

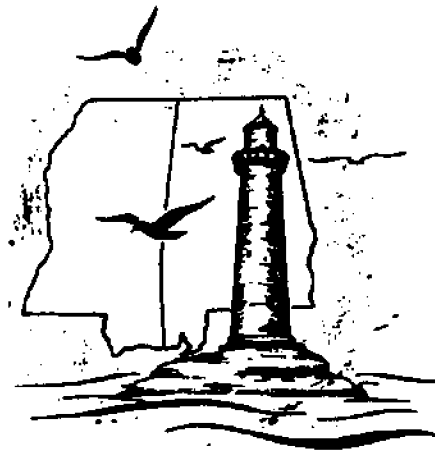
AN ECONOMIC TECHNIQUE FOR ANALYZING FUEL SAVING TECHNOLOGY IN THE SEAFOOD INDUSTRY

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AN ECONOMIC TECHNIQUE FOR ANALYZING
FUEL SAVING TECHNOLOGY IN THE SEAFOOD INDUSTRY

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Any errors of fact, logic, or judgment remaining in the report are the responsibility of the authors.

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I. INTRODUCTION

The shrimp industry in the Mississippi-Alabama coastal counties has experienced a cost squeeze in recent years. One of the chief factors responsible for this difficulty is the cost of fuel. The fishing industry in general is fuel intensive, and the shrimp industry is no exception. Penn [1] has shown that catch per unit of fuel consumed in the Gulf region is 2.58 lb/gal. and that fuel cost as percent of landing value is 12.5 for 1979. According to Laughlin [2], when fuel prices rise, the shrimp industry is hardest hit of the fisheries because it is energy intensive and has a low yield per trawl.

That the change in oil prices in the last seven years has been dramatic is well known. Stobaugh and Yergin [3] noted that, "with the second oil shock, twenty years of anticipated change has been telescoped into one. The price of oil has risen to levels that many predictions made in 1978 had not been anticipated until the year 2000."

The shrimp industry is an important component in the make-up of the economy of the coastal counties of Mississippi and Alabama. The reported value of commercial landings of shrimp in Mississippi in 1978 according to Perkins [4] was \$48 million. In Alabama, the value was approximately \$47 million in 1979. The values would be even higher if the direct, indirect, and induced effects were considered. In light of the statistics cited, the shrimp industry is a vital component of the economy in Mississippi and Alabama. It is, therefore, important for the health of the economy of this region to maintain a vigorous shrimp industry.

The shrimp industry needs strengthening; efforts in this direction are being taken in this country and abroad, and many studies have been undertaken to analyze the industry's difficulties and discover possible remedies for these problems. The purpose of many of these studies is to provide an insight into the earning situation of fishing vessels under the strain of mounting prices of oil and its derivative products. Such pressure, which resulted in a general deterioration of the economic performance of shrimp vessels, has been of slowing concern.

Veal [5] reports that a "nominal grouping," composed of vessel owners and operators, seafood processors, fishhouses, brokers, wholesalers, and financial interest personnel, has identified the high cost of fuel as being the most important in rank among ten problems facing the fishing industry. Further, he divides the priorities of research concerning fuel usage into short-term, medium, and long-range projects.

Conservation in the use of oil by the shrimp fleet may constitute one of the most important alternatives in reducing the cost of their operations. This can be done in a variety of ways. One of these is to operate vessels more efficiently. Studies have been and are being conducted to obtain information about fuel consumption for different fishing methods, vessel speeds, and operations. A second approach, and one which requires additional capital expenditures, entails the introduction of energy-saving technology.

This research was aimed at supplementing and expanding the ongoing Mississippi-Alabama Sea Grant Consortium's efforts to aid the shrimp fleets in their battle against high fuel costs.

This report is essentially a research application of tried methodologies in the areas of economics and finance and will analyze the fuel-savings additions to the capital stock. Since the use of such technology

requires considerable investment, it is necessary to determine whether its introduction is profitable in the long run. The use of information provided by this report should prove helpful in making decisions regarding energy-conserving alternatives.

Among a collection of pragmatic studies into the operation of shrimp vessels in the Gulf of Mexico is the one conducted by Griffin and Nichols [6]. They examined the problem of increasing costs for the years 1971-1975 using break-even analysis based on data gathered from vessel owners and operators and lending institutions in Florida, Mississippi and Texas.

In another work of the same genre, Swartz and Griffin [7] analyzed a shrimp vessel constructed of steel, 75 feet in length with a 500 horsepower engine, and operating in the Gulf of Mexico in 1978. They examined the results of operations under alternative fuel prices ranging from 50 cents per gallon to \$1.20 per gallon. They found that economic profits of the operation take on negative values starting at a fuel cost of 70 cents per gallon, while accounting profits became negative when fuel cost is 90 cents per gallon or greater.

An analysis of the economics of shrimp operations which strongly resembles the research presented here is that of Swartz [8]. The following quotation from that work reflects the spirit and intent of this work:

If an energy conserving alternative requires an expenditure of capital and if there are significant post-purchase costs, then the decision-maker needs some economic tools to organize and analyze the information. Because energy conservation investment decisions are not easily revoked, it is important to determine whether the alternative will pay for itself in reduced energy costs before the dollars are committed. Making a cost-reducing decision in an information poor environment could have a significant profit reducing impact on the fishing business.

He utilized a tool of economic analysis called "Life Cycle Analysis." This technique provides information about the cost of energy investment

including interest on capital, the time value of money inflation, energy costs, etc. It is a powerful tool to overcome the inadequacies of making decisions based of "gut feelings."

The approach taken by this research is theoretically kin to that of Swartz but adopts a technique from capital budgeting methodology known as the Net Present Value approach. The background of this approach is discussed in the second section of this report.

The third section of this report presents some examples which provide insight into the proper use of the tables computed as a consequence of the analysis. The tables are given in the appendix of this report.

II. METHODOLOGY

The question of whether or not a business should make an investment in new fuel-saving technology is a specific example of a broader range of business investment problems falling in the general category known as "capital budgeting." The major characteristic of this type of problem is a relatively large current period cash-outflow effect on the business involved followed by a stream of smaller future cash inflows (or, in rare cases, a simple future lump sum inflow). A good summary of business capital budgeting decisions can be found in Bierman and Smidt [9].

Capital budgeting decisions may be classified as (1) revenue-increasing projects and (2) expense-reducing projects. A shrimper's expenditures on new fuel-saving equipment would be an example of the latter type of project. As with all capital budgeting problems, certain information must be known or estimated in order to analyze the problem and make the correct "accept or reject" decisions. More specifically, correct capital budgeting decisions require estimates of (1) the amount by which the proposed project or investment would affect the present and future cash flows of the business involved, and (2) the rate of return which the business should earn on funds invested in the project under consideration.

Cash Flow Effects

It is useful to divide the cash flow effects of any investment project into two categories: (1) those cash flows occurring in the current time period, the net effect of which is referred to below as the initial outlay (or I_0), and (2) those cash flows occurring in future

time periods, referred to below as cash flow 1, cash flow 2 or CF_1 , CF_2 , etc. The number denotes the time period in which the cash flow is expected to occur. Thus, CF_4 is the amount of the project's net cash flow occurring in the 4th period of the project's life.

Methods of Evaluating Capital Budgeting Project

In recent years, three closely related methods have formed the basis for any evaluation of capital budgeting problems. These methods have been widely applied by businesses and just as widely advocated in the theoretical literature in the field of finance. Collectively, they have been referred to as discounted cash flow methods or DCF methods. Individually, they are (1) the net present value or NPV approach, (2) the internal rate of return or IRR approach, and (3) the profitability index or PI approach. The latter approach is also sometimes referred to as the benefit-cost ratio.

In those cases where a business is trying to evaluate a single new investment project, such as whether or not to invest in some new fuel-saving equipment, any of the three approaches would lead to the same accept or reject decision; therefore, it does not matter which approach is being used. In the analysis that follows, the discussion is oriented primarily around the NPV approach because it is felt that this approach is somewhat easier to communicate.

The Net Present Value Approach

The net present value or NPV of an investment project is the difference between the total of the discounted values of the net cash flows (attributed to the project) in future periods and the current period net cash outflow caused by undertaking the project. More precisely, the NPV is

$$(1) \quad NPV = \sum_{t=1}^N (CF_t / (1+k)^t) - IO.$$

where: CF_t = The proposed project's net effect on the firm's cash flow in period t .

k = The discount rate, reflecting the cost of capital which the firm invests in the project or the firm's opportunity rate if it were to invest funds in other equally risky ventures.

IO = The project's initial outlay - the project's net effect on the firm's current period cash flow.

t = A subscript or superscript denoting the number of the time periods into the future when a cash flow effect is occurring.

N = The total number of future time periods in which the firm's cash flows will be affected by the project.

A business should undertake an investment project only if the project has a positive NPV; that is

$$(2) \quad \sum_{t=1}^N \frac{CF_t}{(1+k)^t} > IO.$$

In the case of the shrimper looking at new fuel-savings equipment, the IO is largely determined by the cost of purchasing and installing the equipment while the CF_t 's are largely determined by the value of the fuel saved each period.

The exact determination of the initial outlay would proceed as follows:

- (1) the total cost of purchasing and installing the fuel saving technology,
- (2) any investment tax credit applicable to the purchase of the equipment,
- (3) the proceeds from the sale of any old equipment or assets which would not be needed if the new equipment is used,
- ± (4) the tax effects on any gain or loss from # (3).

In the case of most applications of fuel-saving technology to the shrimp-ing industry, items (3) and (4) can be ignored. Furthermore, under the current tax laws, the investment tax credit will be 10 percent of the equipment's cost.¹

The exact determination of future-period cash flow effects (the CF_t 's) would be based on the following computation:

$$\begin{aligned}
 \Delta R_t &= \text{the change in revenues attributable to pro-} \\
 &\quad \text{ject (this would, of course, be zero in} \\
 &\quad \text{cases where the project is designed to reduce} \\
 &\quad \text{expenses), in period } t, \\
 \text{Less } \Delta E_t &= \text{the change in expenses (including the change} \\
 &\quad \text{in depreciation, but excluding interest)} \\
 &\quad \text{attributable to the project in period } t. \\
 &\quad \text{This change may be either positive or nega-} \\
 &\quad \text{tive, but will always be negative for cost-} \\
 &\quad \text{saving projects. Thus, subtracting a} \\
 &\quad \text{negative change means that the term } \Delta E_t \text{ is} \\
 &\quad \text{added to } \Delta R_t, \\
 \text{Multiplied by } (1-T) &= \text{this adjustment nets out the income tax} \\
 &\quad \text{effect of changes in revenues and expenses;} \\
 &\quad \text{here, } T \text{ is the firm's marginal tax rate,} \\
 \text{Plus } D_t &= \text{depreciation } (D_t) \text{ on any depreciable assets} \\
 &\quad \text{purchased in connection with the project.} \\
 &\quad \text{Depreciation is a function of the cost of the} \\
 &\quad \text{assets and the tax laws in force at the time,} \\
 &\quad \text{and while it must be treated as an expense} \\
 &\quad \text{in computing taxable income, it is not a cash} \\
 &\quad \text{outflow. Hence, it is added to after tax} \\
 &\quad \text{earnings to get cash flow,} \\
 CF_t &= \text{the cash flow effect in year } t.
 \end{aligned}$$

Thus, in the case of a shrimper who is considering investing in new fuel-saving technology, it would be wise to do so if

$$\begin{aligned}
 NPV &> 0 \\
 (3) \quad \sum_{t=1}^N \frac{(\Delta R_t - \Delta E_t)(1-T) + D_t}{(1 + K)^t} - I_0 &> 0.
 \end{aligned}$$

¹Only in the case of equipment with a "normal recovery period" of three years or less would a different investment tax credit percentage apply. In that case, the relevant credit is 6 percent.

The effect of introducing new fuel-saving technology would show up primarily in ΔE_t --that is, it would reduce expenses for fuel. The amount of the fuel savings would depend on the dollar cost of fuel (P_f) and the quantity of fuel saved. In the analysis that follows, the amount of fuel savings is expressed as a percentage of the fuel used prior to the introduction of new fuel-saving technology which we will denote as $(S\%)(G)$ where (G) is the annual fuel consumption in gallons prior to the introduction of new technology, and $(S\%)$ is the percentage savings. Thus, the introduction of new technology is feasible if the following condition is met.

$$(4) \quad \sum_{t=1}^N \frac{(\Delta R_t + P_f \cdot S\% \cdot G - D_t)(1-T + D_t)}{(1+k)^t} - IO > 0.$$

Since a fuel-saving project normally will not affect revenues, the ΔR_t is 0. Dropping out the ΔR_t , and assuming a constant fuel price over the life of the project and, thus, a constant annual fuel savings, then the above equation can be rearranged to get

$$(5) \quad S\% > \frac{IO - T \left(\sum_{t=1}^N \frac{D_t}{(1+k)^t} \right)}{[(P_f G)(1-T)] \sum_{t=1}^N \frac{1}{(1+k)^t}}.$$

For a justified expenditure on fuel-savings technology, $S\%$ must be less than the estimated percentage fuel savings resulting from the new equipment being considered. Put another way, given a shrimper's marginal tax rate (T), the cost of money (k), the life of new technology (N), the price of fuel (P_f), the current annual fuel usage in gallons (G), and the cost of new technology installed (IO), then there is some $S\%$ (minimum required fuel savings expressed as a percentage of current fuel usage) which the new technology would have to generate in order to be economically

justifiable.

Since the tax rate, the fuel usage, cost of money, price of fuel, and cost of new technology vary from case to case, it is not possible to generalize further concerning the feasibility of investing in new fuel-saving technology. However, in an attempt to provide more specific and usable results to those shrimpers who are considering the adoption of new technology, we did generate a summary table of minimum fuel saving percentages that would be required under various combinations of values for the key variables discussed above.

This table is presented in the Appendix of this paper as Table 1. A potential investor in new fuel saving technology can use applicable estimates of his tax bracket, current fuel usage, cost of money invested in new technology, life of the technology, and fuel prices to look up the minimum required percentage fuel savings per \$1,000 of gross outlay on new technology. He then can compare the required fuel savings (S_q) against the estimated savings of the technology under consideration. Appendix Table 1 is based on the current tax laws relative to treatment of depreciation and investment tax credits and is calculated on the basis of the following criteria:

- Price of Fuel: \$1.00 - \$2.00 (at 10¢ intervals)
- Value of Money: 12% - 20% (at 1% intervals)
- Tax Brackets: 20% - 50% (at 5% intervals)
- Life of Capital Investment: 5 years to 15 years (at 5 year intervals)
- Current Fuel Consumption: 10,000 gallons to 60,000 gallons (at 10,000 gallon intervals).

