

What's the Real Cost



of Equipment?

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Wouldn't it be great if we had a crystal ball, or a calculator that would tell us how much it was going to cost us to own a certain piece, or pieces, of equipment for a given number of years? A tool that would consider all the future years' costs that would be required to keep the purchased item running and operational? This would help us make the difficult purchasing decisions as to whether we should buy brand x, y, or z. All too often, a presumption is made that all equipment is the same, and that price is the only difference. If in fact you knew that an inexpensive \$750 fryer would cost you more than \$20,700* to own over the next 10 years, and an ENERGY STAR® fryer, selling for \$3,900 would have an ownership cost of \$14,500** over the same 10 years, which would you choose? If you further knew that the economy fryer only produces 38 pounds of frozen fries per hour, and the ENERGY STAR fryer produces 61 pounds per hour, would that help you make an ultimate purchasing decision?

Who has ever bought a car or some other multi-thousand dollar purchase item, and figured in the cost of oil, tires, gasoline, repairs, disposal costs, insurance, and all other costs of ownership? Not many I would imagine, because there are no ready-to-use calculators or spreadsheets to assist in the analysis. It is, after all, the total cost of ownership that we pay for goods and services. The old adage, "You can pay me now, or you can pay me later," is true every time. If we had a simple, easy-to-use calculator or tool, we might be inclined to take the time to analyze, evaluate, and understand the "total cost of ownership."

If you were waiting for such a tool or calculator, you are in luck. There are now some tools for us to take advantage of and develop life cycle costing.

Today, in the foodservice industry, Total Cost of Ownership (known as TCO) is the new catchphrase. Consultants, foodservice dealers, distributors, utilities, and service organizations will soon be discussing TCO with their customers. Just as HACCP (Hazard Analysis Critical Control Point), ENERGY STAR, and LEED (Leadership in Energy Efficient Design) have become commonplace discussion and lexicon in the sales process, TCO will be considered by customers as value-added service in the future. And, the future is now. Several large national chains are already factoring TCO into all of their purchasing decisions.

There are many factors to consider in the equipment purchase decision. Generally, we look at the purchase price of an item and simply compare the price-to-value of one item versus another. The key is to provide a commonly accepted method and platform for collecting all of the necessary data points that comprise TCO. This was formerly known as "Life Cycle Cost"; however, life cycle does not include many indirect costs such as differential in productivity, and labor savings. TCO analysis performs calculations on extended costs for any purchase – these are called fully burdened costs, which represent the total cost of ownership. The calculation includes both direct and indirect costs, and benefits related to the purchase of an equipment item. The intention is to arrive at a final figure that is expressed as a "net present value," and reflects the effective cost of purchase, all things considered.

Net Present Value (NPV) of capital is the present (discounted) value of cash inflows minus the present value of cash outflows. Or, another way of looking at it is that NPV is a discounted dollar figure of a future purchase price less the interest on future years' investments. For example, if the bank interest rate for capital is 4 percent, and you need \$10,000 in 10 years, then the net present value cost of capital is \$6,754.19. This is the amount of money you would need today invested at 4 percent compounding interest to have \$10,000 in 10 years.

Thought leaders and other industry professionals envision that manufacturer's representatives, dealers, and consultants will be adding value to their customer relationships by helping them make specification and purchase choices based on TCO. This will position and distinguish them as professionals in the eyes of their customers, and will separate them from all of the other people in the industry that are simply trying to sell something. There are currently two life cycle tools being used today: NAFEM Life Cycle Tool, and Fishnick.com Life-Cycle and Energy Calculators. Both of these tools will help the user create a dynamic business case analysis for purchasing one product over another.

The North American Association of Food Equipment Manufacturers (NAFEM) has developed, through a working subcommittee, an Excel-based Life Cycle Tool that can be downloaded at the following url: <http://www.nafem.org/resources/index.aspx>. The subcommittee was made up of industry leaders comprised of manufacturers, dealers, and foodservice

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consultants. These members of the Technical Liaison Committee worked for over five years to develop consensus for the components in the calculation of their "Equipment Life Cycle/Total Cost of Ownership Tool."

Another key contributor to the NAFEM Life Cycle Committee is Fisher Nickel Associates, who have created several easy-to-use life cycle calculators. These calculators allow you to compare the total cost of operating different appliances over their useful service lives. The results demonstrate how high-efficiency ENERGY STAR equipment will continue to save energy dollars years after the initial purchase equipment, versus standard units. These calculators can be found at the following url: <http://www.fishnick.com/saveenergy/tools/calculators/>.

