**CANADIAN ASSOCIATION OF PHYSICISTS**

**ASSOCIATION CANADIENNE DES PHYSICIENS ET PHYSICIENNES**

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The Right Honourable Stephen Harper, P.C., M.P.,
Prime Minister of Canada,
Office of the Prime Minister,
80 Wellington Street
Ottawa, ON K1A 0A2

Dear Prime Minister:

I write to offer the comments of the Canadian Association of Physicists (CAP)[1] on the recent Jenkins Report (the "Report"). CAP was pleased to learn of your commitment in Davos that the government will move soon regarding the Report's recommendations and that your government will continue to make the investments in science needed to sustain Canada's economic growth. We recognize your government's desire to maximize the benefits to Canadians from its investments in science R&D and comment on five aspects of the Report in that regard.

NRC. CAP believes that the Report's recommendations regarding the future of the National Research Council of Canada (NRC) are much superior to those announced by NRC itself. In essence, the Report recommends continuing but transforming the current NRC Institutes: some as business-facing industry-oriented non-profit research centres mandated to undertake collaborative R&D and commercialization projects with business organizations, some (those currently undertaking more basic research) as centres engaged in basic research and affiliated with one or more universities, and some as part of a non-profit organization mandated to manage what are currently NRC major science initiatives.

In contrast, NRC's proposed changes place a heavy emphasis on short-term efforts aimed at immediate industrial needs. There is a role for such efforts, but major contributions to Canada's economy and well-being require deep, world-leading expertise based on research and expertise built up over many years. NRC has a long history of such major advances. For example, the critical importance of canola (developed by NRC in collaboration with Agriculture Canada) to Western Canada was recently highlighted in the *Globe and Mail;* according to the article, canola is responsible for $14B p.a. of economic activity in the West. Other examples over the years include the development of the world's first practical electric wheelchair, the first artificial cardiac pacemaker, the first effective vaccine against infant meningitis, the Crash Position Indicator, the Canadarm, and Computer Animation Technology.

Compared with NRC's own proposals, the Report's recommendations seem to us much more likely to preserve the very valuable, hard-won expertise of the NRC Institutes, and to assist them to continue to make major long-term contributions from which industry and all Canadians will benefit. CAP is concerned that the structural reorganization proposed by the NRC does not sufficiently take into account the recommendations of the Report and we urge your government to request that the Report's authors review NRC's proposed changes before they are implemented.

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[1] The Canadian Association of Physicists *is the national organization for physicists working in industry, academia and government. Physics is the most fundamental of the sciences, the essential basis of advances in all the other sciences, technology, and medicine. Advances in physics were the foundation of the many key technologies whose impacts have done so much to improve our lives. Whether 19th century electrification, 21st century telecommunication, the world wide web or medical imaging, fundamental physics research and its spin-offs are responsible for much of our prosperity and high quality of life. New physics-based principles and discoveries drive many other remarkable advances. Inventions based on quantum physics alone have been estimated to account for over 25% of the industrialized nations' GDP.*

Ministry of Innovation. CAP agrees with the Report that the critical importance of research and innovation calls for a full Minister at the Cabinet table, not just a Minister of State, as is the case now. CAP and most other experts believe that technological innovation cannot be separated from the basic and applied research that makes it possible. Therefore, CAP recommends the establishment of a full Ministry of Science, Technology & Innovation, rather than a Ministry of Innovation only, as the Report suggested.

IRAP. CAP supports the Report's recommendation to expand the very successful Industrial Research Assistance Program (IRAP) program. However, IRAP funding to innovators is currently, in principle, for research. CAP recommends that this mandate be expanded to include early-stage development, along the lines of the successful U.S. Small Business Innovation and Research (SBIR) program, as suggested in the Report. This could greatly assist promising technologies to cross the well-known 'valley of death' between research and commercialization.

Vouchers. The Report's proposed commercialization vouchers pilot program, to connect SMEs to providers of commercialization support, appears to be a good one. However, CAP proposes that this concept be extended to R&D alliances between companies and academia. The highly time-consuming process for a company to establish a relationship with a university, define a joint program, and write a proposal, with no certainty that it will be funded, may deter companies from even starting the process. If a company knew that it had a voucher (based on a fairly short statement of the problem and of possible approaches), then the whole process of relationship-building and fleshing out the details of a joint program might not seem so forbidding. This could greatly increase the number of companies willing to try joint work with academia. Moreover, academics might be more interested in working to define a program in the first place, if they knew money was actually available.

SR&ED Program. CAP supports the Report's somewhat reduced emphasis on the Scientific Research and Experimental Development (SR&ED) program. We call attention to the recent UK work[2] that suggests that UK spending on Research Councils may have much more economic impact than spending on Tax Credits, even within a couple of years of the spending.

If you or any of your staff would care to discuss any of these matters in more detail, please contact me at cap@uottawa.ca.

Yours sincerely,

J. Michael Roney, PhD, P.Phys.
President, Canadian Association of Physicists

cc: Hon. James Flaherty, P.C., M.P., Minister of Finance
Hon. Christian Paradis, P.C., M.P., Minister of Industry
Hon. Gary Goodyear, P.C., M.P., Minister of State (Science and Technology)
Mr. Robert Dunlop, Assistant Deputy Minister, Science and Innovation Sector, Industry Canada

[2] J. Haskel and G. Wallis, Centre for Economic Policy Research, Discussion Paper 7725 (March, 2010), referenced in *Nature* (editorial) 466 p. 296 (July 15, 2010.