Note that in the derivations of equations (3) and (4), ΔE_t in equation (3) contains depreciation, while equation (4) contains only those variables in ΔE_t that are affected by the introduction of new fuel savings technology--that is, fuel savings and depreciation.

Example: Consider the following hypothetical income statement for a Gulf Coast shrimp. Note that it reflects the estimated effects in installing new fuel savings technology:

Mr. Gulf Coast Shrimper

INCOME STATEMENT 19XX

		Year					
		Current	1	2	3	4	5
	Without new technology	Changes due to new technology					
Revenues from Shrimp Sales	\$110,000						
Less: Ice	1,800						
Fuel (12,667 gals. at \$1.50 per)	19,000	-1520	-1520	-1520	-1520	-1520	
Nets, Supplies, Groceries	11,000						
Repairs & Maintenance	12,000						
Crew Shares	30,000						
Payroll Taxes	2,000						
Packing	3,000						
Insurance	5,000						
Depreciation*	11,000	+1350	+1980	+1890	+1890	+1890	
Other	2,000						
Interest	7,000						
Net Income Before Taxes	6,200	+ 170	- 450	- 370	- 370	- 370	
Less Taxes (at 20%)	1,240	+ 34	- 90	- 74	- 74	- 74	
Net Income After Taxes	4,960	+ 136	- 360	- 296	- 296	- 296	
Δ in cash flow generated**		+1486	+1620	+1594	+1594	+1594	

*based on ACRS for 5-year normal recovery period.

**changes in net income after taxes and depreciation change.

Let us assume that the installation of certain fuel-saving technology costing \$9,000 installed is supposed to achieve an 8-percent reduction in fuel usage on Mr. Gulf Coast Shrimper's vessel; that Mr. Shrimper can

either borrow money at 12 percent or use his own money, currently invested at 12 percent; and that the equipment involved will have a useful life of 5 years. The last 4 columns of the example depict the estimated impact of the new technology on the income statement of Mr. Shrimper.

In terms of the NPV criterion for an acceptable new investment, the values for the equation variables are:

$$\begin{aligned}
 N &= 5 \\
 CF_1 &= 1486 \\
 CF_2 &= 1620 \\
 CF_3 &= 1594 \\
 CF_4 &= 1594 \\
 CF_5 &= 1594 \\
 IO &= 9000 - \text{Investment tax credit of 10\% of \$9000} \\
 &\quad = \$8100 \\
 k &= 12\%
 \end{aligned}$$

$$\begin{aligned}
 NVP &= \sum_{t=1}^N \frac{CF_t}{(1+k)^t} - IO \\
 &= \frac{1486}{(1+.12)} + \frac{1620}{(1+.12)^2} + \frac{1594}{(1+.12)^3} + \frac{1594}{(1+.12)^4} + \\
 &\quad \frac{1594}{(1+.12)^5} - 8,100 \\
 &= 1327 + 1291 + 1135 + 1013 + 904 - 8100 \\
 &= 5670 - 8100 \\
 &= - 2430
 \end{aligned}$$

Since the NPV of the Project is negative, it would not be an acceptable project.

The analysis can be approached in another way by using equation 5. According to equation 5, the percentage saving in fuel required to justify a \$9000 outlay in new fuel-saving technology (given the values of other key variables, in this hypothetical case) is:

$$\begin{aligned}
S_{\%} &= [8100 - .2 \left(\frac{1350}{(1.12)} + \frac{1980}{(1.12)^2} + \frac{1890}{(1.12)^3} + \right. \\
&\quad \left. \frac{1890}{(1.12)^4} + \frac{1890}{(1.12)^5} \right) [(1.50)(12,667)(.8)] \times \\
&\quad \left(\frac{1}{(1.12)} + \frac{1}{(1.12)^2} + \frac{1}{(1.12)^3} + \frac{1}{(1.12)^4} + \right. \\
&\quad \left. \frac{1}{(1.12)^5} - 1 \right) + [(12,667)(1.50)(.8) \left(\sum_{t=1}^5 \frac{1}{(1+.12)^5} \right)] \\
&= \frac{8100 - .2(6402)}{(15,200)(3.6048)} \\
.12445 &= \frac{8100 - 1280.52}{54794} \quad \text{or} \quad 12.445\%
\end{aligned}$$

Since the actual fuel savings was projected at 8 percent, the savings does not justify the cost of the proposed new equipment. An additional 4.445% fuel savings would have to be generated by the new technology before the cost of that technology would be justified. An additional savings of 4.445 percent (of 12,667 gallons at \$1.50) would mean \$844.57 in additional before-tax earnings for the hypothetical shrimper in this example. Given his 20 percent tax bracket, he would realize an additional \$675.66 annually in after-tax earnings and cash flow. Over a five-year period the present value of that additional cash flow (at the relevant discount rate of 12 percent) would be \$2436. That amount would slightly exceed the negative NPV of the project which was calculated earlier.

III. HYPOTHETICAL APPLICATION

The changes in technology and operation in a fishing fleet that might affect fuel efficiency have been the subject of new research, especially overseas where the impact of the rise in the cost of fuel is even more severe than in the United States. Digernes and Endal [10] investigated economical speed of vessels taking into account the value of time. Krepa and Szatybelko [11] studied the problem of the size and proportion of vessels to the conditions existing in the fishing grounds, organization, and changes in fishing techniques for less fuel consumption. Endal [12] lists thirteen study areas that could be of vital importance for fuel economy, such as speed and power reduction, more flexible machinery systems, improved fishing gear, and use of heavy fuels.

A comprehensive report on current energy conserving alternatives is given by Windh [13]. His manuscript provides a listing of energy savings technology which could reduce fuel costs. He furnishes some essential data for each proposed technology under consideration. Such data include estimates of initial and installation costs, installation time, efficiency increase and fuel savings based on engineering testing or manufacturers' estimates. For the purpose of illustration, some of the alternatives which he suggested will be investigated using the approach outlined in Section II.

In order to illustrate use of the tables in the appendix, consider the following example which is based on some of the technologies suggested by Windh [13] and the costs and economic data which he lists for each technology.

Example (1): Use of Ducted Propellers (Nozzles)

Initial Cost	\$7,000 to 12,000 (Package)
Installation Cost	\$2,000 to 3,000
Time Needed to Install	Approximately 3 days
Haul-out needed?	Yes
Efficiency Increase	20% to 30%
Fuel Savings	10% to 15%
Parts and Service Available?	Yes
Economic Life	15 to 20 Years

Using the above information, assume the following:

Initial cost:	\$10,000
Installation Cost:	\$2,500
Fuel Savings:	13%
Economic Life:	10 years
Tax Bracket	30%
Current Annual Fuel Consumption:	50,000 gallons
Fuel Cost:	\$1.50 per gallon
Interest Rate:	13%

Looking at Appendix Table 1 under the heading Expected Life of Equipment: 10 years, Interest Rate: 13%, Tax Bracket: 30%, and 50,000 gallons at a price of \$1.50 per gallon yields a reading of .24%, which is .0024 per \$1000 dollars of investment. Since total investment is \$12,500, then total fuel savings ought to be:

$$\frac{(12,500)}{(1,000)} (.0024) = (12.5)(.0024) = .030 \text{ or } 3\%.$$

Since this example assumed annual fuel consumption of 50,000 gallons, the required savings in gallons is

$$(50,000)(.030) = 1,500 \text{ gallons.}$$

Since the manufacturer's estimate in fuel savings is 13 percent, then the total assumed savings in fuel is forecast to be

$$(50,000)(.13) = 6,500 \text{ gallons.}$$

In summary, savings in fuel of at least 1,500 gallons per year at \$1.50 is required for the investment to yield positive economic returns. According to the above calculations, this investment is justified since the actual savings in fuel is forecast to be 6,500 gallons per year. Even given the possibility of upward bias in the manufacturer's estimate of fuel savings, the investment should prove to be good.

Appendix Table 2 presents a different view of the same information. Looking under the appropriate rows and columns

Expected Life of Equipment:	10 years
Tax Bracket:	30%
Interest Rate:	13%,

the value corresponding to these entries is \$181.

Appendix Table 2 indicates that every \$1000 of investment in this technology requires a return of \$181 in fuel savings per year for this investment to be profitable. In the example above, the yearly return should be $(12.5)(\$181) = \$2,262.50$ or \$22,625 over the life of equipment, which is 10 years. For this period of time a total of 65,000 gallons of fuel is expected to be saved at a total monetary value of $(65,000)(\$1.50) = \$97,500$.

Example (2):

Assume that the following hypothetical data are given for equipment being considered to enhance fuel efficiency.

Initial Cost:	\$20,000
Installation Cost:	\$ 3,000
Fuel Savings:	10%
Economic Life:	5 years

Tax Bracket:	45%
Current Annual Fuel Consumption:	50,000 gallons
Fuel Cost:	\$1.10
Interest Rate:	15%

The appropriate value in Appendix Table 1 is .59% or .0059 per \$1000 of investment. Hence, for a total of \$23,000 of investment, a rate of fuel saving of

$$(23)(.0059) = .136 \text{ or } 13.6\%$$

is required before such investment is to be profitable. Since the estimated fuel savings is only 10 percent, it is unlikely that this investment is sound. Therefore, it should be abandoned. The reason may be explained in a different way. The fuel savings of 10 percent of a yearly consumption of 50,000 gallons is $(50,000)(.10) = 5,000$ gallons. However, a required savings of 13.6 percent in fuel consumption is needed. This implies that at least $(50,000)(.136) = 6,800$ gallons per year are needed to make the investment profitable. Since at most, 5,000 gallons can be saved, the investment should not be undertaken.

The argument might be further explained by reference to Appendix Table 2. The appropriate value in the table is a \$325 yearly return for each \$1000 invested, which implies that a total of $(23)(\$325) = \$7,475$ is needed in savings to break-even on the investment. Since the total annual monetary savings is $(50,000)(\$1.10) = \$5,500$, it is therefore a mistake to undertake the investment.

IV. SUMMARY AND CONCLUSIONS

The cost of fuel is a major barrier to profitable operations by shrimpers and other commercial fishermen. However, technology is available which may be able to ease the fuel-cost burden of some fishermen. This technology usually requires a relatively heavy initial investment, which raises the question of whether or not the fuel savings generated by the new technology are sufficient to justify the required investment. Many variables must be considered in order to answer this question correctly. Among these variables are the time value of money, the decision-maker's tax bracket, the life of the technology being considered, investment tax credits, the cost of fuel, the amount of fuel used, and the cost of money. This paper has presented a methodology which incorporates the effects of all of these variables in a manner which leads to a correct "accept" or "reject" decision on any fuel-saving technology being considered.

While it is impossible to generalize with respect to a particular type of technology, a set of appendix tables is included which allow a decision-maker to take the appropriate values of the key variables in his(her) particular circumstances and use the tables to determine the feasibility of new fuel saving technology being considered. Instructions for using the table are included in the text of the report.

BIBLIOGRAPHY

- [1] Penn, E., Special Survey by Regional Offices. Resources Statistics Division (1980).
- [2] Langlin, E., In Fuel Conservation Workshop for Commerical Fishermen, Editor R. C. Ernst, Jr., S.C. Sea Grant Marine Advisory Service (1980).
- [3] Stobaugh, R. and D. Yergin, In Energy Future, Editors R. Stobaugh and D. Yergin, Ballantine Books, New York, p. 4 (1979).
- [4] Perkins, A. A., Economic Value of the Seafood Processing in Mississippi, Food and Fiber Center, Mississippi Cooperative Extension Service, Mississippi State University (1979).
- [5] Veal, C. D., Research Priorities in the Gulf Shrimp Industry, Sea Grant Advisory Service, Mississippi Cooperative Extension Service, Mississippi State University (1980).
- [6] Griffin, W. L. and J. P. Nichols, Marine Fisheries Review, 1178(8), (1976).
- [7] Swartz, A. N. and W. L. Griffin, The Effect of an Increased Price of Diesel Fuel of Gulf Shrimp Vessel Operations, Agricultural Economics Department, Texas A & M University (1979).
- [8] Swartz, A. Economic Analysis of Fishing Industry Energy Conservation Technology, Fishing Industry Energy Conservation Conference, Seattle, Washington, October 26 & 27, 1981.
- [9] Bierman, H. Jr., and S. Smidt, The Capital Budgeting Decision, The Macmillan Co., (1971).
- [10] Digernes, T. and A. Endal, Fishing Vessel Speed and Fuel Economy, Institute of Fishery Technology Research, Norway (1980).
- [11] Krepa, J. and M. Szatybelko, Certain Problems Concerning Fuel Consumption of Small Fishing Trawlers, Sea Fisheries Institute in Adynia, Poland.
- [12] Endal, A. Estimated Fuel Saving Potential in Norwegian Fisheries, Institute of Fishery Technology Research, Norway (1980).
- [13] Windh, S. R. Energy Conserving Alternatives for the Commercial Fishing Industry, Agricultural Economics Department, Texas A & M University (1982).

