

Australia New Zealand Space Law Interest Group

AUSTRALIA NEW ZEALAND SPACE LAW INTEREST GROUP

Wednesday, 25 July 2018

Committee Secretariat
Senate Standing Committees on Economics
Economics Legislation Committee
PO Box 6100
Parliament House
Canberra ACT 2600

By email: economics.sen@aph.gov.au

Dear Committee Secretary:

On behalf of the participants in the Australia New Zealand Space Law Interest Group (ANZSLIG), thank you for the opportunity to make a submission to the inquiry by the Economics Legislation Committee of the Senate Standing Committee on Economics, in relation to the *Space Activities Amendment (Launches and Returns) Bill 2018*.

Thank you especially for the acceptance by the Committee of this late submission (per email of Penny Bear on 19 July 2018), which has allowed time for a submission that draws on the considerable knowledge and experience across the participants in ANZSLIG and that represents a broad consensus among those participants. We are keen to continue to contribute our knowledge and experience to your inquiry in any way we can.

Sincerely,

Duncan Blake, Chair
Australia New Zealand Space Law Interest Group

ANZSLIG Submission to Economics Legislation Committee

Space Activities Amendment (Launches and Returns) Bill 2018

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INTRODUCTION

About ANZSLIG

1. The Australia New Zealand Space Law Interest Group (ANSLIG) was recently informally established as a group of approximately 70 people from Australia and New Zealand, meeting monthly (in-person and remotely) on the basis of a common interest in space law, both domestic and international. It is drawn from a wide range of people with an interest in space law in the commercial, military, governmental, research and civil society sectors. They are solicitors, barristers, in-house counsel, policy-makers, public servants, entrepreneurs, military operators, science researchers, students, educators, ethicists and others.
2. Collectively, we represent a broad range of areas of contexts in respect of space law and legal practice in Australia and New Zealand: law firms (big and small); the Department of Defence; the Department of Foreign Affairs and Trade; the Department of Industry, Innovation and Science; state and territory governments; universities; think tanks; small-to-medium enterprises in technology; and, space start-ups.
3. We also bring a lot of areas of experience and expertise: international space law, domestic space legislation in Australia and New Zealand, intellectual property, regulation of the electromagnetic spectrum, export control laws, liability, contracting, government procurement, ethics, and other areas.
4. The participants in ANZSLIG contribute in a personal capacity, unless stated otherwise. All participants were sent a draft of this submission. The participants who have specifically contributed to this submission (in a personal capacity) are listed below at para 66. A brief summary of their backgrounds is also provided.

The focus of this submission

5. While we acknowledge the valuable submissions made by other organisations based on their experience and areas of expertise, ANZSLIG seeks to make a non-partisan submission, based on an assessment of the legal cogency of the prospective legislation. That is, this submission considers internal consistency, as well as consistency with other laws (both Australia's domestic laws and the international laws to which it is committed) and with legal policy. It also refers to drafting solutions adopted in other jurisdictions that attempt to balance partisan interests.
6. This reflects the membership of ANZSLIG, which is drawn from the 'Australian space community' broadly, not just from what might be more narrowly described as the 'Australian space industry' (implying commercial enterprises). That is, the membership reflects partisan interests in each of those sectors in how Australia's use of outer space is regulated, but the members of ANZSLIG are bound by a common interest in the law as a means of unifying effort in pursuit of Australia's collective interests.

Balancing various imperatives

7. We acknowledge and respect the valuable submissions made by other organisations because it is essential that the legislature understands the imperatives from various sectors of the community, in order that the legislature, through its political process, can adopt a balance that best represents the interests of Australia as a whole.

International legal obligations, political commitments and foreign relations

[Item 19, Annex 1]

8. The concept of a 'rules-based global order' is a central pillar of national policy across strategic documents of many portfolios (including the extant 'Australian Satellite Utilisation Policy' of 2013) and reflects a shared sense of Australian identity across the population, and especially the idea of a 'fair go' for all. We assume, therefore, that Australian domestic space legislation is intended to honour Australia's international legal obligations and political commitments and we note that this is reflected in: Australian

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Government, 'Response to the Review of Australia's Space Industry Capability' of May 2018 (hereinafter '*Government Response to RASIC*').

9. Perhaps the most relevant provision of space-specific treaties to which Australia is a party is Article 6 of the *Outer Space Treaty*, which obliges States to specifically authorise, and continually supervise all 'national activities in outer space', including activities of non-governmental entities, to ensure the conformity of their activities with the *Outer Space Treaty* and all other international law applicable to such activities. That is the foundation for the licensing regime established by the *Space Activities Act 1998* (and similar legislation around the world).

10. Not only does a State bear international responsibility for all such national activities in outer space, but if the activity involves the launch, procuring of a launch, the use of Australian territory or facilities for launch of a space object, then the Commonwealth of Australia is directly liable for damage caused by the space object. This is so even if it is a non-governmental entity that is undertaking the activity, with no connection to the government. Indeed, even if the government failed, through no fault of its own, to authorise and continually supervise the non-governmental entity, the government is still liable. That is the foundation of the insurance and liability regime established by the *Space Activities Act 1998* (and similar legislation around the world).

11. The responsibility to ensure conformity with the *Outer Space Treaty* and other international law applicable to national activities in outer space encompasses at least the following legal principles:

- a. freedom of exploration and use without discrimination;
- b. compliance with international law broadly, including the *Charter of the United Nations*, in the interest of maintaining international peace and security;
- c. exclusively peaceful use of the Moon and other celestial bodies;
- d. registration of space objects;
- e. due regard for the activities of other States;
- f. avoidance of harmful interference (without prior international consultations);
- g. the avoidance of harmful contamination of Earth and in outer space;
- h. mutual cooperation; and
- i. rescue and return of astronauts and space objects.

12. Among the broader *corpus* of international law that applies to space activities, Australia has legal obligations in respect of the use of the electromagnetic spectrum (especially through the International Telecommunications Union), the non-proliferation of certain types of weapons and their components (export control laws), the circumstances in which it engages in coercion or a use of force against another State, and how it does so, fair trade, the environment (including outer space), mutual respect of intellectual property rights and security interests in property. From an Australian perspective, these obligations are not for the benefit of foreigners, but for our benefit, when we trade, travel, communicate and interact globally.

13. In addition to these legal obligations, Australia has political commitments arising from its relations with other States directly, and in international fora, such as the Committee on the Peaceful Uses of Outer Space (COPUOS), the International Telecommunications Union (ITU), the Conference on Disarmament, the United Nations General Assembly, the Committee on Space Research (COSPAR), the Committee on Earth Observation Satellites, among others. In particular, in light of the growing problem of space debris, COPUOS has settled guidelines on space debris mitigation and is seeking to develop guidelines for the long-term

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sustainability of space, the ITU has practices on the resolution of radio-frequency interference, and COSPAR has guidelines for avoidance of harmful contamination. Notwithstanding that these are not legally-binding, again, our compliance with them is ultimately not for the benefit of foreigners, but for our own benefit.

National security

[Item 67, Annex 1]

14. In spite of the ‘peaceful purposes’ principle in the *Outer Space Treaty*, it is an unavoidable truth that the genesis of humanity’s use of space was military in nature, and national security interests continue to pervade the space domain. We acknowledge the heavy dependence that modern military forces have on space infrastructure and therefore the military importance of such infrastructure. The Australian domestic regulatory framework for outer space must reflect this reality.

The interests of the Australian community

[Item 62, Annex 1]

15. Similarly, the Australian community, as a modern society, has also become heavily dependent on space infrastructure, and that is true for all members of the community, regardless of their direct interest in, and use of, space infrastructure. Ultimately, we acknowledge that the Australian space community is regulated for the benefit of the Australian community at large, not for its own benefit. Access to, the continuing operation of, and the ongoing development of space infrastructure, is intended to serve the needs of the Australian community.

16. In a financial sense, to the extent that the Australian space community benefits from any public funds, or even from public infrastructure, the Australian taxpayer has a moral right and interest in financial integrity and public accountability in the Australian space community, and a right to share in the prosperity from commercial activities in the industry. Similarly, to the extent that the Australian space community, through its activities, exposes the ‘public purse’ to the risk of liability (see para 10 above), the Australian taxpayer has a moral right to insist on mitigation of that risk, including indemnification of the Commonwealth against the risk of liability.

17. In a less tangible sense, but not necessarily any less important sense, the Australian community has an interest in the extraordinary inspiration that outer space provides, in the continuing exploration of other space for the furtherance of humanity, in the opportunity to participate personally in space activities and should feel proud of Australia’s role in outer space.

