



Council of Canadian Academies
Conseil des académies canadiennes

News Release

July 7, 2008 – Expert Panel Concludes Canada is Well Positioned to be a Global Leader in Gas Hydrate Development

Ottawa – As the search for new global energy sources, continues and conventional natural gas supplies decline in North America, a 13-member panel of experts appointed by the Council of Canadian Academies has concluded that Canada is well positioned to be a global leader in exploration, research and development, and eventual production of natural gas from gas hydrate. However, given the need for further research to better quantify the large Canadian gas hydrate resource and the economic, environmental and technical uncertainties involved, commercial production is not likely to take place within Canada for at least two decades.

The multi-disciplinary panel, composed of experts in geophysics, geology, chemistry, engineering, biology, economics, political science, safety and social impacts, prepared its report in response to a question posed by Natural Resources Canada: *What are the challenges for an acceptable operational extraction of gas hydrates in Canada?*

“Complex issues would need to be addressed if gas hydrate were to become a part of our energy future,” explained the Chair of the Panel, Dr. John Grace, Professor of Chemical and Biological Engineering and Canada Research Chair in Clean Energy Processes at the University of British Columbia. “The panel has focused on identifying and assessing the science and technology needs for the production of natural gas from gas hydrate in Canada, and analyzing the potential jurisdictional, community impact, safety and environmental issues.”

Canada has some of the world’s most favourable conditions for the occurrence of gas hydrate on its continental margins and under Arctic permafrost. Canadian scientists and engineers have led fundamental pioneering efforts in gas hydrate properties, exploration, modelling and extraction testing. While long-term production experience is needed to better understand the potential problems associated with producing gas from gas hydrate, these issues are not expected to be technically insurmountable. The profitability of gas production from gas hydrate will depend on further development of efficient means to extract the gas component, as well as on many of the same unpredictable market factors that will govern the future profitability of conventional natural gas. Most of the environmental, safety, regulatory and social considerations related to gas hydrate exploitation appear to be similar to those associated with conventional gas production in frontier areas. Although it is a concern that, once produced, gas from gas hydrate would lead to the emission of carbon dioxide – a greenhouse gas – when used as fuel, gas from gas hydrate would produce less CO₂ per unit of energy than coal or oil.

“We believe that this report will serve as a valuable comprehensive resource for those interested in understanding the current state of knowledge on gas hydrate in Canada, together with the opportunities and challenges related to it’s potential development,” added Dr. Grace.

What are Gas Hydrates?

Natural gas hydrates form under conditions of high pressure and low temperature when water combines with natural gas (largely methane) to form an ice-like solid substance in regions of permafrost and in seafloor sediments on continental margins. Gas hydrates exist in abundance worldwide. Some estimates suggest that the total amount of natural gas bound in hydrate form may exceed all conventional gas resources, or even the amount of all hydrocarbon energy - coal, oil and natural gas combined. Although scientists have known about gas hydrates for almost 200 years, the oil and gas industry only began to take an interest in the 1930s when gas hydrate formation in pipelines was found to cause troublesome blockages. While a great deal of exploration and research on gas hydrates is taking place worldwide, there is to date no commercial production of natural gas from hydrate.

Release of the *Report in Focus*

The expert panel is presenting and releasing its summary document – the *Report in Focus, Energy from Gas Hydrates: Assessing the Opportunities & Challenges in Canada*, – today at the International Conference on Gas Hydrates in Vancouver, B.C. That document is also available for download on the Council's website, www.scienceadvice.ca in English and French. The full report is expected to be released to the public in mid-August.

About the Council of Canadian Academies

The primary mission of the Council of Canadian Academies is to provide independent, expert assessments of the science that is relevant to matters of significant public interest with the goal of informing public debate and decision making. The Council, which became operational in 2006, is supported by a founding grant from the Government of Canada but is independent from government. Its reports are prepared by panels of experts appointed by the Council having regard to broad inclusion of relevant expertise and balance among viewpoints. Panelists serve voluntarily without fees or honoraria. They serve in their personal capacities as expert authorities and not as representatives of stakeholder interests. Public input to panel studies is solicited via the Council's website, complemented by submissions that may be specifically requested by the panel. All panel reports are thoroughly reviewed by a group of peers selected by the Council. Expert panel reports are made public in both official languages.

The members of the Council of Canadian Academies are the RSC: The Academies of Arts, Humanities and Sciences of Canada; the Canadian Academy of Engineering; and the Canadian Academy of Health Sciences. To learn more about the Council of Canadian Academies or to download Council reports, visit www.scienceadvice.ca.

If you wish to interview Professor John Grace or other panel members during the conference in Vancouver on July 7th, please contact:

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Expert Panel on Gas Hydrates

Dr. John Grace (Chair) (FRSC, FCAE) University of British Columbia — Professor, Chemical and Biological Engineering and Canada Research Chair in Clean Energy Processes (Vancouver, BC)

Dr. Timothy Collett U.S. Geological Survey — Research Geologist, Geologic Division (Denver, CO)

Dr. Frederick Colwell Oregon State University — Professor, College of Oceanic and Atmospheric Sciences (Corvallis, OR)

Dr. Peter Englezos University of British Columbia — Professor, Department of Chemical and Biological Engineering (Vancouver, BC)

Dr. Emrys Jones Chevron — Senior Consulting Engineer (Richmond, CA)

Dr. Robert Mansell University of Calgary — Senior Fellow of ISEEE (Institute for Sustainable Energy, Environment and Economy) and Professor of Economics (Calgary, AB)

Dr. J. Peter Meekison University of Victoria — Adjunct Professor, Department of Political Science (Victoria, BC) and University of Alberta — University Professor Emeritus, Department of Political Science (Edmonton, AB)

Dr. Rosemary Ommert University of Victoria — Director, Institute for Coastal and Oceans Research (ICOR) (Victoria, BC)

Dr. Mehran Pooladi-Darvish University of Calgary — Professor, Chemical and Petroleum Engineering and Senior Technical Advisor, Fekete Associates Inc. (Calgary, AB)

Dr. Michael Riedel McGill University — Associate Professor, Department of Earth and Planetary Sciences (Montreal, QC)

Dr. John Ripmeester (FRSC) National Research Council Canada, Principal Research Officer, Materials Structure and Function Group (Ottawa, ON)

Dr. Craig Shipp Shell International Exploration and Production Inc. — Team Leader, Geohazards Assessment and Pore Pressure Prediction Team (Houston, TX)

Dr. Eleanor Willoughby University of Toronto — Research Associate, Marine Geophysics Group, Department of Physics (Toronto, ON)