APPENDIX

APPENDIX TABLE 1

REQUIRED FUEL SAVINGS PERCENTAGE PER \$1000 OF INITIAL OUTLAY

Expected Life of Equipment: 5 years
Annual Fuel Usage: 10000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET										
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%					Cost of Money 17%					
\$1.00	2.62	2.66	2.71	2.76	2.83	2.90	2.99	2.70	2.75	2.80	2.86	2.93	3.02	3.12	2.78	2.83	2.89	2.96	3.04	3.13	3.24
\$1.10	2.38	2.42	2.46	2.51	2.57	2.64	2.72	2.45	2.50	2.54	2.60	2.66	2.74	2.83	2.52	2.57	2.63	2.69	2.76	2.85	2.95
\$1.20	2.18	2.22	2.26	2.30	2.36	2.42	2.49	2.25	2.29	2.33	2.38	2.44	2.51	2.60	2.31	2.36	2.41	2.46	2.53	2.61	2.70
\$1.30	2.02	2.05	2.08	2.13	2.18	2.23	2.30	2.08	2.11	2.15	2.20	2.25	2.32	2.40	2.14	2.18	2.22	2.27	2.34	2.41	2.49
\$1.40	1.87	1.90	1.94	1.97	2.02	2.07	2.14	1.93	1.96	2.00	2.04	2.09	2.15	2.23	1.98	2.02	2.06	2.11	2.17	2.24	2.32
\$1.50	1.75	1.77	1.81	1.84	1.89	1.94	2.00	1.80	1.83	1.87	1.91	1.95	2.01	2.08	1.85	1.89	1.93	1.97	2.02	2.09	2.16
\$1.60	1.64	1.66	1.69	1.73	1.77	1.81	1.87	1.69	1.72	1.75	1.79	1.83	1.89	1.95	1.74	1.77	1.80	1.85	1.90	1.96	2.03
\$1.70	1.54	1.57	1.59	1.63	1.66	1.71	1.76	1.59	1.61	1.65	1.68	1.72	1.77	1.83	1.63	1.66	1.70	1.74	1.79	1.84	1.91
\$1.80	1.46	1.48	1.51	1.54	1.57	1.61	1.66	1.50	1.53	1.55	1.59	1.63	1.68	1.73	1.54	1.57	1.60	1.64	1.69	1.74	1.80
\$1.90	1.38	1.40	1.43	1.45	1.49	1.53	1.58	1.42	1.44	1.47	1.51	1.54	1.59	1.64	1.46	1.49	1.52	1.56	1.60	1.65	1.71
\$2.00	1.31	1.33	1.35	1.38	1.41	1.45	1.50	1.35	1.37	1.40	1.43	1.47	1.51	1.56	1.39	1.41	1.44	1.48	1.52	1.57	1.62
\$1.00	2.86	2.91	2.98	3.05	3.14	3.25	3.37	2.94	3.00	3.07	3.15	3.25	3.36	3.50	3.02	3.08	3.16	3.25	3.36	3.48	3.63
\$1.10	2.60	2.65	2.71	2.78	2.86	2.95	3.06	2.67	2.73	2.79	2.87	2.95	3.06	3.18	2.74	2.80	2.87	2.96	3.05	3.16	3.30
\$1.20	2.38	2.43	2.48	2.54	2.62	2.70	2.81	2.45	2.50	2.56	2.63	2.71	2.80	2.91	2.51	2.57	2.63	2.71	2.80	2.90	3.02
\$1.30	2.20	2.24	2.29	2.35	2.42	2.50	2.59	2.26	2.31	2.36	2.42	2.50	2.59	2.69	2.32	2.37	2.43	2.50	2.58	2.68	2.79
\$1.40	2.04	2.08	2.13	2.18	2.24	2.32	2.41	2.10	2.14	2.19	2.25	2.32	2.40	2.50	2.15	2.20	2.26	2.32	2.40	2.48	2.59
\$1.50	1.90	1.94	1.99	2.04	2.09	2.16	2.25	1.96	2.00	2.05	2.10	2.17	2.24	2.33	2.01	2.06	2.11	2.17	2.24	2.32	2.42
\$1.60	1.79	1.82	1.86	1.91	1.96	2.03	2.11	1.83	1.87	1.92	1.97	2.03	2.10	2.19	1.89	1.93	1.98	2.03	2.10	2.17	2.27
\$1.70	1.68	1.71	1.75	1.80	1.85	1.91	1.98	1.73	1.76	1.81	1.85	1.91	1.98	2.06	1.77	1.81	1.86	1.91	1.97	2.05	2.13
\$1.80	1.59	1.62	1.65	1.70	1.75	1.80	1.87	1.63	1.67	1.71	1.75	1.80	1.87	1.94	1.68	1.71	1.76	1.81	1.86	1.93	2.01
\$1.90	1.50	1.53	1.57	1.61	1.65	1.71	1.77	1.55	1.58	1.62	1.66	1.71	1.77	1.84	1.59	1.62	1.66	1.71	1.77	1.83	1.91
\$2.00	1.43	1.46	1.49	1.53	1.57	1.62	1.68	1.47	1.50	1.53	1.58	1.62	1.68	1.75	1.51	1.54	1.58	1.63	1.68	1.74	1.81
\$1.00	3.10	3.17	3.25	3.35	3.46	3.60	3.76	3.18	3.26	3.35	3.45	3.57	3.72	3.89	3.26	3.35	3.44	3.55	3.68	3.84	4.02
\$1.10	2.82	2.88	2.96	3.05	3.15	3.27	3.41	2.89	2.96	3.04	3.14	3.25	3.38	3.53	2.97	3.04	3.13	3.23	3.35	3.49	3.65
\$1.20	2.58	2.64	2.71	2.79	2.89	3.00	3.13	2.65	2.71	2.79	2.88	2.98	3.10	3.24	2.72	2.79	2.87	2.96	3.07	3.20	3.35
\$1.30	2.38	2.44	2.50	2.58	2.66	2.77	2.89	2.45	2.51	2.58	2.65	2.75	2.86	2.99	2.51	2.57	2.65	2.73	2.83	2.95	3.09
\$1.40	2.21	2.26	2.32	2.39	2.47	2.57	2.68	2.27	2.33	2.39	2.47	2.55	2.65	2.78	2.33	2.39	2.46	2.54	2.63	2.74	2.87
\$1.50	2.06	2.11	2.17	2.23	2.31	2.40	2.50	2.12	2.17	2.23	2.30	2.38	2.48	2.59	2.17	2.23	2.29	2.37	2.45	2.56	2.68
\$1.60	1.94	1.98	2.03	2.09	2.16	2.25	2.35	1.99	2.04	2.09	2.16	2.23	2.32	2.43	2.04	2.09	2.15	2.22	2.30	2.40	2.51
\$1.70	1.82	1.87	1.91	1.97	2.04	2.12	2.21	1.87	1.92	1.97	2.03	2.10	2.19	2.29	1.92	1.97	2.02	2.09	2.17	2.26	2.36
\$1.80	1.72	1.76	1.81	1.86	1.92	2.00	2.09	1.77	1.81	1.86	1.92	1.98	2.06	2.16	1.81	1.86	1.91	1.97	2.05	2.13	2.23
\$1.90	1.63	1.67	1.71	1.76	1.82	1.89	1.98	1.67	1.71	1.76	1.82	1.88	1.96	2.05	1.72	1.76	1.81	1.87	1.94	2.02	2.12
\$2.00	1.55	1.59	1.63	1.68	1.73	1.80	1.88	1.59	1.63	1.67	1.73	1.79	1.86	1.94	1.63	1.67	1.72	1.78	1.84	1.92	2.01

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 5 years
Annual Fuel Usage: 20000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET										
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%							
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%										
\$1.00	1.31	1.33	1.35	1.38	1.41	1.45	1.50	1.35	1.37	1.40	1.43	1.47	1.51	1.56	1.39	1.41	1.44	1.48	1.52	1.57	1.62
\$1.10	1.19	1.21	1.23	1.26	1.29	1.32	1.36	1.23	1.25	1.27	1.30	1.33	1.37	1.42	1.26	1.29	1.31	1.34	1.38	1.42	1.47
\$1.20	1.09	1.11	1.13	1.15	1.18	1.21	1.25	1.12	1.14	1.17	1.19	1.22	1.26	1.30	1.16	1.18	1.20	1.23	1.26	1.30	1.35
\$1.30	1.01	1.02	1.04	1.06	1.09	1.12	1.15	1.04	1.06	1.08	1.10	1.13	1.16	1.20	1.07	1.09	1.11	1.14	1.17	1.20	1.25
\$1.40	.94	.95	.97	.99	1.01	1.04	1.07	.96	.98	1.00	1.02	1.05	1.08	1.11	.99	1.01	1.03	1.06	1.08	1.12	1.16
\$1.50	.87	.89	.90	.92	.94	.97	1.00	.90	.92	.93	.95	.98	1.01	1.04	.93	.94	.96	.99	1.01	1.04	1.08
\$1.60	.82	.83	.85	.86	.88	.91	.94	.84	.86	.87	.89	.92	.94	.97	.87	.88	.90	.92	.95	.98	1.01
\$1.70	.77	.78	.80	.81	.83	.85	.88	.79	.81	.82	.84	.86	.89	.92	.82	.83	.85	.87	.89	.92	.95
\$1.80	.73	.74	.75	.77	.79	.81	.83	.75	.76	.78	.79	.81	.84	.87	.77	.79	.80	.82	.84	.87	.90
\$1.90	.69	.70	.71	.73	.74	.76	.79	.71	.72	.74	.75	.77	.79	.82	.73	.74	.76	.78	.80	.82	.85
\$2.00	.66	.67	.68	.69	.71	.73	.75	.67	.69	.70	.71	.73	.75	.78	.69	.71	.72	.74	.76	.78	.81
	15%					16%					17%										
\$1.00	1.43	1.46	1.49	1.53	1.57	1.62	1.68	1.47	1.50	1.53	1.58	1.62	1.68	1.75	1.51	1.54	1.58	1.63	1.68	1.74	1.81
\$1.10	1.30	1.32	1.35	1.39	1.43	1.48	1.53	1.33	1.36	1.40	1.43	1.48	1.53	1.59	1.37	1.40	1.44	1.48	1.53	1.58	1.65
\$1.20	1.19	1.21	1.24	1.27	1.31	1.35	1.40	1.22	1.25	1.28	1.31	1.35	1.40	1.46	1.26	1.29	1.32	1.35	1.40	1.45	1.51
\$1.30	1.10	1.12	1.15	1.17	1.21	1.25	1.30	1.13	1.15	1.18	1.21	1.25	1.29	1.35	1.16	1.19	1.22	1.25	1.29	1.34	1.39
\$1.40	1.02	1.04	1.06	1.09	1.12	1.16	1.20	1.05	1.07	1.10	1.13	1.16	1.20	1.25	1.08	1.10	1.13	1.16	1.20	1.24	1.30
\$1.50	.95	.97	.99	1.02	1.05	1.08	1.12	.98	1.00	1.02	1.05	1.08	1.12	1.17	1.01	1.03	1.05	1.08	1.12	1.16	1.21
\$1.60	.89	.91	.93	.95	.98	1.01	1.05	.92	.94	.96	.98	1.01	1.05	1.09	.94	.96	.99	1.02	1.05	1.09	1.13
\$1.70	.84	.86	.88	.90	.92	.95	.99	.86	.88	.90	.93	.96	.99	1.03	.89	.91	.93	.96	.99	1.02	1.07
\$1.80	.79	.81	.83	.85	.87	.90	.94	.82	.83	.85	.88	.90	.93	.97	.84	.86	.88	.90	.93	.97	1.01
\$1.90	.75	.77	.78	.80	.83	.85	.89	.77	.79	.81	.83	.85	.88	.92	.79	.81	.83	.86	.89	.92	.95
\$2.00	.71	.73	.74	.76	.79	.81	.84	.73	.75	.77	.79	.81	.84	.87	.75	.77	.79	.81	.84	.87	.91
	18%					19%					20%										
\$1.00	1.55	1.59	1.63	1.68	1.73	1.80	1.88	1.59	1.63	1.67	1.73	1.79	1.86	1.94	1.63	1.67	1.72	1.78	1.84	1.92	2.01
\$1.10	1.41	1.44	1.48	1.52	1.57	1.63	1.71	1.45	1.48	1.52	1.57	1.62	1.69	1.77	1.48	1.52	1.56	1.61	1.67	1.74	1.83
\$1.20	1.29	1.32	1.36	1.40	1.44	1.50	1.56	1.32	1.36	1.39	1.44	1.49	1.55	1.62	1.36	1.39	1.43	1.48	1.53	1.60	1.67
\$1.30	1.19	1.22	1.25	1.29	1.33	1.38	1.44	1.22	1.25	1.29	1.33	1.37	1.43	1.49	1.25	1.29	1.32	1.37	1.42	1.48	1.55
\$1.40	1.11	1.13	1.16	1.20	1.24	1.28	1.34	1.14	1.16	1.20	1.23	1.28	1.33	1.39	1.16	1.19	1.23	1.27	1.32	1.37	1.44
\$1.50	1.03	1.06	1.08	1.12	1.15	1.20	1.25	1.06	1.09	1.12	1.15	1.19	1.24	1.30	1.09	1.12	1.15	1.19	1.23	1.28	1.34
\$1.60	.97	.99	1.02	1.05	1.08	1.12	1.17	.99	1.02	1.05	1.08	1.12	1.16	1.21	1.02	1.05	1.08	1.11	1.15	1.20	1.26
\$1.70	.91	.93	.96	.99	1.02	1.06	1.10	.94	.96	.98	1.02	1.05	1.09	1.14	.96	.98	1.01	1.04	1.08	1.13	1.19
\$1.80	.86	.88	.90	.93	.96	1.00	1.04	.88	.90	.93	.96	.99	1.03	1.08	.91	.93	.96	.99	1.02	1.07	1.12
\$1.90	.82	.83	.86	.88	.91	.95	.99	.84	.86	.88	.91	.94	.98	1.02	.86	.88	.91	.93	.97	1.01	1.06
\$2.00	.77	.79	.81	.84	.87	.90	.94	.79	.81	.84	.86	.89	.93	.97	.82	.84	.86	.89	.92	.96	1.00