Commercial opportunities

[Item 63, Annex 1]

18. We especially acknowledge the manifest commercial opportunities available to Australia for greater participation in the global space economy, because those commercial opportunities have clearly provided strong impetus for development of the Australian space economy up to now, and promise to continue to provide strong impetus for development. ANZSLIG wishes to help to identify legislative solutions that enhance those opportunities, while concurrently respecting the interests of other sectors of the space community.

19. The challenges in finding appropriate balances and solutions to apparently disparate interests are not just Australian challenges, but global challenges, and if Australia can develop appropriate balances and solutions, then the interest in those balances and solutions will be global, not just Australian. That is, there are commercial opportunities in legislative regime that balances various imperatives to address global (and Australian challenges) and that could serve as a model for regulation in other States.

Placing this legislative reform in context

[Item 1, Annex 1]

20. Unfortunately, the *Space Activities Act 1998* has attracted foreign interest in a predominantly negative sense. When it was enacted, it was notable that the *Space Activities Act 1998* appeared to set a delimitation between airspace and outer space of 100km, when no other State had ventured to set a limit

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so definitively. The limit was intended as a regulatory device, rather than a delimitation, but that point is often lost in international discourse. The regulatory burden imposed by the *Space Activities Act 1998* is sometimes regarded as responsible for the failure of a number of ventures to establish commercial launch facilities in Australia in the late 80s and early 90s. More recently, the *Space Activities Act 1998* has been used by the New Zealand legislature as an example of what not to do.

21. All of this has been apparent for some time. It has been the partial impetus for a series of inquiries, reviews and reports in Australia for over a decade. The most directly relevant and recent reports are listed below:

- Steven Freeland, 'Analysis Report: Public Submissions into the Australian Government's Review of the Space Activities Act 1998' of August 2016 (hereinafter '*Freeland Report*');
- Department of Industry, Innovation and Science, 'Reform of the Space Activities Act 1998 and associated framework: Legislative Proposals Paper' of 24 March 2017 (hereinafter '*Legislative Proposals Paper*');
- Megan Clark (ed), 'Review of Australia's Space Industry Capability: Report from the Expert Reference Group of the Review' of March 2018 (hereinafter '*Clark Report*'); and
- *Government Response to RASIC*.

22. In parallel with domestic concerns about the effectiveness of the *Space Activities Act 1998*, and with the *Freeland Report* and *Legislative Proposals Paper*, there has been an ongoing seismic shift in the global and Australian commercial space industries, with the size and cost of space infrastructure (launch vehicles, launch facilities, satellites and supporting infrastructure) diminishing rapidly and allowing participation by a broad range of technology start-ups. Before the government had an opportunity to implement the proposals in the *Freeland Report* and *Legislative Proposals Paper*, they were quickly followed by the *Clark Report* on the space industry more broadly, and the *Government Response to RASIC*. They have resulted in the establishment of the Australian Space Agency and the actual and prospective commitment of significant public funds to the industry.

23. Annex 1 to this submission tracks the outcomes of those four reports and responses, relative to the amendments proposed in the *Space Activities Amendment (Launches and Returns) Bill 2018*. It should be immediately notable from that analysis that many proposals that are relevant to the legislation are not addressed in the Bill.

Period of consolidation

[Items 64 to 67, Annex 1]

24. Part of the rationale for the establishment of the Australian Space Agency was the need for greater coordination and cohesion. Until the Agency has had a chance to consolidate – to establish its regulatory role, to develop a strategy, to develop relationships with other national space agencies, and with other federal government departments and state governments and delimit responsibilities, to engage with community, to collaborate with industry and to determine its appropriate statutory basis – the *Space Activities Act 1998* cannot and should not be subject to wholesale change.

[Items 45 to 55, Annex 1]

25. The Bill contemplates a period of 12 months between the passing of the legislation and its commencement. In that period, the Australian Space Agency should be expected to establish subordinate legislation ('Rules') reflecting the proposals shown under the title 'Pending' in the table in Annex 1. Part of those Rules should reflect work done by the Australian Space Agency in the interim to establish a new charging model for fees, to give effect to relevant proposals from the *Freeland Report* and the *Legislative Proposals Paper*.

26. The *Government Response to RASIC* contemplates a period of four years before the government is prepared to consider a statutory basis for the Agency. Undoubtedly, in that four year period, other potential legislative changes will become apparent and it would make sense to effect a more wholesale

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change at that time. It may be hoped that some of the issues listed under the title 'Unaddressed' in the table at Annex 1 would be addressed in that subsequent legislative change.

[Items 39 to 44, Annex 1]

27. Throughout that period and continuing beyond that period, the Australian Space Agency would have the opportunity to maintain and continuously improve the accessibility of guidance materials, and its own practices and procedures, to give effect to relevant proposals from the *Freeland Report* and the *Legislative Proposals Paper*. For its part, ANZSLIG has undertaken to deliver professional development and awareness-raising presentations for space start-ups and SMEs as the Australian Space Research Conference 2018 on the Gold Coast and to make such presentations available by video on the internet.

HIGH-LEVEL ISSUES

28. Even though the nascent Australian Space Agency must reasonably be granted a period of grace for consolidation, there are many changes that could be given legislative effective now.

Purpose, Scope and Objects

[Items 2 to 5, Annex 1]

29. The *Freeland Report* and the *Legislative Proposals Paper* both found that the title of the existing Act, the *Space Activities Act 1998*, suggests a broader scope than the actual content of the Act. That is, it focusses on launch and return and does not cover issues such as: space-based remote sensing, Space Situational Awareness generally and space object laser tracking specifically, off-Earth resource exploitation, Global Navigational Satellite Systems, and Space Traffic Management. These are all issues that have been, or are being, covered by regulatory regimes internationally and in other nations. These activities each have potentially significant implications for Australia's compliance with international and political obligations, foreign relations, national security, commercial success and other things, yet they are unregulated or under-regulated in Australia.

30. It is important to acknowledge here (as in para 19 above) that those regulatory regimes seek to address global challenges and because they are global challenges, settling on an appropriate regulatory regime is of global interest and represents global opportunities for Australia – it may be short-sighted to see such regulation only as an obstacle to commercial success, as opposed to the potential foundation of commercial success. Clarity in respect of rights to mineral resources extracted from outer space, for example, is necessary to attract investment to this potentially huge industry. The Bill changes the title to clearly confine it to 'Launches and Returns' – perhaps reflecting that it would be ambitious, at this stage, to broaden the scope of the regulatory regime.

[Items 6 to 9, Annex 1]

31. A broader scope need not be inconsistent with commercial objects. The Bill introduces an express object of "...the removal of barriers to participation in space activities and the encouragement of innovation and entrepreneurship in the space industry..." (sect 3(b)(i)). In comparison, the United States Code, Title 51, Chapter 509 – *Commercial Space Launch Activities* is more detailed about encouraging entrepreneurial activity and economic growth and simplifying regulatory processes. More detail may be superficially appealing, but greater detail would diminish the scope of the regulator's discretion and agility to respond progressively in an otherwise innovative community. That is, if there is an expectation that the space community generally should be given the latitude for innovation, should that not also apply to the regulator? On the other hand, a useful analogy from the US legislative approach is that it mandates commercialisation of the space industry where possible, and a preference for procurement from US enterprises.

Structure

[Items 10 to 11, Annex 1]

32. The *Legislative Proposals Paper* found that leaving components of the regulatory framework to be detailed in subordinate legislation would "improve flexibility and enable timely responses to ongoing technology change". This allows the Regulator to be more agile, but potentially at the expense of certainty. While we commend the use of Rules in the Bill as a means to update the regulatory framework in response to developing technologies, as the Rules have not been provided with the Bill, it is difficult to assess the actual impact of the Bill and whether the Bill achieves the objective set in the *Legislative Proposals Paper*.

33. This is particularly relevant as the Rules are extensively referred to in the Bill¹ to detail:

¹ A search indicates 'Rules' is used 67 times in the Bill.

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- a. key definitions including 'gross negligence', 'high power rocket', 'launch party', 'liability period[s]', and 'responsible party';
- b. criteria for authorisations and permits;
- c. the definition of 'related party';
- d. the conditions that will be applicable to such authorisations and permits;
- e. application, variation or transfer of a launch facility licence;
- f. the period that a permit will be effective for;
- g. the debris mitigation strategy that parties are required to include with certain permits;
- h. the minimum amount of insurance that is required (which must not exceed \$100 million);
- i. the method for working an amount of insurance;
- j. setting of fees and the time for payment of fees;
- k. keeping of a Register of Space Objects;
- l. definition of 'accident'; and,
- m. certain details in respect of investigations.

34. Further, as the Rules may be updated at the discretion of the Minister and do not appear to require consultation before being amended:

- a. parties cannot be certain about what criteria or conditions will apply to their particular activity, or what insurance they are required to hold – this uncertainty arises before a party applies and potentially during the activity;
- b. there is also uncertainty regarding how the Bill (through the Rules) will apply concepts such as, 'liability period', 'gross negligence' and terms of the permits; and
- c. uncertainty regarding these critical things will likely increase financing costs for the activity, since regulatory changes must be factored into the risk profile of the activity.

