externality Control				-EPA wood stove emissions regulation (biomass)	

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "" Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplow, April 1993

## Federal Intervention in the Market for END-USE AND SUPPLY EFFICIENCY

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
<b>Procurement</b>				<ul style="list-style-type: none"> <li>-Government purchase of efficiency services</li> <li>-Bonneville Power Administration's purchases of efficiency</li> <li>-Mortgage interest rate deduction</li> <li>-Accelerated depreciation for buildings and rental housing (residual impact)</li> <li>-LIHEAP weatherization spending</li> <li>-Allocation of part of the court settlements on oil overcharge cases to weatherization</li> <li>-Exclusion of utility DSM payments from personal taxable income (pending)</li> </ul>	
<b>Technological Development</b>	-DOE efficiency and conservation research	-Clean coal program: fluidized bed and combined-cycle technologies (supply efficiency)	<ul style="list-style-type: none"> <li>-Superconductivity research</li> <li>-DOT transportation systems research</li> </ul>	<ul style="list-style-type: none"> <li>-Residential energy conservation ITCs (expired)</li> <li>-Business energy conservation ITCs (narrowed)</li> </ul>	
<b>Cost of Labor, Capital or Operations</b>		-Utility expensing of DSM purchases with multi-year lives (IRS trying to restrict)			
<b>Industry Infrastructure</b>			-Corporate Average Fuel Economy standards	-Appliance efficiency standards	
<b>Risk Reduction</b>		-Multilateral Development Bank grants and loans to improve supply efficiency and utility management in developing nations			
<b>Externality Control</b>		-EPA fuel efficiency standards enforcement			-DOE and EPA indoor air pollution and radon research

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "" = Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplrow, April 1993

## Federal Intervention in the Market for FUSION

Cost Factor Affected	Primary Activities				
	Exploration or Pre-production Phase	Extraction, Refinement and Production	Transport and Distribution	Marketing, Sales, Service and Consumption	Post-Operational Closure and By-Product Disposal
Procurement					
Technological Development	-DOE fusion research -NIST materials research				
Cost of Labor, Capital or Operations					
Industry Infrastructure	-NIST standards setting				
Risk Reduction					
Externality Control					-DOE radioisotope and waste R&D

KEY: "-" = Subsidy to Industry; "+" = Cost-Increasing to Industry; "" Net Effect Probably Neutral

Alliance to Save Energy and Douglas Koplow, April 1993



# **Federal Energy Subsidies:**

**Energy, Environmental, and Fiscal Impacts**

## **Technical Appendix (Appendix B)**

**by Douglas N. Koplow**  
*Lexington, Massachusetts*

**April 1993**



**The Alliance to Save Energy**  
*Energy Price and Tax Program*  
*Mary Beth Zimmerman, Program Manager*

© The Alliance to Save Energy and Douglas N. Koplow, 1993