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SUMMARY OF THE NATIONAL REPORT SUBMITTED BY CANADA*

* The designations employed, the presentation of material and the views expressed in this paper are those of the submitting Government and do not necessarily reflect the practices and views of the Secretariat of the United Nations in any of these respects.

Canada is relatively well endowed with energy resources and is in fact a net exporter of energy. Canada is a net importer of oil, however, and therefore is not insulated from the current energy concerns of the rest of the world. Energy policy in Canada centres on the reduction of this import dependence through greater development of indigenous resources, including vast unconventional oil reserves, substitution of other energy forms, including renewables and wastes, for oil consumption, and reduction of energy demand through improved efficiency and conservation.

Conventional hydro-electricity currently supplies more than 60 per cent of Canada's electricity (about 24 per cent of its total primary consumption). Other renewable energy sources make a minor (3 per cent) contribution to satisfy demand - mainly from biomass. Although it is hoped that this level will double by 1990, renewables, other than conventional hydro-electricity, are not expected to make a major contribution until the next century, but are seen as the key to a stable long-term energy future. In both the short and long term, conservation has great potential for reducing the pressure on conventional energy supply.

Both federal and provincial governments have numerous programmes currently under way or planned to provide incentives for these shifts in the patterns of energy supply and demand. These include the funding of research and development, technology assessment and information transfer; the establishment of renewable energy and conservation demonstration projects across the country; capital subsidies to industry to install energy conserving equipment; industrial and consumer grants to encourage conservation and substitution of alternate energy forms; incentives for the exploration of frontier regions and the exploitation of high-cost oil; and the establishment of a crown corporation (Canertech) to support commercial production by the renewable energy and conservation industries, through joint ventures and equity participation.

The first half of the Canadian national paper outlines, for each new and renewable energy source, the resource base which exists in Canada, its current and anticipated future exploitation level, the nature and scope of research and development in the area, the capabilities of Canadian industry in relation to both hardware production and design and operational requirements, and important aspects of expertise available in the country. The new and renewable energy forms of most importance for Canada - and therefore those in which the country has particular expertise - are biomass (forest management, combustion, gasification and alcohol (fuel production)), hydro-electric power (all aspects, including hydraulics as applied to tidal and wave energy), wind (vertical axis generators), solar (passive, some aspects of active thermal and photovoltaics) and oil sands and heavy oils. The nature of the Canadian physical and economic environment has also led to the development of particular knowledge and expertise in key areas such as policy development, planning, resource assessment and characterization, remote and/or rural energy applications, transportation/transmission, systems engineering, and cold-temperature operation and design.

The second part of the Canadian national paper discusses the application of new and renewable technologies in developing countries, with particular emphasis

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on the contributions which could be made by Canada. Some technological aspects of these applications are discussed; in addition, there is an exploration of the social, economic and institutional implications of energy policy and planning in developing countries. It is stressed that energy developments are most appropriate when part of an integrated energy plan, developed within the context of over-all national economic, industrial, political and social objectives. Comprehensive analyses of the national resource base, current and projected demand patterns, and environmental and socio-economic costs and benefits are required. Co-operation among developing countries with similar environments and needs (for example, regional groups) is seen as frequently mutually advantageous.

In addition, co-operative arrangements between developed and developing countries can facilitate the transfer of knowledge, experience and hardware. Canada is anxious, in consultation with international agencies and developing countries, to make the best use of its special strengths in new and renewable energy resource planning and development to promote a more secure energy future for all nations.
