Hydrogen and Governance:

Exploring paths to a low-carbon society

Executive Summary

Victoria Workshop, October 16-18, 2005

I Overview

- This first workshop, as originally envisaged, centered on an exploration of the challenges involved in a social transition to a hydrogen-based economy. As the workshop program developed, the title of the event ("Hydrogen and Governance") was elaborated by the addition of a subtitle – "exploring paths to a low-carbon society". This broader context was reflected in the range of papers prepared for the workshop and in the discussion around them.
- The workshop consisted of three main segments – a keynote address by Ged McLean of Angstrom Power; three sessions outlining the evolution and current status of relevant technologies, and some implications (environmental, economic, cultural, legal) of social choices around large technological systems; and three sessions exploring the dynamics and challenges of such social choices, including institutional and procedural barriers. The last session addressed specific "crunch issues" meriting future work.
- The keynote address provided vivid illustrations of the dynamics of technological change, market opportunities and commercialization, and offered an energetic launch to the workshop with a stark reminder of the challenges of individual agency. Subsequent discussion in the workshop was animated throughout by this emphasis on the responsibilities we all carry personally in dealing with the dilemmas of collective action arising in the funding of research and choices among technological systems.
- Participants began by dealing with an assessment of the current state of hydrogen-based technologies, reviewed a range of likely future applications, and discussed the role which government might most constructively play in advancing the research, development and commercialization opportunities associated with hydrogen-based technologies.
- Participants expressed a range of views on the question of what role hydrogen would play in future energy systems in Canada. The differences often hinged on the timeframe under consideration. In addition to the evolution and sequencing of changing technologies over time, it was recognized that "mismatches" were likely to exist at any given time among a variety of factors, for example, the current state of the technology, the readiness of governments to address politically difficult energy issues, and developments in closely related fields (notably those affecting the environment).

- Participants also examined the more general questions of how science can best be translated into government policy, how to promote an inclusive policy generation process which adequately takes account of the perspectives of civil society, and how to ensure that Canadian decisions are both fully informed by international experience and trends, and contribute effectively to coordination of activities within targeted international initiatives and official development assistance.

- In the final workshop session, participants were asked to group their concerns, observations and suggestions for future work under a number of general headings. Although the time available precluded an exhaustive compilation of ideas, this summary exercise provided the basis for the structuring of future work proposed below.

- The final session confirmed the richness of the information and views generated at the workshop. The diversity of opinion reflected the deliberate attempt of workshop organizers to bring together a lively, highly informed group with a full spectrum of backgrounds and interests. Under these circumstances, consensus was neither sought nor likely, but the workshop clearly achieved its stated purpose of highlighting specific areas where further research and policy formulation is required, as outlined below.

II Themes identified

- The most striking feature, in retrospect, of the discussion of governance challenges to be faced in pursuing the goals of a low-carbon society is the number of different ways in which the international dimension figured in comments. Canada's responsibilities and potential contributions to international coordination of research and development, technology transfer and policy learning were frequently mentioned. Problems with implementation of the Kyoto Protocol and the creation of an effective post-Kyoto architecture highlighted the crucial importance of cleaner technologies open to adoption in developing countries—not just China and India, but across the vastly different settings of the developing world. Canada's opportunities to promote the direct take-up of newer, cleaner, more ecologically appropriate technologies without need for heavy social investment in energy infrastructure already destined to be succeeded (the 'leap-frog' option) were emphasized. This concern with the international dimension led to two new features in the program proposed below: the greater emphasis on regional workshops and consultation, and the proposal for involvement of participants from developing countries in the initial workshops in Canada.

- The Victoria workshop demonstrated the requirement both for a focus on the specifics of hydrogen-related developments and for placing hydrogen in the broader energy/environment policy mix (all in the context of the cultural diversity underlying Canadian institutional structures and processes of governance dealing with social risk and uncertainty). The policy debate should be anchored in the concrete hydrogen example, but accurately situated in the larger, operationally relevant governance setting. Although the conversation among technical, government, civil society, and private sector representatives may not be easy, such an inclusive approach is the only credible way in which usable public policy options can be developed for decision-makers.

- In this context and within the over-arching international dimension just mentioned, discussion in the final session suggested that the central policy questions might be grouped under four broad themes: Timescales, technology and decision-making; Energy policy-making—governing instruments and federal-provincial relations; Local governments, local impacts, and cross-sectoral demonstration projects; Risk perceptions and safety standards—technological aspects of government decision processes.

III Next Steps

- From the discussion at the workshop and the exchanges following, there has emerged a clear vision of a two-to-three year program, as outlined in the summary diagram attached, and a clear sense that the immediate next steps should be pursued now, with a near-term program for the first half of 2006, designed as the foundation from which the financing and organization of the full program can be developed.

- The full program, extending over two to three years as illustrated in the attached diagram, envisages a policy-oriented cumulative research program punctuated by a series of domestic and international workshops or conferences. At these periodic meetings, commissioned research papers will be reviewed and re-oriented by a core continuing interdisciplinary network augmented at each meeting by a diverse group of senior participants drawn from business, government, universities, research and civil society organizations reflecting the particular emphasis of the meeting. Toward the end of the program, the research emphasis will switch to focus groups and research exploring public perspectives and expectations, and to deliberative polling or consensus-seeking initiatives oriented toward possible recommendations for public policy at various scales.

- The near term program for the first half of 2006 envisages the commissioning of initial research papers on the current state of relevant technology (especially with respect to hydrogen-based technologies resting on nuclear or coal-based energy sources) and on the current state of related energy and technology policy. This background work will be reviewed in a first workshop to be organized at the University of Western Ontario in May, 2006, under the general heading of Timescales, Technology and Decision-making, with a focus on continuing technological evolution and related decision challenges. That discussion in turn is expected to build the foundation for a second meeting to be held shortly after (June 2006) at the University of Calgary, under the heading Energy Policy-making: Governing Instruments and Federal-Provincial Relations. This second meeting, building on the results of the Western Ontario discussion, will be expected to examine more closely the nature of government expenditure programs, fiscal instruments, regulatory measures and educational initiatives in light of the many cross-jurisdictional and cross-scale linkages involved.

- Interim funding to maintain the current momentum and launch this initial near-term program without delay is sought while the development of a broader consortium of funders from government, industry and foundations to support the full program is pursued.