

Our Recommendation On Replacing Your Heating System

If after your tune-up, the measured combustion efficiency is 80% or less, or the AFUE (Annual Fuel Utilization Efficiency) is 70% or less, you should ask the technician if there are ways to improve your system's efficiency or whether it makes sense to replace the heating system.

Ask the technician to be specific and to put recommendations in writing. If the system needs to be replaced, we suggest that you get three bids and that each be required to have an ENERGY STAR® efficiency rating.

**Call your Green Energy Consumers Alliance oil
dealer today to schedule a tune-up.**

Questions?

For more information, visit our website.

GREENENERGYCONSUMERS.ORG

Don't hesitate to contact us!

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**GREEN ENERGY
CONSUMERS ALLIANCE**

Heating System Maintenance

Tips on how you can save with regular tune-ups



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Get A Regular Tune-Up

Call your oil dealer to schedule a tune-up or cleaning either annually or after 5 deliveries or every 800 gallons. The objective of your oil system technician during a tune-up is to maximize efficiency and ensure the safety of your heating system. Here are the steps that should be taken by the technician:

1. Perform a combustion efficiency and carbon monoxide test.
2. Check for unusual noises and vibrations.
3. Check the flame ignition. Flame ignition should be instantaneous. Delayed ignition is indicative of a combustion problem.
4. Check for flame impingement. The flame should fill the combustion chamber without hitting the sides or back of the chamber.
5. Check the flame cut-off time. The flame should cut off in less than three seconds after the burner shuts off.
6. Check for soot deposits in the flue, combustion chamber, and on the heat exchanger.
7. Check the chimney for problems and the accumulation of soot.
8. Check for oil leaks.
9. Check the draft regulator for improper adjustments or defects.
10. Check the distribution system.
11. Check for the presence of a Hartford Loop (new steam systems).

Note: After your tune-up, the technician should perform an efficiency test. Make sure they put the measured efficiency of your heating system in writing.

What To Look For In Tune-Up Results

The following combustion efficiency test results are acceptable for oil-fired heating systems after a tune-up:

Smoke: 0 to Trace

Net Stack Temperature: 300 to 600

Net Stack Temperature with Flame Retention Burner: 300 to 400

Carbon dioxide: 8 to 12%

Oxygen: 4 to 8%

Carbon monoxide (CO) in flue: less than 100 ppm (Goal = 0)

Draft at breach: -0.02 to -0.04

Draft over fire: -0.01 to -0.02

Note: The use of "soot sticks" is not an acceptable alternative to brushing and vacuuming the heat exchanger surface.

Tune-Up Results

If you know how efficient your existing heating system is, it's pretty easy to calculate the savings you will get by replacing it. The chart below will help you determine potential savings resulting from the replacement of your existing system. Your heating service technician or energy auditor may be able to help determine the AFUE (Annual Fuel Utilization Efficiency) of your present system. If you were only provided with the "combustion efficiency", you can estimate the AFUE by multiplying the combustion efficiency by 0.85. The numbers in the chart assume that both the old and new systems are sized properly; savings will be greater than indicated if the old system is too large.

SAVINGS PER \$100 OF ANNUAL FUEL COST

		AFUE - New System								
AFUE - Existing System		55%	60%	65%	70%	75%	80%	85%	90%	95%
	50%	\$9	\$16	\$23	\$38	\$33	\$37	\$41	\$44	\$47
	55%		8	15	21	26	31	35	38	42
	60%			7	14	20	25	29	33	37
	65%				7	13	18	23	27	32
	70%					6	12	14	22	26
	75%						6	11	16	21
	80%							5	11	16
	85%								5	11
	90%									

To determine savings, find the horizontal row corresponding to the old system's AFUE, then choose the number from that row that is in the vertical column corresponding to the new system's AFUE. That number is the projected dollar savings per hundred dollars of existing fuel bills. For example, if your present AFUE is 65% and you plan to install a high-efficiency system with an AFUE of 90%, then the projected saving is \$27 per \$100. If, say, your annual fuel bill is \$2,000, then the total yearly savings should be about $\$27 \times 20 = \540 .

That's a lot of money to save each year, especially when you consider the expected lifetime of a heating system, but it still doesn't answer the question of whether replacing the system is a good investment. To answer that, you can calculate the first year return on investment (ROI). The equation is as follows:

$$\text{ROI} = \text{First Year Savings} \div \text{Installed Cost}$$

Unlike most other investments, energy conservation investments are tax free. If fuel prices go up, the annual savings and return on investment also go up. For example, if fuel prices increase 30%, the annual savings in this example increases to \$702, and the return on investment increases to 14%.