

**Oldroyd, K. 1975. Coal is cheaper than gas and oil if conversion costs can be borne. *The Grower*. 82 (4):1112.**

In England, the last ten years have seen a massive changeover from coal to oil, with coal having 47% of the market in 1963 and under 10% last year. Ninety percent of all glass was heated by oil.

There are many places for heat losses. Structural heat losses in a well-sealed, half-acre unit should be around 1,500,000 BTU per hour, for a 40° F temperature differential, and one-half air exchange per hour. With a few leaks, heat losses rapidly rise to 2,175,000 BTU/hour. In leaky Dutch lighthouses, air change rates of 15 per hour have been recorded. As wind speed increases from zero to 20 mph, heat losses double. The use of "blackout" systems, or "thermal blankets" as night insulation, can save up to 20% of heating costs.

Aspirated screen thermostats are important. Calibrate and regularly check thermostats. Advice has been to use free-blowing warm air for slight heating requirements. Keep discharge ducts below 3 feet and discharge downward. Keep all piping as low as possible. If piping must be high, site piping in groups under gutters rather than evenly spaced across the house.

Heat losses from valves can be as high as \$48 per year. An uninsulated 4-inch flange can cost \$12 to \$24 in heat losses. The cheapest fuel at present is coal. However, coal is more difficult to change rapidly with load requirements. Oil (960 sec) costs 36¢/gallon, with 177,000 BTU/gallon, and the system 70% efficient. Net cost would be about 29¢ per therm. Coal (chain grate) runs at \$33.60/ton, 10,500 BTU/pound, 65% to 70% efficient, with a net cost of 21¢ to 23¢ per useful therm. Cost of conversion may vary from \$4,800 to \$19,200 for a new 4 million BTU boiler. Gas, if one can get it, runs between 22¢ and 29¢ a therm at 70% efficiency, with a net cost of 41¢ per therm. At 31¢ a therm, it is competitive with coal.

Conversion: \$2.40 = one British pound: once pence = 2.4¢