

Comparison of Energy Subsidy Estimates Between Alliance to Save Energy and EIA 1992

In December 1992, the Energy Information Administration published a study¹ on federal energy subsidies which estimated federal subsidies for fiscal year 1992 (partially mixed with some 1990 estimates) at between \$5 and \$13 billion. We estimate annual federal energy subsidies for fiscal year 1989 at between \$21 and \$36 billion. This text and table illustrate the key differences between the reports.

Sources of Difference

Differences in the estimates are due to (1) the base year of the spending (1989 versus 1992); (2) the subsidies included in the analysis; and (3) the method of measuring the subsidies included.

Base Year of Spending. The ASE base year is 1989. This choice reflects the inclusion of many types of information, such as loan defaults, unrecovered capital costs, etc., that have associated availability lags of a few years. The EIA study relied, primarily, on 1992 budget outlays, although most of their high subsidy estimates for federally-owned enterprises are presented in unadjusted 1990 dollars. The use of different base years introduces differences from inflation, program changes, and statutory changes in the eligibility for certain provisions. Inflating ASE's 1989 estimate to 1992 dollars to eliminate the impact of inflation on differences between the estimates would add an additional 10% (\$2-4) billion to the amount that EIA is below ASE.

Programs Included in the Analysis. Much of the difference between the ASE and EIA estimates is due to EIA's exclusion of many federal programs which directly benefit the energy sector. In some cases the energy sector is actually the target of the subsidy; in other cases, the energy sector is a main beneficiary, even though the subsidy was not created solely to benefit energy producers.

Key Programs Supporting Energy Excluded by EIA. EIA excluded many programs that clearly benefit the energy sector. These exclusions fall into three main categories: programs which seem to fit EIA's criteria for subsidies, but were not included for reasons which are not clear from the EIA report; programs which will not benefit the energy sector for many years; and programs not directly targeted to the energy sector, but of which energy is a main beneficiary.

Programs Included by EIA Excluded by ASE. A small number of programs were included in the EIA totals but not in the ASE totals. This included \$209 million from federal agencies not quantified in the ASE study, and \$3,132 million in motor fuel excise taxes for "deficit reduction." Since EIA did not assess the many ways that the federal government pays for road construction other than through motor fuel taxes (e.g., special projects, and through payments in timber and minerals), we do not think it appropriate to assume that the net "tax" on oil is equal to the excise fee receipts.

Different Measurement Methods. EIA and ASE differed in their measurement of the costs of capital-intensive federally-owned energy enterprises and

¹Energy Information Administration, Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets, November 1992.

energy-related Trust Funds.

Federally-Owned Energy Enterprises. ASE assessed the unrepaid federal investment in capital, the cost of financing provided to the entity, current operating and financing costs, and insufficient accruals for future costs, such as plant decommissioning in order to estimate the magnitude of federal subsidies. EIA used the net budget outlays for 1992 in their low estimate. The cash balance for a multi-year, capital intensive enterprise is useful in assessing operating performance and financing needs. However, since this approach does not incorporate the repayment of capital invested in past years, or necessary accruals for future costs which are not being made, we do not view it as an appropriate measure of federal subsidies.

EIA's high estimate approximated the revenues necessary to earn the after-tax rate-of-return on invested assets demanded by "similar" privately-owned enterprises. We believe that this approach has great merit, since the fact that federally-owned enterprises do not pay federal taxes and do not have to earn a rate of return, both introduce barriers to entry for substitute energy technologies that may be able to provide similar services using fewer of society's resources. However, much more work to estimate appropriate proxy rates of return, and even to assess what constitutes a "similar" enterprise, is necessary before we feel comfortable with the estimates predicted in this manner.

Energy-Related Trust Funds. EIA also differed in its treatment of Trust Funds. Where the cash balance for a trust fund increased during FY 1992, EIA determined that there was no subsidy. This conclusion ignores the purpose of many trust funds. For example, one class of trust funds are used to accrue funds for a very expensive future event, such as constructing, operating, and decommissioning a nuclear waste repository. Increasing cash balances in the early years is a necessary prerequisite to accruing the needed funds. Even if the balance is growing, the aggregate funds may still be insufficient to meet the expected need. Another class of trust funds act as an insurance pool. For example, the Oil Spill Liability Trust Fund will be used to quickly pay the costs of oil spill cleanup, so that operations are not delayed while lawyers litigate. Until the desired size funding pool has been reached, a growing cash balance is not indicative of any subsidy. ASE assessed the long-term balance of the funds to determine whether the Trust Funds acted as a tax or a subsidy for the energy sector.