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 5 years
Annual Fuel Usage: 30000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET											
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%											
\$1.00	.87	.89	.90	.92	.94	.97	1.00	.90	.92	.93	.95	.98	1.01	1.04	.93	.94	.96	.99	1.01	1.04	1.08	
\$1.10	.79	.81	.82	.84	.86	.88	.91	.82	.83	.85	.87	.89	.91	.94	.84	.86	.88	.90	.92	.95	.98	
\$1.20	.73	.74	.75	.77	.79	.81	.83	.75	.76	.78	.79	.81	.84	.87	.77	.79	.80	.82	.84	.87	.90	
\$1.30	.67	.68	.69	.71	.73	.74	.77	.69	.70	.72	.73	.75	.77	.80	.71	.73	.74	.76	.78	.80	.83	
\$1.40	.62	.63	.65	.66	.67	.69	.71	.64	.65	.67	.68	.70	.72	.74	.66	.67	.69	.70	.72	.75	.77	
\$1.50	.58	.59	.60	.61	.63	.65	.67	.60	.61	.62	.64	.65	.67	.69	.62	.63	.64	.66	.67	.70	.72	
\$1.60	.55	.55	.56	.58	.59	.60	.62	.56	.57	.58	.60	.61	.63	.65	.58	.59	.60	.62	.63	.65	.68	
\$1.70	.51	.52	.53	.54	.55	.57	.59	.53	.54	.55	.56	.57	.59	.61	.54	.55	.57	.58	.60	.61	.64	
\$1.80	.49	.49	.50	.51	.52	.54	.55	.50	.51	.52	.53	.54	.56	.58	.51	.52	.53	.55	.56	.58	.60	
\$1.90	.46	.47	.48	.48	.50	.51	.53	.47	.48	.49	.50	.51	.53	.55	.49	.50	.51	.52	.53	.55	.57	
\$2.00	.44	.44	.45	.46	.47	.48	.50	.45	.46	.47	.48	.49	.50	.52	.46	.47	.48	.49	.51	.52	.54	
	15%					16%					17%											
\$1.00	.95	.97	.99	1.02	1.05	1.08	1.12	.98	1.00	1.02	1.05	1.08	1.12	1.17	1.01	1.03	1.05	1.08	1.12	1.16	1.21	
\$1.10	.87	.88	.90	.93	.95	.98	1.02	.89	.91	.93	.96	.99	1.02	1.06	.91	.93	.96	.99	1.02	1.05	1.10	
\$1.20	.79	.81	.83	.85	.87	.90	.94	.82	.83	.85	.88	.90	.93	.97	.84	.86	.88	.90	.93	.97	1.01	
\$1.30	.73	.75	.76	.78	.81	.83	.86	.75	.77	.79	.81	.83	.86	.90	.77	.79	.81	.83	.86	.89	.93	
\$1.40	.68	.69	.71	.73	.75	.77	.80	.70	.71	.73	.75	.77	.80	.83	.72	.73	.75	.77	.80	.83	.86	
\$1.50	.63	.65	.66	.68	.70	.72	.75	.65	.67	.68	.70	.72	.75	.78	.67	.69	.70	.72	.75	.77	.81	
\$1.60	.60	.61	.62	.64	.65	.68	.70	.61	.62	.64	.66	.68	.70	.73	.63	.64	.66	.68	.70	.72	.76	
\$1.70	.56	.57	.58	.60	.62	.64	.66	.58	.59	.60	.62	.64	.66	.69	.59	.60	.62	.64	.66	.68	.71	
\$1.80	.53	.54	.55	.57	.58	.60	.62	.54	.56	.57	.58	.60	.62	.65	.56	.57	.59	.60	.62	.64	.67	
\$1.90	.50	.51	.52	.54	.55	.57	.59	.52	.53	.54	.55	.57	.59	.61	.53	.54	.55	.57	.59	.61	.64	
\$2.00	.48	.49	.50	.51	.52	.54	.56	.49	.50	.51	.53	.54	.56	.58	.50	.51	.53	.54	.56	.58	.60	
	18%					19%					20%											
\$1.00	1.03	1.06	1.08	1.12	1.15	1.20	1.25	1.06	1.09	1.12	1.15	1.19	1.24	1.30	1.09	1.12	1.15	1.18	1.23	1.28	1.34	
\$1.10	.94	.96	.99	1.02	1.05	1.09	1.14	.96	.99	1.01	1.05	1.08	1.13	1.18	.99	1.01	1.04	1.08	1.12	1.16	1.22	
\$1.20	.86	.88	.90	.93	.96	1.00	1.04	.88	.90	.93	.96	.99	1.03	1.08	.91	.93	.96	.99	1.02	1.07	1.12	
\$1.30	.79	.81	.83	.86	.89	.92	.96	.82	.84	.86	.88	.92	.95	1.00	.84	.86	.88	.91	.94	.98	1.03	
\$1.40	.74	.75	.77	.80	.82	.86	.89	.76	.78	.80	.82	.85	.88	.93	.78	.80	.82	.85	.88	.91	.96	
\$1.50	.69	.70	.72	.74	.77	.80	.83	.71	.72	.74	.77	.79	.83	.86	.72	.74	.76	.79	.82	.85	.89	
\$1.60	.65	.66	.68	.70	.72	.75	.78	.66	.68	.70	.72	.74	.77	.81	.68	.70	.72	.74	.77	.80	.84	
\$1.70	.61	.62	.64	.66	.68	.71	.74	.62	.64	.66	.68	.70	.73	.76	.64	.66	.67	.70	.72	.75	.79	
\$1.80	.57	.59	.60	.62	.64	.67	.70	.59	.60	.62	.64	.66	.69	.72	.60	.62	.64	.66	.68	.71	.74	
\$1.90	.54	.56	.57	.59	.61	.63	.66	.56	.57	.59	.61	.63	.65	.68	.57	.59	.60	.62	.65	.67	.71	
\$2.00	.52	.53	.54	.56	.58	.60	.63	.53	.54	.56	.58	.60	.62	.65	.54	.56	.57	.60	.62	.65	.67	

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 5 years
Annual Fuel Usage: 40000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	.66	.67	.68	.69	.71	.73	.75	.67	.69	.70	.71	.73	.75	.78	
\$1.10	.60	.61	.62	.63	.64	.66	.68	.61	.62	.64	.65	.67	.69	.71	
\$1.20	.55	.56	.57	.58	.59	.60	.62	.56	.57	.58	.60	.61	.63	.65	
\$1.30	.50	.51	.52	.53	.54	.56	.58	.52	.53	.54	.55	.56	.58	.60	
\$1.40	.47	.48	.49	.50	.51	.52	.53	.48	.49	.50	.51	.52	.54	.56	
\$1.50	.44	.45	.46	.47	.48	.49	.50	.45	.46	.47	.48	.49	.51	.54	
\$1.60	.41	.42	.43	.44	.45	.46	.47	.42	.43	.44	.45	.46	.47	.49	
\$1.70	.39	.39	.40	.41	.42	.43	.44	.40	.40	.41	.42	.43	.45	.48	
\$1.80	.36	.37	.38	.39	.40	.41	.42	.37	.38	.39	.40	.41	.42	.45	
\$1.90	.34	.35	.36	.37	.38	.39	.40	.34	.36	.37	.38	.39	.40	.43	
\$2.00	.33	.33	.34	.35	.36	.37	.38	.34	.36	.37	.38	.39	.40	.43	
	Cost of Money 15%					Cost of Money 16%					Cost of Money 17%				
\$1.00	.71	.73	.74	.76	.79	.81	.84	.73	.75	.77	.79	.81	.84	.87	
\$1.10	.65	.66	.68	.69	.71	.74	.77	.67	.68	.70	.72	.74	.76	.79	
\$1.20	.60	.61	.62	.64	.65	.68	.70	.61	.62	.64	.66	.68	.70	.72	
\$1.30	.55	.56	.57	.59	.60	.62	.65	.56	.58	.59	.61	.63	.65	.67	
\$1.40	.51	.52	.53	.55	.56	.58	.60	.52	.54	.55	.56	.58	.60	.62	
\$1.50	.48	.49	.50	.51	.52	.54	.56	.49	.50	.51	.53	.54	.56	.58	
\$1.60	.45	.46	.47	.48	.49	.51	.53	.46	.47	.48	.49	.51	.52	.54	
\$1.70	.42	.43	.44	.45	.46	.48	.50	.43	.44	.45	.46	.48	.49	.51	
\$1.80	.40	.40	.41	.42	.44	.45	.47	.41	.42	.43	.44	.45	.47	.48	
\$1.90	.38	.38	.39	.40	.41	.43	.44	.39	.39	.40	.41	.43	.44	.46	
\$2.00	.36	.36	.37	.38	.39	.41	.42	.37	.37	.38	.39	.41	.42	.45	
	Cost of Money 18%					Cost of Money 19%					Cost of Money 20%				
\$1.00	.77	.79	.81	.84	.87	.90	.94	.79	.81	.84	.86	.89	.92	.96	
\$1.10	.70	.72	.74	.76	.79	.82	.85	.72	.74	.76	.78	.81	.84	.87	
\$1.20	.65	.66	.68	.70	.72	.75	.78	.66	.68	.70	.72	.74	.77	.80	
\$1.30	.60	.61	.63	.64	.67	.69	.72	.61	.63	.64	.66	.68	.71	.74	
\$1.40	.55	.57	.58	.60	.62	.64	.67	.57	.58	.60	.62	.64	.68	.72	
\$1.50	.52	.53	.54	.56	.58	.60	.63	.53	.54	.56	.58	.61	.64	.67	
\$1.60	.48	.50	.51	.52	.54	.56	.59	.50	.51	.52	.54	.56	.58	.60	
\$1.70	.46	.47	.48	.49	.51	.53	.55	.47	.48	.49	.51	.52	.54	.56	
\$1.80	.43	.44	.45	.47	.48	.50	.52	.44	.45	.46	.48	.49	.51	.53	
\$1.90	.41	.42	.43	.44	.46	.47	.49	.42	.43	.44	.45	.47	.48	.50	
\$2.00	.39	.40	.41	.42	.43	.45	.47	.40	.41	.42	.43	.44	.46	.48	

APPENDIX TABLE 1 (Cont.)

Expected Life of Equipment: 5 years
Annual Fuel Usage: 50000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	.52	.53	.54	.55	.57	.58	.60	.54	.55	.56	.57	.59	.61	.65	
\$1.10	.48	.48	.49	.50	.51	.53	.54	.49	.50	.51	.52	.53	.55	.59	
\$1.20	.44	.44	.45	.46	.47	.48	.50	.45	.46	.47	.48	.49	.51	.54	
\$1.30	.40	.41	.42	.43	.44	.45	.46	.42	.42	.43	.44	.45	.47	.50	
\$1.40	.37	.38	.39	.39	.40	.41	.43	.39	.39	.40	.41	.42	.43	.46	
\$1.50	.35	.35	.36	.37	.38	.39	.40	.36	.37	.37	.38	.39	.40	.43	
\$1.60	.33	.33	.34	.35	.35	.36	.37	.34	.34	.35	.36	.37	.38	.41	
\$1.70	.31	.31	.32	.33	.33	.34	.35	.32	.32	.33	.34	.35	.36	.38	
\$1.80	.29	.30	.30	.31	.31	.32	.33	.30	.31	.31	.32	.33	.34	.36	
\$1.90	.28	.28	.29	.29	.30	.31	.32	.28	.29	.29	.30	.31	.32	.34	
\$2.00	.26	.27	.27	.28	.28	.29	.30	.27	.27	.28	.29	.30	.31	.32	
	15%					16%					17%				
\$1.00	.57	.58	.60	.61	.63	.65	.67	.59	.60	.61	.63	.65	.67	.73	
\$1.10	.52	.53	.54	.56	.57	.59	.61	.53	.55	.56	.57	.59	.61	.66	
\$1.20	.48	.49	.50	.51	.52	.54	.56	.49	.50	.51	.53	.54	.56	.60	
\$1.30	.44	.45	.46	.47	.48	.50	.52	.45	.46	.47	.48	.49	.52	.56	
\$1.40	.41	.42	.43	.44	.45	.46	.48	.42	.43	.44	.45	.46	.48	.52	
\$1.50	.38	.39	.40	.41	.42	.43	.45	.39	.40	.41	.42	.43	.45	.48	
\$1.60	.36	.36	.37	.38	.39	.41	.42	.37	.37	.38	.39	.41	.42	.45	
\$1.70	.34	.34	.35	.36	.37	.38	.40	.35	.35	.36	.37	.38	.39	.43	
\$1.80	.32	.32	.33	.34	.35	.36	.37	.33	.33	.34	.35	.36	.37	.40	
\$1.90	.30	.31	.31	.32	.33	.34	.35	.31	.32	.32	.33	.34	.35	.38	
\$2.00	.29	.29	.30	.31	.31	.32	.34	.29	.30	.31	.32	.33	.34	.36	
	18%					19%					20%				
\$1.00	.62	.63	.65	.67	.69	.72	.75	.64	.65	.67	.69	.71	.74	.77	
\$1.10	.56	.58	.59	.61	.63	.65	.68	.58	.59	.61	.63	.65	.67	.70	
\$1.20	.52	.53	.54	.56	.58	.60	.63	.53	.54	.56	.58	.60	.61	.67	
\$1.30	.48	.49	.50	.52	.53	.55	.58	.49	.50	.52	.53	.55	.57	.62	
\$1.40	.44	.45	.46	.48	.49	.51	.54	.45	.47	.48	.49	.51	.53	.57	
\$1.50	.41	.42	.43	.45	.46	.48	.50	.42	.43	.45	.46	.47	.49	.54	
\$1.60	.39	.40	.41	.42	.43	.45	.47	.40	.41	.42	.43	.44	.46	.50	
\$1.70	.36	.37	.38	.39	.41	.42	.44	.37	.38	.39	.41	.42	.43	.47	
\$1.80	.34	.35	.36	.37	.38	.40	.42	.35	.35	.36	.37	.38	.40	.45	
\$1.90	.33	.33	.34	.35	.36	.38	.40	.33	.33	.34	.35	.36	.39	.43	
\$2.00	.31	.32	.33	.34	.35	.36	.38	.32	.33	.33	.34	.35	.37	.42	
	.29	.29	.30	.31	.31	.32	.34	.29	.30	.31	.32	.33	.34	.36	

APPENDIX TABLE 1 (Cont.)