35. For these reasons, it is recommended that:

- a. if possible, a draft of the Rules should be published before the Bill proceeds;
- b. a statutory mechanism be included that requires proposed amendments to the Rules be circulated in advance for mandatory consultation; and the Minister must take into account submissions made in respect of the proposed amendments before Rules are approved (such consultative means are not uncommon in other regulatory frameworks); and
- c. implementation of Rule changes must be 'phased' in such a way that a party who already has a licence or permit is not adversely impacted by a Rule change made after the licence or permit is granted – this means that parties have certainty about their obligations as at the date of the licence or permit being issued.

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Renewal

[Items 77 to 78, Annex 1]

36. In addition to the above recommendations, we note the Bill itself does not currently include any statutory consultation mechanism, nor mechanism for regular review. Considering that the previous version of the Act was not subject to many amendments since 1998, yet the space industry was found in various government reports to be rapidly changing, there is merit in including a regular review by a statutory committee comprising representatives from industry, academic institutions and other affected parties, together with technical and legal experts, so that the Department is provided regular feedback on how the Bill is working in practice. Such a committee could also review proposed amendments to Rules and could propose amendments to the Rules.

[Items 1 to 3, Annex 1]

37. The review of the *Space Activities Act 1998* was purported to be a wholesale review to produce a thoroughly modern act. While the Bill has updated some terminology, addressed certain technological developments and added debris mitigation, much of the Bill is actually the existing Act – an Act which was developed in a very different time and without the benefit of the legislative and technological developments of the past 20 years. The *Legislative Proposals Paper* finds that the Act is Byzantine, flexible and inefficient and ill-adapted for the changing operating environment for space.

38. Allowing such significant portions of the existing Act to remain, means there are many ‘missed opportunities’ that could have been taken up. These include:

- a. appreciating that Australia is not the only country to regulate space activities – as drafted, the Bill does not provide for reciprocal recognition of other nation’s regulatory frameworks, meaning that an Australian party may be required to meet both Australian and foreign requirements, leading to higher costs;
- b. recognising that launches have become almost routine with well-known and understood risks for the commercial parties – in such circumstances, the Bill could have:
 - (i) allowed parties to provide evidence of how liability is addressed by contractual means and subject to another countries regulation; and
 - (ii) allowed for Australian parties to be exempted from the Australian requirements where the ‘related party’ holds a foreign authorisation;where without either of these, a small Australian payload using an established international launcher will still be required to meet the same conditions as a launcher, even if their risk and involvement is minimal;
- c. providing for scientific activities being subjected to different requirements from commercial activities, and whether one should be prioritised over the other;
- d. address on-orbit obligations – for example, how should orbital manoeuvres be conducted – and in this respect, Australia could have led the development of ‘rules of the road’ for space activities;
- e. providing certainty for how airspace interacts with space, as this is not well addressed and likely to mean that high power rockets will have to meet both requirements;
- f. encouraging the development of Australia as a hub for the return of space objects by extending the liability cap in Division 3 to foreign nationals; and
- g. providing for return of material from space (such as asteroids), and how these are to be regulated.

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39. These are just some of the examples of what could have been proposed to be addressed in the Bill. We would be happy to provide more detail to the Committee on how these can be addressed.

40. Even if not included now, the addition of a consultative committee would assist in promoting development of the Bill once enacted.

Broader regulatory discretion

[Items 12 to 17, Annex 1]

41. The Bill provides the Minister with a broader scope of discretion on a variety of issues, including: a more flexible 'authorisation certificate' as an alternative to various permits and licences; waiver of fees (sect 59(6)); and non-requirement of insurance/financial requirements (sect 46B(2)(a)(ii). The Minister also has broader scope of discretion grant, vary, suspend or revoke licences and permits and impose conditions. The extra flexibility is a 'double-edged sword' – it provides more agility, consistent with all four of the government documents mentioned above at para 21, but also provides scope for the Minister to enforce strict compliance.

Compliance

42. These powers needed much more clarification in the previous Act about when these powers can be exercised and the scope of these powers, but the Bill does not provide that clarification. Relevant questions in respect of, suspension, for example, include:

- a. what notice period will be provided before the suspension takes effect, if any?;
- b. what does it mean that an authorisation or permit is 'of no effect'? Is a party no longer required to abide by the conditions of the authorisation or permit for that period, or does a company need to continue to abide by conditions at its cost despite not being able to exercise the authorisation or permit?;
- c. why doesn't the notice provide reasons for the suspension or any period for correction or remedying?;
- d. what appeal or review rights does a party have to contest the suspension?;
- e. what does it mean to suspend for reasons 'relevant to' security, defence or international relations?;
- f. why can the Minister vary an authorisation or permit while suspended?; and,
- g. what happens if a return authorisation is suspended after the point where a party can control the return?.

43. In the absence of clarity about this power, its inclusion is a disincentive to commercial activity as the Minister may exercise a highly discretionary power that could financially ruin a company with no appeal or review rights, or no express compensation if exercised incorrectly.

[Items 18, Annex 1]

44. Furthermore, these broad regulatory discretions, to impose conditions, for example, could expose commercial entities to significant civil and criminal penalties. Strong compliance provisions are consistent with the Australian government's commitment to its international legal and political obligations, which is laudable, but given the potentially substantive impact on commercial operators, it highlights the importance of clarity about the exercise of the powers.

SPECIFIC PROVISIONS

Scope – launch from aircraft, high power rockets and returns outside Australia

[Items 21 to 24, Annex 1]

45. Notwithstanding that the regulatory regime remains focussed on launch and return (see above para 30), the Bill will expand the scope of launch and return activities to include:

- a. launch from aircraft;
- b. high power rockets; and
- c. returns to places outside Australia by Australian nationals.

46. That expansion is appropriate, but inevitably introduces complexities arising from the intersecting applications of laws from other domains (especially the air domain) and other jurisdictions. Notably, the definition of ‘space object’ does not exclude an aircraft used during launch. That implies the need for close consultation with aviation regulators, in the first case, and the possibility of reciprocal recognition of licensing regimes of other jurisdictions (as per para 38.a above).

Licensing

[Item 25, Annex 1]

47. The Bill changes the names of several licences/permits/certificates, introduces the higher power rocket permit and broadens the scope of a return authorisation. A licence to operate a ‘launch facility’ is now be narrower in scope than under the existing legislation. What was a ‘space licence’ for a ‘launch facility’ also encompassed a ‘launch vehicle’. Now, the new ‘launch facility licence’ relates only to a ‘launch facility’, not also to the ‘launch vehicle’.

[Item 28, Annex 1]

48. Conversely, the Bill does not provide for a separate payload permit, except for a payload launched overseas. Therefore, an ‘Australian launch permit’ encompasses the payload, as well as the ‘launch vehicle’. This is contrary to legislative approaches in New Zealand, the UK and other jurisdictions, which provide for a separate permit for the payload. The lack of a separate payload permit for launches of payloads from Australia does save the foreign payload owner from potentially duplicative regulatory requirements from their own jurisdiction as well as from Australia. But, it instead imposes on the launch vehicle operator in Australia to cover the payload in its application for an ‘Australian launch permit’.

Licence/permit conditions: space debris mitigation strategy

[Items 26 to 27, Annex 1]

49. This is potentially problematic having regard to the requirement to include a space debris mitigation strategy in an application for an ‘Australian launch permit’. The launch vehicle operator thereby assumes responsibility to encompass the payload in the debris mitigation strategy. On the one hand, this is appropriate, because the greatest debris risk arises from the launch vehicle and also from the orbit into which the launch vehicle inserts the payload (preferably not an orbit that involves a ‘conjunction’ with another space object!). There is a residual risk in relation to the payload itself, though, from the operation of the payload on orbit and the de-orbit plan (if any) for the payload. Responsibility for a debris mitigation strategy that treats that residual risk in relation to the payload could be managed contractually.

[Item 28, Annex 1]

50. Alternatively, the legislation could provide for a separate payload permit for launches in Australia, similar to New Zealand, the UK and other jurisdictions. Although this raises the possibility of duplication of regulatory requirements across jurisdictions, this could be addressed by an ‘authorisation certificate’ and by reciprocal recognition of licensing regimes of other jurisdictions (as per para 38.a above).

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51. The same problem of potential duplication also exists in respect of an ‘overseas payload permit’ and this also could be addressed by an ‘authorisation certificate’ and by reciprocal recognition of licensing regimes of other jurisdictions (as per para 38.a above).

