



Financing your EcoBoiler™ with a Home Equity Loan or Line of Credit (LOC)

Financing an EcoBoiler™ wood pellet boiler can make good financial sense. That's because the cost of financing is usually far lower than the expected gains to be had by switching fuels from oil or propane to pellets. Even with financing, cash flows can be positive within the first year or two, meaning that soon after that initial investment, you're spending less cash than you would if you hadn't made that investment.

A popular loan period for financing a pellet boiler is 5 years. With a down payment of \$4-\$5,000, the remainder of the cost (equipment + installation) can easily be paid for with positive cash flows derived from the fuel cost savings.

The example on the right shows typical values for fuel costs, inflation, and so on. The table below shows positive cash flows from the first year, and which jump to over \$3,000/year once the payments end.

Investment: Cash + 5-year Bank Loan		
Investment cost, Year 0 Equipment + Installation	\$ 12,000	
Cash payment by homeowner	5,000	cash down
Home Equity or Line of Credit (LOC) Loan	7,000	loan amount
Loan term	5 years	
Interest Rate	4.0%	
Monthly payment for 5 years (60 months)	(\$128.92)	
Fossil Fuel Boiler		
Starting cost of oil per gallon	\$ 3.80	per gallon
Oil consumption (to be displaced)	1000	gallons
Annual BTUs consumed (at 138,000 BTU/gallon)	138,000,000	BTUs
Inflation rate for fuel oil	7.5%	
Cost for heating oil	\$ 27,527	over 5 years
EcoBoiler™ pellet boiler		
Annual BTUs consumed (at 16 million BTU/ton)	138,000,000	BTUs
Cost of Premium wood pellets	\$ 230	per ton
Wood pellets consumption (instead of oil)	8.6	tons per year
Inflation rate for wood pellets	3.5%	
Total cost for pellet fuel	\$ 12,994	over 5 years
Savings, Cash flows, IRR, NPV		
Total fuel cost savings by switching to wood pellets	\$ 14,533	over 5 years
Average Fuel Cost Savings per year	2,907	over 5 years

	Fuel Cost Savings	Loan Repayment	Net Cash Flow
Year 0 = initial payment →			\$ (5,000.00)
Year 1	\$ 1,816.25	(\$1,546.99)	\$ 269.26
Year 2	\$ 2,031.82	(\$1,546.99)	\$ 484.83
Year 3	\$ 2,266.33	(\$1,546.99)	\$ 719.34
Year 4	\$ 2,521.31	(\$1,546.99)	\$ 974.32
Year 5	\$ 2,798.38	(\$1,546.99)	\$ 1,251.40
Year 6	\$ 3,099.32	\$0.00	\$ 3,099.32
Year 7	\$ 3,426.01	\$0.00	\$ 3,426.01
Year 8	\$ 3,780.50	\$0.00	\$ 3,780.50
Year 9	\$ 4,165.00	\$0.00	\$ 4,165.00
Year 10	\$ 4,581.86	\$0.00	\$ 4,581.86
			\$ 17,751.84
Internal Rate of Return (IRR):			25%
Net Present Value (NPV):			\$17,189.33

Note: The equipment, installation, and fuel costs, and the fuel cost inflation rates used in this example are for illustrative purposes only, and can be higher or lower. The inflation rate for heating oil used in this example is about 40% below the 13-year trend.

The interest rate does not affect cash flows by as much as you might think, as the relatively short five year term of the loan quickly amortizes the interest portion. Boosting the interest rate from 4% all the way up to 10%, for example, would still result in positive cash flows for every year, monthly payments would rise by \$20, the IRR would only drop to 22%, and the NPV would fall by less than \$1,200.

See the reverse side of this page for a discussion of Internal Rate of Return, Net Present Value, Home Equity Loans, and Home Equity Lines of Credit.

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Home Equity Loan vs. Line of Credit Loans

Rates for these two types of loans are similar, and both are offered by banks and credit unions. Both types are low-cost, or even no-cost to set up. If you haven't looked at interest rates for these loans recently, please take a look. They are lower than you might think.

A Home Equity Loan is usually taken out from a bank or credit union for a fixed amount, and paid back over a fixed period of time. Usually the interest rates stay the same over the life of the loan. The amount of collateral to take out one of these loans can vary from bank to bank. Good homeowner equity is a pre-condition for obtaining one of these loans.

A Home Equity Line of Credit (LOC) loan is very similar to the straight home equity loan. The difference is that the loan from a LOC does not have to be taken out right away, and can be made for any amount as long as it is below the LOC's ceiling.

The LOC can be for an amount higher than is needed at the time, giving the homeowner flexibility to make additional loans for other needs that may come up, such as home repairs, painting, etc. The individual with the LOC can draw on it at any time.

The LOC usually has a variable interest rate. As the term of the loans are usually short, with rapid amortization of the interest portion of the loan, a rising interest rate shouldn't have a great effect. The interest raise amounts are usually capped anyway. Rates can be found that are below Prime.

Both types of loans can be paid off more quickly if so desired.

Adding Value to a Home

Although there's not enough data yet to support a hard conclusion, it makes good sense that investing in an EcoBoiler pellet boiler will add to the value of a home. It stands to reason that everything else being equal, a home with a pellet central heating system will be more attractive and worth more than one that doesn't.

Homes are valued by all kinds of things; location, condition, size, and features. A money-saving heating system is certainly a feature that people value.

Cash Flow, Internal Rate of Return (IRR), and Net Present Value (NPV)

Cash flow as shown in the example on the previous page shows that the investment made in an EcoBoiler pellet boiler, under those conditions, saves cash, in increasing amounts every year, than would have been the case if the homeowner had not made the investment and taken out the loan. That is, not counting the initial investment, the homeowner will have more money available to spend on other things than he or she would have if the investment had not been made.

The example also assumes that this is not an either/or investment. For example, the investment in the pellet boiler does not come at the expense of an alternative investment in a new oil boiler. If that were the case, the numbers to look at would be the marginal additional expense in installing an EcoBoiler instead of investing in a new oil boiler, and the numbers would be more favorable still.

Net Present Value (NPV)

The required rate of return for the purpose of calculating the NPV is 0.5%, which is roughly the gain that would be obtained if the investment were not made, no loan were taken out, and the initial cash outlay were placed in a bank account instead.

Internal Rate of Return (IRR)

The following information is taken from Wikipedia

IRR calculations are commonly used to evaluate the desirability of projects. The higher a project's IRR, the more desirable it is to undertake the project. Assuming all projects require the same amount of up-front investment, the project with the highest IRR would be considered the best and undertaken first. As an investment decision tool, the calculated IRR should not be used to rate mutually exclusive projects, but only to decide whether a single project is worth investing in.

An individual should, in theory, undertake all projects or investments available with IRRs that exceed the cost of capital.