Comparison of Energy Subsidy Studies, Arranged by Type of Difference

(All Dollars in Millions)	Alliance to Save Energy (FY89 Base)		EIA (FY92 Base)		Shares of Difference Between Estimates		Comments
	Low	High	Low	High	Low	High	
Total Subsidies	21,000	36,000	5,000	13,000	98.3%	99.8%	
Differences Due to Base Year of Spending							
Inflation	ASE's aggregate subsidy estimates would climb to approximately \$23-40 billion once adjusted to 1992\$ using the Gross Domestic Product implicit price deflator. This would add an additional 10%, or \$2-4 billion to the amount EIA is below the ASE estimate.						
Fluctuations in Level of Program Support or Cost							
Expensing of Explor. & Devel. Costs, Oil and Gas	(65)	(300)	(90)	(90)	*	*	Treasury "gains" due to narrowing of eligibility for provision in 1986; gains decline as original investments made with tax benefits are retired.
Excess of % over cost deplet, oil & gas	390	530	760	760	(2.3%)	(1.0%)	Value fluctuates with market production.
Excess of % over cost deplet, other fuels	135	220	265	265	*	*	Value fluctuates with market production.
Passive Loss Exception for Oil & Gas	135	300	100	100	*	*	Size varies by exploration activity. In addition, EIA did not use a Joint Committee on Taxation estimate, which, for this provision, was higher than the one from Department of Treasury.
Low Income Home Energy Assistance Program (LIHEAP)	1,513	1,513	1,143	1,143	2.3%	1.6%	Program costs fluctuate annually through funding levels and changes in energy prices.
Statutory Changes in Program Eligibility							
Alternative Fuel Production Credit	10	20	670	670	(4.1%)	(2.8%)	Upsurge due to extension of eligibility for the credit, and increased eligibility for gas from tight sands.
Black Lung Trust Fund	260	349	0	0	1.6%	1.5%	The fund has heavy debt to Treasury, on which interest payments were waived between 1985 and 1990.
Capital Gains Treatment of Coal Royalties	0	0	10	10	*	*	Capital gains rates equaled personal income rates in 1989; this did not change until the early 1990s.

Douglas Koplow, Federal Energy Subsidies: Energy, Environmental and Fiscal Impacts, (Washington, DC: Alliance to Save Energy, 1993).

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Nuclear Regulatory Commission	287	347	7	7	1.8%	1.5%	A law passed in 1990 increased user fees on utilities to cover the full costs of NRC oversight and research.
Programs Included in the Analysis							
Included by ASE, but Excluded by EIA							
<i>Energy Sector Main Subsidy Beneficiary</i>							
Exclusion of Income from Electric Cooperatives	403	565	N/E	N/E	2.5%	2.5%	Tax-exemption facilitates reduced power charges
Tax-Exempt Publicly-Owned Power Facilities	283	283	N/E	N/E	1.8%	1.2%	Tax-exemption facilitates reduced power charges
Tax-Exempt Bond Issues, WTE	227	277	N/E	N/E	1.4%	1.2%	Tax-exempt bonds reduce the construction cost for waste-to-energy plants.
Tax-Exempt Black Lung Benefits	110	180	N/E	N/E	*	*	Reduces industry cost of compensating victims of past negligence.
Enhanced Oil and Gas Recovery Credit	Not Active in 1989		N/E	N/E	*	*	Although the provision was in effect by the FY 1992 on which the EIA study is based, the tax loss is not included in their totals.
Expensing of Mine Closure and Reclamation Reserves	40	50	N/E	N/E	*	*	Reduces the cost of reclaiming mine sites.
Energy Information Administration	53	53	N/E	N/E	*	*	Many private industries must pay for the information that EIA provides for free.
Strategic Petroleum Reserves	1,737	2,062	0	0	10.9%	9.0%	EIA assumes SPR is a military subsidy, despite its clear benefits to petroleum users by dampening price shocks.
Utility Normalization of Excess Deferred Taxes	0	996	N/E	N/E	*	4.3%	Provides long-term, interest-free source of funds for utilities. There is little competitive force to pressure utilities to share windfall gains with customers, as would occur in less regulated industries.

