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17 July 2018

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REF: BPS/mvL.338..DOC

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Space Activities Amendment (Launches and Returns) Bill 2018

The Australian National University (ANU) welcomes the opportunity to make a submission to the Space Activities Amendment (Launches and Returns) Bill 2018 inquiry. The University commends the Australian Government for instigating this update to the existing legislation.

As the national university and one of the world's leading research institutions, ANU makes significant contributions to both the upstream (technology provision) and downstream (technology exploitation) components of space and space-related industries.

The ANU is very supportive of the direction and aim of the new Space Activities (Launches and Returns) Bill. Making access to space easier and more efficient is crucial to the growth of the Australian space industry and provides opportunities to enhance the prosperity and security of the nation.

One of the areas the university was particularly pleased to note was the increase in allowance for the variation of space vehicles launches, which will keep Australia competitive in the sub-orbit flight market. As the bill recognises, technology is changing rapidly and the legislative framework needs to keep pace with those changes so Australia does not miss opportunities as they arise.

Looking forward, the increasing commoditisation of the space economy presents a significant opportunity for Australia as the costs and risks of entering the space business drop rapidly. If Australia misses this opportunity it may well be shut out of one of the most critical - as well as one of the most rapidly growing - economic sectors of the 21st century.

As an example of one evolving technology, the ANU has expertise in plasma propulsion. Over time, plasma propulsion should see an increase in miniaturised launch and flight technologies, which will allow for cheaper and more efficient launch and spacecraft manoeuvrability. Having this Bill, which allows for these emerging technologies to be used and tested, is critical.

One important aspect of the Bill is balancing the risk of damage, to persons and property, with the benefits of increased participation in the Australian space industry. The increased emphasis on entities responsible for building spacecraft and satellites means that proper testing will be critical. Australia should have a regulated practice for testing spacecraft in line with the standard National Aeronautics and Space Administration (NASA) and other space agency procedures and requirements. The committee may not be aware of the capacity ANU has in regards to testing of spacecraft and satellites through our Advanced Instrumentation and Technology Centre (AITC) at Mount Stromlo in Canberra.

The AITC provides facilities for spacecraft testing in line with international standards and already serves as a national resource for groups in Australia. The long-term vision of the AITC is a national facility supporting

Australian and international space research and technology development, with an investment of approximately \$25 million in the construction and equipping of the AITC, and fruitful synergies with the decades-long development of a world-class astronomical instrumentation program. The AITC stands ready to support Australia's expanding space industry with the capability for rigorous pre-flight testing.

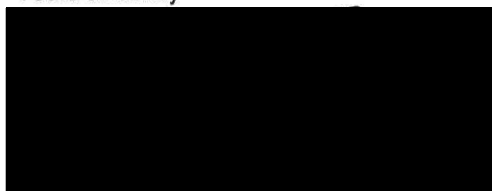
By virtue of its latitude and longitude, Australia is critical for global networks of communications, tracking, and earth observation satellites. An example are the NASA Deep Space Network stations, one of which is near Canberra. This geographic advantage has not been leveraged as fully as it might, and offers further opportunities to service the global space community whilst reaping further benefits for Australia. This means allowing for the possibilities of launches from Australia, an important aspect of which is a well-regulated, yet easily accessible method to obtain the necessary approvals. We are pleased this Bill addresses this need.

One area which the Bill does not address is high-altitude balloons. While high-altitude balloons do not reach the altitudes of sub-orbital planes and rockets, the ways in which they are used are similar. In future, it would be prudent to have similar means and methods of approvals and launch facilities for high-altitude balloons as for rockets. As of now, high-altitude balloons use a different approval process through the Civil Aviation Safety Authority (CASA). Australia has a great history of high-altitude balloon launches and at ANU, with our overseas industrial partners, we are seeking to expand this sector.

While the focus on this Bill is on Launches and Returns, attention must also be given to the relation of current Australian treaties and laws to the *Moon and Celestial Bodies Agreement* and *The Outer Space Treaty*. With both the United States and Luxembourg having recently passed laws that contravene these, Australia must examine and establish its own frameworks for future space exploration endeavours. ANU can assist by examining how such laws might maintain a balance between cleaving to the principles of the *Moon and Celestial Bodies Agreement* and *The Outer Space Treaty* while giving necessary capabilities to Australian industry to support future space exploration.

The space industry will grow increasingly important within the global economy as the 21st century advances. Australia's vision for the space industry must therefore correspond to its vision for our nation's place in the world. If we are to remain one of the top-20 economies, we must have a domestic space industry on the same scale, possessing the essential capabilities needed to underpin our nation's economy and security.

Yours sincerely



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