AIAC Aerospace Industries Association of Canada | L'Association des industries aérospatiales du Canada

August 5, 2016

Hon. Wayne Easter
Chair, Standing Committee on Finance
Sixth Floor, 131 Queen Street
House of Commons
Ottawa ON
K1A 0A6

Dear Mr. Easter,

The Canadian aerospace sector is a strategic economic driver contributing over 29B$ to GDP. It supports 211,000 jobs in an R-D and export intensive manufacturing sector that is ranked fifth in the world in a market growing faster than the average OECD economy.

The Technology and Innovation Committee of the AIAC (TICA) submission attached outlines ways in which the aerospace sector can create new opportunities for Canada's manufacturing sector, leverage world-class science, collaboration and best practices.

TICA's analysis indicate that through targeted investments, enhanced alignment and streamlined processes, the aerospace future contribution the middle-class can be expanded, while including more skilled and creative young Canadians from diverse background. This submission provides an outline and how the aerospace sector could further contribute to reaching Canada's objectives with respect to innovation, the environment, investments, GDP, Business Expenditures in RD (BERD) and exports while minimizing fiscal impact.

From the exploration and first installment on Canada's vast territory to the affirmation of its sovereignty, aerospace is part of our history. As such, TICA is keen to work with parliamentarians to continue expanding its benefits to the innovation ecosystem while delivering on our clean tech agenda.

Yours sincerely,

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INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT

Recommendation 1 – Formalize aerospace as a strategic sector of national importance

We recommend that the Department formally recognizes, and continues to support the Aerospace and Space sector as a strategic industry in Canada by further leveraging and aligning existing levers in its portfolio. The **allocation of 10M$ over 5 years** would supporting the development of a national industrial strategy and analytical capability that would help to set investment priorities.

Context :

The aerospace sector ties in to the development of emerging technologies, the defence and space industries, and advanced manufacturing. It also accounts for numerous high-impact firms. As such, the innovation policy would benefit greatly from a strategy that would integrate various policy dimensions and ensure all stakeholders are working towards a shared set of measurable outcomes. This strategy would provide recommendations on several organizations and policy objectives and alignment, including: the strengthening of the national laboratory system, and incentives to grow research and testing infrastructure capacity; Granting Councils priority research areas allocation; and, further research on the aerospace's cluster, centres of excellence, and networks.

Recommendation 2 – Enhance the Strategic Aerospace and Defence Initiative (SADI) and the Technology Demonstration Program (TDP)

Assuming current funding levels are maintained (approximately 200M$ per year), we recommend introducing changes in the terms and conditions of the program with an **overall fiscal impact of up to 40M$ per year.**

- SADI should become a partially refundable program based on achieving R&D performance metrics such as time to market, employment, business growth, , and global supply chains integration . Refunds could be up to 20% in lieu of payment or included as a SR&ED tax refund on eligible investment. Refunds should be tied to R&D re-investments made in Canada.
- Projects led by business consortium should be eligible to apply;
- Equipment, tools, activities and infrastructure should be treated as eligible expenses to support process innovation and competitiveness;
- Sharing ratio of eligible expenses should be allowed up to 50% of total cost of the project;
- The TDP program would continue to cover projects from TRL 4 to 6 with the inclusion design systems, test rig and software as eligible expenses. SADI would focus on project from TRL 7 to 9, with a view that lower TRL projects would mostly be facilitated by the unified research aerospace network (recommendation 3).
- A bridge option between TDP and SADI would be optional for firms willing to take on long-term technology development investment cycle.
- To be eligible, the business risk profile should be considered based on past performance with customers or projects in addition to financial metrics.

Context :

SADI is the backbone of aerospace programming to support commercialization of innovation but it is currently undersubscribed. SADI and TDP processes and reporting would be streamlined to reduce fiscal impact of new measures. The administrative burden and the non-competitive nature of its T's and C's, compared to private loans, hinder its ability to positively incentivize businesses to invest more in R-D in Canada. SADI would draw in more applications and thus maximize its impact on innovation metrics through an enhanced risk-sharing model. Upon business approval, the Department could use the information it collected on aerospace high-impact firms to initiate fast-track decision-making.

Recommendation 3 – Create a unified national research network based on the success of GARDN and CARIC

Two existing key aerospace research networks, GARDN and CARIC, would merge into a unique network to enhance the focus on aerospace and clean technologies development. **We recommend the allocation of 214M$ over 7 years** with total leveraging impact from the industry and other programs of 427M$. For the allocation of 32M$ per year, **24M$ would come from the Clusters and Networks initiative announced in Budget 2016** and 8M$ from the RDAs' existing contribution to the Clean tech agenda.

- Blue Sky (TRL 1)– introduction of a new sub-program funding to promote and develop ideas to exploit Canada's world-class scientific research. 5M$ per year. (10M$ in leveraging impact (LI)).
- Low TRL (2-3) –3M$ per year(LI of 12M$)
- Mid TRL (4-6) –5M$ per year (LI of 10M$)
- Small Technology Development Program –Introduction of new sub-program to incentivize SMEs to maximize innovation through partnership. 10M$ per year (LI of 20M$)
- Priority Green Technology – Aerospace research projects (TRL 3-6) that would support Canada's goal with respect to the Vancouver Declaration. 5M$ per year (LI of 20M$)
- Aero Connect – 500K$ per year
- Strategic studies – to identify technology and market priorities in conjunction with international environmental regulations and Canadian regional capabilities. 500K$ per year
- Operations – 3M$ per year

Context :

From the industry and academia perspective, there is a consensus on the, relevance, and added-value of these two networks. There is an opportunity to join forces and ensure a long-term investment can be made so as to accelerate collaborative research momentum. The unified network would have a stronger membership, in all regions, with a clear incentive to integrate environmental considerations at the early-stage of the innovation process. The unified network terms and conditions would be more flexible and thus enhancing its ability to leverage research potential both across Canada and internationally. This would enable the industry to face increasingly stringent international regulations while developing a competitive advantage.

