

mestic energy by 2000. Much of that 10 per cent would come from forest biomass.

Forest energy

The Federal Government will encourage large-scale development of energy from the forests and other forms of organic material, or biomass, as a substitute for oil, gas and even electricity, with the following programs:

- *Forest industry renewable energy program (FIRE)* – \$143 million for the forest industry to use wood wastes as a fuel source instead of oil or gas will cover the years from 1978-1985. Fuel savings will be important; job-creation in areas of high unemployment will be substantial. In the longer term, investment of this kind should allow forest industry expansion as a producer of energy and chemical byproducts for home and export markets.

- *Biomass energy loan guarantees* – The Federal Government will guarantee loans, worth a total of \$150 million to assist in establishing electrical generating facilities using biomass as the energy source. This approach will encourage groups of industries, in co-operation with nearby communities and possibly provincial electrical utilities, to combine efforts on a level to use wastes for electrical generation. Terms of the program will encourage particularly co-generation of electricity and heat.

- *Expanded research, development and demonstration* – Approximately \$40 million will be available from the Federal Government from 1978 to 1984 to help fund research projects and demonstrations of innovative techniques such as biomass plantations and the conversion of biomass to liquid fuels or chemicals. Federal-provincial sharing of costs will be the preferred approach to demonstration activities.

The ready availability of inexpensive oil and gas in the postwar era showed the use by the forest industry of its own wastes for fuel. Now all that has changed, and the mill wastes and forest residues are being looked on as a pollution problem that can be turned into a solution to soaring energy costs.

Recent assessments have shown that the unused potential in existing logging and milling wastes alone is very substantial, even though 3.5 per cent of Canada's primary energy production – twice that of nuclear energy – now comes from wood wastes. Mill wastes and slash re-



maining after forest-logging operations have an energy potential equal to 2.5 times the annual production of the \$2-billion Syncrude plant in the Alberta oil sands. The potential is very much larger if species unsuited to commercial logging operations are harvested along with merchantable species.

Energy self-sufficiency goal

In the short term, the forest industry, with the new federal assistance, will be able to step up sharply its use of mill and other wastes. By 1985, biomass could provide 7 per cent of the nation's primary energy – double its current contribution. The goal is to make the forest industry – Canada's largest – energy self-sufficient as soon as possible.

Federal assistance under the FIRE program will be particularly useful for relatively small forestry operations, who may now find substitution of wood for other fuels attractive but who could encounter difficulties with financing new equipment purchases. The financial assistance to be provided under the new program will make this less of a problem. Subject to Parliamentary approval, federal contributions will be available to cover 20 per cent of the approved capital cost of certain classes of equipment used to burn, gasify or otherwise make use of the energy content of wood wastes.

Orders for new equipment will substantially increase business for Canadian

manufacturers.

As a result of the program, an estimated 24,000 man-years of employment will be created across the country between now and 1984.

In addition to the federal contribution, private investment by the industry is expected to be about \$950 million. Fuel-cost savings should be an important benefit to the industry over the long term. There will also be pollution-control benefits, with the reduction of abandoned wastes, and improved forest management practices.

Direct use of wood as an industrial source of heat can be accomplished with a number of different types of equipment. Modified or new designs can expand the potential for wood use in pulp and paper production and other phases of the forest industry. Funding is to be provided on a shared-cost basis for innovative projects for demonstrations of this potential.

Conversion of wood to a gas is another process with a wide range of actual and potential applications. The basic process involves applying heat to wood with a deficiency of oxygen. This resulting gas is relatively low in energy but is adequate for some industrial requirements and power generation.

"The international energy problem presents Canada with one of its greatest challenges," stated Mr. Gillespie, "– and one of its greatest opportunities."