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Soc. Sec. Admin. Black Lung Program	892	892	0	0	5.6%	3.9%	Federal grants to Black Lung victims under this program are not supported by any fee on coal producers, reducing the industry's share of responsibility for miner health. While EIA quantifies this program, they did not include it in their overall total.
Price-Anderson Cap on Nuclear Liability	832	2,750	0	0	5.2%	12.0%	Risk-bearing is a real cost to the federal government, and has tangible value to the industry.
Nuclear Decommissioning Underaccrual	0	197	N/E	N/E	*	*	EIA assumes there will be no taxpayer burden for decommissioning shortfall, an unlikely scenario given current trends regarding reactor life, decommissioning cost inflation, real yield on accrued funds, and increased competition in the wholesale power sector.
<i>Energy Sector Main Beneficiary, But Long Lag Until Direct Commercial Applications</i>							
Tot. DOE R&D, Admin., Waste Mgmt.	2,782	2,782	2,203	2,203	3.6%	2.5%	Differences due to different decisions regarding which costs to allocate to the energy sector, and budget fluctuations between years. EIA assumes that none of the more basic DOE research (including that on fusion energy) benefits the energy sector.
<i>Energy Sector Large Subsidy Beneficiary, But Not Stated Primary Target of Subsidy</i>							
<i>General Subsidies to Capital</i>							
ITCs: New Machinery and Equipment	766	1,969	N/E	N/E	4.8%	8.6%	The energy sector comprised between 20 and 23% of aggregate private capital spending between 1980 and 1989, and was therefore a major beneficiary of capital subsidies. While these provisions were eliminated in 1986, transition rules and other lags in claiming these benefits led to continued budgetary impacts through the mid-1990s.
Accelerated Depreciation, Machinery & Equip.	2,763	9,568	N/E	N/E	17.3%	41.6%	

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Tax-Exempt Bond Issues, Pollution Control	461	563	N/E	N/E	2.9%	2.5%	The energy sector was a large user of tax-exempt pollution control bonds. Although pollution control spending was not eligible for tax-exempt bonds after 1986, residual impacts due to transition rules and the multi-year nature of bonds led to large continuing impacts at least through 1989.
Safe Harbor Leasing	(79)	(163)	N/E	N/E	*	*	Provisions enabled firms to sell excess tax credits earned through the early 1980s to other firms better able to use them. As stated above, the energy sector was a main holder of ITCs. Negative numbers are due to deductions and credits which are smaller than normal now, due to higher than normal deductions and credits early in the asset life.
<i>General Subsidies to Bulk Water Transport</i>							
Tax-Exempt Bond Issues, Seaports, Harbors, Wharves	65	79	N/E	N/E	*	*	Coal and oil shipments comprised close to 60% of domestic shipping volume in 1989 and over 50% of oceanborne shipping that year. As a bulk user of water transport, oil and coal represent the largest beneficiaries of federal subsidies to water infrastructure construction, maintenance, and operation. EIA's inclusion of spending for the Army Corps of Engineers refers only to their unreimbursed work on power projects; work on waterways is not included.
Army Corps of Engineers	643	643	463	463	1.1%	*	
Coast Guard	485	485	N/E	N/E	3.0%	2.1%	
Deferral of Tax on Shipping Companies	10	76	N/E	N/E	*	*	
Maritime Administration	144	144	N/E	N/E	*	*	
<i>Other Subsidies Benefitting the Energy Sector</i>							
Exclusion of Mortgage Interest, Owner-Occupied Homes	76	140	N/E	N/E	*	*	Tax subsidies to housing partly benefit capitalized investments into improved energy efficiency.
Accelerated Depreciation, Buildings	65	204	N/E	N/E	*	*	

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Expensing of Long-Term R&D	51	79	N/E	N/E	*	*	Tax benefits reduce the cost of private energy R&D
R&D Tax Credit	28	72	N/E	N/E	*	*	
Tax Credit for Reforestation Expenses	24	36	N/E	N/E	*	*	Reduces the cost of wood used for fuel. Approximately 17% of timber is used for fuel, even excluding the combustion of residual wood byproducts at paper mills.
Expensing of Multi-Period Timber Growing Costs	53	55	N/E	N/E	*	*	
Navy Supervisor of Salvage	0	19	N/E	N/E	*	*	Oil spill equipment owned by the federal government, but often used on private spills reduces the cost of spill prevention to the private sector.
Special Treatment of Alaskan Native Corporations	105	195	N/E	N/E	*	*	Alaskan Native Corporations are heavily involved with oil, gas, and timber operations and received special allowances to sell tax losses to other firms better able to use them.
Commodity Credit Corporation	208	327	N/E	N/E	1.3%	1.4%	Corn subsidies benefit ethanol through reductions in feedstock prices.
Conservation Reserve Program	10	11	N/E	N/E	*	*	
Federal Crop Insurance Corporation	3	3	N/E	N/E	*	*	
International Atomic Energy Admin.	48	48	N/E	N/E	*	*	International safety and anti-proliferation work ameliorates externalities associated with nuclear power.
Export-Import Bank	434	499	N/E	N/E	2.7%	2.2%	1/3 of the Bank's loan and loan guarantee for exports was for energy; high defaults and interest rate subsidies create a large fiscal drain.
Multilateral Development Banks	179	179	N/E	N/E	1.1%	*	Supports low cost loans and administration for foreign energy infrastructure, a portion of which benefits U.S. equipment suppliers.