Expected Life of Equipment: 5 years
Annual Fuel Usage: 60000 Gallons

Annual Fuel Usage: 60000 Gallons															
PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	.44	.44	.45	.46	.47	.48	.50	.45	.46	.47	.48	.49	.51	.52	.54
\$1.10	.40	.40	.41	.42	.43	.44	.45	.41	.42	.42	.43	.44	.45	.47	.49
\$1.20	.36	.37	.38	.38	.39	.40	.42	.37	.38	.39	.40	.41	.42	.43	.45
\$1.30	.34	.34	.35	.35	.36	.37	.38	.35	.36	.37	.38	.39	.40	.42	.44
\$1.40	.31	.32	.32	.33	.34	.35	.36	.32	.33	.34	.35	.36	.37	.39	.41
\$1.50	.29	.30	.30	.31	.32	.33	.34	.30	.31	.31	.32	.33	.34	.35	.36
\$1.60	.27	.28	.28	.29	.29	.30	.31	.28	.29	.29	.30	.31	.32	.33	.34
\$1.70	.26	.26	.27	.27	.28	.28	.29	.26	.27	.27	.28	.29	.30	.31	.32
\$1.80	.24	.25	.25	.26	.26	.27	.28	.25	.26	.26	.27	.28	.29	.30	.31
\$1.90	.23	.23	.24	.24	.25	.25	.26	.24	.24	.25	.25	.26	.27	.27	.28
\$2.00	.22	.22	.23	.23	.24	.24	.25	.22	.23	.23	.24	.24	.25	.26	.27
	Cost of Money 15%					Cost of Money 16%					Cost of Money 17%				
\$1.00	.48	.49	.50	.51	.52	.54	.56	.49	.50	.51	.53	.54	.56	.58	.60
\$1.10	.43	.44	.45	.46	.48	.49	.51	.44	.45	.47	.48	.49	.51	.53	.55
\$1.20	.40	.40	.41	.42	.44	.45	.47	.41	.42	.43	.44	.45	.47	.48	.50
\$1.30	.37	.37	.38	.39	.40	.42	.43	.38	.39	.39	.40	.42	.43	.45	.46
\$1.40	.34	.35	.35	.36	.37	.39	.40	.35	.36	.37	.38	.39	.40	.41	.43
\$1.50	.32	.32	.33	.34	.35	.36	.37	.33	.33	.34	.35	.36	.37	.39	.40
\$1.60	.30	.30	.31	.32	.33	.34	.35	.31	.31	.32	.33	.34	.35	.36	.38
\$1.70	.28	.29	.29	.30	.31	.32	.33	.29	.29	.30	.31	.32	.33	.34	.36
\$1.80	.26	.27	.28	.28	.29	.30	.31	.27	.28	.28	.29	.30	.31	.32	.34
\$1.90	.25	.26	.26	.27	.28	.28	.30	.26	.26	.27	.28	.29	.31	.32	.34
\$2.00	.24	.24	.25	.25	.26	.27	.28	.24	.25	.26	.26	.27	.29	.31	.32
	Cost of Money 18%					Cost of Money 19%					Cost of Money 20%				
\$1.00	.52	.53	.54	.56	.58	.60	.63	.53	.54	.56	.58	.60	.62	.65	.67
\$1.10	.47	.48	.49	.51	.52	.54	.57	.48	.49	.51	.52	.54	.56	.58	.61
\$1.20	.43	.44	.45	.47	.48	.50	.52	.44	.45	.46	.48	.49	.51	.53	.56
\$1.30	.40	.41	.42	.43	.44	.46	.48	.41	.42	.43	.44	.46	.47	.49	.52
\$1.40	.37	.38	.39	.40	.41	.43	.45	.38	.39	.40	.41	.43	.44	.46	.48
\$1.50	.34	.35	.36	.37	.38	.40	.42	.35	.36	.37	.38	.40	.41	.43	.45
\$1.60	.32	.33	.34	.35	.36	.37	.39	.33	.34	.35	.36	.37	.38	.40	.42
\$1.70	.30	.31	.32	.33	.34	.35	.37	.31	.32	.33	.34	.35	.36	.38	.40
\$1.80	.29	.29	.30	.31	.32	.33	.35	.29	.30	.31	.32	.33	.34	.36	.37
\$1.90	.27	.28	.29	.30	.31	.32	.33	.28	.29	.30	.31	.32	.33	.34	.35
\$2.00	.26	.26	.27	.28	.29	.30	.31	.26	.27	.28	.29	.30	.31	.32	.33

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 10 years
Annual Fuel Usage: 10000 Gallons

Annual Fuel Usage: 10000 Gallons															
PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money					Cost of Money					Cost of Money				
	12%					13%					14%				
\$1.00	1.67	1.70	1.73	1.76	1.80	1.85	1.91	1.75	1.78	1.81	1.85	1.90	1.95	2.00	2.06
\$1.10	1.52	1.54	1.57	1.60	1.64	1.68	1.74	1.59	1.62	1.65	1.69	1.73	1.77	1.82	1.87
\$1.20	1.39	1.42	1.44	1.47	1.50	1.54	1.59	1.46	1.48	1.51	1.54	1.58	1.62	1.67	1.72
\$1.30	1.29	1.31	1.33	1.36	1.39	1.42	1.47	1.35	1.37	1.40	1.43	1.46	1.50	1.54	1.58
\$1.40	1.19	1.21	1.23	1.26	1.29	1.32	1.36	1.25	1.27	1.30	1.32	1.36	1.39	1.43	1.47
\$1.50	1.11	1.13	1.15	1.18	1.20	1.23	1.27	1.17	1.19	1.21	1.24	1.27	1.30	1.33	1.37
\$1.60	1.05	1.06	1.08	1.10	1.13	1.16	1.19	1.09	1.11	1.13	1.16	1.19	1.22	1.25	1.29
\$1.70	.98	1.00	1.02	1.04	1.06	1.09	1.12	1.03	1.05	1.07	1.09	1.12	1.15	1.18	1.21
\$1.80	.93	.94	.96	.98	1.00	1.03	1.06	.97	.99	1.01	1.03	1.06	1.09	1.11	1.14
\$1.90	.88	.89	.91	.93	.95	.97	1.01	.92	.94	.95	.98	1.00	1.02	1.05	1.08
\$2.00	.84	.85	.86	.88	.90	.93	.95	.87	.89	.91	.93	.95	.97	1.00	1.03
	15%					16%					17%				
\$1.00	1.91	1.95	1.99	2.04	2.10	2.17	2.25	1.99	2.03	2.06	2.14	2.20	2.28	2.37	2.49
\$1.10	1.73	1.77	1.81	1.85	1.91	1.97	2.05	1.81	1.85	1.89	1.94	2.00	2.07	2.15	2.26
\$1.20	1.59	1.62	1.66	1.70	1.75	1.81	1.88	1.66	1.69	1.73	1.78	1.83	1.90	1.97	2.08
\$1.30	1.47	1.50	1.53	1.57	1.61	1.67	1.73	1.53	1.56	1.60	1.64	1.69	1.75	1.82	1.92
\$1.40	1.36	1.39	1.42	1.46	1.50	1.55	1.61	1.42	1.45	1.49	1.53	1.57	1.63	1.69	1.78
\$1.50	1.27	1.30	1.33	1.36	1.40	1.45	1.50	1.33	1.35	1.39	1.42	1.47	1.52	1.58	1.66
\$1.60	1.19	1.22	1.24	1.27	1.31	1.35	1.41	1.24	1.27	1.30	1.33	1.38	1.42	1.48	1.56
\$1.70	1.12	1.14	1.17	1.20	1.23	1.28	1.32	1.17	1.19	1.22	1.26	1.29	1.34	1.39	1.46
\$1.80	1.06	1.08	1.11	1.13	1.17	1.20	1.25	1.10	1.13	1.16	1.19	1.22	1.27	1.32	1.38
\$1.90	1.00	1.02	1.05	1.07	1.10	1.14	1.18	1.05	1.07	1.09	1.12	1.16	1.20	1.25	1.31
\$2.00	.95	.97	.99	1.02	1.05	1.08	1.13	.99	1.02	1.04	1.07	1.10	1.14	1.18	1.23
	18%					19%					20%				
\$1.00	2.16	2.21	2.26	2.33	2.41	2.50	2.61	2.24	2.30	2.36	2.43	2.52	2.62	2.74	2.87
\$1.10	1.96	2.01	2.06	2.12	2.19	2.27	2.38	2.04	2.09	2.14	2.21	2.29	2.38	2.49	2.61
\$1.20	1.80	1.84	1.89	1.94	2.01	2.09	2.18	1.87	1.91	1.97	2.03	2.10	2.18	2.28	2.39
\$1.30	1.66	1.70	1.74	1.79	1.85	1.92	2.01	1.72	1.77	1.81	1.87	1.94	2.01	2.10	2.21
\$1.40	1.54	1.58	1.62	1.67	1.72	1.79	1.87	1.60	1.64	1.69	1.74	1.80	1.87	1.96	2.05
\$1.50	1.44	1.47	1.51	1.55	1.61	1.67	1.74	1.49	1.53	1.57	1.62	1.68	1.75	1.83	1.91
\$1.60	1.35	1.38	1.42	1.46	1.51	1.56	1.63	1.40	1.43	1.47	1.52	1.57	1.64	1.71	1.79
\$1.70	1.27	1.30	1.33	1.37	1.42	1.47	1.54	1.32	1.35	1.39	1.43	1.48	1.54	1.61	1.67
\$1.80	1.20	1.23	1.26	1.30	1.34	1.39	1.45	1.24	1.28	1.31	1.35	1.40	1.45	1.52	1.59
\$1.90	1.13	1.16	1.19	1.23	1.27	1.32	1.38	1.18	1.21	1.24	1.28	1.32	1.38	1.44	1.51
\$2.00	1.08	1.10	1.13	1.17	1.20	1.25	1.31	1.12	1.15	1.18	1.22	1.26	1.31	1.37	1.43

APPENDIX TABLE 1 (Cont.)

Expected Life of Equipment: 10 years
Annual Fuel Usage: 20000 Gallons

PRICE/ GALLON	20%	25%	30%	35%	40%	45%	50%	TAX BRACKET					20%	25%	30%	35%	40%	45%	50%
	Cost of Money 12%							TAX BRACKET					Cost of Money 13%						
\$1.00	.84	.85	.86	.88	.90	.93	.95	.87	.89	.91	.93	.95	.98	.98	.98	1.01	.91	.93	.95
\$1.10	.76	.77	.79	.80	.82	.84	.87	.80	.81	.82	.84	.86	.89	.89	.89	.92	.83	.85	.86
\$1.20	.70	.71	.72	.73	.75	.77	.80	.73	.74	.76	.77	.79	.81	.81	.81	.84	.76	.78	.79
\$1.30	.64	.65	.66	.68	.69	.71	.73	.67	.68	.70	.71	.73	.75	.75	.75	.78	.70	.72	.73
\$1.40	.60	.61	.62	.63	.64	.66	.68	.62	.64	.65	.66	.68	.70	.70	.70	.72	.65	.66	.68
\$1.50	.56	.57	.58	.59	.60	.62	.64	.58	.59	.60	.62	.63	.65	.65	.65	.67	.61	.62	.63
\$1.60	.52	.53	.54	.55	.56	.58	.60	.55	.56	.57	.58	.59	.61	.61	.61	.63	.57	.58	.59
\$1.70	.49	.50	.51	.52	.53	.54	.56	.51	.52	.53	.55	.56	.57	.57	.57	.59	.54	.55	.56
\$1.80	.46	.47	.48	.49	.50	.51	.53	.49	.49	.50	.51	.53	.54	.54	.54	.56	.51	.52	.53
\$1.90	.44	.45	.46	.47	.48	.49	.50	.46	.47	.48	.49	.50	.51	.51	.51	.53	.48	.49	.50
\$2.00	.42	.43	.44	.45	.46	.47	.48	.44	.44	.45	.46	.48	.49	.49	.49	.51	.46	.47	.48
	Cost of Money 15%							TAX BRACKET					Cost of Money 16%						
\$1.00	.95	.97	.99	1.02	1.05	1.08	1.13	.99	1.02	1.04	1.07	1.10	1.14	1.14	1.14	1.18	1.04	1.06	1.09
\$1.10	.87	.88	.90	.93	.95	.99	1.02	.90	.92	.95	.97	1.00	1.04	1.04	1.04	1.08	.94	.96	.99
\$1.20	.79	.81	.83	.85	.87	.90	.94	.83	.85	.87	.89	.92	.95	.95	.95	.99	.86	.88	.90
\$1.30	.73	.75	.77	.78	.81	.83	.87	.76	.78	.80	.82	.85	.88	.88	.88	.91	.80	.81	.84
\$1.40	.68	.69	.71	.73	.75	.77	.80	.71	.73	.74	.76	.79	.81	.81	.81	.85	.74	.76	.78
\$1.50	.64	.65	.66	.68	.70	.72	.75	.66	.68	.69	.71	.73	.76	.76	.76	.79	.69	.71	.72
\$1.60	.60	.61	.62	.64	.66	.68	.70	.62	.63	.65	.67	.69	.71	.71	.71	.74	.65	.66	.68
\$1.70	.56	.57	.59	.60	.62	.64	.66	.58	.60	.61	.63	.65	.67	.67	.67	.70	.61	.62	.64
\$1.80	.53	.54	.55	.57	.58	.60	.63	.55	.56	.58	.59	.61	.63	.63	.63	.66	.58	.59	.60
\$1.90	.50	.51	.52	.54	.55	.57	.59	.52	.53	.55	.56	.58	.60	.60	.60	.62	.55	.56	.57
\$2.00	.48	.49	.50	.51	.52	.54	.56	.50	.51	.52	.53	.55	.57	.57	.57	.59	.52	.53	.54
	Cost of Money 18%							TAX BRACKET					Cost of Money 19%						
\$1.00	1.08	1.10	1.13	1.17	1.20	1.25	1.31	1.12	1.15	1.18	1.22	1.26	1.31	1.31	1.31	1.37	1.16	1.19	1.23
\$1.10	.98	1.00	1.03	1.06	1.10	1.14	1.19	1.02	1.04	1.07	1.11	1.14	1.19	1.19	1.19	1.25	1.06	1.08	1.12
\$1.20	.90	.92	.94	.97	1.00	1.04	1.09	.93	.96	.98	1.01	1.05	1.09	1.09	1.09	1.14	.97	.99	1.02
\$1.30	.83	.85	.87	.90	.93	.96	1.01	.86	.88	.91	.94	.97	1.01	1.01	1.01	1.05	.89	.92	.94
\$1.40	.77	.79	.81	.83	.86	.89	.93	.80	.82	.84	.87	.90	.94	.94	.94	.98	.83	.85	.88
\$1.50	.72	.74	.75	.78	.80	.83	.87	.75	.77	.79	.81	.84	.87	.87	.87	.91	.78	.80	.82
\$1.60	.67	.69	.71	.73	.75	.78	.82	.70	.72	.74	.76	.79	.82	.82	.82	.86	.73	.75	.77
\$1.70	.63	.65	.67	.69	.71	.74	.77	.66	.68	.69	.72	.74	.77	.77	.77	.81	.68	.70	.72
\$1.80	.60	.61	.63	.65	.67	.70	.73	.62	.64	.66	.68	.70	.73	.73	.73	.76	.65	.66	.68
\$1.90	.57	.58	.60	.61	.63	.66	.69	.59	.60	.62	.64	.66	.69	.69	.69	.72	.61	.63	.65
\$2.00	.54	.55	.57	.58	.60	.63	.66	.56	.57	.59	.61	.63	.66	.66	.66	.69	.58	.60	.61
	Cost of Money 20%							TAX BRACKET					Cost of Money 20%						
\$1.00	1.08	1.10	1.13	1.17	1.20	1.25	1.31	1.12	1.15	1.18	1.22	1.26	1.31	1.31	1.31	1.37	1.16	1.19	1.23
\$1.10	.98	1.00	1.03	1.06	1.10	1.14	1.19	1.02	1.04	1.07	1.11	1.14	1.19	1.19	1.19	1.25	1.06	1.08	1.12
\$1.20	.90	.92	.94	.97	1.00	1.04	1.09	.93	.96	.98	1.01	1.05	1.09	1.09	1.09	1.14	.97	.99	1.02
\$1.30	.83	.85	.87	.90	.93	.96	1.01	.86	.88	.91	.94	.97	1.01	1.01	1.01	1.05	.89	.92	.94
\$1.40	.77	.79	.81	.83	.86	.89	.93	.80	.82	.84	.87	.90	.94	.94	.94	.98	.83	.85	.88
\$1.50	.72	.74	.75	.78	.80	.83	.87	.75	.77	.79	.81	.84	.87	.87	.87	.91	.78	.80	.82
\$1.60	.67	.69	.71	.73	.75	.78	.82	.70	.72	.74	.76	.79	.82	.82	.82	.86	.73	.75	.77
\$1.70	.63	.65	.67	.69	.71	.74	.77	.66	.68	.69	.72	.74	.77	.77	.77	.81	.68	.70	.72
\$1.80	.60	.61	.63	.65	.67	.70	.73	.62	.64	.66	.68	.70	.73	.73	.73	.76	.65	.66	.68
\$1.90	.57	.58	.60	.61	.63	.66	.69	.59	.60	.62	.64	.66	.69	.69	.69	.72	.61	.63	.65
\$2.00	.54	.55	.57	.58	.60	.63	.66	.56	.57	.59	.61	.63	.66	.66	.66	.69	.58	.60	.61

