

PRIVATE SUBMISSION

TO THE

PARLIAMENTARY INQUIRY INTO

DEVELOPING AUSTRALIA'S SPACE INDUSTRY

Henry Strong, ANU



24 January 2021

Committee Secretary
Standing Committee on Industry, Innovation, Science and Resources
PO Box 6021
Parliament House
Canberra ACT 2600

Dear Secretary,

This submission addresses points two and five of the inquiry's terms of reference, namely:

- International collaboration, engagement, and missions; and
- Other related matters.

This is a two-part submission, with each part relating directly to the above terms. **Recommendations are made in bold text at the beginning of each part.**

International Collaborations, Engagement, and Missions

1. **Australia should seek to take a leading role internationally in implementing the Long Term Sustainability (LTS) Guidelines of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS);**
2. **Australia's space industry should seek to exemplify a new benchmark in international space sustainability standards; and**
3. **The Australian diplomatic agenda should immediately place emphasis on Clean Space as a critical issue for international cooperation based on universal interests.**

The Australian relationship with the United Kingdom relies primarily on historic ties, and secondarily on deeply held intrinsic shared values. On 14 February 2020, the UK signalled its intent to lead the international shift towards widespread implementation

of the LTS Guidelines by producing a voluntary implementation guide and proposed reporting approach to assist space-faring nations in adopting the guidelines. It is understood that an international working group for the global implementation of the LTS Guidelines will be required. Given our historic values-based alignment with the UK, Australia should seek to take a cooperative leading role in rolling out the LTS Guidelines, allowing the Australian space industry to enter the international fray from the outset as a modern, responsible, and durable space economy. The short-term advantages of this strategic positioning are reputational and discursive, but it allows for a profitable, robust, and globally respected space industry in the long-term.

There is potential for Australia's space industry to be a highly targeted and expertise-based industry. It is highly improbable that the Australian industry will grow to the scale of the American or the Russian industries in the foreseeable future. For the greatest rate of return on industrial investment, Australia should aim to be *the best*, rather than *the biggest*.

Between 1994 and 2018, the orbital debris population is estimated to have increased seven-fold, to an absolute figure of approximately 1.25 billion pieces, or a total mass of approximately 8000 tonnes. The ratio of small orbital debris (1mmø-2.5mmø)³ has increased three-fold during this time. This trend highlights the urgency of the space pollution problem; the need for regulatory solutions to be adopted on the international level is mounting rapidly. For any new or developing space industry, it would be advisable to first consider the future international regulatory environment before laying the concrete foundations of what will ultimately become an unsustainable industry. Australia should therefore seek to establish itself as a world-leader in space sustainability practices at all stages of the mission timeline and in all areas of law and policy. This will allow for longer-term economic growth trajectories, a position of international leadership, and an attractive market for international operators while other space industries undergo lengthy fundamental changes to meet future sustainability requirements. This strategy would act to insulate Australia from the turbulence of the structural shift that will soon be required of the global space industry.

The foreign policy environment in which Australia operates is one of competing pressures. Our relationships with regional partners are often placed under strain by pressure from long-held strategic alliances. Where interests appear to be conflicting, diplomatic progress is precarious and can easily falter. Australia could use Clean Space as an area of diplomatic cooperation to leverage positive working relationships with both regional and strategic partners. The interest in maintaining orbital environment for human use is not constrained by national agendas; for a space-faring nation to be so, space must first be accessible. Given the difficulty Australia has

experienced diplomatically with regional partners since the onset of the COVID-19 pandemic, the diplomatic agenda would benefit enormously from an item behind which all of our partners can unite and cooperate on. Clean Space presents this opportunity and, should Australia implement recommendations one and two above, our credibility as a mediator on this matter will already have been established.

Other related matters

4. **Australian regulators, insurers, and investors should prioritise post-mission disposal, debris-neutral mission plans, and organisational capacity in identifying viable space projects; and**
5. **Australia's space industry should be developed in the knowledge that the longevity of orbital space is jeopardised by the creation of orbital debris.**

There is a duty for the Australian Space Agency and others to establish regulatory frameworks that rule out unsustainable missions on Australian soil. Responsible disposal of space objects that either malfunction or reach the end of their operational lifetime should be a requirement of issuing a licence to operators in Australia. This should include operations at all orbital altitudes. Where operators shall be unable to dispose of objects post-mission by atmospheric re-entry — either due to difficult orbital trajectories or safety concerns — regulators should consider mandating 'debris-neutral' strategies that encourage the support of active debris-removal projects to account for any debris created. Furthermore, debris created by the abandonment of assets in space by companies that fold during the asset's lifetime should be stamped out at the licensing level. Poorly planned missions by ill-equipped operators should be prevented by sufficient regulation and strict insurance requirements. No space object should be launched which may outlive the company that operates it.

At all levels, regardless of the forum or context, participants in the Australian space industry should pursue their goals from a sustainable point of departure. No long-term interests are served by the systematic destruction of our orbital environment. The investment already committed to space industries worldwide is staggering, with Morgan Stanley estimating that the space economy will be worth over USD\$1T by 2040. The economic benefits alone of a vibrant and robust space economy are worth taking measures to protect, not to mention the ecological and ethical arguments surrounding environmental protections.

Our use of space has always represented the extraordinary achievements of humankind. We must not let short-term goals undo decades of scientific ingenuity and

sheer hard work. Let Australia embrace the future of space as an opportunity for economic growth, international leadership, and a positive forward step in the progression of society.

With appreciation,



Henry Strong.