Safety and Investigations

[Item 29, Annex 1]

52. The Bill retains the extensive powers of a Launch Safety Officer (LSO) to ensure the safety of a launch and the extensive powers of an Investigator in respect of an incident or accident. An Investigator must have “suitable qualifications and experience” (sect 88(3)), but the Act and the Bill do not otherwise specify the identity of the Investigator. Consideration should be given to linking the investigation powers under this Bill with the powers of the Australian Transport Safety Bureau (ATSB), given its experience and also that an accident or incident may well involve matters within the scope of the responsibility of the ATSB in any event.

53. It is notable that there are no specified requirements in respect of the qualifications and experience of an LSO. This is not appropriate where those powers include the power to direct the destruction of a space object and where those powers are not subject to review.

Mitigating Commonwealth liability

[Items 30 to **Error! Reference source not found.**, Annex 1]

54. As discussed above (paras 10 and 16) the space activities of the Australian space community exposes the Commonwealth ‘public purse’ to the risk of liability in the event of damage caused by a space object launched (or attempted to be launched) by an Australian, or in Australia, or from an Australian facility, or procured by an Australian. That is the case even if the party concerned is a non-governmental entity with no connection to the government whatsoever. For this reason, the existing Act insisted that an applicant for a licence or permit have insurance cover to indemnify the Commonwealth to a maximum of \$750million or the assessed ‘maximum probable loss’ (MPL) that may be incurred by third parties in respect of a launch – whichever is the lesser. Above that maximum, the Commonwealth is exposed to risk, although very few space activities would involve potentially loss greater than \$750million. The indemnification of the Commonwealth is also limited temporally – to the ‘liability period’, which is limited to launch plus 30 days. This is the highest risk period, especially in respect of a launch vehicle, although for a payload that will remain on orbit and that may eventually de-orbit, the exposure of the Commonwealth to risk continues beyond the 30 days.

55. There are relatively few commercial insurers globally who cover risks in respect of space activities. Their premiums are very high, reflecting the uncertainties in assessing such risks. In the experience of ANZSLIG participants, for an assessed MPL of US\$150million, to cover the liability period of launch plus 30 days, the insurance premiums are typically between US\$75,000 and \$150,000. Assessing MPL is a resource-intensive activity in itself and enterprises involved in space activities typically rely on figures provided by others that may be technically-relevant to their circumstances, but which are not necessarily legally-analogous to their circumstances. In the experience of ANZSLIG participants, the assessment of MPL often involves gross errors of over-inclusion of legal risks, especially for small satellites ‘sharing a ride’ on a rocket with other satellites (known as ‘rideshare’), thereby making the premiums even more unreasonably high in the circumstances.

56. The Bill reduces that maximum amount to \$100million and contemplates even lower amounts set in the Rules, presumably for certain classes of launch and return. For example, it would be appropriate to set an even lower amount for the launch of a cubesat under a rideshare agreement.

57. In the experience of ANZSLIG participants, the exposure of the Commonwealth to the risk of liability is not well understood. Given that the focus of the legislation is on indemnification of the Commonwealth, we submit that the burden should fall on the Commonwealth to develop a better understanding of its risk profile. Furthermore, we submit that this should be expressed as a statutory obligation for the

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Commonwealth and that the assessment of the Commonwealth should be transparent and open to scrutiny. The Australian Space Agency could engage COMCOVER, in the Department of Finance, whose mandate covers risk assessment for the Commonwealth government.

58. Of course, assessing the risks involves not just legal and actuarial assessments, but also very technical assessments. There are now facilities in Australia, such as the Australian National Concurrent Design Facility (ANCDF), where such technical assessments can and have been undertaken, in conjunction with, potentially, legal and actuarial input. The Australian Space Agency could use ANCDF to assess the exposure of the Commonwealth to risk in respect of each of a class of space activities, such as: payloads of various types, payloads as rideshare vs primary customer, overseas payload, planned returns of various types of payloads, launch of various Australian rockets overseas, launch of various rocket types in Australia and so on. This would be a cost effective investment for the benefit of the Australian public and to promote the success of the Australian space community.

59. Consistent with the above, it is notable that in the US, by analogy, the Office of Commercial Space Transportation (CST) in the Federal Aviation Administration (FAA) has established common MPL values for common classes of rockets launched from various launch sites around the US over several years (see https://www.faa.gov/about/office_org/headquarters_offices/ast/launch_license/mpl_values/media/MPL_November_2016.pdf). The US Government Accountability Office (GAO) undertook a broad assessment (see <https://www.gao.gov/assets/690/683671.pdf>) of these figures and reported in March last year, with conclusions that are consistent with our points above, in para 55. On the one hand, Australian conditions will involve substantive differences to the US, but on the other hand, the US will have access to a much larger pool of data than Australia. For this reason, we submit that the Australian Space Agency should consider partnering with the FAA CST and other similar agencies globally to establish more accurate risk assessment methodologies that encompass legal, as well as technical dimensions.

60. We note that when Australian entities contract for launches of their payloads overseas, often the 'Launch Services Agreement' with the launch broker, or with the launch provider directly, will involve insurance and/or indemnification in favour of the payload owner. This should be a specified factor for the Minister to consider in determining whether the Australian insurance requirements should continue to apply (see sect 46B(2)(a)(ii)).

UNADDRESSED ISSUES

61. Annex 1 below lists five broad issues identified in the reports (*Freeland Report*, *Legislative Proposals Paper*, *Clark Report* and *Government Response to RASIC*).

Establishment and Role of Australian Space Agency

[Items 56 to 63, Annex 1]

62. The government agreed to initially establish the Australian Space Agency within the Department of Innovation, Industry and Science and to consider a statutory basis for the agency on completion of a review that will commence within four years of the commencement of its operations (so, before 30 June 2022). Assuming that it will have a statutory basis, it would be appropriate to set out, in broad terms, the functions of the agency in the legislation establishing it. Those functions would include, consistent with the *Clark Report* and the *Government Response to RASIC*, community engagement and industry engagement, including in public/private partnerships, where appropriate. The four year interval period would also provide the Australian Space Agency the opportunity to “Undertake a broad review of all of the Australian legislative instruments that are relevant to civil space activities, in order to determine how the administrative and regulatory functions of the relevant agencies under this framework could be more closely aligned.” (Option 16, *Freeland Report*) and to work with other government agencies to streamline the application of regulatory processes to the Australian space community in a collaborative approach.

Funding and collaboration

[Items 73 to 76, Annex 1]

63. The *Government Response to RASIC* seeks to promote growth in the Australian space industry through a carefully prepared investment plan by the Australian Space Agency to ensure maximum returns on investment. The prospective Space Industry Development Fund could invest in, among other things, innovation in the regulatory framework. Innovation need not be confined to equipment. As discussed above at para 19, innovative regulatory frameworks potentially offer local solutions to global challenges. An Australian-made regulatory framework potentially represents at least a means of influence in respect of those who wish to emulate our success, an opportunity to shape the global space community in our interests, an attractive environment for foreign enterprises in which to operate and potentially something saleable.

64. There are two initiatives that we wish to propose to the Committee. First, by way of analogy, we note that the global civil aviation industry is regulated, in part, by ‘Standards and Recommended Practices’ (SARPs), which are settled by a committee of member states within the International Civil Aviation Organisation (ICAO). Once the SARPs are settled, they apply in international airspace and all nations are expected either to apply the SARPs within their own airspace or formally file ‘differences’ indicating how and why they cannot apply SARPs in their jurisdictions. Commonality across the globe in civil aviation regulatory standards is a foundation for the success of the global civil aviation industry. Unfortunately, nothing like ICAO exists for space and it is unlikely, in the political environment today, that a new international institution for space could be agreed upon, nor that the United Nations Office of Outer Space Affairs could take on the role. However, in the context of the Committee on the Peaceful Uses of Outer Space (COPUOS) Australia could contribute and develop ‘model legislation’ for new space-faring nations and seek to achieve commonality on that basis, consistent with Australia’s national interests.

65. Secondly, and finally, Australia is developing an array of Space Situational Awareness (SSA) sensors and expertise in their use. The next step beyond SSA is Space Traffic Management, for which SSA is a key foundation. In light of the increasing congestion in Earth orbits, particularly with the launch of thousands of small satellites, we believe that STM will become a strategically critical ‘gatekeeper’ function. STM requires multi-disciplinary development: research of orbital dynamics; industrial development into technological solutions; establishing the economic business case; and also a regulatory regime that facilitates STM. Australia could offer all of some of that and thereby put ourselves centrally in this critical gatekeeper function.