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 10 years
Annual Fuel Usage: 30000 Gallons

Annual fuel usage: 30000 gallons																					
PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET					TAX BRACKET					
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%					Cost of Money 17%					
\$1.00	.56	.57	.58	.59	.60	.62	.64	.58	.59	.60	.62	.63	.65	.67	.61	.62	.63	.65	.67	.69	.71
\$1.10	.51	.51	.52	.53	.55	.56	.58	.53	.54	.55	.56	.58	.59	.61	.55	.56	.58	.59	.61	.62	.65
\$1.20	.46	.47	.48	.49	.50	.51	.53	.49	.49	.50	.51	.53	.54	.56	.51	.52	.53	.54	.56	.57	.59
\$1.30	.43	.44	.44	.45	.46	.47	.49	.45	.46	.47	.48	.49	.50	.52	.47	.48	.49	.50	.51	.53	.55
\$1.40	.40	.40	.41	.42	.43	.44	.45	.42	.42	.43	.44	.45	.47	.48	.44	.44	.45	.46	.48	.49	.51
\$1.50	.37	.38	.38	.39	.40	.41	.42	.39	.40	.40	.41	.42	.43	.45	.41	.41	.42	.43	.44	.46	.47
\$1.60	.35	.35	.36	.37	.38	.39	.40	.36	.37	.38	.39	.40	.41	.42	.38	.39	.40	.41	.42	.43	.44
\$1.70	.33	.33	.34	.35	.35	.36	.37	.34	.35	.36	.36	.37	.38	.40	.36	.37	.37	.38	.39	.40	.42
\$1.80	.31	.31	.32	.33	.33	.34	.35	.32	.33	.34	.34	.35	.36	.37	.34	.34	.35	.36	.37	.38	.40
\$1.90	.29	.30	.30	.31	.32	.32	.34	.31	.31	.32	.33	.33	.34	.35	.32	.33	.33	.34	.35	.36	.37
\$2.00	.28	.29	.29	.30	.30	.31	.32	.29	.30	.30	.31	.32	.33	.34	.30	.31	.32	.32	.33	.34	.36
	Cost of Money 15%					Cost of Money 16%					Cost of Money 17%					Cost of Money 20%					
\$1.00	.64	.65	.66	.68	.70	.72	.75	.66	.68	.69	.71	.73	.76	.79	.69	.71	.72	.74	.77	.80	.83
\$1.10	.58	.59	.60	.62	.64	.66	.68	.60	.62	.63	.65	.67	.69	.72	.63	.64	.66	.68	.70	.72	.75
\$1.20	.53	.54	.55	.57	.58	.60	.63	.55	.56	.58	.59	.61	.63	.66	.58	.59	.60	.62	.64	.66	.69
\$1.30	.49	.50	.51	.52	.54	.56	.58	.51	.52	.53	.55	.56	.58	.61	.53	.54	.56	.57	.59	.61	.64
\$1.40	.45	.46	.47	.49	.50	.52	.54	.47	.48	.50	.51	.52	.54	.56	.49	.50	.52	.53	.55	.57	.59
\$1.50	.42	.43	.44	.45	.47	.48	.50	.44	.45	.46	.47	.49	.51	.53	.46	.47	.48	.50	.51	.53	.55
\$1.60	.40	.41	.41	.42	.44	.45	.47	.41	.42	.43	.44	.46	.47	.49	.43	.44	.45	.47	.48	.50	.52
\$1.70	.37	.38	.39	.40	.41	.43	.44	.39	.40	.41	.42	.43	.45	.46	.41	.42	.43	.44	.45	.47	.49
\$1.80	.35	.36	.37	.38	.39	.40	.42	.37	.38	.39	.40	.41	.42	.44	.38	.39	.40	.41	.43	.44	.46
\$1.90	.33	.34	.35	.36	.37	.38	.39	.35	.36	.36	.37	.39	.40	.42	.36	.37	.38	.39	.40	.42	.44
\$2.00	.32	.32	.33	.34	.35	.36	.38	.33	.34	.35	.36	.37	.38	.39	.35	.36	.36	.37	.38	.40	.42
	Cost of Money 18%					Cost of Money 19%					Cost of Money 20%					Cost of Money 22%					
\$1.00	.72	.74	.75	.78	.80	.83	.87	.75	.77	.79	.81	.84	.87	.91	.78	.80	.82	.84	.88	.91	.96
\$1.10	.65	.67	.69	.71	.73	.76	.79	.68	.70	.71	.74	.76	.79	.83	.71	.72	.74	.77	.80	.83	.87
\$1.20	.60	.61	.63	.65	.67	.70	.73	.62	.64	.66	.68	.70	.73	.76	.65	.66	.68	.70	.73	.76	.80
\$1.30	.55	.57	.58	.60	.62	.64	.67	.57	.59	.60	.62	.65	.67	.70	.60	.61	.63	.65	.67	.70	.74
\$1.40	.51	.53	.54	.56	.57	.60	.62	.53	.55	.56	.58	.60	.62	.65	.55	.57	.58	.60	.63	.65	.68
\$1.50	.48	.49	.50	.52	.54	.56	.58	.50	.51	.52	.54	.56	.58	.61	.52	.53	.55	.56	.58	.61	.64
\$1.60	.45	.46	.47	.49	.50	.52	.54	.47	.48	.49	.51	.52	.55	.57	.48	.50	.51	.53	.55	.57	.60
\$1.70	.42	.43	.44	.46	.47	.49	.51	.44	.45	.46	.48	.49	.51	.54	.46	.47	.48	.50	.52	.54	.56
\$1.80	.40	.41	.42	.43	.45	.46	.48	.41	.43	.44	.45	.47	.48	.51	.43	.44	.45	.47	.49	.51	.53
\$1.90	.38	.39	.40	.41	.42	.44	.46	.39	.40	.41	.43	.44	.46	.48	.41	.43	.44	.46	.48	.49	.50
\$2.00	.36	.37	.38	.39	.40	.42	.44	.37	.38	.39	.41	.42	.44	.46	.39	.40	.41	.43	.44	.46	.48

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 10 years
Annual Fuel Usage: 50000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money					Cost of Money					Cost of Money				
	12%					13%					14%				
\$1.00	.33	.34	.35	.35	.36	.37	.38	.35	.36	.36	.37	.38	.39	.40	.43
\$1.10	.30	.31	.31	.32	.33	.34	.35	.32	.32	.33	.34	.35	.35	.36	.39
\$1.20	.28	.28	.29	.29	.30	.31	.32	.29	.30	.30	.31	.32	.32	.33	.36
\$1.30	.26	.26	.27	.27	.28	.28	.29	.27	.27	.28	.29	.29	.30	.31	.33
\$1.40	.24	.24	.25	.25	.26	.26	.27	.25	.25	.26	.26	.27	.27	.28	.30
\$1.50	.22	.23	.23	.24	.24	.25	.25	.23	.24	.24	.25	.25	.26	.27	.28
\$1.60	.21	.21	.22	.22	.23	.23	.24	.22	.22	.23	.23	.24	.24	.25	.27
\$1.70	.20	.20	.21	.21	.22	.22	.22	.21	.21	.22	.22	.23	.23	.24	.25
\$1.80	.19	.19	.19	.20	.20	.21	.21	.19	.20	.20	.21	.21	.22	.22	.24
\$1.90	.18	.18	.18	.19	.19	.19	.20	.18	.19	.19	.20	.20	.21	.21	.22
\$2.00	.17	.17	.17	.18	.18	.19	.19	.17	.18	.18	.19	.19	.20	.20	.21
	15%					16%					17%				
\$1.00	.38	.39	.40	.41	.42	.43	.45	.40	.41	.42	.43	.44	.45	.46	.50
\$1.10	.35	.35	.36	.37	.38	.39	.41	.36	.37	.38	.39	.40	.41	.42	.45
\$1.20	.32	.32	.33	.34	.35	.36	.38	.33	.34	.35	.36	.37	.38	.40	.42
\$1.30	.29	.30	.31	.31	.32	.33	.35	.31	.31	.32	.33	.34	.35	.37	.39
\$1.40	.27	.28	.28	.29	.30	.31	.32	.28	.29	.30	.31	.31	.32	.33	.36
\$1.50	.25	.26	.27	.27	.28	.29	.30	.27	.27	.28	.28	.29	.30	.31	.33
\$1.60	.24	.24	.25	.25	.26	.27	.28	.25	.25	.26	.27	.28	.28	.29	.31
\$1.70	.22	.23	.23	.24	.25	.26	.26	.23	.24	.24	.25	.26	.26	.27	.29
\$1.80	.21	.22	.22	.23	.23	.24	.25	.22	.23	.23	.24	.24	.25	.26	.28
\$1.90	.20	.20	.21	.21	.22	.23	.24	.21	.21	.22	.22	.23	.24	.25	.26
\$2.00	.19	.19	.20	.20	.21	.22	.23	.20	.20	.21	.21	.22	.23	.24	.25
	18%					19%					20%				
\$1.00	.43	.44	.45	.47	.48	.50	.52	.45	.46	.47	.49	.50	.51	.53	.57
\$1.10	.39	.40	.41	.42	.44	.45	.48	.41	.42	.43	.44	.46	.46	.48	.52
\$1.20	.36	.37	.38	.39	.40	.42	.44	.37	.38	.39	.41	.42	.42	.44	.48
\$1.30	.33	.34	.35	.36	.37	.38	.40	.34	.35	.36	.37	.39	.39	.40	.44
\$1.40	.31	.32	.32	.33	.34	.36	.37	.32	.33	.34	.35	.36	.36	.38	.41
\$1.50	.29	.29	.30	.31	.32	.33	.35	.30	.31	.31	.32	.34	.35	.36	.38
\$1.60	.27	.28	.28	.29	.30	.31	.33	.28	.29	.29	.30	.31	.32	.33	.36
\$1.70	.25	.26	.27	.27	.28	.29	.31	.26	.27	.28	.29	.30	.31	.32	.34
\$1.80	.24	.25	.25	.26	.27	.28	.29	.25	.26	.26	.27	.28	.29	.30	.32
\$1.90	.23	.23	.24	.25	.25	.26	.28	.24	.24	.25	.26	.27	.28	.29	.30
\$2.00	.22	.22	.23	.23	.24	.25	.26	.22	.23	.23	.24	.25	.26	.27	.29

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 10 years
Annual Fuel Usage: 60000 Gallons