The unified network would represent an effort to: 1) pursue the development of the Canadian aerospace research network; 2) reduce the fragmentation in innovation program; and 3) pursue both the success of innovation and the clean tech agenda.

The objectives of the network would focus on: 1) delivering research innovation; 2) greening aerospace and aviation; 3) strengthening the network to create synergy across regions; 4) training qualified and highly qualified personnel.

PUBLIC SERVICES AND PROCUREMENT CANADA

Recommendation 4 – Create a CanadianInnovation and Research program.

Building on the success on the overall success of BCIP, we recommend to further develop demand-based policy by creating Canadian program based on the model of the US Small Business Innovation and Research (SBIR) success. To provide significant incentive for innovation and to ensure long-term outcomes, we estimate that the government, including provincial governments, **should allocate at least 300M$ with the objective of fiscal neutrality, without tapping into SADI/TDP or SR&ED allocation**, through recalibration of departmental procurement and R&D budget. We support the implementation of a SME set-aside. Larger Canadian as well as foreign-owned Canadian registered businesses with the objective to increase their Canadian investment in R-D and that could guarantee to keep the intellectual property in Canada would be eligible.

Context :

With respect to aerospace, we recommend to work closely with the CSA and DND to ensure their technological needs and budgets are fully leveraged to the benefit of eligible businesses.

We would support a phased program where funding could be allocated to feasibility studies, technology development, commercialization (as per BCIP); and procurement. In order to unlock innovation potential from the aerospace sector, this new program would cover technological capabilities, process and product innovation. To maximize its outcomes, the program it would develop an optional mentorship component where larger companies could work with suppliers to integrate their innovation into a larger technological solution that the government procures. In such cases, the larger company could be approved as the official testing house rather than a government agent.

Recommendation #5 – Leverage Government procurements to stimulate innovation in Canada

Increase the use of government procurements, especially minor capital programs, to fund Non-Recurring Engineering investments needed to bring new "made in Canada" products, services and capabilities market emphasizing "best value" over "technically compliant lowest cost" selection criteria. This could be accomplished within existing procurement funds.

Context:

Minor capital programs (less than $20M) do not require any Canadian content, or ITB contribution under the current Defence Procurement Strategy. Often, procuring agencies are only interested in off the shelf solutions that offer the lowest development risk at the cheapest price. This approach does not stimulate innovation nor promote new Canadian business opportunities at home or abroad. An alternative approach would be to leverage these procurements to provide an initial channel to market new products or services created in Canada

under the recommended investment channels by encouraging procurement agencies and departments to accept low risk developmental programs where practical.

WHOLE OF GOVERNMENT INITIATIVE

Recommendation 6 – Creation of a Grand Challenges Aero initiative.

AIAC recommends the allocation of 200M$ over 5 years to the creation of strategic innovation initiatives. For each, the aerospace sector would combine its expertise and efforts with others sectors and academia, in order to develop advanced solutions based on existing technological capabilities. Multiple Departments would support, through funding, policy and leveraging of technical expertise, research infrastructure and networks.

Context:

Grand Challenges Aero would set industry-driven projects across sectors to trigger new innovations with a view to foster exports.. Universities efforts would be funded on a competitive process based on their ability to leverage expertise, infrastructure, contribute to skills development, and manage IP. Industry teams would contribute funding and in-kind expertise. The unified national aerospace research would be mandated to facilitate these initiatives. We recommend a small set of large undertakings, for example :

- Digitization of industrial production – with the automotive sector (**10M$ per year**)
  - To develop virtual transportation platform model, to enable digitalization of manufacturing, and support the development of supply chain.
  - Government support from National Research Council and RDAs
- Green Power – with the energy sector (**10M$ per year**)
  - To develop green energy systems to be deployed in remote areas or as an alternate source of power.
  - Support from NRCan, ECCC and RDAs
- Environmental monitoring– combining expertise in aerospace, space and ICT sectors (**10M$ per year**)
  - Leveraging aerospace and space-based assets to an integrated network-based system of awareness, surveillance, communications, navigation, and mapping.
  - Support from DND CSA, ECCC, INAC, NRCan
- Icing – with the optics, advanced materials and robotics sectors (**10M$ per year**)
  - To develop more efficient and environmentally friendly systems of a) de-icing in civil and military airports and b) icing prevention for rotor and fixed wings aircraft and UAVs.
  - Support from DND, and Infrastructure Canada.

Other recommendation (cost to be estimated) – SR&ED

We recommend introducing improvements to the SR&ED

- Restore funding to previous levels.
- Explore how the SR&ED program could cover and favor process innovation by delinking its conception of innovation to technological advancement. SR&ED should cover change made in relation to business processes, service-oriented delivery and support the commercialization of theses advancements.
- Explore with the CRA the possibility to harmonize its program with the Quebec program, where tax credits are fully refundable.