CONTRIBUTORS

66. In a personal capacity (unless stated otherwise):

- **Duncan Blake** is Chair of ANZSLIG. He was a permanent RAAF Legal Officer for 22 years, working at the tactical, operational and strategic levels, predominantly on Air Force and joint operations law issues. He has founded and chaired the inter-departmental and an inter-governmental (international) working groups on space law. He has been the legal advisor on space law issues for the Department of Defence's for almost a decade and continues to do so in a Reserve capacity. In a non-legal capacity for Defence, he managed the development of a strategy for the Department's use of space for the next 15 years, which involved broad consultation with industry. He has a Masters degree specifically in space law from McGill University, Montreal and is undertaking PhD research in space law with the University of Adelaide. He is also a member of the Advisory Council for the Space Industry Association of Australia and a consultant with International Aerospace Law & Policy Group.
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- **Scott Schneider** is an Academic Coordinator with the Space Studies Program for the International Space University and assists the Chair of the Space Industry Association of Australia.

ANNEX 1— Survey of government reports and implementation of outcomes in this Bill

	Addressed (Bill) / Pending / Unaddressed	Submission	Freeland Report	Legislative Proposal Paper	Clark Report	Government Response to RASIC
	A. Bill					
1.		Paras 20 to 23 Paras 37 to 40		Find 4.1: The [existing] Act is considered not well suited to the changing operating environment for space, and is not conducive to providing an appropriate environment for innovation and investment in the sector.		Res 7(a): The Australian Government has undertaken a review of the <i>Space Activities Act 1998</i> and is implementing amendments to streamline the Act, including removing barriers for undertaking space activities. The revised Act is expected to be introduced into the Parliament in 2018.
2.	Title <i>Space Activities (Launches and Returns) Act 2018</i> An Act about space activities and high power rockets, and for related purposes	Paras 29 to 30 Paras 37 to 40		Find 4.2 (a): The complex structure of the current legislation introduces an unnecessary level of inflexibility, resulting in inefficiencies for both applicants and administering agencies. Achieving the desired reforms through amendment of existing instruments is likely to be problematic and produce lesser outcomes, therefore drafting new legislation and associated instruments is the preferred option.		
3.		Paras 29 to 30 Paras 37 to 40		Prop 4.2.1: That new (rather than amendments to existing) legislation be developed which provide a higher level of flexibility and responsiveness in meeting stakeholder needs and at the same time achieve desirable Government outcomes.		
4.		Paras 29 to 30	Op 1: Amend the title of the Act in the event that it no longer clearly and accurately reflects the purpose for which the Act is intended.	Find 4.5: The generic title of the existing Act conveys the impression that the legislation addresses all space activities undertaken within Australian territory, causing unnecessary misunderstandings.		
5.		Paras 29 to 30		Prop 4.5.1: For the title of the new Act to be a variant on the <i>Space Activities Act</i> reflecting its purpose to regulate the launch and return of space objects. For example: <i>Space Activities (Launches and Returns) Act</i> .		
6.	Objects of Act Sect3	Para 31	Op 2: Include an additional object(s) in section 3 of the Act in the event that the existing objects no longer clearly and accurately fully reflect the purpose for which the Act is intended.	Prop 4.3.1: That the purpose of the legislation remains the same.		

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7.		Para 31		Prop 4.4.1: That the objects of the legislation be streamlined, to emphasise appropriately balancing risk and Australian benefit, including a focus on Australia's international obligations and the establishment of a system of regulation for those activities.		
8.		Para 31		Find 4.3: The purpose of the existing Act remains relevant to Australia's ongoing legislative requirements and should remain largely unchanged: [that is] To reflect in national law Australia's obligations as a party to the key United Nations' space treaties and thereby provide a legally certain and predictable environment for the development and operation of Australian space launch activities.		
9.		Para 31		Find 4.4: The objects of the existing Act remain relevant and should remain largely unchanged.		
10.	Subordinate legislation (Rules) Sect 110	Paras 32 to 35		Find 4.2 (b): To improve flexibility and enable timely responses to ongoing technology change, the structure of a new regulatory framework should include an appropriate mix of primary and subordinate instruments.		
11.				Prop 4.2.2: Subordinate instruments may deal with more operational issues such as, for example, the application process/requirements.		
12.	Broader discretion to relieve applicants of regulatory compliance obligations Item 11 – Removal of 'approved scientific or educational organisation' Part 3 Div 6A Compare Sects 28(3)(b), 38(2)(b), 46B(2)(a)(ii), 46L(2)(b) Sect 59(6)	Paras 41 to 43	Op 4: Simplify the application process by which an educational institution, a scientific organisation or a non-profit body may seek a declaration that they are an approved scientific or educational organisation for the purposes of the Act.			
13.		Paras 41 to 43	Op 5: Expand the eligibility criteria of organisations that may seek a declaration that they are an approved scientific or educational organisation for the purposes of the Act.	Find 4.9 (a): To encourage innovation and allow relevant activities to be undertaken by a range of entities (including commercial firms), consideration may be given to the rules for obtaining approval as a scientific or educational organisation being amended to focus on the nature of the activity, rather than the type of organisation.		
14.		Paras 41 to 43	Op 8: Expand the range of those entities and individuals who may be able to qualify for a reduced fee schedule by virtue of being declared to be an approved scientific or educational organisation under the Act.			
15.		Paras 41 to 43	Op 9: Determine whether there may	Find 4.10 (a): Consider exemption	Rec7: In order for commercial	

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16.			be circumstances when it is appropriate to extend the power of the Minister to issue an exemption certificate covering specified conduct that may otherwise involve an application for an overseas launch certificate.	of certain activities from compliance with elements of the legislation. This may include activities performed by a private contractor on behalf of the Government for the purpose of national security or foreign relations, or launch activities conducted overseas under certain conditions.	entities and other participants to move quickly, that the Agency facilitates regulatory approval processes for small satellite launch facilities in Australia and the launch of Australian satellites overseas, and investigates opportunities to partner with appropriate international launch providers. SUPPORTED IN PRINCIPLE	
		Paras 41 to 43	Op 13: Clarify the circumstances where applicants may be eligible for an exemption from the insurance / financial requirements altogether.	Prop 4.10.1: That exemption in entirety from each of the authorisations and in addition, in relation to element/s associated with each authorisation, based on considerations including emergency, safety and liability be considered.		
	17. Broader regulatory discretion Sect 23 – varying or revoking launch facility licence Sect 25 Sect 26 Sect 27(f) Sect 28(5) Sect 33 – varying or revoking launch permit Sect 36 Sect 37(f) Sect 43 – varying or revoking high power rocket permit Sect 46 Sect 46B(4) Sect 46F – varying or revoking overseas payload permit Sect 46J Sect 46K(f) Sect 46P – varying or revoking return authorisation 46S Sect 46T(e) Sect 46U(3) Sects 19, 29, 39, 46C, 46V, but not prior to 46M	Paras 41 to 43			Rec7: In order for commercial entities and other participants to move quickly, that the Agency facilitates regulatory approval processes for small satellite launch facilities in Australia and the launch of Australian satellites overseas, and investigates opportunities to partner with appropriate international launch providers. SUPPORTED IN PRINCIPLE	Res 7(a): The Australian Government has undertaken a review of the <i>Space Activities Act 1998</i> and is implementing amendments to streamline the Act, including removing barriers for undertaking space activities. The revised Act is expected to be introduced into the Parliament in 2018.
	18. Stronger compliance provisions Sect 21 Sect 31 Sect 41 Sect 46D Sect 46M Sect 46N Sect 46W Sect 50 Sect 51 Sect 53 Sect 54 Part 6	Para 44				Res 7(b): The Australian Government will ensure it continues to meet its commitments, including those under international instruments relating to space and arms control.
19.	References to space-specific treaties Sect 8 – Definitions	Paras 0 to 13				Res 7(b): The Australian Government will ensure it continues to meet its commitments, including those under international instruments relating to space and arms control.

