

less energy during operation than did earlier models but the quality of the picture hasn't diminished — it has actually improved. This is due to technological innovation and serves to illustrate the philosophy the Committee wishes to advocate — do more with less. We believe that achievements of this type must be realized in all our private, commercial and industrial activities.

A conservation problem can be tackled in a variety of ways. Consider, for example, the objective of reducing the amount of heating fuel used to heat a home. One can turn down the heat or insulate the home. Of course, there is a limit to the amount of energy which can be saved by turning down the thermostat because discomfort would soon prevent anyone from allowing the temperature to fall too far. But the second option of retrofitting a home to make sure heat is not being lost because of poor construction can generate savings with no attendant discomfort. Ideally, one should insulate *and* turn down the thermostat, thus encouraging maximum energy savings.

This brings us to the second part of the title of this sub-section — energy efficiency. When most of the homes and industries, indeed nearly all of Canada's infrastructure, were being designed and built, energy efficiency was not a major factor taken into consideration. It made little sense to heavily insulate houses when the cost of that insulation took years to recover, fuel costs being so low. Similarly, it made no economic sense to invest a large amount in building an energy-efficient industrial complex when energy was cheap; the cost of building in that efficiency might never be regained in terms of the amount of money saved by spending less on energy. Thus, because energy was so cheap, energy inefficiency was actually built into our economy.

Now the tide has turned. Few see us ever again living in an age of inexpensive and plentiful energy. The Committee does not wholeheartedly share this pessimistic view, but we do realize that energy will become an increasingly valuable and expensive commodity for some decades to come. This is not to suggest that Canadians can look forward only to a steadily diminishing standard of living or to a continuous reduction in their quality of life. It does mean though that we have been forced to recognize that from now on, energy efficiency is perhaps the first and foremost factor which must be taken into consideration in building the Canada of tomorrow. We have been forced to take literally the old saying, "Waste not, want not!"

Taking a positive look at the Canadian energy situation, we see this energy inefficiency as a unique energy opportunity — the energy we waste every day is an energy resource which can be readily tapped. In other words, not only are we endowed with a considerable array of conventional and nonconventional natural

energy resources but, since we spend more energy per dollar of GNP generated than other countries, we have a tremendous "conservation resource" which can be exploited as well. Therefore, by setting out to build energy efficiency into all aspects of every Canadian activity, whether it be industrial, commercial or social, we can save a very significant amount of energy. And by so reducing energy demand, we can bring our country that much closer to the goal of energy self-sufficiency in *all* energy forms.

The Committee believes, then, that energy efficiency must be built into all our endeavours starting now. We recognize that the conservation resource which can be tapped will diminish as time progresses and we weed out inefficiency but this does not mean conservation will become less important. It simply means it will become an integral part of the system and will make a continuous contribution towards keeping our energy demand down. The real energy crunch will probably occur during the next one to two decades. We are fortunate that the conservation resource is exploitable now, when we very much need it. It would be foolish to deny its importance and its potential.

## 2. RENEWABLE AND INEXHAUSTIBLE SOURCES OF ENERGY

Canada must place new emphasis on deriving its energy requirements from sustainable sources of energy. We must ultimately shift our dependence away from nonrenewable fossil fuels for the simple reason that their supplies are finite. As stated in Canada's Energy System Today, it is true that these supplies will not be exhausted for some time to come, and that depletion will occur more quickly for some forms than others, but the final result is inevitable. Society cannot go on indefinitely exploiting fossil hydrocarbons for energy. This Report considers some of the reasons why it is advantageous to begin the transition to sustainable energy forms sooner rather than later.

Renewable energy sources are those which are naturally replenished with or without human intervention. The winds and tides are examples of sources of energy which will be available in limited supply in perpetuity without human management, whereas biomass is renewable as an energy resource only if properly managed. Inexhaustible energy supplies are those such as solar or fusion which offer the promise of providing all the energy mankind is ever likely to require if they can be adequately and safely harnessed.

Moving Canada's energy system to phase out non-renewables and to incorporate renewables and inexhaustibles will not be a simple task nor one which is achieved overnight. It will take commitment, a lot of hard work and money and, perhaps most important, time.