NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

March 2004

NWMO BACKGROUND PAPERS
5. ECONOMIC FACTORS

5-4 ECONOMIC AND FINANCIAL ASPECTS OF THE LONG-TERM MANAGEMENT OF HIGH-LEVEL NUCLEAR WASTE: ISSUES AND APPROACHES

EXECUTIVE SUMMARY

Charles River Associates Canada Limited

Executive Summary

As the Nuclear Waste Management Organization (NWMO) proceeds to its next stage for studying alternative approaches to the long-term management of Canada's high-level nuclear waste, it must grapple with a broad range of issues across several perspectives. Economic and financial matters form one aspect of the NWMO's work going forward.

This paper attempts to assist the NWMO and its advisors in dealing with these issues by categorizing the relevant economic and financial considerations in a useful manner. In preparing this document we have reviewed materials from agencies with waste management responsibilities in a number of other countries, papers from international organizations such as the International Atomic Energy Agency (IAEA), submissions to the Seaborn panel and other materials from stakeholder parties in Canada, relevant Canadian statutes, regulations, and policy documents, and other background materials prepared for the NWMO.

We believe it is useful to conceptualize the issues as falling into three major categories, which parallel major policy objectives and statutory and regulatory requirements faced by the NWMO.

The first major category relates to the "polluter pays" principle and the objective of ensuring that undue cost burdens do not fall on future generations. These issues are focused on the identification and estimation of waste management costs to ensure that sufficient funds will be available to meet cost liabilities associated with nuclear waste management in the future. The key conclusions in this regard are that a comprehensive approach should be taken to identifying cost factors, and a conservative approach should be employed in estimation.

The second major category of issues surrounds the comparison of alternative waste management approaches, particularly in terms of making efficient and effective use of resources, and ensuring that the distribution of benefits and costs in any approach is equitable. The previously noted conclusions regarding comprehensiveness and conservatism apply here as well, but it is also important to note the limitations inherent in some of the analytical tools that could be employed.

Finally, the last major category is concerned with the arrangements through which waste management approaches may be financed, recognizing that funds that are already being collected now will be used to cover costs that may not be incurred for decades, or even centuries.

The main goal of a successful financing system is its ability to meet the estimated liabilities in the face of many uncertainties and very long timelines, fairness in allocating costs to the producers of the waste, and flexibility to respond to potential changes in the factors that may affect the waste management costs. The regulatory structures and practices currently in place in Canada strive to meet these goals; the challenge going forward will be to ensure that this continues as alternative waste management approaches are considered and compared and one is ultimately chosen.

The final section of this paper also includes an examination of nuclear waste management approaches elsewhere. Looking at other countries facing waste management issues similar to Canada's, there are several themes that appear consistently, albeit with some variation in detail. These include:

- Adhering to the "polluter pays" principle in determining aggregate funding requirements
- Building conservatism into costing – and hence funding requirement – estimates
- Making waste generators (nuclear utilities) responsible for contributing the vast majority of fund assets
- Keeping financial and legal liability for high-level waste in the hands of the waste producer until it is accepted for long-term management
- Ensuring that management of funds is at arm's length from the funds' contributors, with supervision from the government and independent audits
- Taking a conservative approach to fund management, i.e., trading a higher potential return for a more secure preservation of capital, coupled with increased liquidity, by investing substantial portions of assets in low-risk instruments