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20.	Intergovernmental agreement with Russia Item 23 – Removal		Op 19: Delete references to the ‘intergovernmental agreement with Russia’ in the Act, dependent on whether the instrument continues to be of relevance.			
21.	High power rockets Sect 8 – Definitions <ul style="list-style-type: none"> • Australian high power rocket permit • damage • high power rocket • insured amount • launch • launch party • third party Sect 9 – Related party Sect 13 – Launch of high power rocket from Australia Div 4 – Australian high power rocket permits Sect 41 – Breach of conditions is an offence Part 4A	Paras 45 to 46		Find 4.7 (b): Consideration should be given to activity (such as sub-orbital flights) conducted between the upper regulatory limit of controlled airspace legislated under the Airspace Regulations 2007 at 18km, in respect of the regulation of the flight of aircraft, and the lower regulatory limit of the Act which begins at 100km above sea level.		
22.	Launches from aircraft Sect 8 – Definitions <ul style="list-style-type: none"> • aircraft • Australian aircraft • Chicago Convention • launch vehicle [removed – Item 28] Sect 12 – Launch of space object from Australian launch facility, Australian aircraft or foreign aircraft in airspace over Australian territory Sect 52(2)(aa)	Paras 45 to 46	Op 6: Amend key definitions in section 8 of the Act so that it is more suited to developments in the area of alternate launching technology.	Prop 4.7.3: That the launch facility licence provisions include sea launch platforms based in Australian territory; while an Australian launch permit (or variant of it) include a launch from Australian vehicles in flight or (potentially) from Australian airspace.		
23.	Launches from mobile platform Sect 8 – Definitions <ul style="list-style-type: none"> • launch facility • responsible party Sect 13 Sect 14 Sect 38 Sect 46B Sect 75B Sect 84	Paras 45 to 46	Op 6: Amend key definitions in section 8 of the Act so that it is more suited to developments in the area of alternate launching technology.	Prop 4.7.3: That the launch facility licence provisions include sea launch platforms based in Australian territory; while an Australian launch permit (or variant of it) include a launch from Australian vehicles in flight or (potentially) from Australian airspace.		
24.	Expanded return authorisations Sect 8 – Definitions <ul style="list-style-type: none"> • responsible party • return authorisation Sect 15A – Return of space object outside Australia Part 3 Div 6 46M – where are the conditions 46N – no conditions (compare Sects 19, 29, 39, 46C, 46V, but not prior to 46M)	Paras 45 to 46		Prop 4.7.4: That DIIS consider cases of potential return of Australian launched payloads (without a launch vehicle) to Australia.		
25.	Separate launch facility and launch vehicle licences Sect 18	Para 47		Prop 4.7.8: For a list of ‘standard’ launch facilities to be prepared and made available (in either a subordinate instrument or		

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				elsewhere), to streamline the application process.		
26.	Debris mitigation strategy Sect 34 Sect 46G	Para 49	Op 15: Include a requirement in appropriate circumstances that a satellite operator has in place a suitable debris mitigation / deorbiting strategy that takes into account internationally recognised guidelines for the mitigation of space debris.	Prop 4.8.1: That consideration be given to the new Act including a high level statement committing applicants to consider the space environment. Detail on how this might be achieved may be provided in a subordinate instrument and/or guidance material. The ability for the Minister to provide exemption from this requirement is also proposed.		Res 7(b): The Australian Government will ensure it continues to meet its commitments, including those under international instruments relating to space and arms control.
27.		Para 49		Find 4.8 (a): Consider introduction of provisions to the legislation which commit Australian space actors to consider the space environment. In delineating clearly the strategic framework from operational aspects and to recognise the evolving international debate on space environmental management, specific operational requirements for implementation should sit in a subordinate instrument and/or operational handbooks/manuals which are able to be updated and revised more easily than the primary legislation.		
28.	Payload permit Sect 8 – Definitions <ul style="list-style-type: none"> overseas payload permit payload [removed – Item 36] Part 3, Div 5	Para 48 Paras 50 to 51		Prop 4.7.1: That introduction of a licence type to authorise payloads be considered.		
29.	Launch Safety Officer Sect 8 – Definitions <ul style="list-style-type: none"> Launch Safety Officer 	Paras 52 to 53		Prop 4.7.9: That the functions of the Launch Safety Officer and accident safety investigator remain.		
30.	Insurance and liability Sect 3(b) Sect 8 – Definitions <ul style="list-style-type: none"> liability period Sect 48(4)(a) Part 4 Part 4A	Paras 54 to 60	Op 10: Reduce the total amount of the insurance / financial requirements under the Act to accord with the standards set in the national laws of other countries.	Find 4.8 (b): The existing legislative requirements for insurance/financial cover are higher than the levels required by other space-faring nations and a potential inhibitor/disincentive to innovation and investment in Australia. An alternative approach which appropriately balances risk against broad Australian benefit may enable greater participation and innovation in the space sector.		Res 7(b): The Australian Government will ensure it continues to meet its commitments, including those under international instruments relating to space and arms control.
31.		Paras 54 to 60	Op 11: Introduce a graduated scale of insurance / financial requirements under the Act.	Find 4.8 (c): Consideration could be given to establishing scaled indemnity levels on the basis of a risk assessment process undertaken by the DIIS based on information provided by the applicant.	Rec7: In order for commercial entities and other participants to move quickly, that the Agency facilitates regulatory approval processes for small satellite launch facilities in Australia and the launch of Australian satellites overseas, and investigates opportunities to partner with appropriate international launch providers. SUPPORTED IN PRINCIPLE	
32.		Paras 54 to 60	Op 12: Delete references to ‘maximum probable loss’ in the Act.			
33.		Paras 54 to 60	Op 13: Clarify the circumstances			

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34.			where applicants may be eligible for an exemption from the insurance / financial requirements altogether.			
		Paras 54 to 60	Op 14: Conclude agreements or arrangements with other (potential) launching States under which that State(s) assumes liability, and indemnifies Australia, for any damage that a space object(s) may cause.		Rec7: In order for commercial entities and other participants to move quickly, that the Agency facilitates regulatory approval processes for small satellite launch facilities in Australia and the launch of Australian satellites overseas, and investigates opportunities to partner with appropriate international launch providers. SUPPORTED IN PRINCIPLE	
	35.	Paras 54 to 60		Prop 4.8.6: That DIIS consider cases, including the likelihood of cases, where Australia may be responsible under the Outer Space Treaty, but not liable under the Liability Convention.		
	36.	Guidance and transparency Sect 62(1) Sect 76(5)	Para 2827	Op 3: Amend the DIIS website to contain further information and guidance to potential applicants regarding the application and approval processes under the Act.	Prop 4.8.4: That access arrangements to the domestic register be updated and streamlined.	
	37.	Nuclear material Sect 30 – no substantive change Sect 46M – no substantive change			Prop 4.8.2: That consideration be given to applicants being required to indicate the presence of both fissionable material and nuclear power sources.	
38.	Delegation Sect 104 – no substantive change			Prop 4.11.1: That the ability for the Minister to delegate his powers, be provided for in the new legislation.	Rec7: In order for commercial entities and other participants to move quickly, that the Agency facilitates regulatory approval processes for small satellite launch facilities in Australia and the launch of Australian satellites overseas, and investigates opportunities to partner with appropriate international launch providers. SUPPORTED IN PRINCIPLE	Res 7(a): The Australian Government has undertaken a review of the <i>Space Activities Act 1998</i> and is implementing amendments to streamline the Act, including removing barriers for undertaking space activities. The revised Act is expected to be introduced into the Parliament in 2018.
B. Pending						
39.	Guidance	Para 2827	Op 3: Amend the DIIS website to contain further information and guidance to potential applicants regarding the application and approval processes under the Act.	Find 5 (a): Improve the ease of the application process and applicant understanding of compliance requirements by increasing guidance material available on DIIS' website.		
40.		Para 2827		Find 5 (a): Develop an online network of information which enables applicants access to consistent information on the Commonwealth's space regulation requirements, regardless of which agency is first contacted.		
41.		Para 2827		Prop 5.1: That DIIS coordinate summary information from the Australian Government (and make it available in one place).		
42.	Practice and procedure	Para 2827		Find 4.11 (c): Consider the introduction of systems which recognise certain information previously provided by an applicant		

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				(that does not require updating) in order to minimise duplication of effort.		
43.		Para 2827		Prop 4.11.3: That DIIS continue its current practice of utilising information already provided by an applicant with their permission; while requesting additional information as needed.		
44.		Para 2827	Op 7: Enable an application to be 'signed-off' by a delegate of the Minister, particularly in the case of multiple applications for the same project or space programs that require a quick timeframe and pose negligible risk.	Find 4.11 (a): Improve efficiency by transferring delegation for authorisation of low risk applications to senior departmental officials (noting that the Act already enables this option).		
45.	Rules	Para 25		Prop 4.7.2: That requirements currently outlined in the <i>Space Activities Regulations 2001</i> , which are more relevant to launch rather than establishment of a launch facility, be transferred to the proposed new 'Australian launch permit'.		
46.		Para 25		Prop 4.7.5: That the Flight Safety Code be retained, and refreshed in the future.		
47.		Para 25		Prop 4.7.6: To retain a framework whereby designated and protected assets can be identified on an as needed basis. Suggestions in relation to identification of assets are requested.		
48.		Para 25		Prop 4.7.7: That consideration be given to the drafting of a new subordinate instrument, for 'high altitude' activities as described/specified in the subordinate instrument.		
49.		Para 25		Prop 4.8.2: That consideration be given to applicants being required to indicate the presence of both fissionable material and nuclear power sources.		
50.		Para 25		Prop 4.8.3: Consideration be given to applicants having regard to the COSPAR Planetary Protection Policy, as appropriate.		
51.		Para 25		Prop 4.8.5: To allow greater flexibility in relation to updating as need arises, that consideration be given to insurance and fees being located in a subordinate instrument.		
52.		Para 25		Find 4.11 (b): Consider introduction of a staged application process which gives applicants early indication of the likelihood of meeting the requirements of the legislation.		
53.		Para 25		Prop 4.11.2: That provision be made in relation to payload and launch facility authorisations for		