Annual Fuel Usage: 60000 Gallons																					
PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET					TAX BRACKET					
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%
	Cost of Money					Cost of Money					Cost of Money					Cost of Money					
	12%					13%					14%					17%					
\$1.00	.28	.28	.29	.29	.30	.31	.32	.33	.34	.30	.30	.31	.32	.33	.30	.31	.32	.32	.33	.34	.36
\$1.10	.25	.26	.27	.27	.28	.29	.30	.31	.32	.27	.27	.28	.29	.30	.28	.28	.29	.29	.30	.31	.32
\$1.20	.23	.24	.24	.25	.26	.27	.28	.29	.30	.25	.25	.26	.26	.27	.23	.23	.24	.24	.25	.26	.27
\$1.30	.21	.22	.23	.23	.24	.24	.25	.26	.27	.23	.23	.24	.24	.25	.23	.23	.24	.24	.25	.26	.27
\$1.40	.20	.20	.21	.21	.22	.22	.23	.23	.24	.21	.21	.22	.22	.23	.22	.22	.23	.23	.24	.25	.25
\$1.50	.19	.19	.20	.20	.21	.21	.22	.22	.23	.20	.20	.21	.21	.22	.20	.21	.21	.22	.22	.23	.24
\$1.60	.17	.18	.18	.18	.19	.19	.20	.20	.21	.19	.19	.20	.20	.21	.19	.19	.20	.20	.21	.21	.22
\$1.70	.16	.17	.17	.17	.18	.18	.19	.19	.20	.17	.17	.18	.18	.19	.18	.18	.19	.19	.20	.20	.21
\$1.80	.15	.16	.16	.16	.17	.17	.18	.18	.19	.16	.16	.17	.17	.18	.17	.17	.18	.18	.19	.19	.20
\$1.90	.15	.15	.15	.15	.16	.16	.17	.17	.18	.15	.16	.16	.17	.17	.16	.16	.17	.17	.18	.18	.19
\$2.00	.14	.14	.14	.15	.15	.15	.16	.16	.17	.15	.15	.15	.16	.16	.15	.16	.16	.16	.17	.17	.18
	15%					16%					17%					20%					
\$1.00	.32	.32	.33	.34	.35	.36	.37	.38	.39	.34	.35	.36	.37	.38	.35	.35	.36	.37	.38	.40	.42
\$1.10	.29	.29	.30	.31	.32	.33	.34	.35	.36	.30	.31	.32	.33	.35	.31	.32	.33	.34	.35	.36	.38
\$1.20	.26	.27	.28	.28	.29	.30	.31	.32	.33	.28	.28	.29	.30	.31	.29	.29	.30	.31	.32	.33	.35
\$1.30	.24	.25	.26	.26	.27	.28	.29	.30	.31	.25	.26	.27	.28	.29	.27	.27	.28	.29	.30	.31	.32
\$1.40	.23	.23	.24	.24	.25	.26	.27	.28	.29	.24	.24	.25	.26	.27	.25	.25	.26	.27	.28	.29	.30
\$1.50	.21	.22	.23	.23	.24	.25	.26	.27	.28	.22	.23	.24	.24	.25	.23	.24	.24	.25	.26	.27	.28
\$1.60	.20	.20	.21	.21	.22	.23	.23	.24	.25	.21	.21	.22	.22	.23	.22	.22	.23	.23	.24	.25	.26
\$1.70	.19	.19	.20	.20	.21	.21	.22	.22	.23	.20	.20	.21	.21	.22	.20	.21	.21	.22	.23	.23	.24
\$1.80	.18	.18	.19	.19	.20	.20	.21	.21	.22	.19	.19	.20	.20	.21	.19	.20	.20	.21	.21	.22	.23
\$1.90	.17	.17	.18	.18	.19	.19	.20	.20	.21	.18	.18	.19	.19	.20	.18	.19	.19	.20	.20	.21	.22
\$2.00	.16	.16	.17	.17	.18	.18	.19	.19	.20	.17	.17	.18	.18	.19	.17	.18	.18	.19	.20	.20	.21
	18%					19%					20%					20%					
\$1.00	.36	.37	.38	.39	.40	.42	.44	.37	.38	.39	.41	.42	.44	.46	.39	.40	.41	.42	.44	.46	.48
\$1.10	.33	.33	.34	.35	.37	.38	.40	.34	.35	.36	.37	.38	.40	.42	.35	.36	.37	.38	.40	.41	.43
\$1.20	.30	.31	.31	.32	.33	.35	.36	.31	.32	.33	.34	.35	.36	.38	.32	.33	.34	.35	.36	.38	.40
\$1.30	.28	.29	.29	.30	.31	.32	.34	.29	.29	.30	.31	.32	.34	.35	.30	.31	.31	.32	.34	.35	.37
\$1.40	.26	.26	.27	.28	.29	.30	.31	.27	.27	.28	.29	.30	.31	.33	.28	.28	.29	.30	.31	.33	.34
\$1.50	.24	.25	.25	.26	.27	.28	.29	.25	.26	.26	.27	.28	.29	.30	.26	.27	.27	.28	.29	.30	.32
\$1.60	.22	.23	.24	.24	.25	.26	.27	.23	.24	.25	.25	.26	.27	.28	.24	.25	.26	.26	.27	.28	.30
\$1.70	.21	.22	.22	.23	.24	.25	.26	.22	.23	.23	.24	.25	.26	.27	.23	.24	.24	.25	.26	.27	.28
\$1.80	.20	.20	.21	.22	.22	.23	.24	.21	.21	.22	.23	.23	.24	.25	.22	.22	.23	.23	.24	.25	.27
\$1.90	.19	.19	.20	.20	.21	.22	.23	.20	.20	.21	.21	.22	.23	.24	.22	.22	.22	.23	.24	.25	.27
\$2.00	.18	.18	.19	.19	.20	.21	.22	.19	.20	.20	.21	.21	.22	.23	.20	.21	.21	.22	.23	.24	.25

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 15 years
Annual Fuel Usage: 10000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	1.39	1.41	1.43	1.46	1.50	1.54	1.58	1.47	1.49	1.52	1.56	1.60	1.64	1.70	
\$1.10	1.26	1.28	1.30	1.33	1.36	1.40	1.44	1.34	1.36	1.38	1.41	1.45	1.49	1.54	
\$1.20	1.16	1.17	1.20	1.22	1.25	1.28	1.32	1.22	1.25	1.27	1.30	1.33	1.37	1.41	
\$1.30	1.07	1.08	1.10	1.13	1.15	1.18	1.22	1.13	1.15	1.17	1.20	1.23	1.26	1.31	
\$1.40	.99	1.01	1.02	1.04	1.07	1.10	1.13	1.05	1.07	1.09	1.11	1.14	1.17	1.21	
\$1.50	.92	.94	.96	.98	1.00	1.02	1.06	.98	1.00	1.02	1.04	1.06	1.09	1.13	
\$1.60	.87	.88	.90	.91	.94	.96	.99	.92	.93	.95	.97	1.00	1.03	1.06	
\$1.70	.82	.83	.84	.86	.88	.90	.93	.86	.88	.90	.92	.94	.97	1.00	
\$1.80	.77	.78	.80	.81	.83	.85	.88	.82	.83	.85	.86	.89	.91	.94	
\$1.90	.73	.74	.75	.77	.79	.81	.83	.77	.79	.80	.82	.84	.86	.89	
\$2.00	.69	.70	.72	.73	.75	.77	.79	.73	.75	.76	.78	.80	.82	.85	
	15%					16%					17%				
\$1.00	1.64	1.67	1.71	1.75	1.80	1.86	1.93	1.72	1.76	1.80	1.85	1.91	1.97	2.05	
\$1.10	1.49	1.52	1.55	1.59	1.64	1.69	1.76	1.57	1.60	1.64	1.68	1.73	1.79	1.87	
\$1.20	1.36	1.39	1.42	1.46	1.50	1.55	1.61	1.44	1.47	1.50	1.54	1.59	1.64	1.71	
\$1.30	1.26	1.28	1.31	1.35	1.39	1.43	1.49	1.33	1.35	1.39	1.42	1.47	1.52	1.58	
\$1.40	1.17	1.19	1.22	1.25	1.29	1.33	1.38	1.23	1.26	1.29	1.32	1.36	1.41	1.47	
\$1.50	1.09	1.11	1.14	1.17	1.20	1.24	1.29	1.15	1.17	1.20	1.23	1.27	1.32	1.37	
\$1.60	1.02	1.04	1.07	1.09	1.13	1.16	1.21	1.08	1.10	1.13	1.16	1.19	1.23	1.28	
\$1.70	.96	.98	1.00	1.03	1.06	1.09	1.14	1.01	1.04	1.06	1.09	1.12	1.16	1.21	
\$1.80	.91	.93	.95	.97	1.00	1.03	1.07	.96	.98	1.00	1.03	1.06	1.10	1.14	
\$1.90	.86	.88	.90	.92	.95	.98	1.02	.91	.93	.95	.97	1.00	1.04	1.08	
\$2.00	.82	.84	.86	.88	.90	.93	.97	.86	.88	.90	.93	.95	.99	1.03	
	18%					19%					20%				
\$1.00	1.90	1.95	2.00	2.06	2.13	2.21	2.31	1.99	2.04	2.10	2.16	2.24	2.33	2.44	
\$1.10	1.73	1.77	1.82	1.87	1.93	2.01	2.10	1.81	1.86	1.91	1.97	2.04	2.12	2.22	
\$1.20	1.59	1.62	1.67	1.71	1.77	1.84	1.92	1.66	1.70	1.75	1.80	1.87	1.94	2.03	
\$1.30	1.46	1.50	1.54	1.58	1.64	1.70	1.77	1.53	1.57	1.61	1.66	1.72	1.79	1.87	
\$1.40	1.36	1.39	1.43	1.47	1.52	1.58	1.65	1.42	1.46	1.50	1.55	1.60	1.66	1.74	
\$1.50	1.27	1.30	1.33	1.37	1.42	1.47	1.54	1.33	1.36	1.40	1.44	1.49	1.55	1.62	
\$1.60	1.19	1.22	1.25	1.29	1.33	1.38	1.44	1.25	1.28	1.31	1.35	1.40	1.46	1.52	
\$1.70	1.12	1.15	1.18	1.21	1.25	1.30	1.36	1.17	1.20	1.23	1.27	1.32	1.37	1.43	
\$1.80	1.06	1.08	1.11	1.14	1.18	1.23	1.28	1.11	1.14	1.17	1.20	1.24	1.29	1.35	
\$1.90	1.00	1.02	1.05	1.08	1.12	1.16	1.21	1.05	1.08	1.10	1.14	1.18	1.23	1.28	
\$2.00	.95	.97	1.00	1.03	1.06	1.10	1.15	1.00	1.02	1.05	1.08	1.12	1.16	1.22	

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 15 years
Annual Fuel Usage: 30000 Gallons

Annual fuel usage: 30000 gallons																
PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET					
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%		
	Cost of Money					Cost of Money					Cost of Money					
	12%					13%					14%					
\$1.00	.46	.47	.48	.49	.50	.51	.52	.53	.55	.57	.52	.53	.54	.55	.57	
\$1.10	.42	.43	.43	.44	.45	.46	.47	.48	.50	.51	.47	.48	.49	.50	.53	
\$1.20	.39	.39	.40	.41	.42	.42	.43	.44	.46	.47	.43	.44	.45	.46	.49	
\$1.30	.36	.36	.37	.38	.38	.39	.40	.41	.44	.44	.40	.41	.42	.44	.46	
\$1.40	.33	.34	.34	.35	.36	.36	.37	.38	.39	.40	.37	.38	.38	.40	.42	
\$1.50	.31	.31	.32	.33	.33	.34	.35	.35	.36	.38	.34	.35	.36	.37	.40	
\$1.60	.29	.29	.30	.30	.31	.32	.32	.33	.34	.35	.32	.33	.34	.35	.38	
\$1.70	.27	.28	.28	.29	.29	.30	.31	.31	.32	.33	.30	.31	.32	.33	.36	
\$1.80	.26	.26	.27	.27	.28	.28	.29	.30	.30	.31	.29	.29	.30	.31	.32	
\$1.90	.24	.25	.25	.26	.26	.27	.27	.28	.29	.30	.27	.28	.28	.29	.31	
\$2.00	.23	.23	.24	.24	.25	.25	.26	.27	.27	.28	.26	.26	.27	.28	.29	
	15%					16%					17%					
\$1.00	.55	.56	.57	.58	.60	.62	.64	.66	.66	.68	.60	.62	.63	.65	.67	
\$1.10	.50	.51	.52	.53	.55	.56	.58	.60	.62	.62	.55	.56	.58	.59	.61	
\$1.20	.45	.46	.47	.49	.50	.52	.54	.55	.57	.57	.50	.51	.53	.54	.56	
\$1.30	.42	.43	.44	.45	.46	.48	.50	.51	.53	.53	.46	.48	.49	.50	.52	
\$1.40	.39	.40	.41	.42	.43	.44	.46	.47	.49	.49	.43	.44	.45	.47	.48	
\$1.50	.36	.37	.38	.39	.40	.41	.43	.44	.46	.46	.40	.41	.42	.43	.45	
\$1.60	.34	.35	.36	.36	.38	.39	.40	.41	.43	.43	.38	.39	.40	.41	.44	
\$1.70	.32	.33	.33	.34	.35	.36	.38	.39	.40	.40	.36	.36	.37	.38	.41	
\$1.80	.30	.31	.32	.32	.33	.34	.36	.37	.38	.38	.34	.34	.35	.36	.39	
\$1.90	.29	.29	.30	.31	.32	.33	.34	.35	.36	.36	.32	.33	.33	.34	.37	
\$2.00	.27	.28	.28	.29	.30	.31	.32	.33	.34	.34	.30	.31	.32	.33	.36	
	18%					19%					20%					
\$1.00	.63	.65	.67	.69	.71	.74	.77	.78	.78	.81	.70	.71	.73	.76	.79	
\$1.10	.58	.59	.61	.62	.64	.67	.70	.71	.71	.74	.63	.65	.67	.69	.71	
\$1.20	.53	.54	.56	.57	.59	.61	.64	.65	.65	.68	.58	.59	.61	.63	.65	
\$1.30	.49	.50	.51	.53	.55	.57	.59	.60	.62	.62	.53	.55	.56	.58	.60	
\$1.40	.45	.46	.48	.49	.51	.53	.55	.55	.57	.58	.50	.51	.52	.54	.56	
\$1.50	.42	.43	.44	.46	.47	.49	.51	.52	.53	.54	.46	.48	.49	.51	.52	
\$1.60	.40	.41	.42	.43	.44	.46	.48	.49	.51	.51	.43	.45	.46	.47	.49	
\$1.70	.37	.38	.39	.40	.42	.43	.45	.46	.48	.48	.41	.42	.43	.45	.46	
\$1.80	.35	.36	.37	.38	.40	.42	.43	.45	.46	.46	.39	.40	.41	.42	.44	
\$1.90	.33	.34	.35	.36	.37	.39	.40	.41	.43	.43	.37	.38	.39	.40	.41	
\$2.00	.32	.32	.33	.34	.35	.37	.38	.39	.41	.41	.35	.36	.37	.38	.39	