Included by EIA but Excluded by ASE

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Motor Fuels Excise Tax for Deficit Reduction	N/E	N/E	(3,132)	(3,132)	(19.6%)	(13.6%)	Provision did not exist in 1989. Including this tax is not appropriate unless offset by federal road construction spending not paid from the Highway Trust Fund, which EIA did not do.
Bureau of Reclamation Power Projects	N/E	N/E	99	99	*	*	ASE did not estimate due to research constraints. EIA estimate measures net budget outlays for 1992. More research on interest rates on projects during construction, and the transfer of liabilities to other agencies on project completion would be necessary to evaluate the EIA estimate.
BLM, energy & Minerals	N/E	N/E	84	84	*	*	ASE did not estimate due to research constraints. EIA estimate measures net budget outlays for 1992.
USGS offshore geological surveys	N/E	N/E	26	26	*	*	
Different Measurement Methods							
Subsidy Assessment for Federally-Owned Energy Enterprises	ASE estimated the annualized subsidy that would enable the enterprise to recover its costs. EIA's low estimate uses 1992 net cash outlays as a measure of subsidy or surplus. This is an inappropriate measure of the cost of a federally-owned multi-year, capital intensive enterprise, where much of the losses may be in form of sunk capital, R&D, deferred cleanup costs, etc. The EIA high estimate measures the revenues necessary for the federal enterprise to earn the same rate of return as a private enterprise. This approach is a promising one, since the ASE estimates, for the most part, do not incorporate the subsidies to the energy sector due to no required rate of return on investment and their exemption from federal taxes. However, we feel that more refinement of the appropriate rates of return would be necessary to increase confidence this method of estimation.						
REA Loans and guarantees	1,123	1,184	44	1,140	6.7%	*	ASE uses the marginal cost of borrowing. EIA low estimate measures 1992 cash flow balance (see above); their high estimate uses current average cost of debt rather than a marginal analysis and does not include large interest subsidies on the initial revolving fund capitalization, even though the stream of benefits created by this capitalization continues today.
Alaska Power Admin.	6	8	3	10	*	*	See general description above. ASE uses the marginal cost of debt where available (rather than current averages), a more accurate measure of interest subsidies. Estimates also net out cross-subsidies to irrigation and nuclear fission.

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	Low	High	Low	High	Low	High	
Bonneville Power Administration	298	442	(9)	1,233	1.9%	(3.4%)	
Southeastern Power Administration	59	71	25	216	*	*	
Southwestern Power Administration	34	42	25	203	*	*	
Western Power Administration	31	53	301	1,206	(1.7%)	(5.0%)	
Tennessee Valley Authority	3	130	457	2,286	(2.8%)	(9.4%)	See general description above. ASE nets out cross-subsidies to nuclear fission as well; EIA does not.
Uranium Enrichment Enterprise	279	1,027	0	1,500	1.7%	(2.1%)	See general description above. EIA does not appear to deduct the defense share of the subsidy from their estimate, or add the shortfall for facility decommissioning and decontamination. Their high estimate imputes a rate of return on assets which implicitly assumes the same level of risk as a general investor-owned utility. The UEE is much riskier than a utility, and the appropriate rate of return needs further refinement.
Naval Oil Shale Reserves	0	136	0	0	*	*	EIA assumes Naval Reserve operates as an unsubsidized market player. ASE presents a number of arguments suggesting that the Reserves are not run as a private entity would be run.
Trust Fund Subsidies Measured by Cash Cost Rather than Accrued Liability							
Nuclear Waste Fund (DOE)	0	182	0	0	*	*	Trust funds such as these require <u>long term</u> surpluses to support the purposes for which they were created. EIA's measure of solvency, that the cash balance in the fund is increasing, is meaningless in assessing the adequacy of funding to meet the expected liabilities. There is a good chance that current collections are too low. In addition, the DOE Inspector General feels that there is a significant default risk on many of the payments some nuclear utilities owe the fund, but have deferred.

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	Low	High	Low	High	Low	High	
Abandoned Mine Reclamation Fund	778	778	0	0	4.9%	3.4%	The same issues apply here as for the Nuclear Waste Fund. The annualized expected shortfall in the AML fund is included in Office of Surface Mining Reclamation and Enforcement section. Current users fees are insufficient to finance mandated reclamation, whether or not there is a current cash surplus.

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