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54.				establishing a phased application process.		
	Fees	Para 25	Op 8: Expand the range of those entities and individuals who may be able to qualify for a reduced fee schedule by virtue of being declared to be an approved scientific or educational organisation under the Act.	Prop 4.9.1: That an appropriate charging model be developed.		
55.		Para 25		Find 4.9 (b): That consideration be given to a sliding scale of fees for commercial (non-scientific/educational) activities; recognising the comparatively limited resources available to small firms. This may encourage participation, innovation and investment in the space sector.		
C. Unaddressed						
56.	Establishment and role of Australian Space Agency	Para 62			<p>Rec1: The Agency is responsible for the development of a national space industry strategy, and that strategy gives priority to areas that build on Australia's strengths and utilises national competitive advantage and capabilities, in particular:</p> <ul style="list-style-type: none"> communication technologies and services, satellite ground stations, and deep space communications network ground stations; Space Situational Awareness and debris monitoring as part of global networks; Positioning, Navigation, and Timing infrastructure to enhance the competitiveness of the broader economy including agriculture, transport, fisheries, emergency services, mining and oil and gas, and national security; the application of advanced integrated Earth observation satellite data for the benefit of all Australians and the broader economy, and to increase Australian exports of these services; research and development in areas of national strength to support Australian participation in joint space missions, space 	<p>Res 1(a), 3(a), 4(a): On 1 July 2018, the Australian Government will establish the Australian Space Agency on an ongoing basis ... with initial funding of \$26 million over four years.</p>

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					<p>tourism, and industry applications, for example, space and remote medicine, space physics, planetary science, astronomy, quantum communications and technologies, artificial intelligence, advanced antenna and sensor technology; and</p> <ul style="list-style-type: none"> robotics and autonomous systems for remote asset management on Earth and in space across the broader economy. <p>SUPPORTED</p>	
57.	Strategy					Res 1(a), 2(a): The Agency will prepare a national civil space industry strategy (the Strategy) that is aligned with the Government's current policy priorities.
58.						Res 1(b), 2(b): In developing the Strategy, the Australian Space Agency will take into consideration the priorities identified in this recommendation [Clark Report Rec1 and Rec2].
59.	Statutory basis	Para 62			<p>Rec3: The Government will establish a dedicated, ongoing, and whole-of-government statutory agency (the Agency) to realise Australia's civil ambitions in space, and that interim arrangements are made to establish the Agency immediately. The Agency will be responsible for civil space strategic policy direction setting, international representation, coordination of national civilian activities, and strategies to facilitate the growth of the Australian space industry sector as set out under the Agency Charter.</p> <p>SUPPORTED</p>	Res 3(b): The Australian Space Agency will be located within the Department of Industry, Innovation and Science. In addition, the Australian Space Agency will develop close linkages with federal departments and agencies as well as state and territory governments and international agencies to ensure a whole of government approach is taken in respect of civil space activities.
60.		Para 62				Res 3(c): The establishment of a statutory basis for the Australian Space Agency will be considered after a review of its operations that will commence within four years of the establishment of the Australian Space Agency.
61.	Role	Para 62			Charter: See below NOTED	<p>Res (Charter): [The Agency] will perform its functions as set out in the Agency's Charter, which will be finalised within three months of commencing operations.</p> <p>The Australian Government will draw on the advice provided in the report for the Charter of the Australian Space Agency to develop a high-level document to guide the activity of the Australian Space Agency. The Australian Space Agency is to</p>

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62.						finalise the Charter within three months of commencing operations.
	Community engagement	Paras 0 to 17 Para 62			Rec8: The Government gives priority to strategies that enable active engagement with Australian schools and the broader community on global space activities; space-related training and education to improve capability; space-inspired STEM outreach; and industry-led research collaboration to underpin the space industry. SUPPORTED IN PRINCIPLE	Res 8: The Australian Space Agency will consider appropriate strategies to address this recommendation [Clark Report Rec8].
	Industry engagement	Paras 18 to 19 Para 62			Rec9: In conjunction with the Government acting on these recommendations, we call on industry to play an important role in achieving the national goals and strategies for the Australian space industry by investing in innovation to remain globally competitive; engaging with the Agency in setting strategic priorities; exploring partnerships with small- and medium-sized companies to participate in global supply chains; collaborating with research institutions; and supporting competitions for development of innovative technology, applications, and skills. SUPPORTED	Res 9: The Australian Space Agency will actively engage with industry to support industry in achieving the aspirational goal to grow Australia's space sector.
	Whole-of-government coordination	Para 62	Op 16: Undertake a broad review of all of the Australian legislative instruments that are relevant to civil space activities, in order to determine how the administrative and regulatory functions of the relevant agencies under this framework could be more closely aligned.			
		Para 62	Op 17: Merge some specific administrative and/or regulatory activities under the broad Australian legislative framework for civil space activities into one of the relevant government agencies, where there is some overlap in functions.	Find 6: The Act needs to be recognised as part of a suite of Commonwealth space legislation. Strong interagency collaboration will help ensure that Australia's needs are appropriately addressed, while easing the regulatory burden on space sector participants.	Rec3: The Government will establish a dedicated, ongoing, and whole-of-government statutory agency (the Agency) to realise Australia's civil ambitions in space, and that interim arrangements are made to establish the Agency immediately. The Agency will be responsible for civil space strategic policy direction setting, international representation, coordination of national civilian activities, and strategies to facilitate the growth of the Australian space industry sector as set out under the Agency Charter. SUPPORTED	Res (preamble): ... there is no call for a space agency to subsume the operational and regulatory activities of other existing authorities.
66.		Para 62				Res 3(b): The Australian Space Agency will be located within the Department of Industry, Innovation and Science. In addition, the Australian Space Agency will

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67.						develop close linkages with federal departments and agencies as well as state and territory governments and international agencies to ensure a whole of government approach is taken in respect of civil space activities.
		Para 14 Para 62		Find 7: Commonwealth national security agencies work together and in consultation with regulatory agencies to develop a framework for assessment of national security and foreign relations matters. The framework could be anchored in the Act.		
	68.	Para 31			Rec6: The Agency works with other Government departments across a range of portfolio areas, such as agriculture, environment, and communications, to emulate the Australian Defence Innovation Hub Investment program and the US' SBIR and STTR programs to link both large and small business to the purchasing needs for civil Government projects and investments, including the space-related investments. SUPPORTED IN PRINCIPLE	Res 6(a): The Australian Space Agency will examine opportunities to link the Australian space industry to the purchasing needs of government, but the procurement requirements of individual portfolios will remain the priority.
	69.					Res 6(b): The Government has introduced a number of cutting-edge programs that facilitate government engagement with innovative businesses such as the Business Research and Innovation Initiative that can lead to greater opportunities for such businesses in government procurement processes and improved outcomes for government.
	70.	Public/private partnerships	Para 62		Rec9: In conjunction with the Government acting on these recommendations, we call on industry to play an important role in achieving the national goals and strategies for the Australian space industry by investing in innovation to remain globally competitive; engaging with the Agency in setting strategic priorities; exploring partnerships with small- and medium-sized companies to participate in global supply chains; collaborating with research institutions; and supporting competitions for development of innovative technology, applications, and skills. SUPPORTED	Res 9: The Australian Space Agency will actively engage with industry to support industry in achieving the aspirational goal to grow Australia's space sector.
71.		Para 62		Find 4.10 (b): There is a growing trend towards partnering between civil (commercial and/or research) and State operators (including		

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72.				military) to conduct activities. Legislation should have sufficient flexibility to recognise joint public/private partnerships.		
	Bill Sect 16			Prop 4.10.2: That the Australian Government be invited to be guided by the new legislation, as it considers appropriate. That the Government be invited to provide information consistent with that of a non- Government entity (as appropriate), when authorisation is in relation to a public/private partnership.		
	Funding and collaboration	Paras 63 to 65			<p>Rec4: The Government provides ongoing, core operational funding to the Agency to enable its establishment and effective operation ...</p> <p>SUPPORTED</p> <p>... with additional funding for an ongoing Space Industry Development Fund once the Agency is fully operational.</p> <p>This Fund will invest in: international partnerships to enable increased industry participation; industry-led collaborative research and development in the areas of strategic priority and leapfrog technologies; and support for national nodes in partnership with State and Territory governments and their industries. It will also provide early stimulus to national infrastructure such as enabling commercial ground stations and shared test facilities for satellite manufacture and equipment verification.</p> <p>NOTED</p> <p>The Government provides scope for the Agency to bring forward for dedicated funding every three to four years, major national space projects such as satellite projects, to meet national and international terrestrial and marine needs, and to participate in discovery science missions as part of international consortia and national space competition missions.</p> <p>SUPPORTED IN PRINCIPLE</p>	<p>Res 4(b): The Australian Space Agency will prepare a detailed investment plan for consideration by the Government as part of its Strategy for the development of the space industry within the first six months after it commences operation. This will include principles and models for space industry development, including providing the Government with its analysis of the costs and benefits of creating a Space Industry Development Fund.</p>
74.		Paras 63 to 65				<p>Res 4(c): The Australian Space Agency has the capacity to seek to bring forward requests for funding, including to support major space-related projects.</p>