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 15 years
Annual Fuel Usage: 40000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	.35	.35	.36	.37	.37	.38	.40	.37	.37	.38	.39	.40	.41	.42	.45
\$1.10	.32	.32	.33	.34	.35	.35	.36	.33	.34	.35	.35	.36	.37	.38	.41
\$1.20	.29	.29	.30	.31	.32	.32	.33	.31	.31	.32	.32	.33	.34	.35	.38
\$1.30	.27	.27	.28	.29	.30	.29	.30	.28	.29	.29	.30	.31	.32	.33	.35
\$1.40	.25	.25	.26	.27	.27	.27	.28	.26	.27	.28	.28	.29	.30	.31	.32
\$1.50	.23	.23	.24	.25	.26	.25	.26	.24	.25	.25	.26	.26	.27	.28	.30
\$1.60	.22	.22	.22	.23	.24	.23	.24	.23	.23	.24	.24	.25	.25	.26	.28
\$1.70	.20	.21	.21	.22	.23	.22	.23	.22	.22	.23	.23	.24	.24	.25	.27
\$1.80	.19	.20	.20	.21	.21	.21	.22	.20	.21	.22	.22	.23	.23	.24	.25
\$1.90	.18	.19	.19	.20	.20	.20	.21	.19	.20	.20	.21	.21	.22	.22	.24
\$2.00	.17	.18	.18	.19	.19	.19	.20	.18	.19	.19	.20	.20	.21	.21	.23
	15%					16%					17%				
\$1.00	.41	.42	.43	.44	.45	.47	.48	.43	.44	.45	.46	.48	.49	.51	.54
\$1.10	.37	.38	.39	.40	.41	.42	.44	.39	.40	.41	.42	.43	.44	.47	.50
\$1.20	.34	.35	.36	.36	.38	.39	.40	.36	.37	.38	.39	.40	.41	.42	.45
\$1.30	.31	.32	.33	.34	.35	.36	.37	.33	.34	.35	.36	.37	.38	.39	.42
\$1.40	.29	.30	.30	.31	.32	.33	.34	.31	.31	.32	.33	.34	.35	.36	.39
\$1.50	.27	.28	.28	.29	.30	.31	.32	.29	.29	.30	.31	.32	.33	.34	.36
\$1.60	.26	.26	.27	.27	.28	.29	.30	.27	.28	.28	.29	.30	.31	.32	.34
\$1.70	.24	.25	.25	.26	.26	.27	.28	.25	.26	.27	.27	.28	.29	.30	.32
\$1.80	.23	.23	.24	.25	.26	.26	.27	.24	.24	.25	.26	.26	.27	.28	.30
\$1.90	.22	.22	.22	.23	.24	.24	.25	.23	.23	.24	.24	.25	.26	.27	.29
\$2.00	.20	.21	.21	.22	.23	.23	.24	.22	.22	.23	.23	.24	.25	.26	.27
	18%					19%					20%				
\$1.00	.48	.49	.50	.51	.53	.55	.56	.50	.51	.52	.54	.56	.57	.59	.64
\$1.10	.43	.44	.45	.47	.48	.50	.52	.45	.46	.48	.49	.51	.52	.54	.58
\$1.20	.40	.41	.42	.43	.44	.46	.48	.42	.43	.44	.45	.47	.47	.49	.53
\$1.30	.37	.37	.38	.40	.41	.42	.44	.38	.39	.40	.42	.43	.44	.45	.49
\$1.40	.34	.35	.36	.37	.38	.39	.41	.36	.36	.37	.39	.40	.41	.42	.46
\$1.50	.32	.32	.33	.34	.35	.37	.38	.33	.34	.35	.36	.37	.38	.39	.43
\$1.60	.30	.30	.31	.32	.33	.35	.36	.31	.32	.33	.34	.35	.36	.37	.40
\$1.70	.28	.29	.29	.30	.31	.32	.34	.29	.30	.31	.32	.33	.33	.35	.38
\$1.80	.26	.27	.28	.29	.30	.31	.32	.28	.29	.30	.31	.32	.32	.33	.36
\$1.90	.25	.26	.26	.27	.28	.29	.30	.26	.27	.28	.29	.30	.31	.32	.34
\$2.00	.24	.24	.25	.26	.27	.28	.29	.25	.26	.27	.28	.29	.30	.31	.32

APPENDIX TABLE 1 (Cont.)

Expected Life of Equipment: 15 years
Annual Fuel Usage: 50000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET						
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%			
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%						
\$1.00	.28	.28	.29	.29	.30	.31	.32	.29	.30	.30	.31	.32	.32	.33	.34	.35	.36
\$1.10	.25	.26	.26	.27	.27	.28	.29	.27	.27	.28	.29	.30	.31	.32	.33	.34	.35
\$1.20	.23	.23	.24	.24	.25	.26	.26	.24	.25	.25	.26	.27	.27	.28	.28	.29	.30
\$1.30	.21	.22	.22	.23	.23	.24	.24	.23	.23	.24	.24	.25	.25	.26	.26	.27	.28
\$1.40	.20	.20	.20	.21	.21	.22	.23	.21	.21	.22	.22	.23	.23	.24	.24	.25	.26
\$1.50	.18	.19	.19	.20	.20	.20	.21	.20	.20	.20	.21	.21	.22	.22	.23	.23	.24
\$1.60	.17	.18	.18	.19	.19	.19	.20	.18	.19	.19	.20	.20	.21	.21	.21	.22	.23
\$1.70	.16	.17	.17	.18	.18	.18	.19	.17	.18	.18	.19	.19	.20	.20	.21	.21	.21
\$1.80	.15	.16	.16	.17	.17	.17	.18	.16	.17	.17	.18	.18	.19	.19	.19	.20	.20
\$1.90	.15	.15	.15	.16	.16	.16	.17	.15	.16	.16	.17	.17	.18	.18	.18	.19	.19
\$2.00	.14	.14	.14	.15	.15	.15	.16	.15	.15	.15	.16	.16	.17	.17	.17	.17	.18
	15%					16%					17%						
\$1.00	.33	.33	.34	.35	.36	.37	.39	.34	.35	.36	.37	.38	.39	.40	.42	.44	.44
\$1.10	.30	.30	.31	.32	.33	.34	.35	.31	.32	.33	.34	.35	.36	.37	.38	.40	.42
\$1.20	.27	.28	.28	.29	.30	.31	.32	.29	.29	.30	.31	.32	.33	.34	.35	.36	.36
\$1.30	.25	.26	.26	.27	.28	.29	.30	.27	.27	.28	.28	.29	.29	.30	.31	.32	.34
\$1.40	.23	.24	.24	.25	.26	.27	.28	.25	.25	.26	.26	.27	.28	.29	.30	.31	.31
\$1.50	.22	.22	.23	.23	.24	.25	.26	.23	.23	.24	.25	.25	.26	.27	.28	.29	.31
\$1.60	.20	.21	.21	.22	.23	.24	.25	.22	.22	.23	.23	.24	.25	.26	.27	.28	.29
\$1.70	.19	.20	.20	.21	.21	.22	.23	.20	.21	.21	.22	.22	.23	.24	.25	.26	.27
\$1.80	.18	.19	.19	.20	.20	.21	.22	.19	.20	.20	.21	.21	.22	.23	.24	.25	.26
\$1.90	.17	.18	.18	.19	.19	.20	.20	.18	.19	.19	.20	.20	.21	.22	.23	.24	.25
\$2.00	.16	.17	.17	.18	.18	.19	.19	.17	.18	.18	.19	.19	.20	.21	.21	.22	.23
	18%					19%					20%						
\$1.00	.38	.39	.40	.41	.43	.44	.46	.40	.41	.42	.43	.45	.47	.49	.51	.51	.51
\$1.10	.35	.35	.36	.37	.39	.40	.42	.36	.37	.38	.39	.41	.42	.44	.47	.47	.47
\$1.20	.32	.32	.33	.34	.35	.37	.38	.33	.34	.35	.36	.37	.39	.41	.43	.45	.47
\$1.30	.29	.30	.31	.32	.33	.34	.35	.31	.31	.32	.33	.34	.36	.37	.38	.41	.43
\$1.40	.27	.28	.29	.29	.30	.32	.33	.28	.29	.30	.31	.32	.33	.34	.35	.38	.40
\$1.50	.25	.26	.27	.27	.28	.29	.31	.27	.27	.28	.29	.30	.31	.32	.34	.35	.37
\$1.60	.24	.24	.25	.26	.27	.28	.29	.25	.26	.26	.27	.28	.29	.30	.31	.33	.34
\$1.70	.22	.23	.24	.24	.25	.26	.27	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32
\$1.80	.21	.22	.22	.23	.24	.25	.26	.22	.23	.23	.24	.25	.26	.27	.28	.29	.31
\$1.90	.20	.21	.21	.22	.23	.24	.25	.20	.21	.21	.22	.23	.24	.25	.26	.27	.29
\$2.00	.19	.20	.20	.21	.21	.22	.23	.19	.20	.20	.21	.21	.22	.23	.24	.25	.27

APPENDIX TABLE 1 (Cont)

Expected Life of Equipment: 15 years
Annual Fuel Usage: 60000 Gallons

PRICE/ GALLON	TAX BRACKET					TAX BRACKET					TAX BRACKET				
	20%	25%	30%	35%	40%	45%	50%	20%	25%	30%	35%	40%	45%	50%	
	Cost of Money 12%					Cost of Money 13%					Cost of Money 14%				
\$1.00	.23	.23	.24	.24	.25	.26	.26	.24	.25	.25	.26	.27	.28	.29	.30
\$1.10	.21	.21	.22	.22	.23	.23	.24	.22	.23	.23	.24	.24	.25	.26	.27
\$1.20	.19	.20	.20	.20	.21	.21	.22	.20	.21	.21	.22	.22	.23	.24	.25
\$1.30	.18	.18	.19	.19	.20	.20	.20	.19	.20	.20	.20	.21	.21	.22	.23
\$1.40	.17	.17	.17	.18	.18	.19	.19	.17	.18	.18	.19	.19	.20	.21	.22
\$1.50	.15	.16	.16	.16	.17	.17	.18	.16	.17	.17	.18	.18	.19	.19	.20
\$1.60	.14	.15	.15	.15	.16	.16	.17	.15	.16	.16	.17	.17	.18	.18	.19
\$1.70	.14	.14	.14	.14	.15	.15	.16	.14	.15	.15	.16	.16	.17	.17	.18
\$1.80	.13	.13	.13	.14	.14	.14	.15	.14	.14	.14	.15	.15	.16	.16	.17
\$1.90	.12	.12	.13	.13	.13	.13	.14	.13	.13	.13	.14	.14	.15	.15	.16
\$2.00	.12	.12	.12	.12	.12	.13	.13	.12	.12	.13	.13	.13	.14	.14	.15
	15%					16%					17%				
\$1.00	.27	.28	.28	.29	.30	.31	.32	.29	.29	.30	.31	.32	.33	.34	.35
\$1.10	.25	.26	.26	.27	.27	.28	.29	.26	.27	.27	.28	.29	.30	.31	.32
\$1.20	.23	.23	.24	.24	.25	.26	.27	.24	.24	.25	.26	.26	.27	.28	.29
\$1.30	.21	.21	.22	.22	.23	.24	.25	.22	.23	.23	.24	.24	.25	.26	.27
\$1.40	.19	.20	.20	.21	.21	.22	.23	.21	.21	.21	.22	.23	.23	.24	.25
\$1.50	.18	.19	.19	.20	.20	.21	.21	.19	.20	.20	.21	.21	.22	.22	.23
\$1.60	.17	.17	.18	.18	.19	.19	.20	.18	.19	.19	.20	.20	.21	.21	.22
\$1.70	.16	.16	.17	.17	.18	.18	.19	.17	.17	.18	.19	.19	.20	.20	.21
\$1.80	.15	.15	.16	.16	.17	.17	.18	.16	.16	.17	.17	.18	.18	.19	.20
\$1.90	.14	.15	.15	.16	.16	.16	.17	.15	.15	.16	.16	.17	.17	.18	.19
\$2.00	.14	.14	.14	.15	.15	.16	.16	.14	.15	.15	.16	.16	.17	.17	.18
	18%					19%					20%				
\$1.00	.32	.32	.33	.34	.35	.37	.38	.33	.34	.35	.36	.37	.38	.39	.41
\$1.10	.29	.30	.30	.31	.32	.33	.35	.30	.31	.32	.33	.34	.35	.36	.37
\$1.20	.26	.27	.28	.29	.30	.31	.32	.28	.29	.30	.31	.32	.33	.34	.36
\$1.30	.24	.25	.26	.26	.27	.28	.30	.26	.27	.28	.29	.30	.31	.31	.33
\$1.40	.23	.23	.24	.24	.25	.26	.27	.24	.24	.25	.26	.27	.28	.29	.31
\$1.50	.21	.22	.22	.23	.24	.25	.26	.22	.23	.23	.24	.25	.26	.27	.29
\$1.60	.20	.20	.21	.21	.22	.23	.24	.21	.21	.22	.23	.24	.25	.26	.27
\$1.70	.19	.19	.20	.20	.21	.22	.23	.20	.20	.21	.22	.23	.24	.25	.26
\$1.80	.18	.18	.19	.19	.20	.21	.22	.18	.19	.19	.20	.21	.22	.23	.24
\$1.90	.17	.18	.18	.19	.20	.20	.21	.18	.19	.19	.20	.21	.22	.23	.24
\$2.00	.16	.17	.17	.18	.19	.19	.20	.17	.18	.18	.19	.20	.21	.22	.23

APPENDIX TABLE 2

Dollar Amount of Required Annual Fuel Savings
Per \$1000 of Investment in New Fuel-Savings Technology

Interest Rate	Tax Bracket						
	20%	25%	30%	35%	40%	45%	50%
<u>Expected Life of Equipment 5 years</u>							
12%	262.	266.	271.	276.	283.	290.	299.
13%	270.	275.	280.	286.	293.	302.	312.
14%	278.	283.	289.	296.	304.	313.	324.
15%	286.	291.	298.	305.	314.	325.	337.
16%	294.	300.	307.	315.	325.	336.	350.
17%	302.	308.	316.	325.	336.	348.	363.
18%	310.	317.	325.	335.	346.	360.	376.
19%	318.	326.	335.	344.	357.	372.	389.
20%	326.	335.	344.	355.	368.	384.	402.
<u>Expected Life of Equipment 10 years</u>							
12%	167.	170.	173.	176.	180.	185.	191.
13%	175.	178.	181.	185.	190.	195.	202.
14%	183.	186.	190.	195.	200.	206.	213.
15%	191.	195.	199.	204.	210.	217.	225.
16%	199.	203.	208.	214.	220.	228.	237.
17%	207.	212.	217.	223.	230.	239.	249.
18%	216.	221.	226.	233.	241.	250.	261.
19%	224.	230.	236.	243.	252.	262.	274.
20%	233.	239.	246.	253.	263.	274.	287.
<u>Expected Life of Equipment 15 years</u>							
12%	139.	141.	143.	146.	150.	154.	158.
13%	147.	149.	152.	156.	160.	164.	170.
14%	155.	158.	161.	165.	170.	175.	181.
15%	164.	167.	171.	175.	180.	186.	193.
16%	172.	176.	180.	185.	191.	197.	205.
17%	181.	185.	190.	195.	202.	209.	218.
18%	190.	195.	200.	206.	213.	221.	231.
19%	199.	204.	210.	216.	224.	233.	244.
20%	209.	214.	220.	227.	236.	245.	257.