SUBMISSION TO THE HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE PRE-BUDGET CONSULTATIONS IN ADVANCE OF THE 2023 BUDGET

~ Positioning Canada to lead in the new space race ~

Submitted by: MDA

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RECOMMENDATIONS

Recommendation #1: That the Government establish a National Space Council in the form of a Cabinet-level committee to improve governance, coherence, coordination and oversight of Canada's national space program and to guide its space policies, programs, investments and regulations.

Recommendation #2: That the Government double-down on space investments and properly fund a robust space program that covers civil, defence and commercial space activities, including:

- Fund the Canadian Space Agency's next generation Earth observation program;
- Accelerate investment in defence space capabilities as detailed in *Strong-Secure-Engaged* and as part of Canada's commitment to NORAD modernization;
- Extend Canada's commitment to the International Space Station to 2030 (as the other ISS partners have done), and fund future spaceflight opportunities on the commercial space stations under development;
- Extend Canada's commitment to humanity's return to the Moon by committing to provide lunar surface infrastructure to the Artemis mission; and
- Serve as an anchor customer to innovative Canadian space companies.

Thank you for this opportunity to contribute information and ideas to the House of Commons Finance Committee's pre-budget consultations in advance of the 2023 Budget.

It is not an overstatement to say we live in extraordinary times – the COVID-19 pandemic lingers, while war rages in Europe, the climate crisis grows and inflation is impacting Canadians and businesses alike.

Canada still has strong fundamentals underlying its economy, but tackling these many challenges requires a high level of strategic focus on opportunities to help propel Canada forward and position this country for continued economic and social success. The space sector can play a pivotal role in helping Canada achieve these ambitions.

Canada's critical space infrastructure provides benefits to Canadians every single day and is poised to solve some of this country's – and the world's – most pressing economic and social challenges:

- Half of the Essential Climate Variables (ECVs) used by scientists to measure climate change are ***best or only*** measured by satellites. Earth observation satellites can also measure greenhouse gas concentrations, track ice coverage at the poles, detect pollution in the oceans, map floodplains and provide essential data to governments to help mitigate the effects of climate change.
- Canada's Earth observation satellites monitor sensitive land and coastal ecosystems, deforestation and illegal fishing, and greatly assist with relief efforts after natural and human-induced disasters, including floods, hurricanes, earthquakes and oil spills.
- Low Earth Orbit communication satellite constellations will ensure vital connectivity for remote, rural and Indigenous populations across our country and the world, enabling economic and social development.
- In addition, new opportunities are emerging such as space-based solar power that would provide zero-emission continuous energy to Earth, deep space 5G communications networks as well as commercial activities on the lunar surface that will drive technology development in autonomous vehicles and remote power generation, health care and agriculture.

In 2022, the outbreak of conflict in Ukraine has been called the first "commercial space war" where commercial satellite imagery (including MDA's RADARSAT-2 imagery) track Russian troop movements, uncover atrocities, support humanitarian efforts and mobilize public support around the world for governments to come to the aid of the Ukrainian people. The successful demonstration of this "hybrid" space architecture has forever changed how government and industry collaborate to develop and deploy space technology for national security and defence, ensuring a more resilient architecture.

Today, the space sector represents one of the fastest-growing industrial sectors in the world, and Canada's national leadership in space is more strategically important than

ever. The global space economy is approaching CAD$650 billion[1] a year, and reports show the global space economy reaching trillions of dollars annually over the next 10 to 20 years[234567]. Invested capital in space continues to grow at a fervent pace – even through the pandemic and recent economic volatility – breaking records and leading to the creation of a vibrant space market with more and more space companies, space jobs and global competition. And recent achievements in human commercial spaceflight reflect more than the power of imagination – commercial companies now perform human spaceflight missions in low Earth orbit and they are poised to land the next humans on the surface of the Moon. These successes are the outcome of the dizzying pace of innovation and investment driving the rapidly growing space economy, propelled by the rapid reduction in the cost of launch. There is a new space race on, international competition is growing quickly and the prize is enormous.

The new space race will be won through strong partnerships between government and industry that enable new commercial business models to further humanity's presence in Earth orbit and to create a sustainable human presence on the Moon.

Fortunately, Canada is not new to space innovation and competition. As a country, we understood the strategic importance and opportunities of space earlier than most, becoming the third country in space, after the Soviet Union and the US, and a leader in key areas of space technology – satellite communications, Earth observation and space robotics. Our leadership in these areas, which continues to this day, is the result of deliberate, focused and effective decisions by government to build a strategic domestic industry while addressing national needs – there is no better way to monitor, manage and communicate across Canada's vast and rugged terrain than through space-based technology.