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75.		Paras 63 to 65			<p>Rec5: The Government extends existing partnership and treaty-level agreements, and establishes new partnerships to increase the participation of Australian industry and research, particularly by:</p> <ul style="list-style-type: none"> strengthening partnerships in space to allow greater technology transfer and technology development in Australia; extending existing partnerships and treaty-level agreements, as well as promoting commercial arrangements to allow increased participation of Australian industry on missions; securing existing and establishing new ground stations and deep space communications centres in Australia; securing new partnership agreements with key space agencies and commercial partners in the global space sector, including in Asia and Oceania; and securing cooperation agreements for access to critical national Earth observation data, including for weather, land and oceans, and emergency and disaster management. <p>SUPPORTED</p>	<p>Res 5(b): The Australian Government is investing \$15 million over three years from 2019–20 to enable the Australian Space Agency to partner with international space agencies on strategic projects. This investment will provide Australian businesses opportunities to be involved in established international space programs.</p>
76.		Paras 63 to 65				<p>Res 5(a): The Australian Government will be proactive in its international engagement to build and develop its international partnerships relevant to the space industry, consistent with the Foreign Policy White Paper, in consultation with the Department of Foreign Affairs and Trade and other affected commonwealth agencies, and supported by the Australian Space Agency.</p>

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77.	Legislative renewal, innovation and currency	Para 36	Op 18: Provide for a periodic review of the Act in order to assess its ongoing effectiveness and suitability in relation to the regulation of Australia's space activities, particularly in light of any developing space-related technology and emerging space activities that may present commercial opportunities for the Australian space sector.	Find 4.7 (a): Disruptive technologies are rapidly changing the operating environment and replacement legislation should anticipate further changes, while at the same time continuing to ensure appropriate levels of societal protection.	Rec2: The national space industry strategy gives importance to emerging frontiers where Australia can leapfrog into areas of future competitive advantage, including the application of artificial intelligence, robotics, and big data analytics to space systems and space-derived information; next-generation communication technologies, including optical, hybrid optical radio, and quantum communications, to enable secure, broadband space-based communications; innovative sensors, antennae, and instrumentation. Australia should also take advantage of the global space technology paradigm shift towards constellations of miniaturised spacecraft for communications and Earth observations, and next-generation rocket and spacecraft propulsion systems. SUPPORTED	Res 1(a), 2(a): The Agency will prepare a national civil space industry strategy (the Strategy) that is aligned with the Government's current policy priorities.
	78.	Para 36				Res 1(b), 2(b): In developing the Strategy, the Australian Space Agency will take into consideration the priorities identified in this recommendation [Clark Report Rec1 and Rec2].

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ANNEX 2— Proposed Agency Charter

Purpose of the Agency

The Australian Space Agency ('Agency') will be the front door for Australia's international engagement in space, operate as the national priority-setting mechanism for space, enhance Australia's domestic coordination in space and, supported by world-class science and research, facilitate the growth and maturing of the Australian space industry sector. It will provide a single, whole-of-government voice for Australia's civil activities and ambitions in space. The Agency will ensure that Australia's activities and ambitions in space contribute to productivity, competitiveness and employment across the Australian economy, further enhance and secure new knowledge and capability, and benefit and inspire all Australians.

Roles and Responsibilities of the Agency

To act as a single focal point by:

- Developing and implementing an International Engagement Plan which sets out critical international and national partnerships consistent with Australia's national objectives;
- Working on international and national civil space projects in cooperation and collaboration with national industry and the research sector;
- Ensuring access to space data sets that critically underpin the security and integrity of national infrastructure, emergency and weather services; and,
- Maintaining knowledge and expertise to act both as a trusted advisor to government on space- related activities and as a trusted broker to the broader space sector, in order to facilitate appropriate space-related activities.

To act as a whole-of-government agency and a single voice by:

- Coordinating whole-of-government and inter-government policy to provide a single voice for the Australian civil space sector activities and ambitions;
- Determining and recommending to Government where civil space-related government investment could best be directed across the Commonwealth. This includes ensuring that States and Territories and agencies within the national space community have appropriately integrated strategies that are aligned with the National Space Industry Capability Plan (see below);
- Ensuring appropriate alignment to national defence and security policy;
- Regulating Australian space activities under the *Space Activities Act 1998* (Cth), or any replacement and/or amended civil space legislation, and aligning the national regulatory framework for space-related activities as far as possible with other relevant legislative frameworks;
- Coordinating national space regulation in a way that provides certainty for business, minimises regulatory burdens and bureaucratic red-tape and otherwise assists the growth of the industry sector and maximises industry's ability to innovate, including through collaboration between the industry and research sectors;
- Leading negotiations regarding relevant bilateral and international civil space, which may include specific technology safeguards agreements;
- Supporting the Department of Foreign Affairs and Trade as required from time to time on international treaty processes, legal, security and bilateral trade relations, and the continued implementation of Australia's commitments under the five UN Space Treaties so as to help build and support widely accepted behavioural norms in space; and,
- Ensuring that Australia's interests are fully represented at appropriate international forums on space and space-related activities.

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To grow Australia's space industry sector by:

- Developing and leading Australia's national policy and strategy to expand the space sector and
- to help further diversify and grow the Australian economy;
- Consulting with the heads of relevant agencies, departments, State and Territory Governments, industry, the science and research community and other relevant stakeholders as it develops the national strategy and policy;
- Developing and implementing a National Space Industry Capability Plan⁹¹ that identifies existing opportunities for Australia, as well as new and emerging areas where Australia could become a world leader, and which ensures that the interests of Australian business remain at the forefront of Government policy directed towards space-related activities;
- Developing and proposing, as part of the national policy and strategy, capital investment every 3-4 years in a major space mission, which may include national satellite projects that help meet national terrestrial and marine needs and/or discovery science missions; and,
- Encouraging close and effective Commonwealth-State cooperation in the development of Australia's space industry capabilities.

To provide an effective evidence base for Australia's space capability and industry by:

- Collecting data and reporting every [two] years on the capability of Australia's space industry,
- including clear evidence of performance in the space sector, national research strengths, ground and space assets and space sector ecosystem mapping;
- Ensuring that data and analysis provided to Government represents a more effective evidence base for the design, delivery and evaluation of Government-supported programs in space;
- Providing an Annual Report to Parliament on Australia's civil space sector which will include an evidence base for assessing progress against the performance measures set out in the national policy and strategy; and,
- Developing and publishing every [two] years a Capability Directorate of the national civil space sector.

To inspire the nation by:

- Effectively communicating Australia's role in space and its importance to the Australian economy, and improving the security, safety and living standards of all Australians;
- Strengthening the connection that children and young people and their parents have to space, sparking their curiosity and entrepreneurial spirit and expanding their knowledge and interest in space and STEM subjects;
- Cultivating the next generation of Australian space professionals by promoting space education and projects in the community and supporting the jobs of the future in space-related sectors and the use of space technology in the broader economy;
- Setting appropriate national workforce goals for the engagement of Australian space professionals for the next 5, 10 and 50 year timeframes; and,
- Building national pride in Australia's role in space missions, satellite projects and discovery science missions.

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Structure and Governance

The Space Agency is a whole-of-government entity. It will be established immediately under interim arrangements to transition to a statutory agency as soon as practical, with its Charter embedded in enabling legislation. It will be led by a Head of the Agency ('Agency Head') under the following terms:

- The Agency Head is appointed by Minister with portfolio responsibility for civil space activities;
- The Agency Head will seek appropriate advice through the establishment of a Space Industry Leaders Group and a National Space Advisory Forum;
- The Agency Head is supported by a Steering Board responsible to the Minister for oversight and advice to the Minister on the appointment of the Agency Head, strategy, governance and performance of the Agency. The Steering Board will meet at least quarterly and will comprise four independent members, one of whom will be the Chairperson and two of which will have relevant industry skills and expertise. It will also include the Secretary of the relevant portfolio department or their deputy who has responsibility for the Agency, and the Agency Head; and,
- The Agency Head will report twice yearly to the relevant sub-committee of Cabinet to support its role as a whole-of-government agency.