Getting started

With either tool, you will need to know a minimum amount of information. Gather the data for those items below that are in bold font, and it will be easier for you to plug the values into either of the models. The more information you can develop, the better results you will obtain.

What you will need to know:

Purchase Detail	<ul style="list-style-type: none"> • Purchase Price? • Total Accessories Price? • Taxes? • Rebates/Incentives? • Freight Charges? • Hourly Install Labor Rate? • Estimated Install Hours? • Additional Setup Costs? • Anticipate Life Span Years?
Service Detail	<ul style="list-style-type: none"> • Replacement Parts Estimate? • Parts Inflation Percentage? • Hourly Service Labor Cost? • Labor Inflation Rate? • Service Travel Cost? • Service Travel Inflation Rate? • Shop Supplies Costs? • Shop Supplies Inflation Percentage? • Other Annual Service and Repair Cost?

Preventative Maintenance Detail	<ul style="list-style-type: none"> • Annual Preventative Maintenance Replacement Part Cost? • Annual PM Parts Inflation Percentage? • Hourly PM Labor Cost? • PM Labor Cost Inflation Percentage? • Other PM Costs?
Operating Cost Detail	<ul style="list-style-type: none"> • Electric Utility Rate per kWh? • Annual Consumption Kilowatt Hours? • Gas Utility Rate per Therm? • Annual Gas Consumption in Therms? • Water Rate per CCF (Hundred Cubic Feet)? • Sewer Rate per CCF (Hundred Cubic Feet)? • Annual Water Consumption CCF (Hundred Cubic Feet)? • Utility Inflation Percentage? • Consumables Supplies Cost? • Consumables Supplies Inflation Percentage? • Hourly Labor (Operating Cleaning) Cost? • Total Labor Hours (Operating/Cleaning)? • Labor Inflation Percentage? • Other Operating Costs?
Disposal Detail	<ul style="list-style-type: none"> • Disposal Hourly Labor Rate? • Estimated Teardown Hours? • Additional Teardown Costs? • Freight Charges and Transportation Costs? • Hazardous Materials Costs?

It is not necessary to fill in every data cell if a value is not known. An estimate can be used until the actual number is researched and known at a later date. Completing the NAFEM Life Cycle Tool may require you to consult with a variety of sources including manufacturers, service agents, utilities, and other end users.

Of all the cost factors mentioned, the most difficult one to identify is the service detail and maintenance cost. Keeping good

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records of each appliance is difficult, but necessary, if you want to determine the total cost of ownership. At the present time there is not a national data base to reference the approximate maintenance cost for various pieces of equipment.

No matter which tool you use, the purpose is the same. We all want to make the best and most objective purchasing decision we can. By using a TCO model, you will be able to evaluate the real ownership cost of various equipment offerings. The purchase price of a piece of equipment by itself can be very deceptive. It is the Total Cost of Ownership that will help you make the correct purchasing decision.

**Assumptions used in economy model fryer 10-year net present value cost: initial purchase price \$750, replaced every third year, \$200 disposal and change-out cost, \$750 preventative maintenance and service costs over the 10-year period, \$1,860 operating energy cost per year, and a discount rate of 5%.*

***Assumptions used in ENERGY STAR model fryer 10-year net present value cost: initial purchase price \$3,900, \$1,350 preventative maintenance and service costs over the 10-year period, \$987 operating energy cost per year, and a discount rate of 5%.*

NAFEM Life Cycle Model

The screenshot shows the NAFEM Life Cycle Model spreadsheet. The main table tracks costs over 10 years. Key values include:

- Initial Cost of Fryer: \$3,900
- Annual Energy Cost: \$1,172
- Annual Maintenance Cost: \$1135
- Total Cost (End of Year 10): \$14,453

Fishnick Life Cycle Calculator

The calculator interface shows the following results for the Gas Fryer Life-Cycle Cost Calculator:

Category	Base Efficiency Fryer [Help]	User Input Fryer [Help]	ENERGY STAR® Fryer [Help]
Annual Energy Consumption (Therms)	1168	1198	808
Annual Energy Cost	\$1694	\$1737	\$1172
Lifetime Energy Cost (Discounted)	\$13735	\$14083	\$9502
Maintenance Costs per Year [Help]	\$200	\$700	\$140
Initial Cost of Fryer	\$3500	\$750	\$3900
Results: Total Cost			
Lifetime Energy Cost (Discounted)	\$13735	\$14083	\$9502
Lifetime Maintenance Cost (Discounted)	\$1621	\$5675	\$1135
Initial Cost of Fryer	\$3500	\$750	\$3900
Total Cost	\$18856	\$20508	\$14537

Optional: Name for Printed Results: Economy Model Fryer vs Energy Star

Click to Print Results