Canada is well-positioned to lead in the new space economy. We have the capability in Canada to build space systems from end to end with hundreds of Canadian companies involved. We have the domain expertise. We have world class research institutions and a highly-skilled STEM workforce including engineers and data scientists. And Canada's involvement in space has the additional benefit of inspiring the next generation to pursue STEM studies.

However, our competitors are not standing still. Other countries are moving swiftly and decisively to participate in the new space race – by investing in advanced space programs and technology development, and fostering the growth of the commercial space sector. In the first few decades that Canada was in space, there were a handful of participants. Today, there are close to 90 countries with space agencies or space

[1] https://www.spacefoundation.org/2022/07/27/the-space-report-2022-q2/
[2] https://www.nasdaq.com/space-economy
[3] https://icg.citi.com/icghome/what-we-think/citigps/insights/space_20220509
[4] https://payloadspace.com/citi-mckinsey-chart-growth-of-space-industry/
[5] https://internationalbanker.com/brokerage/space-investing-in-the-final-frontier/
[6] https://medium.com/illumination/where-is-space-industry-market-and-investments-heading-5f88150e52ae
[7] https://www.globenewswire.com/en/news-release/2022/01/27/2373979/0/en/NSR-s-Global-Space-Economy-Report-Projects-1-25-Trillion-in-Revenue-by-2030.html

programs, and thousands of commercial companies vying for first mover advantages. Industry and governments are moving strategically and in partnership to gain a foothold in the new space economy.

MDA and the entire Canadian space community are ready to step up and play our part. We need to have the Government of Canada as a partner. In space, government's role is paramount – as an anchor customer and funder, developer, owner, investor, operator and regulator.

Anchor customer does not mean only customer. Far from it. Given the smaller scale of space budgets in Canada in relation to our primary competitor countries, Canadian industry's focus is out of necessity on export markets. Indeed, the Canadian space industry has been very successful at leveraging its strategic relationship with the Government of Canada as an anchor customer, building innovative solutions here at home, employing an extensive Canadian supply chain (space and non-space), and then exporting these solutions globally, with reinvestment in Canadian innovation and intellectual property (IP).

For the continued success of Canada's space sector and to position Canadian companies for the rapidly expanding global space economy, we urge the Government of Canada to commit to the following actions:

- **Establish a National Space Council**
  Countries around the world are recognizing the strategic importance of space, and are establishing Cabinet-level committees to guide their space policies, programs, investments and regulations. We call on the Government of Canada to launch a National Space Council, or similar equivalent, inspired by that of the United States[8] which is chaired by the Vice President[9], or by recent efforts in the United Kingdom[10], Australia[11] and New Zealand[12] to improve governance, coordination and oversight of their national space programs. The lack of any central coordination of Canada's space activities covering civil, defence and commercial space means that Canada is not maximizing opportunities to develop this high-growth sector for the benefit of the Government of Canada and Canadians and increases risk that other nations will take lead in areas of traditional Canadian dominance.

- **Double-down on space investments**
  To keep pace with our competitors and to re-establish Canada's leadership amongst our allies, Canada needs to *properly fund* a robust space program that covers civil, defence and commercial space activities, including:

[8] https://www.whitehouse.gov/spacecouncil/
[9] https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/01/executive-order-on-the-national-space-council/
[10] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1051456/20220120-UK_Defence_Space_Strategy_Feb_22.pdf, p.33
[11] https://www.aspistrategist.org.au/australia-needs-to-aim-high-with-space-strategic-update/
[12] https://www.mbie.govt.nz/have-your-say/new-zealand-space-policy-review/

- Fund the Canadian Space Agency's next generation Earth observation program;
- Accelerate investment in defence space capabilities as detailed in *Strong-Secure-Engaged* and as part of Canada's commitment to NORAD modernization;
- Extend Canada's commitment to the International Space Station to 2030 (as the other ISS partners have done), and fund future spaceflight opportunities on the commercial space stations under development;
- Extend Canada's commitment to humanity's return to the Moon by committing to provide lunar surface infrastructure to the Artemis mission; and
- Serve as an anchor customer to innovative Canadian space companies.

MDA would be pleased to elaborate on this submission and brief the committee on the rapidly-growing global space sector, and why we are so excited about what lies ahead.

We wish you well in your deliberations.