

to participate in possible co-operative testing ventures.

The technology has been developed for natural gas to be used directly as a transport fuel. One way is to compress the gas for on-board vehicle storage in high pressure tanks.

A discussion paper on liquid fuel options published in 1980 by the federal Ministry of Energy, Mines and Resources pointed out that compressed natural gas (CNG) can be used in vehicles with advantages similar to propane.

The Canadian Combustion Research Laboratory is currently involved in assessing the optimization of the present day vehicle carburetion system, including the use of leaded gasoline, the use of higher combustion ratios, recalibrating systems and special heating systems in the manifold.

Home heating assessed

In addition the laboratory is also testing different methods of heating homes in Ontario.

There are people living in and around Ottawa who are literally energy consumer guinea pigs for the laboratory.

They, in general, are people connected with the lab, or who have some peripheral relationship to it, and they are living in homes equipped with various types of domestic heating technologies — natural gas, oil and solid fuels.

"Once we have a fair idea of how these technologies perform in the lab environment we install them in these homes to measure the effect these technologies and modifications have on fuel consumption," says Mr. Hayden. "It gives us a 'real world' picture of how they perform."

Living habits recorded

The lab is also involved in field programs with other agencies. One of these programs is with the Housing and Urban Development Association of Canada (HUDAC) and the National Research Council in a high-energy efficiency or low-energy use home.

"At the moment we're using parallel electric and conventional gas furnaces there to define the relative seasonal efficiencies of these units," said Mr. Hayden. "We will also be installing a high efficiency gas unit in this home to measure the seasonal effect in a low energy use environment."

The lab also has a co-operative program with Consumers' Gas where a series of medium to high efficiency furnaces

have been installed in Consumers' employees' homes in the Toronto area, he said, and where they are alternating between conventional furnaces and higher efficiency furnaces every one or two weeks.

Mr. Hayden said the majority of conventional gas furnaces in use today are singularly inefficient. But the cost of replacing the recently installed units with higher efficiency units may be prohibitive to the consumer, particularly if that person has just installed a new conventional furnace in the last two or three years.

Thus the lab has developed a condensing system adaptable to the conventional furnace. This system, which is now partially completed, would contain an induced draft system and add-on condensing heat exchanger. With such a system, savings could be as much as 30 per cent over the conventional unit. Use of the induced draft fan alone as a retrofit might save 10 to 15 per cent.

(From Natural Gas Today, 1/1981.)

Boost for space program

The federal government will provide an additional \$132.1 million for space activities bringing to \$475.8 million the government's commitment to the space sector for the period 1981-85.

The funds will be used to strengthen and expand Canada's capabilities in communications, remote sensing and technological development, and to further strengthen Canadian participation in major European space projects.

"This 38 per cent increase in funding is a firm indication that the government is giving high priority to the space program. This commitment will advance our technological capability to meet Canadian and world needs in this key sector. It is also a reflection of the importance of high technology to Canada's economic development in the 1980s," said Minister of State for Science and Technology John Roberts in announcing the increase. The announcement is one in a series of steps being taken by the government to advance the new economic development strategy which was outlined in the October 1981 budget.

The budget paper on economic development in the 1980s singled out industrial investment and innovation as one of five priority areas. Last year, the government put forward a plan to raise research and development expenditures to 1.5 per

cent of gross national product.

The new funds will permit the continued development of an industrial prime contractor, SPAR Aerospace Limited, to produce satellites and satellite subsystems for the growing domestic and world market.

Initiatives

The new initiatives made possible by the increased funding include:

- Canada's participation in the large satellite program (LSAT, Europe's new communications satellite) of the European Space Agency. Through this program Canada will become a major partner with European high technology companies in Britain, Italy and the Netherlands;
- the engineering studies required to define a mobile satellite communications project (MSAT) to demonstrate new communications services for ships, aircraft, ground vehicles and portable installations; and
- the development of new remote sensing programs critical to resource management and territorial and environmental surveillance.

New projects along with those already under way are expected to have a positive impact on Canada's space industry. In addition to the expected social and economic value of these programs, they will build up the advanced technological base in the country and bring Canada closer to established national research and development targets. It is anticipated that more than 1,000 new jobs will be created in different regions of the country over the next four years as a result of this decision and the expected growth in the world-wide demand for satellites and ground systems.

Support for African programs

Canada will make a \$2-million contribution to the International Committee of the Red Cross to support programs for victims of conflicts in Africa.

The grant, being made through the Canadian International Development Agency, will provide relief for prisoners of war, inhabitants of occupied territories and displaced persons, as well as a tracing service to reunite families separated by conflicts. Seventy-five per cent of ICRC programs in Africa this year will provide assistance to displaced persons. The 1981 ICRC Africa appeal called for \$38.1 million in donations. Canada has supported the appeal since 1978.